0000173992

Southline Transmission, LLC

New Application for a Certificate of Environmental Compatibility

L-00000AAA-16-0370-00173

PART 5 OF 5

BARCODE # 0000173992

To review Parts 1-4 please see:

BARCODES # 0000173988 through 0000173991

Arizona Corporation Commission
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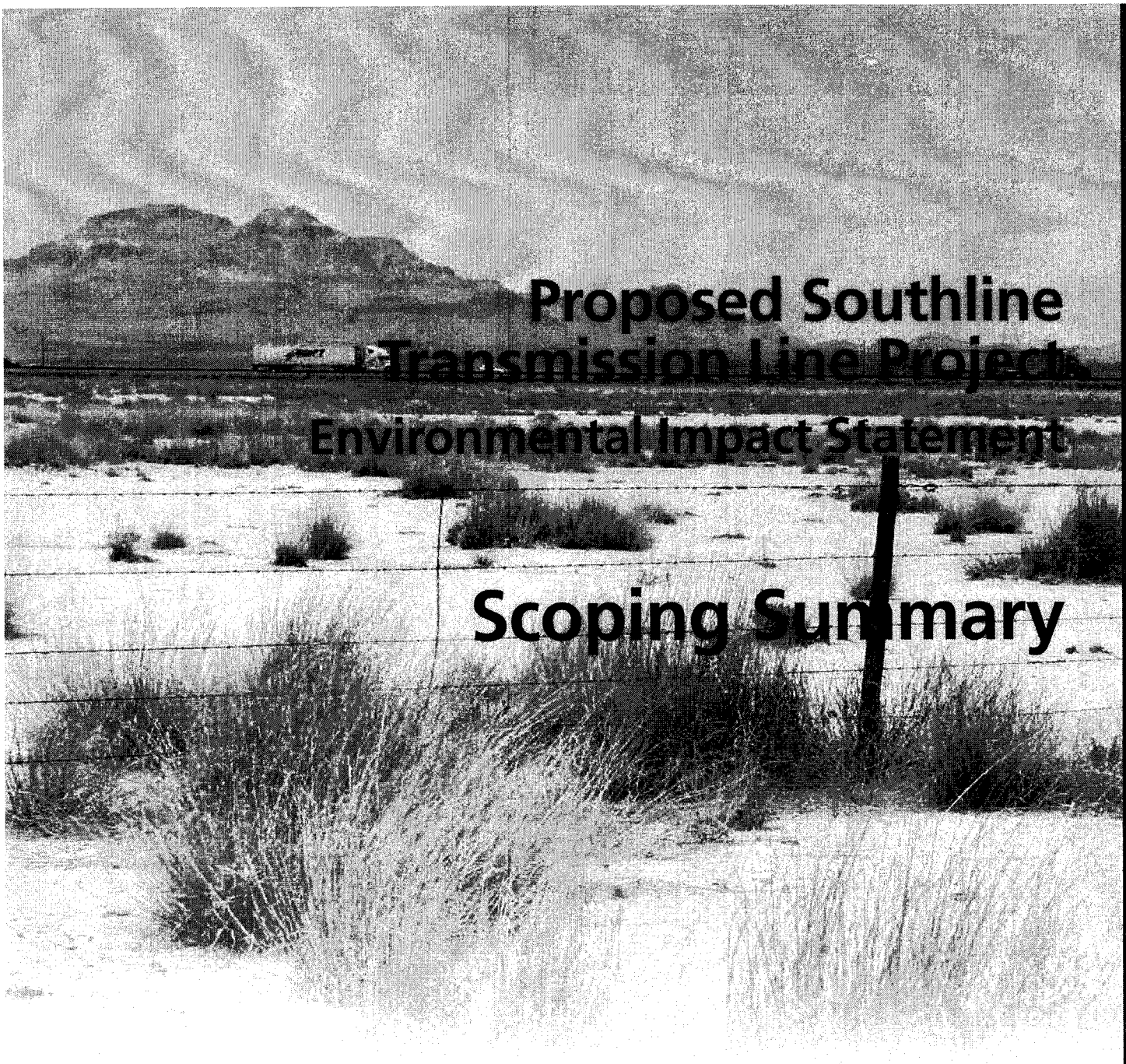

BLM

WESTERN

Proposed Southline Transmission Line Project Environmental Impact Statement

Scoping Summary

September 2012

Western AREA POWER ADMINISTRATION

National System of Public Lands
U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

Corrected Table 6 and Table 8.

This document contains the updated tables for the Southline Transmission Line Project EIS Scoping Summary. The change is due to a typographical error in the number totals identified within these tables. This document supersedes the August 2012 version.

Corrected information in Section 5 – Future Steps in the EIS Process.

This section was updated to remove specific dates from the future steps in the EIS process as these dates are subject to change and are represented in the project schedule as ranges in time.

PROPOSED SOUTHLINE TRANSMISSION LINE PROJECT ENVIRONMENTAL IMPACT STATEMENT

SCOPING SUMMARY

Prepared for

Bureau of Land Management
New Mexico State Office
301 Dinosaur Trail
Santa Fe, New Mexico 87508
(505) 954-2000

and

Western Area Power Administration
12155 West Alameda Parkway
P.O. Box 281213
Lakewood, Colorado 80228
(720) 962-7448

Prepared by

SWCA Environmental Consultants
3033 North Central Avenue, Suite 145
Phoenix, Arizona 85012
(602) 274-3831
www.swca.com

September 2012

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1.0 INTRODUCTION

Southline Transmission, LLC (Southline), applied to the Bureau of Land Management (BLM) for a right-of-way (ROW) on public land to construct a high-voltage electric transmission line and associated facilities in southern New Mexico and southern Arizona. The proposed Southline Transmission Line Project (Project) would consist of a "New Build" Section and an "Upgrade" Section. The New Build Section would involve the construction of approximately 240 miles of new 345-kilovolt (kV) double-circuit electric transmission line in New Mexico and Arizona. The New Build Section would connect the existing Afton substation south of Las Cruces, New Mexico, to the existing Apache substation south of Willcox, Arizona. The Upgrade Section would involve rebuilding approximately 120 miles of existing 115-kV transmission lines to 230-kV lines in Arizona between the Apache and Saguaro Substations in Arizona. The Upgrade Section would be located in existing ROW administered by Western Area Power Administration (Western). Approximately one-third of the Project would cross public lands administered by the BLM. The Project would also cross a small segment of land administered by the U.S. Forest Service, some privately owned lands, and some State-owned lands.

Consideration of this ROW application is a major Federal action requiring compliance with the National Environmental Policy Act (NEPA) of 1969. To comply with the requirements of NEPA, an environmental impact statement (EIS) is being prepared to disclose the potential environmental impacts associated with the Project's construction and operation and to consider alternatives to Southline's proposed action. This EIS process will inform the public and agencies about the potential impacts the Project may have on human and natural resources.

The BLM New Mexico State Office and Western are joint lead agencies for the preparation of this EIS. Western is a power-marketing agency within the Department of Energy and is proposing to participate in the proposed Project with Southline. Participation will be determined through environmental, operational, and financial agreements that would define the respective rights and obligations of the parties as well as the ownership of the transmission capacity associated with the Project.

1.1 Background Information

A notice of intent (NOI) to prepare the EIS was published in the Federal Register on April 4, 2012. Posting of the NOI initiated a 60-day public and agency scoping period, during which the public has the opportunity to provide input on potential issues to be addressed in the EIS (an extension of this scoping period is discussed in Section 1.1.1, "Scoping Extension," below). The BLM and Western held two agency scoping meetings for the EIS (one in Las Cruces, New Mexico, and one in Tucson, Arizona) and six public meetings (three in New Mexico [Las Cruces, Deming and Lordsburg] and three in Arizona [Willcox, Benson, and Tucson]) (Table 1, Figure 1).

These meetings served to provide information on project planning activities to date and to give agency personnel and members of the public the opportunity to ask questions or make comments. Presentations were given at each meeting by the BLM National Project Manager, Tom Hurshman, and a representative of the project proponent, Doug Patterson. Western staff members were also available at the meetings for questions, as were staff members from BLM's Las Cruces, Safford, and Tucson Field Offices and staff members from Southline. Meeting attendees were encouraged to ask questions and were allowed to provide oral comments after the presentation. However, BLM asked attendees to submit their comments in writing, as no court reporter was present and the meetings were not recorded.

Table 1. Agency and Public Scoping Meetings

Date	Time	City, State	Address	Number of Attendees
Agency Scoping Meetings				
May 8, 2012	10:00 am	Las Cruces, New Mexico	Mesilla Valley Days Inn and Suites 901 Avenida de Mesilla	18
May 17, 2012	10:00 am	Tucson, Arizona	National Advanced Fire and Resource Institute 3265 East Universal Way	24
Public Scoping Meetings				
May 8, 2012	5:30 pm	Las Cruces, New Mexico	Mesilla Valley Days Inn and Suites 901 Avenida de Mesilla	22
May 9, 2012	5:30 pm	Deming, New Mexico	Mimbres Valley Special Events Center 2300 East Pine Street	30
May 10, 2012	5:30 pm	Lordsburg, New Mexico	Dugan-Tarango Middle School 1352 Hardin	20
May 15, 2012	5:30 pm	Willcox, Arizona	Quality Inn 1100 West Rex Allen Drive	20
May 16, 2012	5:30pm	Benson, Arizona	Benson Unified High School 360 South Patagonia Street	22
May 17, 2012	5:30pm	Tucson, Arizona	Palo Verde High Magnet School 1302 South Avenida Vega	31

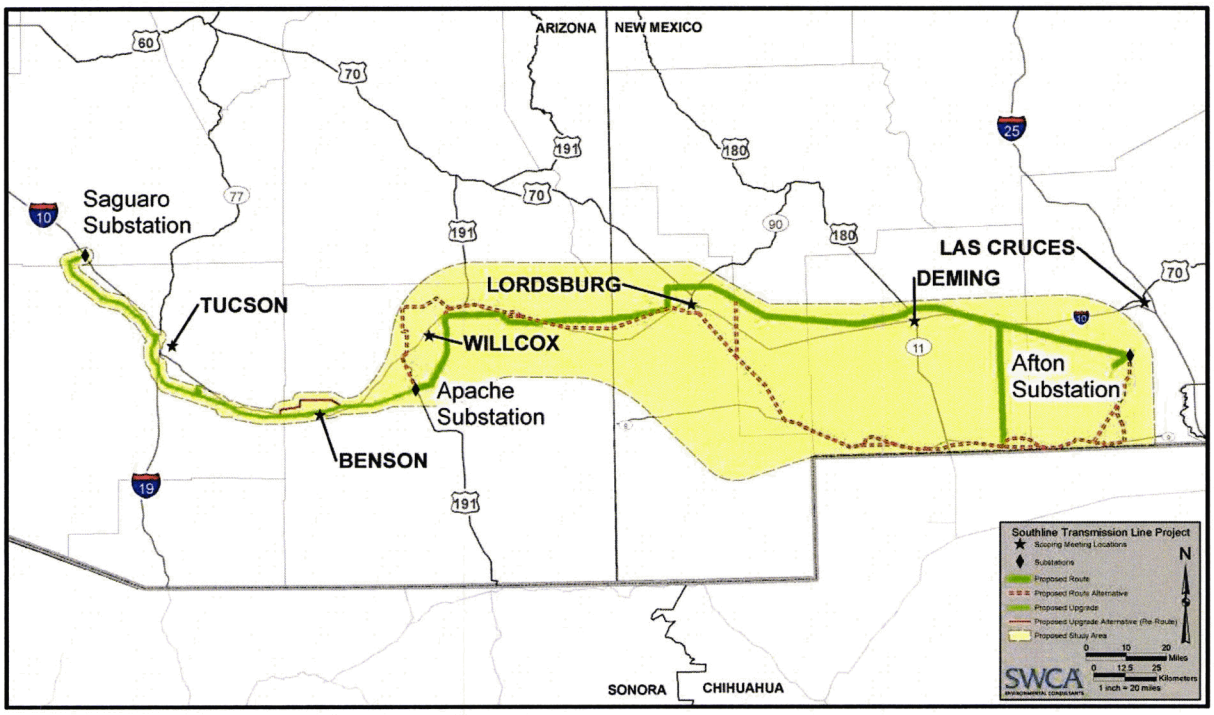


Figure 1. Locations of scoping meetings held in May 2012.

1.1.1 Scoping Extension

As a result of public requests for an extension of the 60-day scoping comment period (ending on June 5, 2012), the scoping comment period was extended by 30 days (ending on July 5, 2012). Notification of the 30-day extension was disseminated via Internet news release and email. The comments received during the 90-day scoping period will become part of the administrative record and will be included in the EIS analysis.

1.2 Proponent Stakeholder Outreach

Though not required as part of the NEPA process, Southline conducted a series of pre-scoping meetings and workshops in September 2011. The meeting goals were to give the public early notification and begin to work with interested stakeholders on routing options. Southline hosted public meetings in Deming and Lordsburg, New Mexico (September 21–22); in Willcox, Tucson, and Marana, Arizona (September 27–29); and in Benson, Arizona (November 10). Routing workshops were hosted in Deming, New Mexico (September 22), and Tucson, Arizona (September 28).

Southline also participated in meetings with county commissioners and supervisors from Hidalgo County in New Mexico and Cochise and Pima Counties in Arizona. In addition, Southline participated in a meeting with a council member from Tucson, Ward 1, in September 2011.

Although these meetings are not part of the formal NEPA process, they helped to identify stakeholder issues, potential alternatives, and analysis methodology efforts. These meetings also resulted in the collection of vital information important to the proposed project proponent, the agencies, and the NEPA process. Southline used information from their stakeholder outreach to develop their proposed project description (proposed action) and an alternative route. This information was submitted to BLM and Western in the format of a Routing Report and modification to the project Plan of Development.

2.0 SCOPING PROCESS

The purpose of scoping is to provide an opportunity for members of the public to learn about the proposed project and to share any concerns, pertinent information, or comments they may have. Input from the public scoping process is used to help the BLM and Western identify issues and concerns to be considered in the EIS, as well as identify potential alternatives. In addition, the scoping process helps identify any issues that are not considered relevant and can therefore be eliminated from detailed analysis in the EIS. The list of stakeholders and other interested parties is also updated and generally expanded during the scoping process.

This scoping summary is intended to outline the efforts taken by the BLM and Western to solicit feedback from the public, as well as aid in clarifying preliminary issues, concerns, and opportunities, determining the appropriate scope of environmental analysis, and gathering input on alternatives development from comments received. The document summarizes public and agency comments received during the scoping period, describes the analysis of those comments, and provides a preliminary list of issues, concerns, and opportunities for analysis in the EIS. All substantive issues raised by respondents within the scope of the BLM's and Western's decisions will be included in the EIS, as will other resource categories and issues that are required by BLM or Western but that were not mentioned specifically by respondents.

As described in Section 1.1 of this document, the scoping process used for this EIS was initiated by publication of an NOI in the Federal Register on April 4, 2012.

2.1 Advertising of Public Meetings

The scoping meetings were advertised in a variety of formats, beginning at least 2 weeks prior to their scheduled dates (Tables 2–4). In each format, the advertisements provided public meeting logistics, explained the purpose of the public meetings, gave the schedule for the public scoping comment period, outlined additional ways to comment, and provided methods for obtaining more project information.

Table 2. Meeting Notification Methods and Dates

Publicity Item	Venue and Date
Notice of Intent	Federal Register – April 4, 2012
Newspaper Ads	*Las Cruces Sun-News* – April 20 and May 4, 2012 *The Deming Headlight* – April 20 and 27, 2012 *Hidalgo County Herald* – April 19 and May 3, 2012 *San Pedro Valley News-Sun* – April 19 and May 3, 2012 *Arizona Daily Star* – April 20 and May 7, 2012 *Arizona Range News* – April 25 and May 2, 2012 *The Eastern Arizona Courier* – April 29 and May 9, 2012 *The Explorer* – May 9, 2012
Email Distribution	Email to BLM Stakeholder List – April 27, 2012 – Agency and public scoping notification (603 recipients) June 4, 2012 – Notification of extended comment period (790 recipients) June 28, 2012 – Notification of scoping comment period end date (788 recipients)
Postcard Distribution	U.S. Postal Service (Public and agency recipients) – April 23, 2012 – Agency and public postcard notice (626 recipients) April 25, 2012 – Agency and public postcard notice (64 recipients) May 1, 2012 – Notification to permittees (206 recipients)
BLM Web Site	http://www.blm.gov/nm/st/en/prog/more/lands_realty/southline_transmission.html Posting of the meetings at least 15 days prior to the meetings

Table 3. News Release Media Distribution

New Mexico Media Outlet	Arizona Media Outlet
Las Cruces Sun-News (Las Cruces)	*San Pedro Valley News-Sun* (Benson, St. David, Pomerene, Cascabel, Mescal, J-Six, Dragoon)
The Deming Headlight (Luna County, Deming)	*Arizona Daily Star* (Tucson and southern Arizona)
Hidalgo County Herald (Hidalgo County, Lordsburg)	*Arizona Range News* (Willcox, Sunsites, San Simon, Bowie, Cochise, Dragoon)
	The Eastern Arizona Courier (Safford area)
	The Explorer (Marana, Oro Valley, Northwest Tucson)

Table 4. Newspaper Advertisements

Publication Date	Newspaper
April 19, 2012	*Hidalgo County Herald*
April 20, 2012	*Las Cruces Sun-News* *The Deming Headlight* *Arizona Daily Star*
April 25, 2012	*Arizona Range News* *San Pedro Valley News-Sun*
April 27, 2012	*The Deming Headlight*
April 29, 2012	*The Eastern Arizona Courier*

Table 4. Newspaper Advertisements (Continued)

Publication Date	Newspaper
May 2, 2012	*Arizona Range News*
May 3, 2012	*Hidalgo County Herald*
May 4, 2012	*Las Cruces Sun-News*
May 7, 2012	*Arizona Daily Star*
May 9, 2012	*San Pedro Valley News-Sun* *The Eastern Arizona Courier* *The Explorer*

2.2 Meeting Setup

The BLM and Western hosted six public scoping meetings and two agency scoping meetings for the proposed Project (see Table 4). The meetings were conducted in an open house format with a PowerPoint presentation and question and answer period following the presentation.

The open house format and presentation were designed to allow attendees to view informational displays, hear a presentation of the Project and summary of the NEPA process, allow members of the public to ask agency staff about the proposed action and the EIS process, and submit written or verbal comments onsite.

Meeting attendees were asked to sign in upon entering, at which time they were provided with handouts and informed of the meeting format and how to comment at the meeting. The handouts (i.e., comment form, newsletter, and contact card) and informational displays provided information about the following:

- NEPA and the EIS process;
- Agency purpose and need;
- Project background;
- Location maps;
- Similarities and differences between the Southline and SunZia Southwest Transmission Project;
- Potentially affected resources and issues to be analyzed in the EIS; and
- How to provide comments to the BLM and Western.

Additionally, an interactive geographic information system (GIS) mapping station was available for meeting attendees to view the project area and provide comments about specific locations within the study area.

2.3 Opportunities for Public and Agency Comment

Members of the public and agencies had several methods for providing comments during the scoping period:

- Comments could be handwritten on comment forms at the scoping meetings. Comment forms were provided to all meeting attendees and were also available throughout the meeting room, where attendees could write and submit comments during the meeting.
- Emailed comments could be sent to a dedicated email address: BLM_NM_Southline@blm.gov.

- Individual letters and comment forms could be mailed via U.S. Postal Service to:
    - Bureau of Land Management
      Las Cruces District Office
      Southline Transmission Project
      Attention: Frances Martinez
      1800 Marquess Street
      Las Cruces, New Mexico 88005

All comments were given equal consideration, regardless of method of transmittal.

2.3.1 Cooperating Agencies

As defined by Council on Environmental Quality regulations, a cooperating agency, or cooperator, is an agency that has special expertise with respect to an environmental issue and/or has jurisdiction by law. Federal, State, and local agencies that have clear jurisdiction over portions of the proposed project routes were invited via formal letter to become a cooperator in the preparation of the EIS. Tribal governments were also invited to participate in the Project as a cooperating agency and to provide special expertise with respect to environmental issues.

The role of a cooperator is to participate in the process and provide leadership, expertise, guidance, and review, as well as to offer information related to the agency's authority. Cooperators were asked to submit a signed memorandum of agreement that identifies the agreed-upon responsibilities for preparing and participating in the EIS, including activities outlined in 40 Code of Federal Regulations (CFR) 1501.6(b). A cooperator could be a Federal, State, tribal, or local agency with jurisdiction by law or special expertise with respect to an environmental issue. An invitation letter was sent to potential cooperators listed below.

Agencies invited to be cooperators included:

- U.S. Air National Guard,
- U.S. Army Corps of Engineers,
- U.S. Bureau of Indian Affairs,
- U.S. Bureau of Reclamation,
- U.S. Customs and Border Patrol,
- U.S. Department of Defense (Fort Huachuca, Davis-Monthan Air Force Base, National Guard),
- U.S. Department of Homeland Security,
- U.S. Environmental Protection Agency,
- U.S. Fish and Wildlife Service,
- U.S. Forest Service,
- National Park Service,
- Arizona Corporation Commission,
- Arizona Department of Environmental Quality,
- Arizona Department of Transportation,
- Arizona Game and Fish Department,

- Arizona State Historic Preservation Office,
- Arizona State Parks Department,
- Arizona State Land Department,
- New Mexico State Land Office,
- New Mexico Department of Game and Fish,
- New Mexico Environment Department,
- New Mexico State Historic Preservation Office,
- New Mexico State Parks Division, and
- Native American Tribes

Agencies that agreed to participate in the project as a cooperator include the following:

- U.S. Army Corps of Engineers
- U.S. Department of Defense Clearinghouse
- U.S. Environmental Protection Agency
- U.S. Department of Defense Fort Huachuca
- National Park Service
- U.S. Forest Service (Coronado National Forest)
- U.S. Fish and Wildlife Service
- Arizona Department of Game and Fish
- Arizona State Land Department
- New Mexico Department of Game and Fish
- New Mexico State Land Office
- Cochise County
- Greenlee County
- Doña Ana County

2.3.2 National Historic Preservation Act and Tribal Consultation

The BLM serves as the lead agency for compliance with Section 106 of the National Historic Preservation Act (NHPA), which requires Federal agencies to consult with the public and tribes on the identification of historic properties and the impact that the agencies' undertaking may have on these properties. Western participates with the BLM in this consultation. BLM's consultation with the tribes is conducted on a government-to-government basis, as prescribed by executive orders and legislation, including the American Indian Religious Freedom Act, Archaeological Resources Protection Act, NEPA, and Executive Order 13007. Government-to-government consultation is conducted in accordance with guidance provided in BLM Manual 8120. Consultation efforts are coordinated by the cultural resources team lead from the New Mexico State Office. All records of coordination and consultation efforts, including logistical support for meetings and preparation of materials, are part of the administrative record. Although the BLM and Western are responsible for government-to-government consultation with

regard to the proposed project, other cooperating Federal agencies may elect to engage in separate government-to-government consultation with regard to issuance of permits and/or impacts on cultural resources on lands within their jurisdiction.

The BLM and Western also used the NEPA scoping process to satisfy the public involvement process for Section 106 of the NHPA (16 United States Code 470f), as provided for in 36 CFR 800.2(d)(3). Consultation with American Indian tribes was conducted in accordance with applicable policies; tribal concerns, including the impact on Indian Trust Assets, are given due consideration.

Consultation will be ongoing throughout the project. Consultation efforts, including Section 106 compliance and tribal consultation, are developed in coordination with Western, the cooperating agencies, the Advisory Council on Historic Preservation, and the State Historic Preservation Offices (SHPOs) in Arizona and New Mexico.

3.0 SCOPING COMMENT ANALYSIS AND SUMMARY

3.1 Methodology

Scoping comments were submitted in a variety of formats (i.e., U.S. Postal Service, email, and comment form). All comments and corresponding information, exhibits, photographs, and maps were entered into the comment database. Comments were coded to reflect the subject matter of concern, sorted, and summarized for consideration in the development of the EIS. Comments that were received after the scoping comment period end date (July 5, 2012) will be reviewed to determine whether new issues were raised that need to be included in the EIS.

The sections below provide a summary of comments received by source, type, subject matter, and geographic origin (Tables 5–7).

3.2 Summary

The following tables provide a summary of comments received by source, indicating how the comments were submitted to the project team (i.e., via U.S. Postal Service, email, or comment form). Comments received by issue subject are listed in Table 6. During public and agency scoping, 109 non-duplicative comments were submitted, and 24 comments were received from the same person or organization, for a total of 133 comments received.

Table 5. Number of Comments Received by Source

Source	Comments Received
U.S. Postal Service	39
Email	68
Comment Form	26
Total	**133**

Notes: Comments received as of August 1, 2012.

Table 6. Comments Received by Issue

Issue Category	Comments Received	Percentage of Total
Air Quality	8	1.4%
Biological Resources	109	18.9%
Cultural Resources	29	5.0%
Hazardous Materials	1	0.2%
Intentional Destructive Acts	1	0.2%
Lands	23	4.0%
Noise	1	0.2%
Military	8	1.4%
Reclamation	1	0.2%
Public Health and Safety	7	1.2%
Recreation	13	2.3%
Request	47	8.2%
Socioeconomics	37	6.4%
Soils and Geology	5	0.9%
Transportation	14	2.4%
Visual Resources	27	4.7%
Water Resources	19	3.3%
Wilderness	4	0.7%
Miscellaneous	23	4.0%
NEPA/Process	199	34.5%
Total	**576**	

Note: All comments were received by August 1, 2012. Comments received may have included input on several issue categories.

3.3 Distribution of Submittals Received

3.3.1 Geographic Origin

Geographic information was collected from commenter contact information provided in the comment submittals. Whenever incomplete or ambiguous information was encountered during analysis, reasonable attempts to determine geographic origin were made using public directories and the Internet. Of the 109 non-duplicate submittals received, the geographic origin of 20 submittals could not be conclusively determined.

Table 7 provides an accounting of comments sorted by the geographic origin of the comments received during the scoping period, and Figure 2 provides a visual representation of the geographic origin of comments.

Table 7. Geographic Distribution of Comments

Geography	Submittals Received
Albuquerque, NM	1
Baltimore, MD	1

Table 7. Geographic Distribution of Comments (Continued)

Geography	Submittals Received
Benson, AZ	12
Bisbee, AZ	1
Cheyenne, WY	1
Clifton, AZ	3
Dallas, TX	1
Deming, NM	10
Denver, CO	2
El Paso, TX	1
Florence, AZ	1
Fort Huachuca, AZ	1
Golden, CO	1
Grady, NM	1
Lakewood, CO	1
Las Cruces, NM	9
Marana, AZ	3
Oro Valley, AZ	1
Phoenix, AZ	11
Rodeo, NM	3
San Francisco, CA	1
Safford, AZ	1
Sahuarita, AZ	1
Santa Fe, NM	2
Santa Monica, CA	1
Sierra Vista, AZ	1
Tubac, AZ	1
Tucson, AZ	12
Vail, AZ	1
Washington, DC	1
Willcox, AZ	2
Inconclusive	20
Total	**109**

Note: Twenty-four commenters submitted more than one comment.

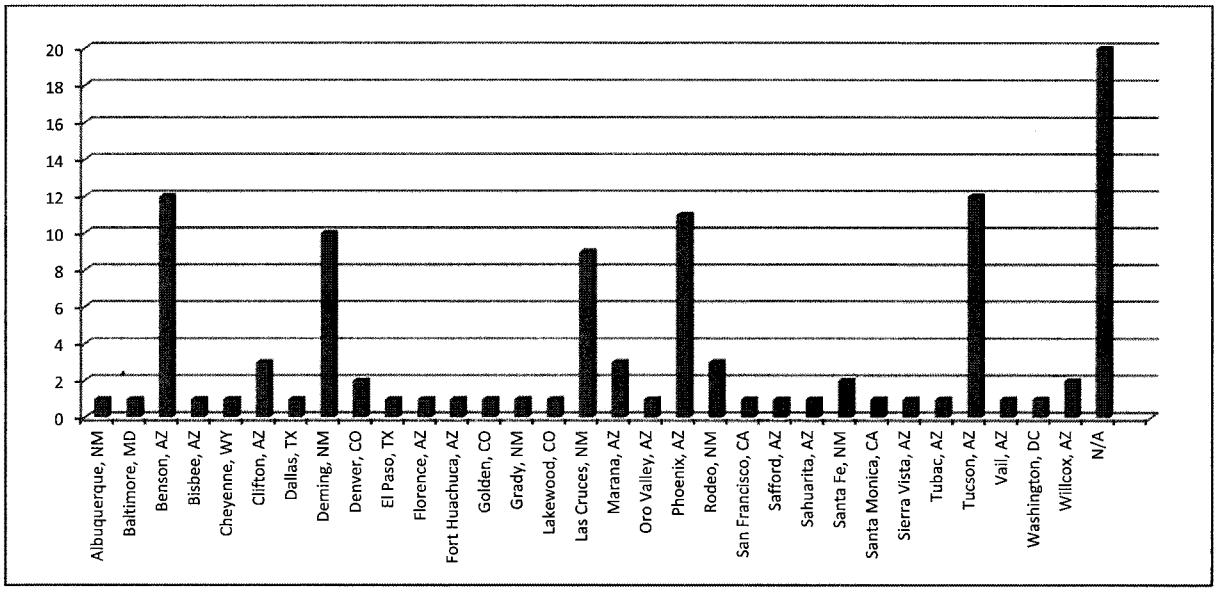


Figure 2. Distribution of submittals by geography.

3.4 Agency and Public Comments by Issue

Both agencies and the public were asked to submit comments during scoping. Table 8 provides a summary of comments received by agency and public entities, sorted by resource topic.

Table 8. Summary of Comments by Resource Type for Agencies and the Public

Resource	Agencies	Public
Air Quality and Climate Change	5	3
Cultural Resources	15	14
Farmlands and Rangelands	1	0
Hazardous Materials and Waste	1	0
Health and Human Safety and Electrical Characteristics	4	3
Lands	10	13
Military	6	2
Recreation	8	5
Socioeconomics and Environmental Justice	13	24
Transportation and Traffic	14	0
Vegetation	7	5
Visual Resources	10	17
Wildlife	39	37
Mitigation and Alternatives	23	14
Need and Reliability	7	10
Process and Resource Management Plan Amendment	14	70
Water Resources	14	5

Table 8. Summary of Comments by Resource Type for Agencies and the Public (Continued)

Resource	Agencies	Public
Other Comments	26	63
Requests for Information	46	28
Total	**263**	**313**

3.4.1 Agency Comments by Issue

Comments are summarized below in narrative form for each resource issue area (e.g., all comments specific to recreation are included under the Recreation category; all comments specific to visual resources are in the Visual Resources category, etc.). This section represents a summary of the formal comments received from agencies during scoping. The comment excerpts below are abbreviated and summarized from the original comments submitted.

AIR QUALITY

Dust

- Include detailed discussion of ambient air conditions, national ambient air quality standards, criteria pollutant non-attainment, and potential air quality impacts of the proposed project (both cumulative and indirect)
- Estimate air emissions from constriction and maintenance and propose mitigation measures to minimize emissions
- Construction emissions mitigation should include control measures such as fugitive dust, mobile and stationary sources, and administration
- Project is located in a maintenance area for carbon monoxide and a non-attainment area for particulate matter 10
- Consider prevailing winds to comply with applicable air pollution control requirements and minimize adverse impacts

Mitigation

- Implement recommended measures to reduce disturbance of particulate matter, including emissions caused by strong winds as well as machinery and trucks tracking soil off of the construction site

Greenhouse Gas/Climate Change

- Scientific evidence supports the concern that continued increases in greenhouse gas emissions resulting from human activities will contribute to climate change. Global warming is caused by emissions of carbon dioxide and other heat-trapping gases. The draft EIS (DEIS) should consider how climate change could potentially influence the proposed project, specifically within sensitive areas, and assess how the projected impacts could be exacerbated by climate change.

BIOLOGICAL RESOURCES

Avian Species

- Address the potential for increasing the structure height of the Western line to impact migrating birds and raptors moving through the corridor between Whetstone and Rincon Mountains.

- Consider eliminating the proposed route on the east side of the Willcox Playa, which travels through the Willcox Playa Wildlife area, a premier ecotourism destination for sandhill crane and other waterfowl watching. The proposed route would bisect an important travel area and represents a significant collision hazard.
- Information on areas with the greatest potential for avian conflicts with power lines is available and indicates that the proposed ROW intersects with the Lordsburg Playas avian protection area southwest of Lordsburg.
- A known sandhill crane winter use site and migration corridor intersects the proposed ROW east of Columbus, New Mexico.
- The northern aplomado falcon is known to occur in the project area, and some of the proposed construction occurs in suitable undisturbed habitat. Therefore, removal and disturbance of large trees should be avoided.
- In addition to species listed under the Endangered Species Act (ESA), the potential for impacts to species protected under the Migratory Bird Treaty Act should also be addressed.
- Transmission line crossings of riparian corridors with the potential for collision with migratory birds should be studied.

Special Status Species

- Conservation of sensitive vegetative resources, including riparian areas, Pima pineapple cacti, saguaro, and ironwood should be considered.
- Federal and State lists of special status wildlife species known to occur in Doña Ana, Luna, Grant, and Hidalgo Counties should be consulted.
- Special status species known to occur within the immediate vicinity of the proposed ROW are the black-tailed prairie dog and *Atriplex grifithsii* plant.
- The BLM should conduct ESA Section 7 consultations for any listed or candidate species or critical habitat affected by the project within the New Mexico action area.
- The Heritage Data Management System indicates that more than 55 special status species have been documented as occurring in the project vicinity.

Wildlife Habitat

- Black bear travel corridors intersect with the proposed ROW south of Lordsburg and east of the Arizona state line. In addition, mule deer, bighorn sheep, and pronghorn antelope habitat occurs in the Peloncillo Mountains and south of Lordsburg.
- Wildlife habitat data are available in the Habitat Conservation Plan (U.S. Fish and Wildlife Service) to complete biological requirements for NEPA.
- Effects on wildlife corridors should be considered. The Davidson Canyon and Cienega Creek areas have been identified as potential linkage corridors for jaguar and ocelot.
- Fragmentation of habitats across the Southwest is an ever increasing threat, and identification of important wildlife corridors is a key component in planning for habitat conservation.
- The Western rebuild alignment crosses through two areas with regional importance for wildlife movement (Interstate 10/Santa Rita Mountains/Rincon Linkage and Interstate 10/Tucson Mountains/Tortolita Mountains Linkage). Rebuild activities, including tower placement and spacing in these areas, should not create impediments to wildlife movement.

Vegetation

- Suggest more sensitive approaches to managing vegetation that also allow full compliance with North American Electric Reliability Corporation requirements.

Weeds and Invasive Species

- The DEIS should describe postconstruction activities that will be required, such as surveying for invasive species following restoration of the construction site, and measures that will be taken if infestations are found.

Mitigation

- The DEIS should address potential timing considerations and remedies to any direct impacts likely to affect these species: cactus ferruginous pygmy owl, rufous-winged sparrow, western burrowing owl, Pima pineapple cactus, and ground snake.
- Mitigation measures should include the prevention or minimization of electrocution of raptors, construction during periods with the least amount of risk to wildlife, determination of wildlife species that may be using the area and a plan to avoid disturbance during nesting/breeding seasons, avoidance of work near bridges with bats during maternity season, restriction of vehicles and equipment to existing roads, trails, and ROW where possible, and avoidance of wildlife travel areas, and new disturbance should consider revegetation and restoration using native plants.
- The Project should be designed in accordance with the Avian Power Line Interaction Committee document "Mitigating Bird Collisions with Power Lines."
- Federal Energy Regulatory Commission vegetation management plans that are sensitive to and retain our unique desert vegetation species should be developed.

Cumulative Impacts Analysis

- The scope of federally listed species compliance includes any interrelated or interdependent project activities as well as any indirect or cumulative effects.

General

- To the extent possible, avoid placing infrastructure in, or disrupting the hydrologic balance of, depressions or playa basins that may constitute ephemeral aquatic habitat.
- Tumamoc Hill and Tucson Mountain Park are both important tracts of natural open space and vital biological corridors.
- The Hidalgo County Land Use Plan for Natural Resources should be recognized as a valuable tool in understanding our county's policy for land use and natural resource management.

CULTURAL RESOURCES

Historic Trails

- The new line appears to be crossing the Butterfield Overland Mail Trail in several places and paralleling in others. The National Park Service is currently evaluating this trail for National Historic Trail status.
- Concern regarding the potential visual impact to the Juan Bautista de Anza National Historic Trail and Los Morteros cultural resource site.

Tribal Resources

- Many of these archeological sites are identified as ancestral sites by the Tohono O'odham and other tribal groups and may also be considered traditional cultural properties (TCPs). Tumamoc Hill is an acknowledged traditional cultural place and has great spiritual and cultural significance.
- Under NEPA, any impacts to tribal, cultural, or other treaty resources must be discussed and mitigated. Section 106 of the NHPA requires that Federal agencies consider the effects of their actions on cultural resources. Executive Order 13007, Indian Sacred Sites, requires Federal land managing agencies to accommodate access to, and ceremonial use of, Indian sacred sites by Indian religious practitioners and to avoid adversely affecting the physical integrity, accessibility, or use of sacred sites. The DEIS should address the existence of Indian sacred sites in the project areas, should distinguish Executive Order 13007 from Section 106, and should discuss how the BLM will avoid adversely affecting the physical integrity, accessibility, or use of sacred sites if they exist. The DEIS should provide a summary of all coordination with Tribes and with the SHPO, including identification of National Register of Historic Places (NRHP) eligible sites, and development of a Cultural Resource Management Plan.
- The DEIS should describe the process and outcome of government-to-government consultation between the U.S. Forest Service and each of the tribal governments within the project area, issues that were raised, and how those issues were addressed in the selection of the preferred alternative.

Mitigation

- Documentation and mitigation of impacts to archeological and historic sites and other cultural resources should be conducted.

General

- Tumamoc Hill is a National Historic Landmark and is listed in the NRHP. This historic site has been used for research by the University of Arizona for years and has important biological and cultural values.
- The BLM must seek to identify significant historic and cultural resources within the area proposed for the Project. Adequate identification of these resources is critical for evaluating the Project's potential direct, indirect, and cumulative impacts. This evaluation will help the BLM to choose or propose additional alternatives that best avoid and mitigate adverse effects on historic and cultural resources.
- The DEIS is required to analyze impacts to cultural resources before changes are made in the building or upgrading of the line. If Southline lines are ultimately located along Silverbell Road, consider contacting the Regional Transportation Authority to coordinate the cultural analysis.
- The project proponent should commission a Class I inventory of the two proposed alignments to provide baseline data on impacts to recorded cultural resources and to assist in the selection of a preferred alignment. When the final determination of the preferred route is made, a Class III on-the-ground cultural resources inventory should be conducted of all previously unsurveyed, or inadequately surveyed, alignment segments to identify and evaluate additional cultural resources that could be affected.
- Before ground-disturbing construction begins, an appropriate Historic Properties Treatment Plan should be developed and implemented to mitigate effects on NRHP-eligible sites in accordance with Federal, State, and county standards.

HAZARDOUS MATERIALS

General

- The DEIS should address potential direct, indirect, and cumulative impacts of hazardous waste from construction and operation of the proposed transmission line and other facilities. The document should identify projected hazardous waste types and volumes and expected storage, disposal, and management plans. It should address the applicability of State and Federal hazardous waste requirements.

Mitigation

- Appropriate mitigation should be evaluated, including measures to minimize the generation of hazardous water. Alternate industrial processes using less toxic materials should be evaluated as mitigation since such processes could reduce the volume or toxicity of hazardous materials requiring management and disposal as hazardous waste.

INTENTIONAL DESTRUCTIVE ACTS

General

- By adding this power line route, an increase in transmission lines in a congested area would be an easy for a terrorist attack, thus compromising all power line projects.

LANDS

Rights-of-Way

- Questions addressing the creation of remnant parcels.
- Questions included whether the DEIS would accurately describe what is and what is not conservation land and whether the DEIS would impose co-location of compatible land use to the maximum extent possible. Also, would the DEIS identify Arizona State Land Department Conceptual Planning Areas?
- A request to provide information regarding easements through private lands for new and upgraded lines was submitted.
- Questions included whether significant eminent domain actions are anticipated as part of this project and whether alternatives that incorporate a greater amount of State and/or Federal land would be considered for the alternatives.
- Vehicular upgrades to areas of the ROW may enhance opportunities for illegal access to areas of county-owned/leased properties especially when upgrades are left in place without construction of barriers or other controls to prevent all-terrain vehicle use. Such conditions have left our open space properties vulnerable to the adverse impacts of uncontrolled use, including significant traffic from undocumented immigrants and drug running. We therefore request the development of a mitigation plan and a multiyear commitment to assist in curbing illegal access induced through implementation of this project.

Grazing

- We understand the need for development of necessary infrastructure to provide for current and future energy demands; however, the proposed transmission line will impact range livestock operations associated with grazing allotments in the project area.

- Transmission towers and other facilities will affect each allotment differently, depending on location and affected area in each allotment. Pasture layout and proximity to range improvements should be considered in infrastructure placement.

General

- County-owned preserves, including Cienega Creek Natural Preserve, Bar V Ranch, Tucson Mountain Park, Tumamoc Hill, and Los Morteros are considered lands of particularly high value to county residents for their exceptional cultural and natural resource values. We will be particularly sensitive to any new impacts to these lands and will press for considerations that compensate our lost opportunity to use the impacted areas as mitigation. Where new impacts are not necessary, rebuild activities should strive to lessen the alignment's visual and physical presence. We would welcome the opportunity to discuss alternative routing with the BLM and Southline representatives to avoid or minimize the Project's potential to affect these sensitive properties without transferring undesirable consequences to nearby residential areas.
- The Pinal County Comprehensive Plan should be referenced for land use.
- The DEIS should discuss how the proposed action would support or conflict with the objectives of Federal, State, tribal, or local land use plans, policies, and controls in the project areas. The term "land use plans" includes all types of formally adopted documents for land use planning, conservation, zoning, and related regulatory requirements. Proposed plans not yet developed should be also addressed if they have been formally proposed by the appropriate government body in written form.

MILITARY

General

- There is concern that Southline would generate undue electromagnetic field (EMF) interference, which would impact Ft. Huachuca's Electronic Proving Ground (EPG). The EPG overlays almost the entire western third of Cochise County, extending northward from the international border through the city of Benson to just south of the northern boundary of the county. It is important to have a dialogue with Ft. Huachuca throughout the process to ensure that the Project is in accord with Ft. Huachuca's mission.
- Upgrade to the existing transmission and increase in tower height could interfere with military training flight routes.
- Upgrade to the existing transmission line and increase in tower height could affect a proposed Drone program near Benson if there are airspace conflicts.

RECREATION

Comments submitted by agencies pertaining to recreation suggested that the recreation analysis include impacts to historic trails from a recreationist.

Trails

- Impacts to the Continental Divide National Scenic Trail corridor will be an issue to address in the development of the DEIS.
- The Arizona National Scenic Trail provides a recreational and visual experience to long-distance hikers, mountain bikers, and equestrians that is continuous beyond the boundaries of the immediate project area.

- The BLM is encouraged to include in its cumulative effects analysis past, present, and reasonably foreseeable actions that may impact the corridor of the Arizona National Scenic Trail throughout its entire length.

SOCIOECONOMICS

Property Value

- Several high-voltage power lines parallel Interstate 10, and the Western line is located on the west side of the road next to homes in the foothills of the Tucson Mountains. There could be a deleterious impact to health and financial value of existing and future neighborhoods along Silverbell Road with multiple high-voltage power lines belonging to Western, Tucson Electric Power, and perhaps SunZia.
- The Project, regardless of route, will have an impact on several different private land owners in Hidalgo County, who may or may not be willing sellers.

Economic Growth

- Potential danger to wildlife linkages and species conservation could not only harm the environment but also the economic well-being of southern Arizona through deleterious impacts on recreation and the tourism industry.
- Support was expressed for any project that allows economic benefits in the form of job creation and substantial tax base.

Power Rates

- The proposed Project would enhance power supply in the region by adding capacity and redundancy. The project proponent states generally that connection of alternative power sources to the grid would be enhanced by this Project. In terms of promoting economic development such as establishing new industrial uses or electrical generation, we request that the EIS examine the local economic effects as well as those that are more regional in nature.

General

- It is unlikely that the City of Benson governing body would support eminent domain proceedings.

SOILS AND GEOLOGY

Soil Erosion

- Future potential for erosion and need for road maintenance should be addressed to avoid impacts of sediment on downstream habitat and impacts of road maintenance activities. Well-designed roads with maintained waterbars should be considered, especially in areas where the transmission line routing is perpendicular to the natural slope of the land.
- Infrastructure development typically results in removal of vegetation over significant areas. The loss of vegetation can significantly increase rates of soil loss to wind and water erosion.

Mitigation

- Any plans for energy transmission line development should include measures to mitigate erosion and reestablish native vegetation.
- The footprint placement and accessibility of towers and access roads will likely expose these facilities to flooding. Minimization and mitigation of the impacts on flooding potential and

riparian habitat will require site-specific design and consideration of county-wide cumulative effects.

TRANSPORTATION

Aviation

- The DEIS should study impacts to airspace in general.
- The Marana Regional Airport Master Plan on file with the Federal Aviation Administration comes in direct conflict with the proposed route.

General

- All crossings on state roads and Interstate roads will require a New Mexico Department of Transportation (NMDOT) utility permit. As part of the permit, NMDOT will require environmental clearance from our office in Santa Fe, New Mexico.
- Any work adjacent to or within Pima County ROW should be coordinated with the Department of Transportation.
- The guide to the Arizona Department of Transportation permitting process and requirements should be referenced.

Mitigation

- Request the development of a mitigation plan and a multiyear commitment to assist in curbing illegal access induced through implementation of this project.

VISUAL RESOURCES

Comments submitted pertaining to visual resources expressed concern for changes to existing scenic quality and visual impacts. Agency commenters encouraged the use of visual simulations from critical viewpoints within the analysis.

Visual Simulations

- Simulated structures and access from realistic observation points should be included in the DEIS.
- As visual impacts will be a critical consideration, especially where the proposed alignment interfaces with residential areas, natural preserves, and other sensitive areas, the EIS analysis of visual resources should include simulated renderings comparing existing and proposed structures. Similarly, selected viewshed analyses should be provided.

Mitigation

- The BLM should identify adequate measures to mitigate potential adverse impacts to historic and cultural resources. Such measures should include creative ways to resolve difficult impacts associated with visual intrusion and disruption caused by high-voltage power lines and facilities. Measures could include burying lines and/or co-locating lines. Identifying effective mitigation measures will be a critical step in satisfying both NEPA and NHPA. A construction and operations maintenance plan for the transmission line should be included in the DEIS.

General

- The route that goes through the Avra Valley will impact the viewshed of the Saguaro National Park; we ask that this alternative route be taken out of consideration.

- The DEIS should consider visual impacts, especially where the alignments are near or within residential areas and natural preserves.

Cumulative Impacts

- Southline's newer preferred route will just add to the power line congestion if the SunZia project is completed; this congestion will create a negative visual impact to the beautiful slopes of our desert floor.

WATER RESOURCES

Regulatory Framework

- If the construction of the transmission line avoids the discharge of dredged or fill material to Waters of the U.S., then a Clean Water Act (CWA) 404 permit may not be required. Whether a 10 Rivers and Harbors Act of 1899 (RHA) permit is required will depend on whether the transmission line crosses a Section 10 water.
- The DEIS should provide information on CWA Section 303(d) impaired waters in the project area, if any, and efforts to develop and revise total maximum daily loads. The DEIS should describe existing restoration and enhancement efforts for those waters, how the proposed project will coordinate with ongoing protection efforts, and any mitigation measures that will be implemented to avoid further degradation of impaired waters.

Groundwater

- The alignment and locations where ground-penetrating construction activities are necessary should be evaluated for the potential to conflict with sewer conveyance facilities. Such potential conflicts should be avoided.
- Concern was expressed regarding the accessibility for maintenance and repair during times of flooding.

Cumulative Impact Analysis

- The analysis should also include effects on water as a result of potential development (i.e., solar development and population growth).

Mitigation

- The DEIS should discuss specific mitigation measures that may be necessary or beneficial in reducing adverse impacts to water quality and aquatic resources.

General

- The DEIS should document the Project's consistency with applicable stormwater permitting requirements. Requirements of a stormwater pollution prevention plan should be reflected as appropriate in the DEIS.
- Avoid placing infrastructure in or disrupting the hydrologic balance of depressions or playa basins that may constitute ephemeral aquatic habitat.
- Recommendations for construction of fences, fencing, and earthen dams under Executive Orders 11988 and 11990. Federal agencies are required to minimize the destruction, loss, or degradation of wetlands and floodplains and preserve and enhance their natural and beneficial values. Therefore, it may be necessary to contact the U.S. Army Corps of Engineers for permitting requirements under section 404 of the CWA if the Project impacts floodplains or wetlands.

- The Western route parallels the Santa Cruz River through the metropolitan area for much of its extent. Flood hazards in the metropolitan Western route are riverine and initially appear to have relatively accurate maps and greater containment. While the towers themselves are readily designed to withstand erosion, substations and any modifications should be protected from the 500-year flood event in accordance with Federal Emergency Management Agency guidelines. The transmission line as well as associated maintenance access roads and fencing unavoidably will cross numerous watercourses regulated by Pima County.
- The Gila, Mimbres, and San Francisco, and Animas watersheds are the most biologically diverse systems in the southwestern part of New Mexico and provide habitat for many threatened and endangered species, including the southwestern willow flycatcher, Chiricahua leopard frog, lowland leopard frog, narrowhead garter snake, and Mexican garter snake. While direct impacts to this area is unlikely, the development of the proposed and alternative routes of the Project will likely affect small, unmapped riparian habitats and wetlands that function as corridors from the Animas drainage to the Gila and Mimbres drainages. These areas should be avoided because they provide important microhabitats for leopard frogs, garter snakes, and other obligate wetland species.

NOISE

General

- A question regarding whether the DEIS would assess auditory impacts was submitted.

HUMAN HEALTH AND SAFETY

Comments submitted pertaining to human health and safety suggested that the analysis consider impacts from EMF to both natural resources and humans.

EMF

- Perhaps the most sensitive issue associated with the Project are concerns associated with EMF generation and the effects, if any, on nearby communities. Southline proposes increased transmission tower height as well as a significant increase in the number of power lines, likely resulting in a corresponding increase in EMF strength. Although the EMF strengths surrounding Southline's new higher-voltage lines will apparently be below maximum national standards for human health, we suggest modeling EMF levels near power lines to determine the possible effects, presenting data in easy-to-understand formats to help illustrate how EMF strength declines as distance from lines increases, and comparing current strengths with those anticipated. Providing these data and conveying it graphically, for example, would be more effective in allaying public concern than solely stating that generated EMFs are safe.

MISCELLANEOUS

Comments submitted and categorized as miscellaneous expressed support for or opposition to the Project. Six agencies submitted general support for the Project, and no agencies expressed opposition.

3.4.2 Public Comments by Issue

Comments are summarized below for each resource issue area (e.g., all comments specific to recreation are included under the Recreation category; all comments specific to visual resources are in the Visual Resources category, etc.). This section represents a summary of the formal comments received during public scoping. The comment excerpts below are truncated from the original comments submitted.

AIR QUALITY

Greenhouse Gas/Climate Change

- It is extremely important that the BLM consider the impacts associated with climate change as it conducts its cumulative impacts analysis for this project, including the likelihood that the Project will carry non-renewable energy sources, such as coal, that produce greenhouse gas emissions.
- The DEIS should consider how climate change could potentially influence the proposed Project, specifically within sensitive areas, and assess how the projected impacts could be exacerbated by climate change.

BIOLOGICAL RESOURCES

Avian Species

- The Lordsburg Playa is a paramount ecosystem for migratory birds in southwestern New Mexico. In an area with very little open surface water, these ephemeral lakes provide critical habitat for large numbers of shore birds and waterfowl. Transmission lines in this area could interfere with flight paths and could result in the mortality or displacement of large numbers of migratory birds. The flats surrounding the Lordsburg Playa are also home to populations of burrowing owls and black-tailed prairie dog towns, which are known to attract raptors.
- The Project is considering a route that would cross a wildlife corridor through which sandhill cranes fly at the Apache Substation.

General

- The Southline project should include the most accurate, up-to-date geospatial and wildlife data and the most current scientific and other formal guidance to avoid impacting sensitive resources during establishment of the ROW and during actual construction. We recommend that BLM and Western follow the state-by-state guidance below to avoid or minimize additional impacts.
- With regard to minimizing impacts to fragile and diverse resources, the priority must be first to avoid impacts to significant resources, then to minimize and lastly, to mitigate. Utilizing existing rights of way and other disturbed lands is key to avoiding impacts to sensitive resources and this strategy should be employed to the maximum extent possible.
- The routing through the Tucson area has one area of concern – the easement through Tumamoc Hill. I urge you all to work closely with the University and others to find a solution that lessens the impact to this important study area.

Mitigation

- Mitigation is an important requirement of NEPA. The BLM and Western should also make a determination about the value of the habitat to be impacted and establish mitigation requirements for the specific habitat types impacted.

Special Status Species

- Avoiding sensitive resources can be achieved during the siting of actual transmission ROWs within the proposed corridors. This approach to avoidance will be particularly important when transmission line ROWs are planned near sensitive habitats for species of concern, including the following: endemics with restricted distributions such as the Tucson shovel-nosed snake (*Chionactis occipitalis klauberi*), cactus ferruginous pygmy owl (*Glaucidium brasilianum cactorum*), Gila chub (*Gila intermedia*), southwestern willow flycatcher (*Empidonax traillii*

extimus), Mexican spotted owl (*Strix occidentalis lucida*), white-sided jackrabbit (*Lepus callotis*), Chiricahua leopard frog (*Lithobates chiricahuensis*), and Chihuahua scurfpea (*Pediomelum pentaphyllum*), whose habitats can be effectively avoided; migratory birds protected under the Migratory Bird Treaty Act with substantial flyway stopover habitat requirements, including sandhill cranes (*Grus canadensis*) and snow geese (*Chen caerulescens*); ESA-listed or candidate species such as Mexican gray wolf (*Canis lupus baileyi*), Aplomado falcon (*Falco femoralis*), jaguar (*Panthera onca*), and Sonoran desert tortoise (*Gopherus agassizii*), for which preserving high-quality reintroduction habitat is essential; relatively widely distributed but uncommon species of conservation concern whose habitat coincides with areas likely to be developed, such as western burrowing owl (*Athene cunicularia hypugea*) and raptors, including golden eagle (*Aquila chrysaetos*), protected by the Bald and Golden Eagle Protection Act; and wide-ranging, relatively common species sensitive to habitat fragmentation and disturbance, such as American pronghorn (*Antilocapra americana*), mountain lion (*Puma concolor*), black bear (*Ursus americanus*), Coue's white-tailed deer (*Odocoileus virginianus* var. *couesi*), and mule deer (*Odocoileus hemionus*).

Vegetation

- Consideration of the Sonoran Desert Conservation Plan in Pima County is vital.

Weeds and Invasive Species

- New access roads associated with the transmission line could facilitate the introduction and spread of invasive species, as well as unauthorized motorized activity and associated disturbances, which could impair the functionality of the wildlife linkages.

Wildlife Habitat

- We recommend that new or upgraded infrastructure be installed in such a way as to minimize direct impact or loss of existing native habitat.
- The DEIS should include specific details in the discussion of impacts to the landscape and wildlife, as well as in associated mitigation measures.
- Knowing as much detail about the Project's potential impacts will greatly increase the BLM's ability to decrease impacts through the mitigation hierarchy (avoid, minimize, effectively mitigate), including by informing more specific and stronger mitigation measures.

CULTURAL RESOURCES

General

- Protection of Tumamoc Hill in Tucson is a priority.
- Considering the history of this region, it is highly likely that archeological, historical, and/or cultural resources exist in and around the project area. What are the likely impacts from this Project on these resources?
- The DEIS must consider impacts to the Fort Bowie National Historic Site, which derives much of its authenticity from the unobstructed views to the east of west of Apache Pass.

Historic Trail

- Several historic trails may be directly or indirectly adversely affected by the proposed transmission line project: the Camino Real de Tierra Adentro National Historic Trail, the Juan Bautista de Anza National Historic Trail in Arizona; and the Butterfield Overland Trail, which

the National Park Service is currently evaluating as a National Historic Trail. In the EIS, the BLM should identify any route segments that conflict with National Historic Trail management objectives. To the extent that existing transmission corridors are used, the impacts will be substantially avoided.

Tribal Resources

- An evaluation of potential physical, visual, and social/psychological impacts to Native American TCPs and sacred landscapes also must be included in the EIS. Early and thorough consultation with Native American groups who may have connections to lands within and adjacent to the transmission line corridors is extremely important. Because TCPs and sacred landscapes are highly susceptible to visual impacts, such as from aboveground transmission lines, and because mitigating such impacts is very difficult, the BLM should attempt to resolve tribal concerns by avoiding TCPs and sacred landscapes all together.

Mitigation

- In the EIS, the BLM should identify adequate measures to mitigate potential adverse impacts to historic and cultural resources. Such measures should include creative ways to resolve difficult impacts associated with the visual intrusion and disruption caused by high-voltage power lines and facilities. Measures could include, for example, burying lines and/or co-locating lines. Identifying effective mitigation measures will be a critical step in satisfying both NEPA and NHPA.
- The BLM must prioritize protection of the area's outstanding historic and cultural resources, including significant concentrations of prehistoric and historic archaeological sites, historic trails, and Native American TCPs and sacred landscapes. Accordingly, the BLM should insist on thorough documentation of cultural resources within the proposed Project's area of potential effects through consultation with tribes, SHPOs, local communities, and other interested parties and through archaeological and historical resource surveys. If impacts are unavoidable, the BLM should develop strategies to minimize and mitigate impacts.

LANDS

Rights-of-Way

- Our primary concerns are related to the effects that any proposed routing will have on private landowners, both in terms of land usage and fair market–based compensation.
- We are hoping for the time when the utility will no longer need the easement and will relinquish it.

General

- Residents of rural Arizona are under constant siege in recent years from those who live in distant cities and view our home as a convenient "empty" place to put their highways, pipelines, and power lines. We are asked to bear the burden of projects that will bring us no benefit.
- I think the Project will be a good idea and help a lot of people in New Mexico and Arizona. We are probably the only cattle ranch in the area that has a pretty good size of private land that's all together in one big portion of land.
- We support the principle that it is generally better to site new utilities in landscapes that have already sustained environmental degradation and cannot be restored. But we find the application of the principle in the case of Tumamoc to be highly questionable. First, Tumamoc is a National Historical Landmark, recognized for its pioneering, sustained efforts to restore degraded

ecological landscapes. Inflicting further damage just because the site has already suffered is the opposite of what the people of the United States intended (especially when they extended the landmark to all 860 acres in 1987).

RECREATION

Trails

- An important issue to be addressed in the EIS is impacts on the use and enjoyment of the Continental Divide National Scenic Trail (CDNST). We are especially concerned about the alternate route (via Columbus) between the Afton and Apache Substations. The proposed route would be incompatible with the CDNST, though it might be mitigated if relocated by heading north from Hachita instead of proceeding northwest. Many CDNST through hikers actually walk to the Mexican border by way of Deming, the Florida Mountains, the Tres Hermanas, and Columbus. If the alternate route is considered, it should follow the proposed alignment in the Columbus area, avoiding the mountains.

General

- In the southwestern part of Tucson the route crosses the lower part of Pima County's additions to Tucson Mountain Park, where impacts will need to be minimized.
- The DEIS should fully evaluate all of the impacts that cannot be avoided or minimized so that they can be effectively mitigated.

SOCIOECONOMICS

Property Value

- The current 115-kV line through Mescal will disrupt residences significantly and cause permanent loss of some function and use of these residences, and of course, property values as well. The alternative route may disrupt some visual beauty, but that is a minor effect, compared with losing functionality of your residence and property.
- If it must be done, then I would suggest you do the alternative route through Mescal area (Interstate 10 and Pima County and Cochise City), as it currently goes through a highly populated area, with some lots being very small. This limits the use and value of these homes.

Power Rates

- Population growth may not occur in rural areas that would be negatively impacted by the Project. How can the Project be justified in those areas?
- I believe it should not be allowed in general. It will disrupt and destroy value of landowners, all for a company to make a profit.
- The DEIS should fully examine the costs and benefits using a total economic value approach. It should calculate the total cost per kWh of electricity delivered and compare that figure with the cost of renewable generation in the built environment close to the point of use.

General

- The most sensitive issues associated with rebuilding the existing transmission lines in southeastern Arizona will be social concerns in neighborhoods or developments that Western's line currently crosses.

- We are also in favor of siting new lines near existing or potential clean energy (wind, solar) generation projects, thus helping create clean energy jobs and boost the economy.

Economic Growth

- The DEIS should provide a comprehensive socioeconomic and cost-benefits analysis.
- Jobs and ancillary economic magnifiers related to the project should also be considered.

Environmental Justice

- Residents of rural Arizona are under constant siege in recent years from those who live in distant cities, and view our home as a convenient "empty" place to put their highways, pipelines, and power lines. We are asked to bear the burden of projects that will bring us no benefit.

Cumulative Impact Analysis

- The potential for substantial negative impacts from the transmission corridor capacity expansion Project construction and future permanent maintenance roads and transmission operation (including, but not limited to, environmental degradation of individual homesites, diminished home and homesite values, degraded viewshed and potential human health issues from increased high voltage transmission) is UNACCEPTABLE to the residents and owners of this Community! Such impacts from the Project are not warranted and will be OPPOSED in this location.

SOILS AND GEOLOGY

Mitigation

- Questions included whether the DEIS would include and analysis of the likely impacts from planned road construction on soils and related erosion issues in and around the project area. What are the likely impacts from planned road maintenance on soils and related erosion issues in and around the project area? Will impacts from projected levels of construction vehicle traffic on soils and related erosion issues in and around the project area be analyzed?

VISUAL RESOURCES

General

- These proposed lines would cross some very scenic areas west of Mescal Road, perhaps affecting the view looking west.
- Living in a rural area that has beautiful views, the power lines can be unsightly.
- The alternative route may disrupt some visual beauty, but that is a minor effect, compared with losing functionality of your residence and property.
- The DEIS should discuss why towers need to be the proposed height and what the tradeoffs would be if shorter towers are used and lengthening the span between towers to reduce the overall number of towers.
- The DEIS should also discuss options involving low-glare and low-visibility coatings and materials on all metal surfaces. Reflection of sunlight from towers and lines, particularly the hour or two following sunrise and again before sunset, can be seen for miles and often dominates the natural landscape. The DEIS must address ways to mitigate this particular kind of significant impact.

Mitigation

- Monopole or tubular towers are preferred for lower visual impact.

- Undergrounding the power lines in areas of high visual sensitivity.
- BLM should identify adequate measures to mitigate potential adverse impacts to historic and cultural resources. Such measures should include creative ways to resolve difficult impacts associated with the visual intrusion and disruption caused by high-voltage power lines and facilities. Measures could include, for example, burying lines and/or co-locating lines. Identifying effective mitigation measures will be a critical step in satisfying both NEPA and NHPA. We strongly encourage you to include in the DEIS the construction and operations maintenance plan for the transmission line.
- Visual impact mitigation options should be fully analyzed and required, based on consultation with other agencies, local communities, and the public.

WATER RESOURCES

Mitigation

- Construction best management practices will be particularly important if the line is developed. The major issues that should be addressed include management of sensitive wildlife, land, and water resources; complying with environmental laws, including stormwater pollution prevention; controlling erosion and sediments; and ensuring compliance with reclamation standards.

General

- The Gila, Mimbres, and San Francisco, and Animas watersheds are the most biologically diverse systems in the southwestern part of New Mexico and provide habitat for many threatened and endangered species. These areas should be avoided.
- General concern was expressed regarding the effects of transmission lines on wildlife, people, gardens, and water resources.

SPECIAL DESIGNATIONS

General

- The proposed transmission line may still have direct, indirect, and cumulative impacts on these areas that are in the vicinity of the Project, particularly where the line still crosses into the boundaries of protected lands, or where it is proposed to run adjacent to or in the vicinity of these areas. In light of this, the BLM must consider the direct, indirect, and cumulative impacts to private, State, and Federal special use and designated lands in the proposed study area.

HUMAN HEALTH AND SAFETY

EMF

- The electric and magnetic field strengths surrounding the Project's new higher-voltage lines may be below national standards for nearby human habitation, but this will not alleviate everyone's concern. I thus strongly recommend providing diagrams that show how these field strengths decay with distance from the lines, comparing current field strengths with them.
- The most sensitive area in this regard will be where Western's 115-kV line traverses Midvale Park and other neighborhoods on the west side of downtown Tucson. Other sensitive areas will be the Mescal Community west of Benson and the Vail community east of Tucson. It is worth modeling field strengths adjacent to the lines to determine how these fields will affect surrounding homes, schools, and businesses.

WILDERNESS

General

- BLM lands to the southeast of Fort Bowie National Historic Site have been inventoried for their wilderness characteristics and found to have significant opportunities for solitude or primitive or unconfined recreation. Naturalness of the unit is also ranked high, having been primarily affected by the forces of nature where the imprint of civilization is slight. This area is currently identified as a citizen-proposed wilderness area. The proposed transmission line route should avoid this area in order to maintain the unique wilderness qualities found there.

MISCELLANEOUS

Comments submitted and categorized as miscellaneous expressed support or opposition to the Project.

No public comments were submitted for Transportation, Military, Intentional Destructive Acts, or Hazardous Materials.

4.0 PRELIMINARY ISSUES, CONCERNS, AND OPPORTUNITIES[2]

4.1 Purpose and Need

Comments submitted pertaining to Project purpose and need emphasized the importance of including a clear explanation of the purpose and need in the context of the electrical power system reliability and need for additional transmission line to supply power. Additionally, commenters thought the purpose and need statement should be clear and broad and reflect potential benefits of the project, public interest in cleaner energy economy, and potential alternative means of achieving that goal.

4.2 Project Description and Alternative Technologies

Comments submitted pertaining to the Project description and alternative technologies included suggestions to include more detail regarding the conditions for the new substations, detailed construction, operation and maintenance plans, descriptions of how the proposed transmission line fits into the regional renewable energy development and transmission in the West, and the extent to which the proposed transmission line will carry renewable energy versus fossil fuel-based energy.

4.3 Transmission Line Routing Alternatives

Agency comments received recommended that the transmission line be routed to the west/southwest of Willcox Playa in areas that are already disturbed, farmed, or have existing utility features, largely to avoid avian concerns. Additionally, commenters suggested that the route be located in open valleys rather than against hills and that facility siting should avoid or minimize impacts to wildlife corridors and landscape connections.

Several comments suggested that watersheds (Gila, Mimbres, San Francisco, and Animas) be avoided. One comment suggested siting the transmission line underground to minimize (aboveground) impacts.

[2] This scoping summary provides a summation of comments received during the scoping phase; an in-depth analysis of the comments received will be conducted specific to each resource.

Additionally, commenters suggested that several existing documents be referenced for siting considerations, such as Nature Conservancy's Ecoregional Assessment and the Sonoran Desert Conservation Plan.

Several comments suggested routing the transmission line on State lands rather than private lands and upgrading the existing lines in the Benson area. Use of existing lines and ROWs where possible was largely supported by commenters.

4.4 Resource Inventory and Impacts

In addition to the resource categories anticipated for analysis, several new resources categories emerged as a result of scoping, including impacts to military facilities and impacts of EMFs to existing irrigation/agricultural facilities.

5.0 FUTURE STEPS IN THE EIS PROCESS

The BLM and Western will use the comments collected during scoping to define issues and to develop a range of alternatives to address those issues that will be analyzed in the EIS. The impacts that could result from implementing the alternatives will be analyzed and documented in a DEIS.

The DEIS will be made available for public review. The availability of the DEIS will be announced in the Federal Register and advertised in the local and regional media. Public comments will be accepted for 90 days, during which public meetings or hearings will be held to receive comments on the adequacy of the DEIS. The BLM and Western will review and consider all comments received on the DEIS. The document will be modified as appropriate based on public comments; all substantive comments and responses will be incorporated into the Final EIS (FEIS).

The availability of the FEIS will be announced in the Federal Register and advertised in local and regional media. A record of decision selecting the alternative to be implemented will be made by the U.S. Department of the Interior no sooner than 30 days after the date the Notice of Availability of the FEIS is published in the Federal Register.

EXHIBIT B-3 – BLM ROD[3]

[3] A hard copy of the BLM ROD can be found at pages B-14.1 – B-14.589 in the original Application filed with the Siting Committee and an electronic copy is provided at Exhibit B-3 on the DVD attached to the bound copy of the Application.

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Las Cruces District Office
1800 Marquess Street
Las Cruces, New Mexico 88005
www.blm.gov/nm/lascruces

In Reply Refer To:
1610 (L0310)

APR 21 2016

Dear Reader:

Enclosed is the Bureau of Land Management's (BLM) Record of Decision (ROD) for the Southline Transmission Line Project ("the Project"). This ROD is being released to inform the public and interested parties of the BLM's decision on the Project. The BLM's decisions have taken into account public comments received during the scoping effort, public comments in response to the Draft Environmental Impact Statement (EIS), which was published in April 2014; and public comments to the Final EIS, which was published in November 2015.

This document has been developed in accordance with the National Environmental Policy Act of 1969 (NEPA) and the Federal Land Policy and Management Act of 1976, as amended. The BLM and Western Area Power Administration (Western) agreed to be joint lead agencies under the NEPA regulations at 40 Code of Federal Regulations (CFR) 1501.5(b).

The BLM and Western prepared the Draft and Final EIS documents in consultation with 17 cooperating agencies including: U.S. Army Corps of Engineers; Reclamation; Department of Defense (DOD) Clearinghouse; U.S. Environmental Protection Agency; DOD Fort Huachuca; National Park Service; Forest Service (Coronado National Forest); U.S. Fish and Wildlife Service; Bureau of Indian Affairs Western Regional Office; Arizona Game and Fish Department; Arizona State Land Department; New Mexico Department of Game and Fish; New Mexico State Land Office; Cochise County, Arizona; Greenlee County, Arizona; Graham County, Arizona; and City of Sierra Vista, Arizona. However, the decisions contained in the ROD apply only to BLM-managed public land; other agencies are responsible for issuing their own permits and applicable authorizations for the Project.

Copies of the ROD will be placed in all involved BLM offices for public viewing. The document will also be posted on the BLM web site at http://www.blm.gov/nm/southline. Copies of the ROD minus attachments will be mailed to all parties who requested a copy of the Final EIS.

Sincerely,

Bill Childress
Las Cruces District Manager
Authorized Officer

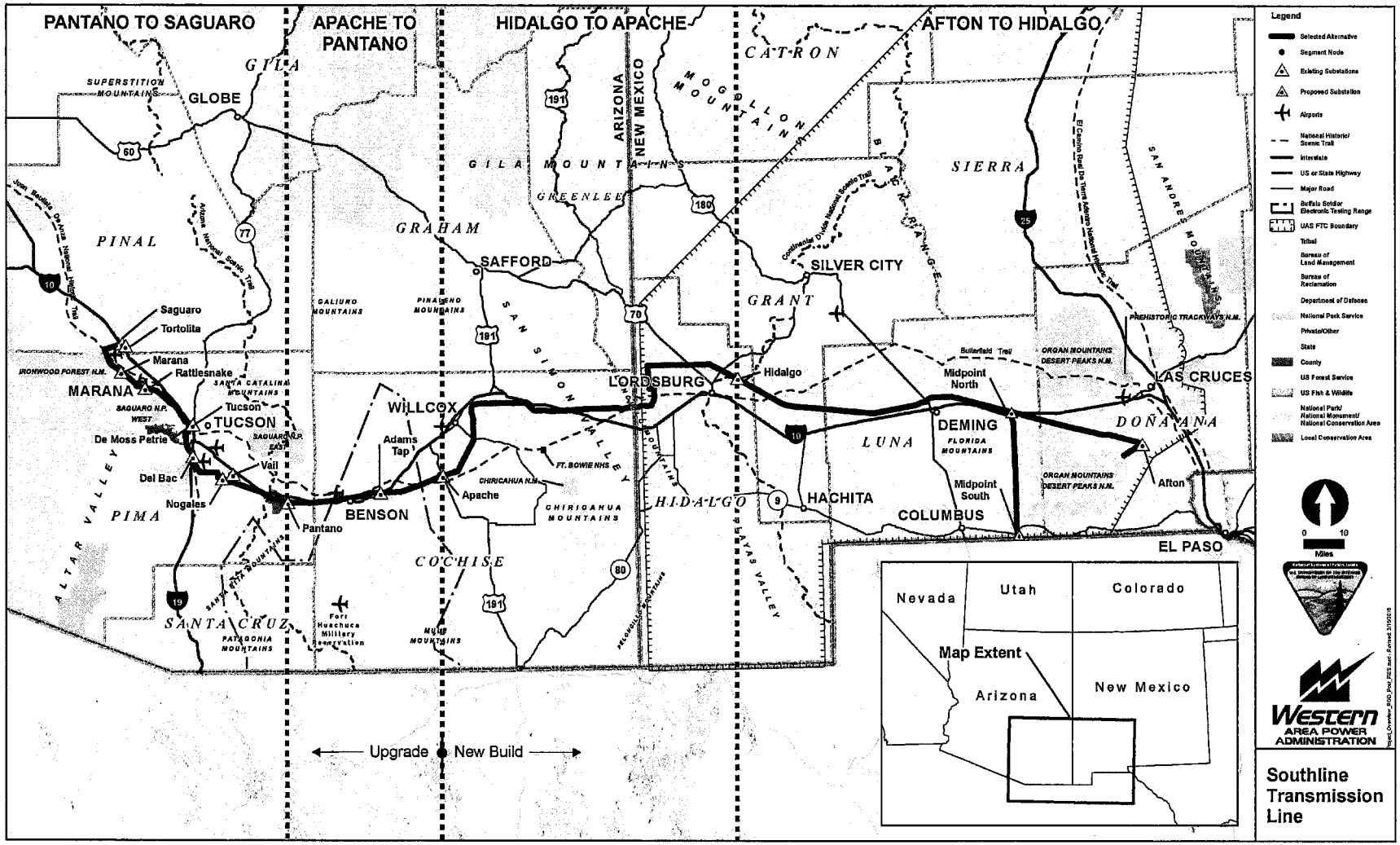
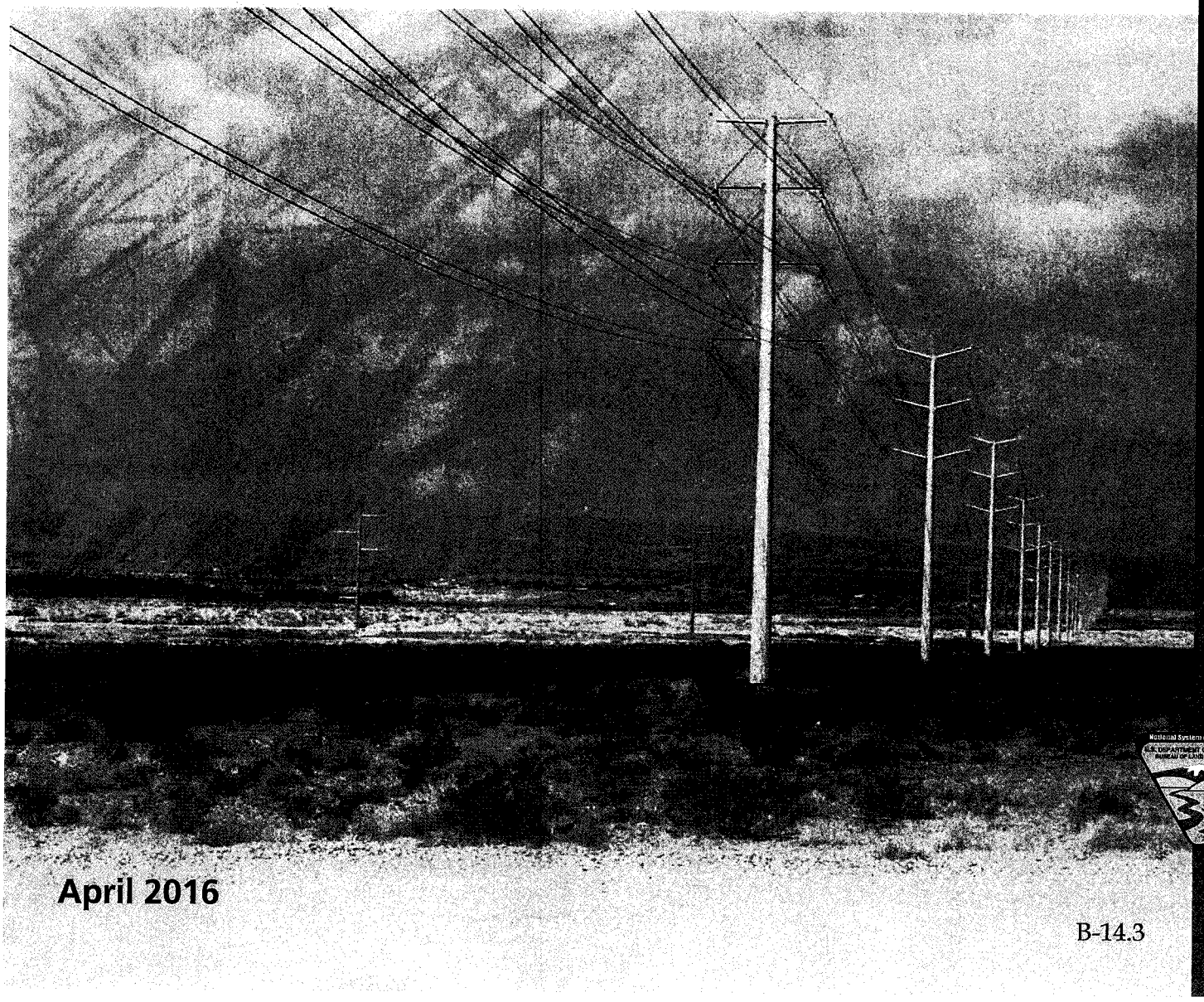


Figure 1. Selected Alternative – New Build and Upgrade.

BLM

Southline Transmission Line Project

Record of Decision



BLM/NM/PL-16-06-1610

April 2016

B-14.3

United States Department of the Interior
BUREAU OF LAND MANAGEMENT

RECORD OF DECISION
BLM Publication Index No. BLM/NM/PL-16-06-1610

Southline Transmission Line Project Right-of-Way Grants

Doña Ana, Luna, Hidalgo, and Grant Counties, New Mexico Cochise and Pima Counties, Arizona

U.S. Department of the Interior

Bureau of Land Management
Las Cruces District Office
Safford District Office, Arizona
Tucson Field Office, Arizona

1800 Marquess Street
Las Cruces, New Mexico 88005

April 2016

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Figure 1. Selected Alternative – New Build and Upgrade. 2

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Attachment A: Southline Transmission Line Project NEPA Plan of Development and Framework Plans

Attachment B: Biological and Conference Opinion and Conference Report for the Southline Transmission Line Project; Reinitiation of Consultation on the Proposed Southline Transmission Project to Reflect an Update to the Agency Preferred Alternative for the Final Environmental Impact Statement (Final EIS)

Attachment C: Programmatic Agreement

Attachment D: Form 1842-1

SUMMARY

The Southline Transmission Line Project (the Project) consists of two sections: the New Build and the Upgrade sections. The New Build Section is approximately 240 miles of new double-circuit 345-kilovolt (kV) transmission line along with substation expansions, access roads and associated infrastructure. The Upgrade Section is approximately 120 miles of Western Area Power Administration's (Western's) existing 115-kV transmission line that is being upgraded to a double-circuit 230-kV transmission line as well as substation expansions, access roads, and associated infrastructure.

The Bureau of Land Management (BLM) has considered Southline Transmission, LLC's (the Applicant), right-of-way (ROW) application pursuant to the authority of the Secretary of the Interior under 43 United States Code 501(a)(4) and 43 Code of Federal Regulations Part 2800 to grant or renew generation, transmission, or distribution ROW. This Record of Decision (ROD) approves the issuance of a ROW grant for the construction, operation, maintenance, and decommission of the Project on public land administered by the BLM under certain terms and conditions. Western, a joint lead agency, will issue its own ROD(s) on its Federal actions related to the Project.

In accordance with the National Environmental Policy Act of 1969 (NEPA), the Council on Environmental Quality regulations implementing NEPA, the Department of the Interior's NEPA regulations, and other applicable authorities, the BLM and Western analyzed the environmental impacts of the Project and a reasonable range of alternatives. A Notice of Intent to prepare the Environmental Impact Statement (EIS) for the Project was published in the Federal Register on April 4, 2012. The Notice of Availability (NOA) for the Draft EIS was published on April 11, 2014 in the Federal Register. The NOA for the Final EIS was published in the Federal Register on November 6, 2015. The BLM's Selected Alternative is the Agency Preferred Alternative as described in the Final EIS. The Selected Alternative will authorize a ROW grant to the Applicant to use public land administered by the BLM for the Project for 30 years with the right of renewal. The ROW shall be subject to the regulations existing at the time of renewal and any other terms and conditions that the Authorized Officer deems necessary to protect the public interest.

INTRODUCTION/BACKGROUND

On December 4, 2009, Southline Transmission, LLC (Southline or the Applicant), a subsidiary of Hunt Power, L.P., submitted an "Application for Transportation and Utility Systems and Facilities on Federal Lands" (Standard Form 299) to the Bureau of Land Management (BLM) for a right-of-way (ROW), and then submitted an amended application on December 22, 2010. Southline will use identified BLM-administered public land for a portion of the Southline Transmission Line Project (the Project), which will use Federal, State, and private lands through New Mexico and Arizona. As part of the Project, Southline will upgrade two existing lines in Arizona that are under the jurisdiction of Western Area Power Administration (Western). The BLM and Western agreed to be joint lead agencies under the National Environmental Policy Act of 1969 (NEPA) regulations at 40 Code of Federal Regulations (CFR) 1501.5(b).

The Project consists of two sections: the New Build and the Upgrade sections. In the New Build Section, Southline will construct and operate approximately 240 miles of new double-circuit 345-kilovolt (kV) transmission line in a new 200-foot-wide ROW between the Afton Substation, south of Las Cruces, New Mexico, and the Apache Substation, south of Willcox, Arizona (Figure 1). In the New Build Section, one new substation, the Midpoint Substation, will be constructed in Luna County, New Mexico; two existing substations in New Mexico and one in Arizona will be expanded. In the Upgrade Section, Southline will upgrade approximately 120 miles of Western's existing Saguaro–Tucson and Tucson–Apache 115-kV transmission lines in a 100-foot-wide existing ROW to a double-circuit 230-kV transmission line from the Apache Substation to the Saguaro Substation northwest of Tucson, Arizona. In some places along the existing ROW, up to an additional 50-foot ROW will be needed. Approximately 2 miles of new-build double-circuit 230-kV electric transmission line would be needed to interconnect with the existing Tucson Electric Power Company Vail Substation, located southeast of Tucson and just north of the existing 115-kV Tucson-Apache line. Twelve substations in Arizona will be expanded to accommodate new equipment associated with the upgrade; in some cases, expansion may require a separate yard.

The Project will require a new 200-foot-wide ROW across BLM, State, and private lands for the New Build Section in New Mexico and Arizona. The existing 100-foot-wide ROW and additional 50 feet required for the Upgrade Section crosses BLM, U.S. Forest Service (Forest Service) (Coronado National Forest), U.S. Bureau of Reclamation (Reclamation), Tohono O'odham Nation allotment, State, and private lands.

BLM and Western are joint lead agencies, and the BLM and Western jointly prepared the 2015 "Southline Transmission Line Project Final Environmental Impact Statement" (EIS). A notice of intent (NOI) to prepare the EIS for the Project was published in the Federal Register on April 4, 2012. The notice of availability (NOA) for the Draft EIS was published on April 11, 2014 in the Federal Register. The NOA for the Final EIS was published on November 6, 2015 in the Federal Register.

BLM's Purpose and Need

As described in Section 1.2.1 of the Final EIS, BLM's purpose and need is to respond to a ROW grant application submitted by Southline to construct, operate, maintain, and decommission a transmission line (345 kV in the New Build Section and 230 kV in the Upgrade Section), substations, access roads, and associated infrastructure on public land administered by the BLM in compliance with the Federal Land Policy and Management Act of 1976 (FLPMA) (43 United States Code (U.S.C.) 1761–1771), BLM ROW regulations, and other applicable Federal laws and policies. The BLM may grant, grant with modifications, or deny the application.

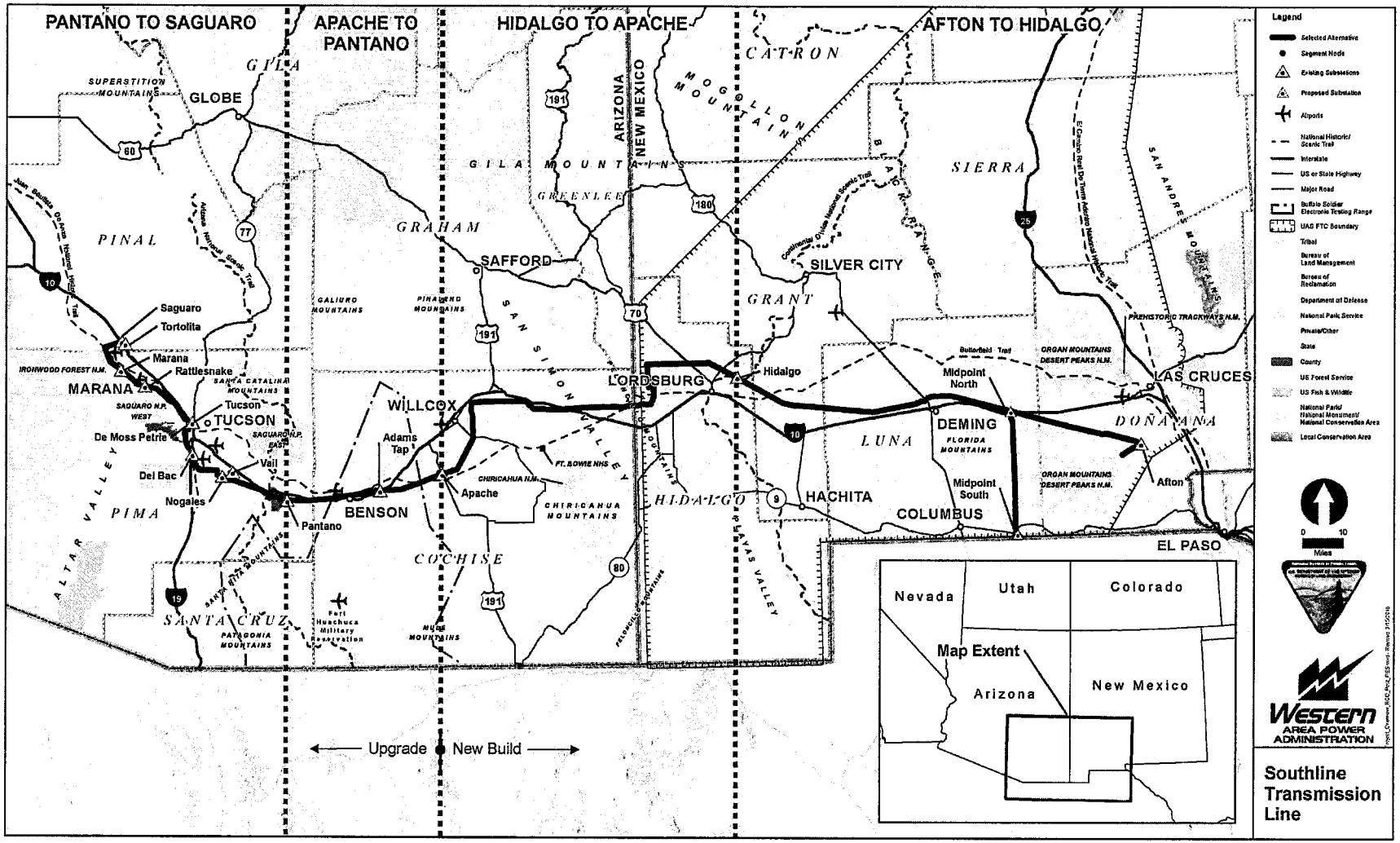

Figure 1. Selected Alternative – New Build and Upgrade.

FLPMA and the BLM's ROW regulations (43 Code of Federal Regulations (CFR) 2800) require that the BLM manage public land for multiple uses that take into account the long-term needs of future generations for renewable and non-renewable resources. The objectives for BLM in granting and managing ROWs is: (1) protect the natural resources associated with public lands and adjacent lands; (2) prevent unnecessary or undue degradation to public land; (3) promote the use of ROWs in common, taking in account engineering and technological compatibility, national security, and land use plans; and (4) coordinate, to the fullest extent possible, BLM actions with State and local government, and other interested parties (43 CFR 2801.2).

Decision to be Made

The decision to be made by BLM is:

1. In the New Build Section, whether or not to grant Southline a ROW to construct, operate, maintain, and decommission the Project on land administered by the BLM with terms and conditions as explained herein; and

2. In the Upgrade Section, whether or not to grant Western a new ROW to construct, operate, maintain, and decommission the Project on land administered by the BLM with terms and conditions as explained herein.

Selected Alternative

The BLM has decided to grant ROWs, subject to identified terms and conditions, to Southline and Western as described in the "Decision to be Made" section above, across the public land the BLM administers, to accommodate the Selected Alternative. The BLM decision includes multiple ROW grants in both the New Build and Upgrade sections of the Project. The Selected Alternative, which is the Agency Preferred Alternative as described in the 2015 Final EIS, will originate at the Afton Substation, south of Las Cruces, New Mexico, and terminate at the Saguaro Substation, north of Tucson, Arizona. The Project will be located in Doña Ana, Luna, Grant, and Hidalgo counties in New Mexico, and Cochise, Pima, and Pinal counties in Arizona. The Selected Alternative is 367 miles long, 100 miles of which is on public land administered by the BLM. No Resource Management Plan Amendment (RMPA) is necessary to support the Selected Alternative.

Public Involvement

Public involvement in the Project began before the initiation of the formal NEPA process, with a series of stakeholder meetings and workshops conducted by Southline in New Mexico and Arizona. These meetings and workshops were held in 2011, and were designed to give the public early notification and to solicit feedback.

The public was informed about the formal application for the Project and public scoping period by an NOI published in the Federal Register on April 4, 2012. During the NEPA process, public involvement was comprehensive. Three public scoping meetings were held in New Mexico, and three were held in Arizona; 133 comments were received. The public was informed about the availability of the Draft EIS/RMPA via publication of an NOA in the Federal Register on April 11, 2014, which initiated the 90-day comment period. Six public meetings were held during the Draft EIS comment period: three in New Mexico and three in Arizona.

In addition, BLM and Western sent letters in December 2014 to property owners in the area east of Willcox Playa in Cochise County, as well as south of Tucson International Airport along Old Vail Connection Road in Pima County, to notify them of new route variations in the areas.

A total of 1,029 substantive comments were received on the Draft EIS. The BLM and Western considered all substantive comments collected during the NEPA process in development and approval of the selected alternative. A total of 5 comments were received on the Final EIS published in the Federal Register on November 6, 2015, as described later in the "Comments Received on the Final EIS" section of this ROD.

Consultation with Other Agencies

BLM and Western invited 21 American Indian tribes and 33 agencies at the Federal, State, and local level to participate as a cooperating agency in preparation of the EIS. Seventeen[1] agencies accepted: U.S. Army Corps of Engineers (USACE); Reclamation; Department of Defense (DOD) Clearinghouse; U.S. Environmental Protection Agency (EPA); DOD Fort Huachuca; National Park Service (NPS); Forest Service (Coronado National Forest); U.S. Fish and Wildlife Service (FWS); Bureau of Indian Affairs (BIA) Western Regional Office; Arizona Game and Fish Department (AGFD); Arizona State Land Department (ASLD); New Mexico Department of Game and Fish; New Mexico State Land Office (NMSLO); Cochise County, Arizona; Greenlee County, Arizona; Graham County, Arizona; and City of Sierra Vista, Arizona.

Consultation and coordination with Federal and intergovernmental agencies, organizations, American Indian tribes, and interested groups of individuals are important to ensure that the most appropriate data have been gathered and employed for analyses, and that agency and public sentiment and values are considered and incorporated into decision making. Throughout the preparation of the EIS, formal and informal efforts were made by the BLM and Western to involve these groups in the scoping process and in subsequent public involvement activities, formal consultation, and review of the EIS.

The lead Federal agency, along with any other Federal agency that may be issuing permits or licenses for the Project, has a responsibility under Section 106 of the National Historic Preservation Act (NHPA) to consider the effects of its undertakings on "historic properties" (properties listed in or eligible for the National Register of Historic Places (NRHP)). The Section 106 consulting parties were the Tohono O'odham Nation, the Gila River Indian Community, the Salt River Pima-Maricopa Indian Community, the Ak-Chin Indian Community, the San Carlos Apache Tribe, the Mescalero Apache Tribe, the Fort Sill Apache Tribe, the White Mountain Apache Tribe, the Hopi Tribe, the Pueblo of Isleta, the Pueblo of Ysleta del Sur, the Pueblo of Zuni, State Historic Preservation Offices (SHPOs) in Arizona and New Mexico (NHPA 800.3(c)), Forest Service (Coronado National Forest), USACE, BIA, Western, ASLD, NMSLO, Arizona State Museum, NPS, Pima County, City of Tucson, Town of Marana, University of Arizona Desert Laboratory on Tumamoc Hill, National Trust, and Archaeology Southwest. To resolve the potential adverse effects of the undertaking on historic properties, a Project-specific Programmatic Agreement (PA) was developed among the Section 106 consulting parties and executed on March 14, 2016.

Section 7 of the Endangered Species Act (ESA) requires Federal agencies to ensure that their actions do not jeopardize the continued existence of threatened or endangered species or result in the destruction of their designated critical habitat and requires consultation with the FWS if the action agency determines that an action may affect listed species. FWS was solicited for comments and recommendations on specific species to evaluate for potential effects and was consulted on the development of species-specific

[1] Please note that in error, the Draft and Final EISs indicated 16 cooperating agencies rather than 17.

mitigation used in the EIS. Formal consultation under Section 7 of the ESA with the FWS was initiated on March 4, 2014. The FWS issued a Biological Opinion (BO) on December 30, 2014; an amended BO was issued on November 10, 2015.

DECISION

The BLM has decided to grant the following ROWs as described in Exhibit A, legal descriptions attached to the ROW grant, and as depicted in Figure 1.

In the New Build Section, BLM has decided to grant a ROW to Southline as follows:

1. Grant a ROW authorizing the construction, operation, maintenance, and decommissioning of a double-circuit 345-kV transmission line. The ROW would be 200 feet wide and 97.2 miles long, and would encompass 2,356 acres more or less. The term of the grant would be 30 years with the right of renewal. The ROW shall be subject to the regulations existing at the time of renewal and any other terms and conditions that the Authorized Officer (AO) deems necessary to protect the public interest.

2. Grant a ROW authorizing the construction, operation, maintenance, and expansion of a portion of the Afton Substation. The ROW would encompass an area of 7.8 acres more or less. The term of the grant would be 30 years with the right of renewal. The ROW shall be subject to the regulations existing at the time of renewal and any other terms and conditions that the AO deems necessary to protect the public interest.

3. Grant a ROW authorizing the upgrade, use, and maintenance of existing access roads outside the permanent ROW. The grant would be 16 feet wide on major access roads and 52.3 miles long, encompassing approximately 101.7 acres. The term of the grant would be 30 years with the right of renewal. The ROW shall be subject to the regulations existing at the time of renewal and any other terms and conditions that the AO deems necessary to protect the public interest.

4. Grant a ROW authorizing the upgrade, use, and maintenance of spur access roads outside the permanent ROW. The grant would be for roads measuring 12 feet wide and 18.8 miles long, encompassing 27.4 acres more or less. The term of the grant would be 30 years with the right of renewal. The ROW shall be subject to the regulations existing at the time of renewal and any other terms and conditions that the AO deems necessary to protect the public interest.

5. Grant a short-term ROW in association with the permanent ROW authorizing the use of workspace outside the permanent ROW during the construction of the Project. The short-term ROW would encompass an estimated 98.5 acres to accommodate three staging areas and expanded tensioning and pulling sites necessary at each line angle and substation. The term of the grant would be 3 years with the right of renewal. The ROW shall be subject to the regulations existing at the time of renewal and any other terms and conditions that the AO deems necessary to protect the public interest.

6. Grant a short-term ROW in association with the permanent ROW authorizing the upgrade, use, and maintenance of access roads outside the permanent ROW. The short-term ROW would be for roads measuring 12 feet wide and approximately 3.77 miles long, encompassing 5.47 acres more or less. The term of the grant would be 3 years with the right of renewal. The ROW shall be subject to the regulations existing at the time of renewal and any other terms and conditions that the AO deems necessary to protect the public interest.

In the Upgrade Section, BLM has decided to grant a ROW to Western as follows:

7. Grant a ROW authorizing the upgrade construction, operation, maintenance, and decommissioning of a 230-kV transmission line in previously authorized BLM ROW grant AZAR000438. The ROW would be 150 feet wide for a distance of 0.6 mile, encompassing 10 acres more or less. The term of the grant would be 30 years with the right of renewal. The ROW shall be subject to the regulations existing at the time of renewal and any other terms and conditions that the AO deems necessary to protect the public interest.

8. Grant a ROW authorizing the upgrade construction, operation, maintenance, and decommissioning of a 230-kV transmission line in previously authorized BLM ROW grant AZAR0438. The ROW would be 100 feet wide for a distance of 0.5 mile, encompassing 6.2 acres more or less.[2] The term of the grant would be 30 years with the right of renewal. The ROW shall be subject to the regulations existing at the time of renewal and any other terms and conditions that the AO deems necessary to protect the public interest.

9. Grant a ROW authorizing the construction for operation, and expansion of the existing Nogales Substation. The ROW for the substation would be a total of 10.2 acres more or less. The grant would be issued for a term of 30 years with the right of renewal. The ROW shall be subject to the regulations existing at the time of renewal and any other terms and conditions that the AO deems necessary to protect the public interest.

10. Grant a ROW authorizing the upgrade, use, and maintenance of existing access roads outside the permanent ROW. The grant would be 16 feet wide and 0.1 mile long, encompassing approximately 0.2 acre. The term of the grant would be 30 years with the right of renewal. The ROW shall be subject to the regulations existing at the time of renewal and any other terms and conditions that the AO deems necessary to protect the public interest.

11. Grant a ROW authorizing the upgrade, use, and maintenance of spur access roads outside the permanent ROW. The grant would be 12 feet wide and 0.12 mile long, encompassing 0.2 acre more or less. The term of the grant would be 30 years with the right of renewal. The ROW shall be subject to the regulations existing at the time of renewal and any other terms and conditions that the AO deems necessary to protect the public interest.

12. Grant a short-term ROW in association with the permanent ROW authorizing the use of workspace outside the permanent ROW during the construction of the Project. The short-term ROW would encompass an estimated 0.4 acre for tensioning and pulling sites. The term of the grant would be 3 years with the right of renewal. The ROW shall be subject to the regulations existing at the time of renewal and any other terms and conditions that the AO deems necessary to protect the public interest.

13. Grant a short-term ROW in association with the permanent ROW authorizing the upgrade, use, and maintenance of access roads outside the permanent ROW. The short-term ROW would be 12 feet wide and approximately 0.03 mile long, encompassing 0.03 acre more or less. The term of the grant would be 3 years with the right of renewal. The ROW shall be subject to the regulations existing at the time of renewal and any other terms and conditions that the AO deems necessary to protect the public interest.

[2] This applies to the portion of previously authorized BLM ROW that falls within State land in the north half (N ½) northeast quarter (NE ¼) of section 7, township 17 south, range 20 east, Gila and Salt River Meridian, Arizona. This parcel was transferred to the State but excepting and reserving the 100-foot-wide ROW AZAR000438, which cannot be relinquished or amended.

Agency Standards

The ROW grants must comply with agency (BLM and Western) stipulations described and referenced in the attachments to this ROD.

Bonding

Southline will post a performance bond to ensure adequate adherence to all terms and conditions on Federal lands. The amount of the bond will be determined at a later date. The bond must be accepted by the BLM AO prior to commencement of surface-disturbing activities authorized under the ROW grant. The bond will apply to the following:

1. Accommodation of all cultural resources post-fieldwork costs associated with implementing the approved treatment plans in New Mexico and Arizona or other cultural resources mitigation measures. Such costs may include, but are not limited to, the following: treatment; fieldwork; post-field analyses, research, and final report preparation; interim and summary report preparation; and the processing and curation of project documentation and cultural material collected during data recovery field work in a Department of the Interior-approved curation facility, and as specified in the Southline PA and post-construction administrative costs associated with reporting as specified by the PA (Stipulation X).

2. Restoration and reclamation of disturbed areas and other requirements relative to the construction phase of the project. Upon completion, or partial completion, of construction-related reclamation requirements, the AO may reduce or terminate the amount of the bond.

3. Liability for damages or injuries resulting from releases or discharges of hazardous materials.

The bond may be released as specific tasks are completed and accepted by the BLM. This bond must be maintained in effect until temporary improvements used during construction are removed and restoration and reclamation of the ROW has been accepted by the AO.

State and Federal Legal Requirements

This ROD also requires Southline and Western to meet the requirements of the other major authorizing agencies for this Project concerning any necessary Federal and State permits, licenses, and/or approval and consultation requirements on Federal lands as identified in Table 1-5 found on pages 20 through 23 of the Final EIS for the Southline Transmission Line Project.

Compliance and Monitoring

Southline will provide compliance environmental inspectors/monitors for transmission line construction and access road upgrades, and substation construction. These monitors will report directly to the BLM. Their role and responsibility is to ensure compliance with all terms, conditions, and stipulations of the ROW grant and short-term ROW, and other permits, approvals, and regulatory requirements as described in Sections 2.4.1, 2.4.5, and 2.4.6 of the Final EIS. The environmental inspectors/monitors shall follow the Environmental Compliance Management Plan included as Appendix A6 of the NEPA Plan of Development (POD), dated March 14, 2016 (Attachment A). Southline will also be responsible for monitoring the reclamation and stabilization of the ROW over the long-term. Included in this requirement, among other things, is the yearly monitoring of the ROW for invasive plants and, if

necessary, spraying as outlined in the Noxious Weed Management Plan included in Appendix B11 of the NEPA POD (see Attachment A).

Terms, Conditions, and Stipulations

This decision is contingent upon Southline's and Western's meeting all terms, conditions, and stipulations for Federal lands listed below:

1. Southline and Western shall follow the construction procedures and mitigation measures described in its application and supplements as identified in the Final EIS as modified. These mitigation measures are included with this ROD as the NEPA POD and Framework Plans in Attachment A.

2. Southline and Western shall comply with the standard stipulations of the ROW grant and short-term ROW.

3. Prior to any construction or other surface disturbance associated with the ROW grant and short-term ROW, Southline and Western shall receive written Notices to Proceed (NTPs) from the AO or delegated agency representative. Any NTP shall authorize construction or use only as therein expressly stated and only for the particular location, segment, area, and use described.

4. In accordance with Title 43 CFR Part 2800, Southline has provided the BLM with a NEPA POD dated March 2016 (see Attachment A) detailing how the transmission line and associated facilities will be constructed in compliance with the ROW and short-term ROW terms, conditions, and stipulations. Southline and Western shall comply with all required environmental protection measures and Proponent Committed Environmental Measures (PCEMs) outlined in the NEPA POD and Framework Plans to the satisfaction of the BLM. These measures include, but are not limited to, the standard stipulations of the ROW grant and short-term ROW.

5. Southline and Western shall construct, operate and maintain the facilities, improvements, and structures within the ROW and areas authorized by the short-term ROW in conformity with the NEPA POD dated March 2016 (see Attachment A), which is part of the grant. Any relocation, additional construction, or use that is not in accordance with the approved NEPA POD shall not be initiated without the prior written approval of the AO.

6. Southline and Western shall implement all activities described in the "Description of the Proposed Action" and the terms and conditions of the BO written by the FWS found in Attachment B of this ROD.

7. Southline and Western shall comply with the terms and conditions of the PA developed between the Section 106 consulting parties and signed by the BLM, the State Historic Preservation Officers in Arizona and New Mexico, the Tohono O'odham Nation and the Advisory Council on Historic Preservation (ACHP). The PA is provided in Attachment C. Pursuant to the PA, a Historic Properties Treatment Plan (HPTP) will be developed for the treatment of affected historic properties.

8. Southline shall comply with all the agreed upon plans, deliverables, activities, and funding set forth in the Memorandum of Agreement between the Arizona Game and Fish Commission and Southline.

As noted in the "Decision to be Made" section above, the terms, conditions, and stipulations for Federal lands listed above apply to Southline in the New Build Section, and to Western for the 0.5-mile segment of BLM land in the Upgrade Section.

Notice to Proceed

This decision does not authorize Southline and Western to commence construction of any Project facilities for the Southline Transmission Line Project or proceed with other ground-disturbing activities in connection with the Southline on public land. Southline and Western shall not commence construction of Project facilities or proceed with any ground-disturbing activities related to the Southline Project on Federal lands until Southline and Western in accordance with 43 CFR 2807.10, receive a written notice to proceed from the BLM's AO authorizing Southline to commence construction of Project facilities or proceed with other ground-disturbing activities in connection with the Southline Transmission Line Project.

Bonding and outstanding plans and deliverables are needed from Southline before BLM can issue an NTP. Outstanding plans and deliverables required prior to the NTP include signed acceptance of the ROW grant, a complete and authorized POD, and the associated framework plans not yet completed. These outstanding data needed for the POD and needed framework plans include Geotechnical Investigation, Project Construction Plan, Special Construction Techniques, Construction Workforce Plan, Access Road Plan, HPTP, Soil Management Plan, Health and Safety Plan, Avian Protection Plan, Waste Management Plan, Helicopter Flight Plan/Flight and Safety Plan, Decommissioning Plan, Project and Environmental Features map set, Key Mitigation Measures and Reclamation Practice map set, and an Access Roads map set.

Appeal of this Decision

Any appeal of this decision must follow the procedures set forth in 43 CFR Part 4. Within 30 days of the decision, a written notice of appeal must be filed in the office of the AO at U.S. Department of the Interior, Bureau of Land Management, Las Cruces District Office, 1800 Marquess Street, Las Cruces, New Mexico 88005. If a statement of reasons for the appeal is not included with the notice, it must be filed with the Interior Board of Land Appeals (IBLA), Office of Hearings and Appeals, U.S. Department of the Interior, 801 North Quincy St. Suite 300, Arlington, Virginia 22203 within 30 days after the notice of appeal is filed with the AO.

If you wish to file a petition for stay pursuant to 43 CFR Part 4.21(b), the petition for stay should accompany your notice of appeal and shall show sufficient justification based on the following standards:

1. The relative harm to the parties if the stay is granted or denied,
2. The likelihood of the appellant's success on the merits,
3. The likelihood of irreparable harm to the appellant or resources if the stay is not granted, and
4. Whether the public interest favors granting the stay.

If a petition for stay is submitted with the notice of appeal, a copy of the notice of appeal and petition for stay must be served on each party named in the decision from which the appeal is taken, and with the IBLA at the same time it is filed with the AO.

A copy of the notice of appeal, any statement of reasons and all pertinent documents must be served on each adverse party named in the decision from which the appeal is taken and on the Office of the Regional Solicitor, Southwest Regional Office, 505 Marquette Avenue NW, Suite 1800, Albuquerque, New Mexico 87102, not later than 15 days after filing the document with the AO and/or IBLA.

See Attachment D (Form 1842-1) for filing information related to appeals and requesting a stay.

ALTERNATIVES CONSIDERED IN THE FINAL EIS

No Action Alternative

Under the no action alternative, the BLM would not grant the ROW for construction and operation of the Project. The Project facilities, including transmission lines and substations, would not be built or expanded, and existing land uses and present activities in the analysis area would continue. Western would not participate in the Project and the existing Western 115-kV lines would continue to serve the existing transmission system. However, while the existing Western lines would not be upgraded as part of the Project, upgrades to the existing line are in Western's 10-year capital improvement plan.

Route Alternatives

Through their routing process, Southline identified two route alternatives: the Proponent Preferred and the Proponent Alternative. Several local alternative and/or route variations were developed in consultation with the BLM, Western, and other agencies. In the EIS, the Proponent Preferred and Proponent Alternative routes were divided into four route groups and then into subroutes within each route group. Route groups were established based on geography, common resource issues, and interconnection points (substations), to allow for localized comparisons among subroutes and local alternatives (see Section 2.7 in the Final EIS). The four route groups are:

- Route group 1: Afton Substation to Hidalgo Substation (New Build Section)
- Route group 2: Hidalgo Substation to Apache Substation (New Build Section)
- Route group 3: Apache Substation to Pantano Substation (Upgrade Section)
- Route group 4: Pantano Substation to Saguaro Substation (Upgrade Section)

Environmentally Preferred Alternative

The Environmentally Preferred Alternative is the "alternative that causes the least damage to the biological and physical environment; it also means the alternative which best protects, preserves, and enhances historic, cultural, and natural resources."[3] The BLM must present this alternative in the ROD in accordance with 40 CFR 1505.2(b); however, the agency is not required to select the Environmentally Preferred Alternative as the Agency Preferred Alternative in their decision. For the Environmentally Preferred Alternative, action alternatives were evaluated according to the nature and magnitude of their environmental consequences as described in the Final EIS Section 2.10.6.

The Environmentally Preferred Alternative for the New Build Section consists of the Proponent Preferred segments P1, P2, P3, P4a, P5b, P6a, P6b, P6c, Gb, and Gc, in combination with local alternatives LD3a,

[3] Council on Environmental Quality. 1981. Forty most asked questions concerning National Environmental Policy Act regulations. (Question 6a). Federal Register 46:18026.

LD3b, and WC1, around the Lordsburg and Willcox playas. The Environmentally Preferred Alternative for the Upgrade Section would be to upgrade in Western's existing Saguaro–Tucson and Tucson–Apache 115-kV transmission line ROW, with no local alternatives.

Alternatives Considered but Eliminated from Analysis

In the preparation of the Draft and Final EISs, an evaluation was made of a full range of alternatives. All reasonable alternatives were given further consideration, including alternatives to the transmission line option, new generation facilities, reliance on the existing transmission system, and alternative transmission technologies. Alternatives that were (1) ineffective (i.e., did not meet the agencies' purpose and need), (2) technically or economically infeasible, (3) inconsistent with the basic policy objectives for management of the area (e.g., resource management plans), (4) remote or speculative (i.e., could not be analyzed), or (5) substantially similar in design or effects to another alternative being analyzed, were eliminated from detailed analysis. The Final EIS outlines the circumstances in which alternatives can be dismissed from detailed analysis as directed in BLM Handbook H1790-1, "BLM National Environmental Policy Act Handbook."

For a detailed description of routes and technology/design alternatives eliminated from analysis, see Section 2.9 of the Final EIS.

Selected Alternative

The Agency Preferred Alternative as presented in Section 2.10.5 of the Final EIS is the selected route. All practicable means to avoid or minimize environment harm from the alternative selected have been adopted with the application of all terms, conditions, and stipulations contained herein.

New Build Section

In the New Build Section, the Selected Alternative includes Proponent Preferred segments P1, P2, P3, P4a, P5b, P6a, P6b, P6c, P7, and P8, in combination with local alternatives LD3a and LD3b, for a total of 245.9 miles. Approximately 85 percent of the Selected Alternative will be parallel to existing or proposed linear infrastructure in the New Build Section of the Project.

This route was chosen as the Selected Alternative because it will:

- use existing and proposed linear ROWs by paralleling existing infrastructure and transmission lines;
- minimize impacts to visual resources and eliminate the need for plan amendments through conformance with existing land use plans;
- minimize impacts to military operations at and near the Willcox Playa; and
- minimize impacts to sensitive resources, particularly near the Lordsburg Playa.

Please note that the Selected Alternative is the same as the environmentally preferred alternative (described in Section 2.10.6. of the Final EIS), except for segments Gb, Gc, and WC1, which were not chosen because of their impacts to military operations.

Upgrade Section

The Selected Alternative for the Upgrade Section consists of a combination of the Proponent Preferred, new route variation south of the Tucson International Airport, and local alternatives at Tumamoc Hill and

near the Marana Regional Airport, within route groups 3 and 4. The Selected Alternative for the Upgrade Section includes Proponent Preferred segments U1a, U1b, U2, U3a, U3b, U3c, U3d, U3g, U3h, U3i, U3k, U3l, U3m, and U4, in combination with route variation U3aPC, as well as local alternatives TH1a and TH1-Option around Tumamoc Hill, and MA1 near the Marana Regional Airport. The Selected Alternative for the Upgrade Section will be 120.9 miles, of which 109.5 miles will be the upgrade of Western's existing Saguaro–Tucson and Tucson–Apache 115-kV transmission lines.

This route was selected because it will:

- maximize use of the existing ROW and facilities currently used for Western's existing Saguaro–Tucson and Tucson–Apache 115-kV transmission lines;
- address cultural resources and visual concerns regarding upgrading the existing Western line across Tumamoc Hill;
- reduce existing conflicts in the community of Summit, and minimize impacts to future Pima County economic development plans south of the Tucson International Airport; and
- minimize impacts to military training operations at the Marana Regional Airport.

SELECTION OF THE ALTERNATIVE

Management Considerations

The Selected Alternative (Agency Preferred Alternative) best balances the meeting of BLM's purpose and need with limiting the environment impacts of the Project. The Selected Alternative also provides the best scenario for implementing mitigation to minimize or eliminate adverse impacts to resources. The following section describes the factors and considerations taken for the Selected Alternative.

Meeting the BLM's Purpose and Need

The approval of the ROW grant of the selected alternative for the Project will reasonably accomplish the BLM's purpose and need in compliance with FLPMA, BLM ROW regulations, and other applicable Federal laws and policies as described in the "Laws and Regulations" section of this ROD while giving consideration to environmental and technical factors. Approval of the issuance of the ROW grant also is consistent with BLM's multiple-use mandate and advances regulatory and policy goals by allowing Southline and Western the use of Federal lands for the Project, which will increase transmission capacity, help improve reliability, and encourage the development of renewable energy generation.

Consideration of the Issues

Impacts to resources highlighted below, among others, were considered during the analysis presented in the EIS. Issues, as described in Chapter 3 of the Final EIS, were identified during the scoping and comment processes. The analysis of these issues was used to develop local alternatives and route variations and in the evaluation of the alternatives. A complete list of all issues analyzed and their impacts can be found in Table 1-9 of the Final EIS.

The issues presented below describe potential impacts to the following resources and are those found to be substantive through impacts analysis and were central to the BLM's decision-making process.

AIR QUALITY

Construction of the transmission lines and substations will result in emissions of air pollutants from equipment exhaust, vehicle exhaust from travel to and from construction areas, and fugitive dust from soil disturbance. Construction emissions will, however, be transient, short-term, and spread over large distances and multiple airsheds. Emissions from operation and maintenance activities (e.g., vehicle exhaust from travel to substations and the transmission line for routine inspection and/or repairs) will be similar in nature to those of construction emissions but will be much lower.

Construction of the Selected Alternative will result in emissions of all regulated pollutants below the de minimis thresholds for conducting regionally significant conformity determinations in all airsheds the Project will cross or for which the Project will be within 31 miles, including all nonattainment/ maintenance areas. Additionally, pollutant emissions are predicted to be within regulatory limits (below the applicable National Ambient Air Quality Standards (NAAQS), Arizona Ambient Air Quality Standards, and/or New Mexico Ambient Air Quality Standards) for construction of the Project. The impact intensity of the Project on air quality will be minor.

BIOLOGICAL RESOURCES

Vegetation

The Project will involve the removal of vegetation during construction activities, resulting in the direct loss of plant communities. The primary direct and indirect impacts to vegetation and special-status species during construction and operation of the facilities will be associated with removal and/or crushing of vegetation communities from construction of transmission lines, substation expansions, temporary work areas, and access roads; decreased plant productivity from fugitive dust; and plant community fragmentation. Indirect impacts associated with vegetation removal may include soil erosion, vegetation community fragmentation, increased edge effect, and colonization of invasive plant species.

PCEMs, as adopted in terms, conditions, and stipulations of the ROW grant, will be applied to reduce, avoid, or otherwise provide compensation for impacts to sensitive vegetation. Examples of these include the following: (1) vegetation disturbance will be minimized to the extent practicable; (2) a Reclamation, Vegetation, and Monitoring Plan will be developed and implemented; (3) a Plant and Wildlife Species Conservation Measures Plan will be developed and implemented; (4) pre-construction surveys will be conducted for special-status plant species, including Chihuahua scurfpea (*Pediomelum pentaphyllum*); (5) clearing of riparian vegetation will be avoided where possible; (6) a Noxious Weed Management Plan will be developed and implemented; and (7) construction equipment will be washed prior to moving onto the construction site to limit introduction and spread of noxious weeds. Additional mitigation provided by the AGFD for segment P7, and as adopted in terms, conditions, and stipulations of the ROW grant, is also considered.

The vegetation communities impacted by the Project are generally common and geographically widespread, and much of the Project is located within an area of existing disturbance. Therefore, impacts to vegetation communities, special-status species, and noxious weeds are unlikely to be significant. The impact intensity of the Project on vegetation will be minor.

Wildlife

Potential Project-related impacts on wildlife include the loss, degradation, and/or fragmentation of breeding, rearing, foraging, and dispersal habitats and increase in edge habitat; collisions with and crushing by construction vehicles; loss of burrowing animals in burrows in areas where grading will occur; increased invasive and noxious weed establishment and spread; increased noise/vibration levels;

increased potential for migratory birds to strike transmission lines; and increased access for off-highway-vehicle users. The transmission line ROW will serve as a movement corridor for some species and as a barrier to others. Impacts on habitat will be minor/negligible in previously disturbed areas with low vegetative cover, and will be minor in areas of new disturbance and higher vegetation density.

All practicable means to avoid or minimize environment harm from the alternative selected have been adopted with application of terms, conditions, and stipulations contained herein; PCEMs, as adopted in terms, conditions, and stipulations of the ROW grant, will be applied to minimize impacts to wildlife habitat. These will include limiting the area of disturbance, restoring disturbed areas, and avoiding aquatic and riparian areas. PCEMs also include pre-construction surveys, erosion control measures, a worker training program, and measures to limit invasive species' establishment and spread. Line-marking devices will be used to decrease the potential for birds striking transmission lines near Willcox Playa, where wintering sandhill cranes (*Grus canadensis*) will have to cross the Project during their daily migrations to the agricultural fields east of the playa to feed. Additional mitigation to relocate Crane Lake farther from the Project, as provided by the AGFD for segment P7 and adopted in terms, conditions, and stipulations of the ROW grant, is also considered. Impacts to general wildlife and special status species may occur with construction and operation of the Selected Alternative; these are described in detail in Section 4.8.2 of the Final EIS.

The wildlife and special-status species habitat impacted by the Selected Alternatives is common relative to the amount of surrounding available habitat, and much of the Project occurs within areas of existing disturbance. In addition, the Project has been sited to avoid ground disturbance in both designated and proposed critical habitat, and PCEMs have been developed to address specific habitat impacts, such as those in the Willcox Playa Wildlife Area. Therefore, impacts to wildlife and special-status species' habitat are not expected to be significant. The impact intensity of the Project on wildlife will be minor.

CULTURAL RESOURCES

Potential impacts to cultural resources such as archaeological sites, historic built environment resources, trails, and American Indian traditional use areas and sacred sites could result from construction, operation, and maintenance of the Project. Loss of integrity will be the primary adverse direct or indirect impact to cultural resources. In terms of historic properties, loss of integrity often stems from alterations of a resource's characteristics that make it eligible for the NRHP. During construction, direct impacts will result from ground disturbance if resources are present and will be long-term; indirect impacts will result from visual encroachment on a resource's setting during construction and facility installation and will be long-term. During operation and maintenance, long-term visual impacts will occur from the presence of the transmission line if resources are present.

The Selected Alternative and its associated access roads and facilities will be inventoried in accordance with the Southline Section 106 PA. Resources will then be evaluated for their NRHP eligibility.

The Selected Alternative could impact 133 previously recorded sites and four listed properties. The Selected Alternative will cross the Butterfield Overland Mail and Stage Route (Butterfield Trail) which is under National Historic Trail feasibility study, and the Juan Bautista de Anza National Historic Trail (Anza NHT), which is not a historic property, so it will not be subject to the Section 106 PA terms and conditions. Potential impacts to both trails are also discussed in "Special Designations."

Visual impacts to the cultural integrity of Tumamoc Hill are expected; however, the Selected Alternative has been designed, in consultation with stakeholders, to go around rather than through Tumamoc Hill to minimize visual impacts from upgrading the existing Western line across Tumamoc Hill. The removal of the existing line, which does run through the Tumamoc Hill property, will also help minimize the line's

current visual impacts to a degree. However, relocating the line off Tumamoc Hill to along Greasewood Road will still result in visual impacts.

Mitigation of adverse direct impacts to historic properties will be developed in accordance with the Section 106 PA and Southline's POD. As described in the PA, avoidance of resources through design and micro-siting will occur first. If avoidance is not feasible, then efforts will be made to minimize the adverse effects, usually through design features and/or best management practices (BMPs). Next, if impacts remain, then mitigation measures are developed and detailed in the HPTP. The PA outlines steps by the agencies, the Project proponent, and other consulting parties to be taken prior to construction and during operation and maintenance of the Project to comply with the NHPA by resolving the adverse effects to historic properties.

The impact intensity of the Project on cultural resources will range from no impact to major.

VISUAL RESOURCES

The visual impact analysis included the characterization of the existing landscape and an analysis of changes to the landscape that may result from the Project and an assessment of impacts to sensitive viewers. Additionally, 103 key observation points (KOPs) were established along the potential Project routes and were used as representative viewpoints from which to assess impacts to sensitive viewers and whether the changes to the visual landscape will meet BLM management objectives for visual resources. Together with scenic quality mapping, visual simulation, and field reconnaissance, each KOP was used to establish how the Project will affect the existing aesthetic conditions of the landscape and how sensitive viewers will be impacted. The degree of change to the existing landscape was assessed in terms of visual contrast, based on 10 environmental factors for identifying and characterizing impacts related to viewer sensitivity and Project visibility. Major visual impacts resulting from the project are described in detail in Section 4.10 in the Final EIS.

Implementation of PCEMs, as adopted in terms, conditions, and stipulations of the ROW grant, will be applied to reduce visual impacts, preserve sensitive views, and minimize visual contrast. Included are methods of micro-siting the corridor to follow landform contours, clearing trees and vegetation to reduce visual contrast and blend into adjacent landscape, and implementing tower and facility design to reduce visibility of the structures. However, the structures will still be visible in many situations. The impact intensity of the Selected Alternative on visual resources will range from minor to major.

LAND USE, INCLUDING FARM AND RANGE RESOURCES, MILITARY OPERATIONS, AND RECREATION RESOURCES

Land Use

The Project will be constructed across lands owned and managed by Federal, State, tribal, private, or other entities, under a variety of resource management plans, comprehensive plans, or other land use plans. The Project crosses large tracts of undeveloped land, as well as urban and suburban areas. To minimize impacts and maximize the use of established utility corridors, approximately 85 percent of the Selected Alternative in the New Build Section and approximately 98 percent in the Upgrade Section will be parallel to existing or proposed linear infrastructure such as transmission lines, gas lines, and roadways.

Approximately 26 percent of the Selected Alternative route will cross public land administered by the BLM. State land in New Mexico and Arizona form approximately 35 percent of the route, and the remaining 39 percent will cross county, private, tribal, and other non-Federal or State lands. ROW will

be acquired by Southline on these lands, which are generally used for grazing, farming, recreation, and open space.

BLM and State lands are primarily used for grazing or recreation in open-space areas. Residential uses are located on private land in rural areas and near small cities and towns within the analysis area.

Impacts to land uses will occur in some form along portions of the route that cross undeveloped lands, irrigated agricultural lands, residential subdivisions, and areas used for industrial or military testing and training. PCEMs, as adopted in terms, conditions, and stipulations of the ROW grant, will be effective in avoiding or minimizing direct impacts with land uses in most conditions. There will be no direct displacement of existing land use authorizations or ROWs, or residential, business, or industrial structures.

Farmland and Range

Construction of the transmission line will have direct effects on farmlands and rangelands by removing land acreage from productivity. Except under extraordinary circumstances, all operation and maintenance activities will occur within the transmission line and access road ROWs. These activities will not directly or indirectly impact adjacent farmlands or rangelands. No direct effect will occur on farmlands and rangelands during the operation and maintenance phase of the Project beyond the long-term loss of lands resulting from Project construction. The Project will not significantly reduce farmlands or rangelands in the analysis area because farming and ranching operations are still allowable uses within the transmission line ROW. Whereas permanent disturbance at each structure (4 to 6 structures per mile of transmission line) will result in a conversion of farmland to non-farmable land, temporary disturbance along the ROW will be returned to farmland. Much of the Selected Alternative parallels existing linear facilities that have already resulted in conversion of land to non-farmable land.

Military Operations

Impacts to military operations could occur from construction, operation, and maintenance of the Project where the transmission line, substations, and ancillary facilities intersect with military operations and activity (including electronic testing performed at the Electronic Proving Ground/Buffalo Soldier Electronic Testing Range (BSETR) and the Willcox Playa bombing range) as described in Section 3.11.3 of the FEIS. This could include military training visual routes (MTRs) or areas where training is for electronics and communications. Ground disturbance–based impacts on military uses will not be significant, as all operations/training occurring in visual routes are aerial in nature, and the BSETR is used for electronics and communications testing. These impacts will be below the above-ground-level thresholds since the areas that may intersect MTRs include existing transmission line facilities that are already below above-ground-level thresholds, and the military operations have operated in conjunction with these facilities previously. Additionally, the Project will include the optional structure heights in areas intersecting some MTRs. Towers crossing the MTRs will also have anti-collision lighting to the maximum extent possible in order to make the hazard of transmission lines more apparent to pilots flying low altitude at night. These measures will mitigate impacts to military training and airspace usage, as well as contribute to the safe conduct of missions.

Within the Upgrade Section near Fort Huachuca, the Project could include changes to the "zero point" level for electronics and communications testing purposes on the BSETR. An upgrade of the existing line will include a higher electronic load; however, any transmission line design will use best available technology to minimize electromagnetic interference. Therefore, upgrading the existing line could potentially reduce electromagnetic interference from current levels. Additionally the DOD provided specific mitigation measures (PCEMs as adopted in terms, conditions, and stipulations of the ROW grant) to minimize impacts to the BSETR. Any changes to electromagnetic fields (EMF) will require Fort

Huachuca to revise its radio frequency emitter inventory for this area to account for the new design and operation of the line. Existing transmission lines that are currently in operation within the BSETR are already accounted for in the existing EMF calculations.

The impact intensity of the Project on land use, including farm and range resources and military operations, will range from no impact to moderate. The impact intensity for the Selected Alternative will be minor.

SPECIAL DESIGNATIONS

Potential impacts from construction activities include direct ground disturbance and temporary increases in ambient noise levels in areas where the transmission line, substations, and ancillary facilities intersect with or are adjacent to special designations. There are also long-term potential visual impacts from the Project.

The only BLM special designations that will be intersected by the Project will be two National Scenic Trails (NSTs) (Continental Divide and Arizona), one NHT (Anza), and one Trail Under Study for Congressional Designation (Butterfield Trail).

Continental Divide NST

The Project will cross this trail once near the town of Lordsburg and will parallel another 115-kV line that is part of a rural and industrial landscape. This is a design feature/BMP (and PCEM as adopted in terms, conditions, and stipulations of the ROW grant) that serves to reduce levels of visual contrast on the landscape. Another design feature will require that the Project be built perpendicular to the Continental Divide NST, which is also in conformance with the Mimbres RMP management prescriptions. As a result, it has been determined that the Project will not cause substantial interference to, nor will it be incompatible with, the nature and purposes, including the resources, qualities, values, associated settings, and the primary use or uses, of the Continental Divide NST.

Arizona NST

The Project will cross the Arizona NST once near the town of Vail, Arizona. It will be paralleling another 115-kV line and crosses the NST in a landscape that is within view of Interstate 10. The Project will cross the Trail perpendicularly and will not parallel it. Both of these design features (PCEMs as adopted in terms, conditions, and stipulations of the ROW grant) serve to reduce impacts. As a result, it has been determined that the Project will not cause substantial interference to, nor will it be incompatible with, the nature and purposes, including the resources, qualities, values, associated settings, and the primary use or uses, of the Arizona NST.

Anza NHT

The Project crosses this Trail within the city of Tucson, generally along the Santa Cruz River.
The upgrade of the Project in this developed, urban setting will not cause substantial interference to or be incompatible with the nature and purposes, including the resources, qualities, values, associated settings, and the primary use or uses, of the Anza NHT.

Butterfield Trail

The majority of the Project would parallel existing, similar facilities, which is a design feature/BMP (and PCEM as adopted in terms, conditions, and stipulations of the ROW grant) that serves to reduce levels of visual contrast on the landscape. Another design feature/BMP will require that the Project be built perpendicular to the Butterfield Trail, rather than paralleling it, which is also in conformance with the

Mimbres RMP management prescriptions. Also in keeping with land use plan prescriptions, the Project is more than ¼ mile away from any related Butterfield Stage Stations. For these reasons, it has been determined that the Project will not affect the agency's ability to manage the Trail as an NHT should it be eventually designated, nor will it cause a significant adverse impact to the values, characteristics, and settings for which the Butterfield Trail is being studied for NHT designation.

The Project crosses Sonoita Valley Acquisition Planning District, and approximately eight county or city parks. During construction, increases in ambient noise levels, the presence of equipment, and dust will be temporary and will decrease with the completion of construction activities; therefore, the impact will be minor. Impacts to county and city parks noted above would be negligible since the Western lines to be upgraded are pre-existing. There will be no expansion of the ROW in Pima County or the City of Tucson parks and conservation areas.

There will be no direct impacts on designated wilderness areas and wilderness study areas (WSAs), as no facilities will be sited within wilderness areas or WSA boundaries. The short-term, indirect impacts to wilderness areas and WSAs during construction may include impacts to air quality, noise, visual, or other resources. Potential long-term, indirect impacts to wilderness areas or WSAs could include loss of outstanding opportunities for solitude or primitive and unconfined recreation as a result of changes to the visual character of the surrounding lands; these impacts are anticipated to be minor since existing facilities (e.g., transmission lines, pipelines, roads) are already visible. Portions of the WSAs in New Mexico could be indirectly impacted by the Project, but due to the size and rugged terrain of these areas, there will still be ample opportunity for solitude. The impact intensity for the Selected Alternative will be minor.

Consideration of Public Comments and Concerns

Southline conducted three pre-NEPA workshops and two routing workshops in 2011, as well as meeting with county commissioners and supervisors from Hidalgo and Luna counties in New Mexico, from Cochise and Pima counties in Arizona, and city administrators from Deming, Columbus, Willcox, and Tucson. Southline used the input generated from this early public involvement to develop viable Project routes and to avoid potentially unsuitable routes.

The BLM published the NOI for the Project in the Federal Register on April 4, 2012. Six public and two agency scoping meetings were held in 2012: one agency meeting (Las Cruces) and three public meetings in New Mexico (Las Cruces, Deming, and Lordsburg), and one agency (Tucson) and three public meetings in Arizona (Willcox, Benson, and Tucson). The NOA notifying the public of the availability of the Draft EIS was published in the Federal Register on April 11, 2014. Again, six public and two agency meetings were held in Arizona and New Mexico. In total, 87 comment submittals with 797 separate comments were received on the Draft EIS, as described in Section 5.2.3, "Draft EIS Comment Period," of the Final EIS.

Based on comments received on the Draft EIS, route variations east of Willcox Playa and south of the Tucson International Airport were developed and analyzed in the Final EIS. The route variations around the east side of Willcox Playa were designed to minimize avian impacts. The route variation south of the Tucson International Airport was designed to minimize conflicts with Pima County economic development efforts and to minimize encroachment conflicts and dense development around the existing Western line in the Summit area. These additions to the analysis are described in Section 1.1.2 of the Final EIS.

COMPLIANCE WITH LAWS, ORDINANCES, REGULATIONS, AND APPLICABLE STANDARDS

Laws and Regulations

Clean Air Act

Since 1963, the Clean Air Act and subsequent amendments in 1970, 1977, and 1990 have provided the authority and framework for EPA regulation of air emission sources. Regulations have been promulgated pursuant to the Clean Air Act to serve as requirements for the monitoring, control, and documentation of activities that will affect ambient concentrations of pollutants that may endanger public health or welfare.

According to the analysis presented in the EIS (Section 4.2), construction activities for the Project will result in emissions of all regulated pollutants below the de minimis thresholds for conducting regionally significant conformity determinations in all airsheds the Project will cross or for which the Project will be within 31 miles of, including all nonattainment/maintenance areas. Additionally, pollutant emissions are predicted to be within regulatory limits (below the applicable NAAQS, Arizona Ambient Air Quality Standards, and/or New Mexico Ambient Air Quality Standards) for construction of any of the Project alternatives.

Clean Water Act, Executive Order 11988, and Executive Order 11990

Section 401 (Water Quality Certification) of the Clean Water Act (CWA) requires an applicant for any Federal permit who proposes an activity that may result in a discharge to a "Waters of the United States" (WUS); Section 404 of the CWA establishes a permit program for the discharge of dredged or fill material into WUS, including wetlands. Executive Order (EO) 11988 (May 24, 1977) directs each Federal agency to take action to avoid the long- and short-term adverse impacts associated with the occupancy and modification of floodplains. EO 11990 (May 24, 1977) directs Federal agencies to minimize the destruction, loss, or degradation of wetlands and to preserve and enhance the natural and beneficial value of wetlands in carrying out programs that affect land use.

The Project has been designed to comply with the requirements of Section 401 and 404 of the CWA, EO 11988, and EO 11990.

Endangered Species Act

Section 7 of the ESA requires Federal agencies to ensure that their actions do not jeopardize the continued existence of threatened or endangered species or result in the destruction of their designated critical habitat. It also requires consultation with the FWS if the action agency determines that an action may affect listed species. Consultation with the FWS is described below.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act of 1918, as amended, gives Federal protection to all migratory birds, including nests and eggs (16 U.S.C. 703). The Selected Alternative was routed around Lordsburg Playa, and AGFD provided additional mitigation measures around Willcox Playa to reduce the potential for bird strikes in these areas. In addition, line-marking devices will be used near high-use areas to increase line visibility and reduce the potential for collisions. All mitigation measures are presented in Table 8 of the NEPA POD.

National Historic Preservation Act

The lead Federal agency, along with any other Federal agency that may be issuing permits or licenses for the Project, has a responsibility under Section 106 of the NHPA to consider the effects of its undertakings on "historic properties" (properties listed in or eligible for the NRHP). Eligible properties may include a diversity of archaeological, historical, and traditional cultural resources. Implementing regulations for Section 106, "Protection of Historic Properties" (36 CFR 800), define a process for Federal agencies to consult with the SHPOs, ACHP, and other interested parties as they assess the effects of their undertakings and devise methods to resolve those adverse effects. Section 106 consultation is described below.

Executive Order 12898

EO 12898 (February 16, 1994) requires agencies to advance environmental justice by pursuing fair treatment and meaningful involvement of minority and low-income populations. Fair treatment means such groups should not bear a disproportionately high share of negative environmental consequences from Federal programs, policies, decisions, or operations. Meaningful involvement means Federal officials actively promote opportunities for public participation, and Federal decisions can be materially affected by participating groups and individuals. The analysis of the Project found that adverse impacts to environmental justice populations such as increased noise and disruption in both the New Build and Upgrade sections of the Project will be localized in nature and that some populations may experience positive impacts such as short-term stimulus; however, none of the impacts are likely to be "high" in intensity.

CONSULTATION

The preparation of the EIS was done in coordination and consultation with the requirements of the Fish and Wildlife Conservation Act (16 U.S.C. 661 et seq.), the ESA (16 U.S.C. 1531 et seq.), and the NHPA, as codified (54 U.S.C. 300101 et seq.). Although the BLM and Western are joint lead agencies, the BLM is the lead Federal agency for Sections 7 and 106 compliance. The BLM also must consult with American Indian tribes, on a government-to-government basis, in accordance with EO 13175, "Consultation and Coordination with Indian Tribal Governments" (November 6, 2000).

Consultation Under Section 7 of the Endangered Species Act

A letter from BLM inviting FWS to participate in the scoping of the Project was sent on April 23, 2012. The FWS provided a written response on June 4, 2012, with comments and recommendations on specific species to evaluate for potential effects as well as suggested mitigation measures. FWS was also consulted on the development of species-specific mitigation used in the EIS. FWS comments and recommendations are addressed in Sections 3.8 and 4.8, "Biological Resources."

Formal consultation under Section 7 of the ESA with the FWS was initiated on March 4, 2014. On April 3, 2014, the FWS responded in a letter indicating that all required information was included in the March 4, 2014 submittal. On July 9, 2014, FWS sent a letter requesting a 60-day extension of the deadline to complete formal consultation. BLM responded on July 30, 2014, concurring with the request for an extension. The FWS issued a BO on December 30, 2014, which was amended on November 10, 2015, to address a route change in the Agency Preferred Alternative. The "Biological and Conference Opinion and Conference Report on the Proposed Southline Transmission Project," dated December 30, 2014 (Consultation Number 02EAAZ00-2014-F-0140), and the "Reinitiation of Consultation on the Proposed Southline Transmission Project to Reflect an Update to the Agency Preferred Alternative for the Final

Environmental Impact Statement (Final EIS)," dated November 10, 2015 (Consultation Number 02EAAZ00-2014-F-0140-R001), are included in Attachment B as documentation of consultation. Mitigation and conservation measures were included and have been added to Table 8 of the NEPA POD and are considered in the analysis of the Final EIS.

The BO, Biological Assessment, and correspondence with FWS are a part of the Project Record.

Consultation Under Section 106 of the National Historic Preservation Act

Because the issuance of the ROW is a Federal undertaking, the Project is subject to compliance with Section 106 of the NHPA. The NHPA requires Federal agencies to consider the effects an undertaking will have on historic properties that are or may be eligible for listing in the NRHP. Although the BLM and Western are joint lead agencies, the BLM is the lead Federal agency for Section 106 compliance. The Section 106 process is initiated with the establishment of the undertaking (NHPA 800.3), which was done shortly after the BLM and Western published the NOI in the Federal Register in April 2012. The BLM is also using the NEPA scoping process to satisfy the public involvement process for Section 106 of the NHPA (16 U.S.C. 470f), as provided for in 36 CFR 800.2(d)(3). The Section 106 process was coordinated with the NEPA process, starting with public scoping. The BLM initiated the 106 consultation process at that time by identifying and notifying the consulting parties of the Project. These parties include the tribes listed in Section 6.3 of the Final EIS, the Tohono O'odham Tribal Historic Preservation Officer, SHPOs in Arizona and New Mexico (NHPA 800.3(c)), Forest Service (Coronado National Forest), USACE, BIA, Western, ASLD, NMSLO, Arizona State Museum, NPS, Pima County, City of Tucson, Town of Marana, University of Arizona Desert Laboratory on Tumamoc Hill, National Trust, and Archaeology Southwest. Western is completing tribal consultation related to the Upgrade Section of the Project.

Compliance with other pertinent laws such as the Native American Graves Protection and Repatriation Act, Archaeological Resources Protection Act (ARPA), and American Indian Religious Freedom Act (AIRFA) was also coordinated under the NHPA and NEPA. Federal agencies are required to consult with the public and tribes on the identification of historic properties and the effects that the agencies' undertaking may have on these properties. Western participated as a consulting party during these consultations. BLM's consultation with the tribes is conducted on a government-to-government basis, as prescribed by EOs and legislation, including the AIRFA, ARPA, NEPA, and EO 13007.

Consultation was ongoing throughout the development of the EIS and consisted of letters, meetings, and a webinar. A full list of consultation activities can be found in the Final EIS in Table 5-9 of Section 5.5.1, "Section 106 of the National Historic Preservation Act."

The Section 106 process entails the identification of historic properties (NHPA 800.4) within a defined "area of potential effects" (APE). The APE for this undertaking was determined in consultation and forms the parameters for the identification effort. Identification of historic properties began with a Class I level inventory, which included the review of existing information such as previous inventories and previously recorded sites. In accordance with NHPA 800.4(b)(2), for projects "where alternatives under consideration consist of corridors or large land areas," a phased approach can be followed to identify and evaluate historic properties. Further, "the agency official may also defer final identification and evaluation of historic properties if it is specifically provided for in a . . . programmatic agreement executed pursuant to §800.14(b)."

For a project of this scale, an intensive Class III inventory will be conducted on the Selected Alternative prior to the start of construction. Right-of-entry, as appropriate, will be obtained prior to any fieldwork.

During the Class III inventory, the cultural resources identified will be evaluated for their significance and assessed for their eligibility for the NRHP. Determinations of eligibility will be made in consultation; sites determined eligible or listed in the NRHP are "historic properties." However, since the identification effort will take place in stages for this Project, the identification and evaluation process will be provided for in the PA and deferred until after the ROD and associated approvals.

The assessment of adverse effects on historic properties (NHPA 800.5) is typically the next step in the Section 106 process. An adverse effect is found "when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the NRHP in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling or association." Due to the scope and complexity of the Project, and because the "effects on historic properties cannot be fully determined prior to the approval of an undertaking" (NHPA 800.14(b)(1)(ii)), the BLM determined early in the process that the undertaking will have an "adverse effect" on historic properties. In accordance with NHPA 800.6(a)(1), the ACHP was notified of the "adverse effect" determination, concurred with the determination, and agreed to participate in consultations to resolve the adverse effects.

To resolve the potential adverse effects of the undertaking on historic properties, a Project-specific PA was developed among the Section 106 consulting parties and executed on March 14, 2016. The Final PA is provided in Appendix L of the Final EIS.

Government-To-Government Tribal Consultation

The U.S. government has a special relationship with American Indian tribal governments that requires that consultation be conducted on a government-to-government basis as set forth in the Constitution of the United States, treaties, EOs, Federal statutes, Federal policy, and tribal policy. All government-to-government consultation was conducted in accordance with guidance provided in BLM Manual 8120, "Tribal Consultation under Cultural Resources."

In compliance with the NEPA, the NHPA (as amended), and EO 13175, the BLM initiated government-to-government consultation through letters in 2012. The initial notification letters provided information about the Project, initiated government-to-government consultation, invited the tribes to participate as a cooperating agency in the preparation of the EIS, and invited them to participate in NHPA Section 106 process. Twenty-one federally recognized tribes were notified: Ak-Chin Indian Community, Comanche Nation, Fort Sill Apache Tribe of Oklahoma, Gila River Indian Community, Hopi Tribe, Kiowa Tribe of Oklahoma, Navajo Nation, Mescalero Apache Tribe, Pascua Yaqui Tribe, Pueblo of Acoma, Pueblo of Isleta, Pueblo of Laguna, Pueblo of Tesuque, Pueblo of Zuni, Salt River Pima-Maricopa Indian Community, San Carlos Apache Tribe, Tohono O'odham Nation, Tonto Apache Tribe, White Mountain Apache Tribe, Yavapai-Apache Nation, and Ysleta del Sur Pueblo.

Although no tribes requested cooperating agency status for the preparation of the EIS, several tribes are participating in Section 106 consultation, which will continue during the post-EIS phases of Project implementation. The tribes that have been actively participating in government-to-government and Section 106 consultations include the Tohono O'odham Nation, Gila River Indian Community, Salt River Pima-Maricopa Indian Community, Ak-Chin Indian Community, San Carlos Apache Tribe, Mescalero Apache Tribe, Fort Sill Apache Tribe, White Mountain Apache Tribe, Hopi Tribe, Pueblo of Isleta, Pueblo of Ysleta del Sur, and Pueblo of Zuni.

PUBLIC INVOLVEMENT

Scoping Process

As required by NEPA, the BLM and Western conducted scoping early in the preparation process of the EIS to encourage public and agency input and comment on the proposed action (40 CFR 1501.7). The public was informed about the formal application for the Project and public scoping period by an NOI published in the Federal Register on April 4, 2012. This initiated the NEPA process for the Project and began a 60-day public scoping period, during which the public had the opportunity to provide input on potential issues to be addressed in the EIS.

As a result of public requests for an extension of the 60-day scoping comment period (ending on June 5, 2012), the scoping comment period was extended by 30 days (ending on July 5, 2012). Notification of the 30-day extension was disseminated via Internet news release and email. NEPA scoping was particularly effective since agencies and the public were already familiar with the Project and had been actively engaged in formulating routing alternatives during Southline's pre-NEPA public outreach. BLM and Western held a total of six public and two agency scoping meetings for the Project: one agency meeting and three public meetings in New Mexico, and one agency and three public meetings in Arizona. As much as possible, public scoping meetings were held in locations intended to provide more immediate and easier access for potential environmental justice communities.

Scoping comments were submitted in a variety of formats (i.e., U.S. Postal Service, email, and comment form). All comments and corresponding information (e.g., exhibits, photographs, and maps) were entered into the comment database. Comments were coded to reflect the subject matter of concern, sorted, and summarized for consideration in the development of the EIS. During public and agency scoping, 109 non-duplicative comments were submitted, and 24 comments were received from the same person or organization, for a total of 133 comments received. Comments often addressed multiple issues and included input on several issue categories, which when broken out totaled 576 comments.

Public Review Process of Draft EIS

The public was informed about the availability of the Draft EIS/RMPA via publication of an NOA in the Federal Register on April 11, 2014. This initiated the 90-day comment period, during which the public had the opportunity to provide input on the Project and the analysis in the Draft EIS/RMPA.

The BLM and Western each distributed press releases on April 11, 2014, and paid notices were published in newspapers of record. Both the press release and notices notified the public of the availability of the Draft EIS, the beginning of the 90-day comment period, and public meeting dates, times, and locations hosted by the BLM and Western. BLM and Western hosted six public open house/hearings and two agency meetings: one agency meeting and three public open house/hearings in New Mexico, and one agency meeting and three public open house/hearings in Arizona. The meetings and open house/hearings were hosted to provide information on the Project, answer questions about the analysis in the Draft EIS/RMPA, and encourage public comments on the Draft EIS. As much as possible, public open house/hearings were held in locations intended to provide more immediate and easier access for potential environmental justice communities.

A total of 91 comment submittals (letters, emails, commenters at hearings) were provided to the BLM and Western during the 90-day Draft EIS comment period. Additional landowner outreach was conducted in December 2014, and as a result, an additional 35 comments were received and addressed in the Final EIS (see Section 8.1 of the Final EIS). Within the 126 total comments addressed in the Final EIS, there were

1,029 individual comments. All comments that were received became a part of the Project Record, and were coded to reflect the subject matter of concern, sorted, and summarized. Chapter 8 of the Final EIS includes Draft EIS comments and agency responses to these comments in tabular format. Section 1.1.2 in Chapter 1 summarizes the changes to the EIS between the Draft and Final documents.

Please note that in Chapter 8 of the Final EIS, BLM and Western did not acknowledge that they received three public comment letters on the Draft EIS. Two were received on July 10, 2014: one from The Wilderness Society in partnership with 10 other partner non-governmental organizations, and another from the Tucson Audubon Society. Another letter was received on September 17, 2015 from the City of Willcox, Office of the Mayor. However, comments in these three letters were addressed in the Final EIS (see Chapter 8).

Comments Received on the Final EIS

An NOA for the Final EIS was published in the Federal Register on November 6, 2015. Although this was not a formal comment period, BLM and Western received several letters and emails on the Final EIS. These letters and emails are listed in Table 1, and are available in the Project Record.

Table 1. Comment Letters on the Final EIS

Letter Number	Name/Organization (if applicable)	Date of Letter	Address
1	Janine Spencer, Environmental Projects Manager, Town of Marana	November 16, 2015	Town of Marana 11555 West Civic Center Drive Marana, AZ 85653
2	Alex Daue, The Wilderness Society / Judy Calman, New Mexico Wilderness Alliance	December 7, 2015	1660 Wynkoop Street, Suite 850 Denver, CO 80202 / 142 Truman St. NE #B-1 Albuquerque, NM 87108
3	Keith Hayden, U.S. Environmental Protection Agency	December 7, 2015	Region 6 1445 Ross Avenue, Suite 1200 Dallas, TX 75202
4	Mary McCool, Chair J-6/ Mescal Community Development Organization	January 15, 2016	Via email
5	Debi Kilpatrick, Benson / San Pedro Valley Chamber of Commerce and J-6 / Mescal area residents	February 1, 2016	Via email

Notification of this Record of Decision

The following steps have been taken to notify the public of this decision:

1. Distributed a news release about the ROD to local and regional media;
2. Sent a postcard with information on how to access the ROD to all parties on the project distribution list;
3. Published the ROD on BLM web site; and
4. Provided a copy of the ROD to all who requested it.

Approved:

Bill Childress

Bill Childress
Authorized Officer
Las Cruces District Manager
Bureau of Land Management

April 21, 2016
Date

Contact Person

Mark A. Mackiewicz, PMP
National Project Manager
Bureau of Land Management
Washington Office
125 South 600 West
Price, Utah 84501
(435) 636-3616

Attachment A:
Southline Transmission Line Project
NEPA Plan of Development and Framework Plans

SOUTHLINE TRANSMISSION LINE PROJECT
NEPA PLAN OF DEVELOPMENT

VOLUME I

Prepared for
Bureau of Land Management
Las Cruces District Office
1800 Marquess Street
Las Cruces, New Mexico 88005
BLM/NM/OL-14-01-1610

Submitted by
Southline Transmission, LLC
1900 North Akard Street
Dallas, Texas 75201
http://southlinetransmissionproject.com/

Prepared by
SWCA Environmental Consultants
3033 North Central Avenue, Suite 145
Phoenix, Arizona 85012
www.swca.com

April 2016

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Chapter 1

INTRODUCTION

1.1 INTRODUCTION

Southline Transmission, LLC (Southline), a subsidiary of Hunt Power, L.P., submitted Standard Form (SF-) 299, "Application for Transportation and Utility Systems and Facilities on Federal Lands," to the Bureau of Land Management (BLM) for a right-of-way (ROW) to use BLM-administered public lands for a portion of the Southline Transmission Line Project (Project) on December 4, 2009. Southline amended its application on December 22, 2010 to add an additional section to the Project. The Plan of Development (POD) has also been amended in response to Project changes and recommendations from the BLM, Western Area Power Administration (Western), other agencies, and public comment. This application has been assigned BLM Case File No. NMNM-124104.

Southline has also filed a Statement of Interest with Western's Transmission Infrastructure Program (TIP) because it may seek to use Western's borrowing authority under the 2009 amendment of the Hoover Power Plant Act (Public Law (PL) 98-381, Title III, § 301) ("the Hoover Act") for the Project. Western needs to determine whether it will provide Hoover Act funding for the proposed Southline Project, and the nature and extent of its participation in the Project. Western may also participate under a trust funding agreement with the Desert Southwest Region if TIP funding is not provided. In the context of making these determinations, Western will evaluate the upgrade of its existing Saguaro–Tucson and Tucson–Apache 115-kilovolt (kV) transmission lines.

1.2 PROJECT OVERVIEW

The Project will consist of two sections. The first section will entail construction of approximately 240 miles of new double-circuit 345-kV transmission line in a new 200-foot ROW between the Afton Substation, south of Las Cruces, New Mexico, and the Apache Substation, south of Willcox, Arizona (Afton–Apache Section or New Build Section). The second section will entail the upgrade of approximately 120 miles of Western's existing Saguaro–Tucson and Tucson–Apache 115-kV transmission lines in a 100-foot-wide existing ROW to a double-circuit 230-kV transmission line (Saguaro–Apache Section or Upgrade Section) with up to 50 feet of new ROW in places. The Upgrade Section will originate at the Apache Substation and terminate at the Saguaro Substation northwest of Tucson, Arizona. Both new permanent ROW and temporary construction ROW will be required in the New Build Section and in some portions of the Upgrade Section for the transmission line, substations, access roads, and other permanent and temporary Project components; the anticipated ROW width for the Upgrade Section 230-kV transmission line will be 150 feet where expansion to that width is feasible.

The New Build Section (Afton–Apache) will include construction and operation of:

- 205 miles of 345-kV double-circuit electric transmission line in New Mexico and Arizona with a planned bidirectional capacity of up to 1,000 megawatts (MW). This section is defined by endpoints at the existing Afton Substation, south of Las Cruces in Doña Ana County, New Mexico, and Western's existing Apache Substation, south of Willcox in Cochise County, Arizona;
- 5 miles of 345-kV single-circuit electric transmission line between the existing Afton Substation and the existing Luna–Diablo 345-kV transmission line;

- 30 miles of 345-kV double-circuit electric transmission line between New Mexico State Route 9 (NM 9) and Interstate 10 (I-10) east of Deming in Luna County, New Mexico, to provide access for potential renewable energy generation sources in southern New Mexico. This segment of the Project is included in the analysis, but development of this segment will be determined at a later date;
- one new substation in Luna County (proposed Midpoint Substation) to provide an intermediate connection point for future interconnection requests; and
- substation expansion for installation of new communications equipment at, and connection to, two existing substations in New Mexico and one in Arizona.

The Upgrade Section (Apache–Saguaro) will include:

- replacing 120 miles of Western's existing Saguaro–Tucson and Tucson–Apache 115-kV single-circuit electric wood-pole H-frame transmission lines, which date to 1951, with a 230-kV double-circuit electric steel-pole transmission line. In locations where needed and where possible, an additional 50 feet of ROW adjacent to the existing 100-foot ROW will be obtained for the new 230-kV line. This Upgrade Section is defined by endpoints at the existing Apache Substation, south of Willcox in Cochise County, Arizona, to the existing Saguaro Substation, northwest of Tucson in Pinal County, Arizona;
- 2 miles of new build double-circuit 230-kV electric transmission line to interconnect with the existing Tucson Electric Power Company (TEP) Vail Substation, located southeast of Tucson and just north of the existing 115-kV Tucson–Apache line; and
- connections to, upgrading of, and modifications to or expansions at 12 existing substations in southeastern Arizona, including installation of new bays, transformers, breakers, switches, communications equipment, and related facilities associated with the voltage increase and compatibility with the existing substations. Depending on design and engineering considerations, at some locations substation expansions may require a separate yard.

1.3 PURPOSE OF THE PLAN OF DEVELOPMENT

This POD was developed to meet the requirements outlined in 43 Code of Federal Regulations (CFR) 2804.25(b). Under these requirements, the BLM may request information necessary to process a ROW application; this request for information may include a detailed construction, operation, rehabilitation, and environmental protection plan, i.e., a "Plan of Development," and any needed cultural resource surveys or inventories for threatened or endangered species. On Federal lands administered by the BLM, the POD is an enforceable stipulation of the BLM ROW grant and pertains not only to the construction of the Project, but also to the operation and maintenance phase of the Project. On other lands, Southline or Western will adopt the stipulations and measures in the POD, where appropriate.

This POD outlines the stipulations and mitigation measures (herein also Proponent Committed Environmental Measures (PCEMs)) identified in the Environmental Impact Statement (EIS) that must be followed during construction, operation, and maintenance of the Project, for which the BLM and Western are the joint lead federal agencies. The POD also is intended to be used Project-wide as (1) a summary of Project environmental requirements and protection measures, and (2) a description of the processes and procedures that will be used to ensure compliance with the requirements of the BLM, Western, and other Federal, State, and/or local agencies, as appropriate.

While neither BLM nor Western has the authority to enforce the POD and its PCEMs on State or private lands, BLM expects that most landowners would want the same protections afforded resources on BLM

administered lands to be extended to their properties as well. Therefore, BLM anticipates that the PCEMs and other specific stipulations and methods identified in the POD will largely be implemented over the entire length of the Project, regardless of jurisdiction. Since Southline and Western will have to obtain ROW leases from other Federal and State agencies, and many different private landowners, it is not possible at this time to identify the specific provisions applicable to these leases. Most of the PCEMs are based in laws, regulations, permit requirements, BMPs, and standard construction practices, and would be implemented on non-BLM lands, although inspections, monitoring, and reporting would likely be handled through different processes and procedures.

The agencies recognize that the POD is a living document and as such provisions therein may be modified, augmented, or deleted as appropriate. For non-BLM administered lands Western will likely be the lead Federal agency overseeing implementation of and compliance with the suite of PCEMs and other environmental protections identified in the EIS and supporting documents. State and private landowners may add additional requirements to those identified in the EIS and POD, or opt out of certain measures, as negotiated by Southline and/or Western with each landowner during ROW acquisition. Certain parts of the POD will not be applicable to or appropriate for non-BLM administered lands; examples include BLM reporting requirements, stipulations specific to the BLM's ROW grant, or the BLM variance process. BLM's environmental inspection and verification process is also quite different from Western's, and Western's process would be followed on State and private lands. Regardless of which agency is the lead, or the differences in the process followed, the environmental protections identified and committed to in the EIS will be implemented (with the possible exception of the landowner required additions or deletions mentioned above). On BLM administered land, all stipulations and PCEMs identified as applicable in any of the POD volumes should be adhered to for the life of the BLM ROW grant.

The BLM Las Cruces District Office and the Safford and Tucson field offices have required ROW grant holders to contract with an independent entity (i.e., a compliance inspection contractor (CIC)), who will conduct environmental compliance inspections during the construction phase of the Project. The objective is to monitor for compliance with environmental stipulations designed to protect the environment and prevent impacts from exceeding those described in the EIS or other permit approvals. The CIC will monitor and oversee implementation of the POD on all BLM-administered lands, as described in Appendix A6 – Environmental Compliance Management Plan of this POD.

1.4 ORGANIZATION OF THE PLAN OF DEVELOPMENT

The POD is organized into two major volumes. Volume I contains chapters 1 through 6 and the appendices. Volume II includes engineering, mitigation, and environmental mapping, which support information presented in Volume I. Following is an overview of the information contained in these two volumes.

1.4.1 Volume I

Volume I of the POD is intended to provide the reader with a general overview of the Project and key elements of the POD (chapters 1–6) and detailed information regarding the required PCEMs, protocols, and procedures for the construction, operation, and maintenance of the transmission line and ancillary facilities (appendices). While chapters 1 through 6 provide general information, the appendices (along with the mapping materials in Volume II) are more detailed and have been designed to serve as stand-alone documents that may be readily updated and refined. Following is an outline summary of the information and materials presented in chapters 1 through 6 and the appendices of this POD.

Chapters 1 through 6 include the following information:

Chapter 1 – Introduction – Introduces the Project, discusses the purpose and organization of the POD; explains the POD's relationship to other documents; and lists required authorizations, permits, and approvals required for construction.

Chapter 2 – Roles and Responsibilities – Explains the roles and responsibilities of the Project team, and discusses Project communications and notification procedures.

Chapter 3 – Project Description – Describes the Project components/facilities (structures, foundations, conductors, access roads, substations, etc.), land requirements, construction disturbance, ROWs, and the Project's relationship with other related ROWs and utilities.

Chapter 4 – Operation and Maintenance – Provides information related to the operation and maintenance of the Project's transmission line(s) once construction is complete, including public and environmental protection and vegetation management.

Chapter 5 – Environmental Mitigation Measures – Includes a brief overview and introduction of the key environmental concerns associated with the construction of the Project and relevant mitigation measures/PCEMs to be applied in order to avoid or minimize potential effects.

Chapter 6 – Literature Cited – Provides the references and literature cited in preparing the POD.

There are four appendices (A through D), organized as presented below:

Appendix A – Construction Considerations – This appendix provides detailed information about the specifics of construction, including the following:

A1 Flagging, Fencing, and Signage Plan
A2 Geotechnical Investigation
A3 Project Construction
A4 Special Construction Techniques
A5 Construction Workforce
A6 Environmental Compliance Management Plan

Appendix B – Environmental Protection / Framework Plans – This appendix includes the following:

B1 Access Road Plan
B2 Traffic and Transportation Management Plan
B3 Stormwater Pollution Prevention Plan
B4 Spill Prevention, Control, and Countermeasures Plan
B5 Historic Properties Treatment Plan
B6 Blasting Plan
B7 Plant and Wildlife Species Conservation Measures Plan
B8 Erosion, Dust Control, and Air Quality Plan
B9 Hazardous Materials Management Plan (HMMP)
B10 Emergency Preparedness and Response Plan
B11 Noxious Weed Management Plan
B12 Fire Protection Plan
B13 Stream, Wetland, Well, and Spring Protection Plan
B14 Soil Management Plan
B15 Reclamation, Vegetation, and Monitoring Plan
B16 Health and Safety Plan (HASP)
B17 Avian Protection Plan (APP)

B18 Waste Management Plan
B19 Helicopter Flight Plan/Flight and Safety Plan
B20 Decommissioning Plan

Appendix C – Transmission Construction and Vegetation Management Standards – This appendix includes the following:

C1 Transmission Construction Standards
C2 Vegetation Management Standards

1.4.2 Volume II

Three sets of maps form Volume II of the Final POD. These maps contain regional to detailed information, including site-specific instructions to guide the construction of the transmission line and associated facilities as described below. ***Files to be included with Final POD (post Final EIS) – not included herein.***

1.5 RELATIONSHIP WITH OTHER ENVIRONMENTAL DOCUMENTS

This POD includes measures for avoidance, minimization, and mitigation of environmental impacts resulting from the implementation of this Project as identified in the EIS (called PCEMs) and approved in the BLM Record of Decision (ROD). This POD incorporates the various regulatory approvals, permits, and other authorizations that contain environmental requirements, including those measures stipulated in Resource Management Plans (RMPs) for the BLM Las Cruces District Office and the Safford and Tucson field offices. The relevant approved and proposed management plans (and plan amendments) are presented in table 1.

Table 1. Applicable BLM Land Use Plans and Planning Documents

Resource Management Plan	Plan Date	Lead Office	Project Applicability
Mimbres Resource Area*	December 1993	Las Cruces District Office	Afton–Apache
Safford District RMP	August 1991	Safford District Office	Apache–Saguaro
Las Cienegas RMP	July 2003	Tucson Field Office	Apache–Saguaro
Phoenix RMP	December 1988	Phoenix District Office, Tucson Field Office, Safford Field Office	Apache–Saguaro
Restoration Design Energy Project	January 2013	Arizona State Office	Arizona
Solar Programmatic EIS (PEIS)	October 2012	BLM Department of the Interior (DOI)	Arizona, New Mexico
West-wide Energy Corridor PEIS	November 2008	BLM DOI	Arizona, New Mexico

* The TriCounty RMP is in progress. When approved, the TriCounty RMP would amend the portion of the 1993 Mimbres RMP (BLM 1993) that covers Doña Ana County.

1.6 FEDERAL, STATE, AND LOCAL PERMITS

Table 2 provides a listing of the laws, regulations, and guidelines that are related to energy generation and development of transmission infrastructure and the associated permits and approvals.

Table 2. List of Required Federal and State Permits and Approvals

Regulatory Authority/Agency	Permit/Approval	Project Trigger	Relevant Law/Regulation
Federal			
BLM	ROW grant, land use plan amendment	Request for ROW across BLM lands	43 United States Code (U.S.C.) 1761–1771
BLM	Permit for archaeological investigations	Federal undertaking with the potential to affect historic properties	Archaeological Resources Protection Act (ARPA), Antiquities Act of 1906, Federal Land Policy and Management Act (FLPMA)
BLM	Permit for collection of paleontological resources	Potential for disturbance of paleontological resources and need for collection	Paleontological Resources Preservation Act, FLPMA
BLM *In consultation with Western, State Historic Preservation Offices (SHPOs), Advisory Council on Historic Preservation, tribes, other Federal, State, and local agencies and consulting parties*	Compliance with Section 106 of the National Historic Preservation Act (NHPA)	Potential to disturb historic properties	NHPA (16 U.S.C. 470); 36 CFR 800
Western	Determine whether Southline can upgrade Western's lines and use existing transmission easements as part of the Project; determine feasibility and impacts of Project; and determine the nature of Western's participation in the Project	Proposal to upgrade a segment of Western's transmission system and have Western obtain updated and new transmission line easements, and to use Western funding	Hoover Power Plant Act 98-381, as amended Reclamation Law, including but not limited to the Reclamation Act of 1902, 43 U.S.C. 391, Hayden O'Mahoney Amendment, 43 U.S.C. 391a-1 and 392a; the Reclamation Project Act of 1939, Section (c) 43 U.S.C. 485h(c); Flood Control Act of 1944, Section 5, 16 U.S.C. 825s; Department of Energy Organization Act, 42 U.S.C. 7152a; Energy Policy Act of 1992, 16 U.S.C. 796, 824j, 824k, and 824l; Energy Policy Act of 2005 Contributed Funds Act, 43 U.S.C. 395; Antideficiency Act, 31 U.S.C. 1341; and associated regulations, orders, and policies

Table 2. List of Required Federal and State Permits and Approvals (Continued)

Regulatory Authority/Agency	Permit/Approval	Project Trigger	Relevant Law/Regulation
Federal, cont'd.			
Bureau of Reclamation	Easement or ROW use authorization	Substation expansion	The Reclamation Act of June 17, 1902, 32 Stat. 388, 43 U.S.C. 371, et seq., specifically 32 Stat. 389, 43 U.S.C. 421 and the Flood Control Act of 1944, 58 Stat. 887, 890, 16 U.S.C. 825s, as amended and supplemented by subsequent acts or enactments; the Reclamation Project Act of 1939, 53 Stat. 1187, 43 U.S.C. 485; the Rivers and Harbors Act of August 30, 1935, 49 Stat. 1028, 1039, 33 U.S.C. 540; the Act of May 28, 1954, Ch. 12, 68 Stat. 143, and other acts specifically applicable to this project; the Act of August 1, 1888, 25 Stat. 357, 40 U.S.C. 257, repealed and reenacted as 40 U.S.C. 3113; the Act of February 26, 1931, 46 Stat. 1421, 40 U.S.C. 3114; the Department of Energy Organization Act of August 4, 1977, 91 Stat. 565, 42 U.S.C. 7101, specifically 91 Stat. 578, 42 U.S.C. 7152; and the Omnibus Appropriations Bill of FY 2009, PL 111-8
Bureau of Indian Affairs	ROW Easement	Upgrade of existing Western line across tribal land	25 CFR 169
U.S. Forest Service	Special use permit (SUP)	Upgrade of existing Western line across Coronado National Forest	36 CFR 212.51(a)(8)
U.S. Forest Service – Coronado National Forest	SUP	Potential for disturbance of cultural resources on the Coronado National Forest	ARPA, FLPMA
U.S. Army Corps of Engineers	Section 404 permit	Impacts to jurisdictional waters of the U.S.	Clean Water Act, 33 U.S.C. 1251, et seq.
U.S. Fish and Wildlife Service	Biological opinion, concurrence, or incidental take permit	Potential impact to threatened or endangered species	Endangered Species Act, 16 U.S.C. 1531–1544
U.S. Environmental Protection Agency	National Pollutant Discharge Elimination System (New Mexico)	Stormwater management from potential discharges greater than 5 acres	40 CFR 122.26
Department of Defense (DOD)	Easement or ROW use authorization	Construction, operation, and decommissioning of transmission line across DOD-administered land	10 U.S.C. 2668
Federal Aviation Administration (FAA)	A "No-hazard Declaration" required if structure is more than 200 feet high	Location of structure relative to airports and airspace if structure is more than 200 feet high	FAA Act of 1958, 14 CFR 77

Table 2. List of Required Federal and State Permits and Approvals (Continued)

Regulatory Authority/Agency	Permit/Approval	Project Trigger	Relevant Law/Regulation
New Mexico			
New Mexico Public Regulation Commission	Application for approval of location of transmission line and certificate of public convenience and need	Construction of a transmission line greater than 230 kV	New Mexico Statutes Annotated (NMSA) 62-9-3; 17.9.592 New Mexico Administrative Code (NMAC), and NMSA 62-9-1; 17.1.2.9 NMAC
New Mexico Department of Transportation (DOT)	Access or public highway utility accommodation permit	Upgrading access roads, use of public highway to transport oversize loads, or installation of transmission lines within DOT ROW	18.31.6 NMAC, and 17.4.2 NMAC
New Mexico State Land Office	ROW or easement permit	Construction, operation of a transmission line on State lands	NMSA 19-7-57
New Mexico SHPO		Federal undertaking with the potential to affect historic properties	NHPA, Section 106 (36 CFR 800)
New Mexico State Historic Preservation Division	Permit for archaeological investigations	Potential for disturbance of cultural resources on State land	NMSA 18-6
New Mexico Department of Energy, Minerals, and Natural Resources Forestry Division	Collection permit	Displacement or removal of any State endangered plant species	NMSA 75-6-1; 19.21.2 NMAC
Arizona			
Arizona Corporation Commission	Certificate of Environmental Compatibility	Construction of a transmission line greater than 115 kV	Title 40 Arizona Revised Statutes (ARS) Chapter 2, Article 6.2 (40-360–40-360.13)
Arizona State Land Department	ROW/right-of-entry permit	Survey, construction, operation of a transmission line on State lands	ARS 37-461
Arizona DOT	Crossing or encroachment permit, permit for use of highway ROW	Construction, operation, abandonment of transmission lines within State highway ROW	ARS 28-7053, Arizona Administrative Code R17-3-501–509
Arizona SHPO		Federal undertaking with the potential to affect historic properties	NHPA, Section 106 (36 CFR 800)
Arizona State Museum (ASM)	Arizona Antiquities Act (AAA) blanket permit or Project-specific permit	Potential for disturbance of cultural resources on State land	AAA ARS 41-841 through 41-847
ASM	Permission to disturb human remains	Potential for disturbance of human or funerary objects remains on State or private land	AAA ARS 41-844 and ARS 41-865
ASM	AAA blanket permit	Potential for disturbance of paleontological resources on State land	AAA ARS 41-841

Table 2. List of Required Federal and State Permits and Approvals (Continued)

Regulatory Authority/Agency	Permit/Approval	Project Trigger	Relevant Law/Regulation
Arizona, cont'd.			
Arizona Department of Environmental Quality	Arizona Pollutant Discharge Elimination System	Stormwater management from potential discharges greater than 5 acres	ARS 49-255.01
Tohono O'odham Nation	Permit to conduct archaeological work	Potential for disturbance of cultural resources on Tohono O'odham Nation land	Title 8, Chapter 1, "Archaeological Resources Protection" (Ordinance No. 06-84) of the Tohono O'odham Nation Tribal Code
Arizona Department of Agriculture	Application for Arizona native plant and wood removal	Displacement or removal of any listed native plant species	Native Plant Law, ARS Title 3 (Chapter 7)
Local*			
Development Services, Public Works, DOT	ROW use permit, encroachment permit	Potential encroachment onto County/City ROW	Varies; County/local ordinance or municipal code
Planning and Zoning, Community Development	Special use, conditional use permits	Change zoning or land use to allow construction of the transmission line and associated facilities	Varies; County/local ordinance or municipal code
Floodplain Departments	Floodplain use permit	Construction of project facilities in flood-prone areas as defined by Federal Emergency Management Agency	Varies; County ordinance
Public Works Department	Grading/excavation/building permit	Construction	Varies; County/local ordinance or municipal code
Department of Environmental Quality, Air Quality Districts	Fugitive dust control permits	Construction	Varies; County ordinance

Note: This list is not exhaustive.

* Local permits are only examples of permits that may be required by various local agencies (County/City).

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Chapter 2

ROLES AND RESPONSIBILITIES

2.1 INTRODUCTION

The various parties involved with the construction, operation, and maintenance of the Project include the Proponent (Southline), BLM, Western, BLM's third-party CIC, all of Southline's construction contractor(s), various environmental resource specialists/monitors, and transmission line operation and maintenance personnel. Other subcontractors may be engaged, as needed. As noted in section 1.3 of this POD, the POD is an enforceable stipulation of the BLM ROW grant for the portions of the Project on Federal lands administered by BLM. Where Western is involved in the Project, they may adopt the stipulations and measures in the POD, where appropriate.

2.1.1 The Proponent

Southline is responsible for requirements of the administration of the ROW and coordination between the Project engineer and construction contractor(s) on BLM-managed lands. Southline and their construction contractors will be responsible for the construction of the transmission line(s) and ancillary facilities in a manner that complies with the conditions outlined in the BLM ROW grant, and other required permits listed in table 2; Southline will be responsible for facility operation and maintenance. Western is responsible for administering the ROW where they are involved in the Project, which at a minimum includes the Upgrade Section of the project. Western and their construction contractor will be responsible for the construction, operation, and maintenance of the Upgrade Section of the transmission line(s) and ancillary facilities in a manner that complies with the conditions outlined in Western's construction contract.

Southline will be the ultimate authority for their contractors, and as the holder of the BLM ROW grant Southline will ultimately be responsible for all activities on BLM managed lands.. However, for the execution purposes of this document, it will refer specifically to the construction contractor(s) when needed to define their activities.

To help ensure construction activities are conducted in a manner that complies with all Federal, State, and local regulations, the construction contractor(s) will contract a team of environmental inspectors (e.g., biological, cultural, and paleontological resources, and dust (where applicable)). On BLM-managed lands these environmental inspectors will work jointly and cooperatively with the CIC (see Section 2.1.2.1 – Compliance Inspection Contractor and Appendix A6 – Environmental Compliance Management Plan). Each of Southline's environmental inspectors will provide copies of their daily reports to the CIC as described in Appendix A6 – Environmental Compliance Management Plan.

Construction Contractor(s)

The construction contractor(s) will be responsible for the construction, testing, and reclamation of the Project. The construction contractor(s) will be retained by Southline to construct the transmission line(s) and ancillary facilities, including construction of new or improved roads, a communication system, and temporary work areas associated with construction activities. The construction contractor(s) will also be responsible for addressing reclamation activities, as well as addressing all environmental protection stipulations.

The construction workforce may include, but is not limited to, the following:

- general contractor, specializing in transmission line construction
- substation construction contractor
- survey crews
- tree clearing crews
- road construction crews
- foundation and anchor installation crews
- structure steel haul crews
- structure assembly and erection crews
- wire installation crews
- cleanup crews
- restoration contractor/crews
- quality assurance inspectors
- drilling and blasting contractor
- restoration/reseeding subcontractor

The construction contractor's construction manager will be responsible for enforcing the contract requirements which are to include permit requirements and stipulations and PCEMs in this POD. The construction contractor(s), and their sub-contractors, will be contractually bound to comply with all laws, regulations, and permit requirements, including the stipulations and PCEMs set forth in this POD. The selected construction contractor(s) will attend preconstruction and regularly scheduled Project meetings with the BLM, Western, other agencies as appropriate, the CIC, and Southline following the award of the construction contract.

2.1.2 Federal Agencies

There are 104.4 miles of transmission line route that cross Federal land, including lands administered by the BLM (100.4 miles), the U.S. Forest Service (Forest Service) (0.5 mile), the Department of Defense (DOD) (0.2 mile), the Bureau of Reclamation (Reclamation) (0.4 mile), and the Bureau of Indian Affairs (BIA) (2.9 miles). Each agency has designated an officer who will provide oversight for the Project on the ROW they administer. The authorized officers for the BLM are the Las Cruces District Manager and the New Mexico State Director. Each of the authorized officers may designate certain responsibilities to their appropriate personnel, such as BLM project managers and resource specialists.

The Administrator and CEO for Western is Mark A. Gabriel, who is ultimately responsible for Western's participation in the Project. Western's designated Project Manager will provide oversight and direction for the Project as it moves from the environmental planning phase into the design and construction phase.

Each authorized officer/designated project manager will be responsible for administering and enforcing the right-of-way grant and permit provisions for their respective agencies. Each authorized officer/designated project manager will also ensure stipulations and PCEMs committed to in the EIS and included in this POD are adhered to during Project construction, operation, and maintenance, where appropriate. The authorized officer/designated project manager will also be responsible for reviewing stop-and-resume-work orders, as applicable, and resolving any conflicts that arise relating to the Project

on the lands they administer. Compliance will be managed by the appropriate designees of the authorized officer/designated project manager and resource specialists as needed, for their respective lands; on BLM-managed lands this will occur in conjunction with the CIC. The process by which the BLM, Western, and Southline's construction contractor(s) conduct environmental monitoring, compliance, and reporting activities on BLM managed lands is outlined in Appendix A6.

Compliance Inspection Contractor

The CIC will represent the BLM during the construction and reclamation phases of the Project on BLM-administered lands to ensure (1) compliance with the BLM ROW grant and (2) that environmental impacts associated with Project do no exceed estimates disclosed in the EIS and approved by the BLM in its ROD. The CIC may also coordinate with Western, if requested, on those portions of the Project where Western is involved in the Project.

The CIC shall work under the direct supervision and control of the BLM during the construction and reclamation phases of the Project on BLM-managed administered lands. The CIC shall not take any direction with respect to the manner of conducting monitoring from Southline or its construction contractor(s). The CIC's primary role is to observe work activities; verify, document, and monitor compliance; and bring noncompliant situations to the attention of the appropriate party and offer recommendations on how to prevent non-compliance prior to commencement of work.
The responsibilities of the CIC are outlined in detail in Appendix A6 – Environmental Compliance Management Plan.

However, the CIC and Southline's Project Manager shall work together to support the Project's timely and effective construction. All efforts shall be made to coordinate closely with Southline's Project Manager and its construction contractor(s) to report and document noncompliance concerns not otherwise identified by these parties, giving Southline's Project Manager, construction contractor(s), and CIC the opportunity to resolve the concerns. Through this collaboration, every effort shall be made to limit any work stoppage to situations involving immediate threats to sensitive resources or emergency situations. The CIC is not otherwise, at any time or way, authorized to direct work undertaken by the construction contractor(s), with the exception of stop work orders. The role of the CIC is not to direct the work of either Southline or the construction contractor(s).

Prior to construction, the CIC will develop a Project Compliance Plan, to be reviewed by the BLM and Western. This plan will describe how the Project Proponent will uphold, document, and manage environmental compliance with the terms specified in the ROW grant, the POD, landowner agreements, and all Federal, State, and local permits. The Project Compliance Plan will include, but is not limited to, the following elements:

- the roles and responsibilities of participants necessary to facilitate environmental compliance with the terms and conditions of the ROW grant and the POD in the field during construction
- a comprehensive inspection and monitoring program
- corrective procedures in the event of non-compliance
- a standard protocol for variance requests
- a communication plan describing primary channels of routine communication between parties for Project updates and compliance-related issues
- a reporting process that includes forms and reports to be completed on a regular basis during the course of construction
- a comprehensive Project-specific environmental compliance training program that may include sections prepared by specific resource specialists

The CIC will report directly to the BLM, who will coordinate with Western or cooperating agencies, where appropriate. The duties of the CIC in support of the Project will include:

- preparation of a Project Compliance Plan
- coordination of Notice-to-Proceed meeting(s)
- preparation and maintenance of a Key Contacts List
- periodic meetings with the BLM authorized officer and resource specialists
- daily field inspection of the Project area
- coordination with Southline's Environmental Compliance Manager and environmental inspectors (see Appendix A6 – Environmental Compliance Management Plan)
- completion of a daily compliance inspection report and submittal of a weekly summary
- completion of reports with applicable photographs to the BLM and Proponent
- attendance at weekly construction meetings
- review of variance requests
- completion of an End of Construction Project Report

The Project has the potential to affect sensitive resources; thus, required stipulations and PCEMs have been developed to minimize potential impacts to these resources. These stipulations and PCEMs are specified in the POD. The proactive implementation of these terms and requirements will facilitate timely and efficient construction of the Project while protecting sensitive resources. The CIC shall be completely knowledgeable of the POD, its associated plans, and all environmental requirements on BLM-managed land.

2.1.3 Communication Procedures and Notification Protocols

Effective communication between the parties mentioned above is a critical component to the success of the Project. Communication protocols related to environmental compliance monitoring, reporting requirements, and Project variance requests are described further in Appendix A6 – Environmental Compliance Management Plan. Additional details regarding emergency agency notification (e.g., in case of wildfire, unanticipated discoveries of cultural resources, hazardous material spill, etc.) are presented in the various plans included as appendices to the POD. The selected construction contractor(s) will attend preconstruction conferences and regularly scheduled meetings with the BLM, Western as appropriate, and Proponent following award of the construction contract.

The CIC will develop a Project contact directory that will be updated by all parties, as needed, to provide a convenient reference during the construction phase of the Project. This contact list will include the name, agency, office phone number, cell phone number, and email address of those individuals working on the Project; this list will be updated as required.

The construction contractor will be responsible for maintaining a list of all emergency notification contacts and numbers (local law and fire officials, hospitals, etc.) for events such as wildfires, hazardous material spills, accidents, etc. Southline will be responsible for notifying private landowners of upcoming construction activities, where appropriate. After construction, Southline will be responsible for maintaining the key contacts list and for all notifications required during the operation and maintenance of the Project.

Chapter 3

PROJECT DESCRIPTION

3.1 INTRODUCTION

This section describes the Project and associated facilities, including transmission line, substation, and ancillary facilities. Specifically, this section includes descriptions of the transmission route and facility design, including tower and pole structures, foundations, hardware, communication facilities, other electrical and non-electrical hardware, substation equipment, and access roads. Also included in this section is information regarding induced currents on adjacent facilities, land requirements, and construction disturbance.

Southline proposes to construct a high-voltage electric transmission line and associated facilities in southern New Mexico and southern Arizona (see figures 1.1 through 1.9). The Project, as described in this document, is based on the Selected Alternative, which is the Agency Preferred Alternative in the Final EIS. The route will cross private, State, and public lands, including lands managed by the BLM (New Build and Upgrade sections), DOD (New Build Section only), Forest Service (Upgrade Section only), Reclamation (Upgrade Section only), New Mexico and Arizona State lands, (New Build and Upgrade sections), Arizona Game and Fish Department (AGFD) lands (New Build only), and the Tohono O'odham Nation (Upgrade Section only).

3.2 PROPOSED FACILITIES

This section describes the typical characteristics of the Project facilities, including the New Build Section 345-kV double-circuit transmission line, the Upgrade Section 230-kV double-circuit transmission line, and associated facilities, substation improvements, and ancillary facilities (e.g., access roads).

3.2.1 Transmission Structures

345-kV Structures – New Build Section

Two types of steel structures could be potentially used for the 345-kV transmission line. These include self-supporting lattice and monopole tubular structures, as shown in table 3 and figures 2 through 6.

Table 3. Typical Design Characteristics of the Proposed New Build Section 345-kV Transmission Line

Feature	Proposed (Description)	Option (Description)
General Description		
Structure type	Self-supporting steel lattice structures (see figures 2–4)	Tubular steel poles (see figures 5 and 6)
Structure height	110–170 feet	90–150 feet
Span length	1,000–1,400 feet	800–1,100 feet
Number of structures per mile*	4–5	4–6
ROW width†	200 feet	

Table 3. Typical Design Characteristics of the Proposed New Build Section 345-kV Transmission Line (Continued)

Feature	Proposed (Description)	Option (Description)
Electrical Properties		
Normal voltage	345,000 volts (345 kV)	
Capacity	1,000 MW (initial) 2,000 MW (ultimate)	
Circuit configuration	Double-circuit	
Conductor size[‡]	792–1,272 kcmil ACSR (two subconductors per phase)	
Shield wire size[‡]	7/16-inch extra-high-strength steel wire	
Ground clearance of conductor[§]	30 feet	

Notes: ACSR = aluminum conductor steel reinforced; kcmil = a thousand circular mils (a unit used to express large conductor sizes).

* Variable, depending on structure type and terrain.

[†] During design, a wider temporary and/or permanent ROW may be needed only in specific locations to accommodate rough terrain or long spans.

[‡] Shield wire size: one shield wire position to be occupied by optical ground wire about 0.5 inch in diameter with 48 optical fibers.

[§] Design minimum at temperature of 100 degrees Celsius.

The use of either a lattice structure or tubular steel structure will be primarily based on site-specific engineering design needs, as well as economic and visual considerations, or delivery timing.

The lattice structures will be constructed of galvanized steel with a height ranging from 110 to 170 feet and a width at the base of approximately 25 feet. The exact height of the structure will be determined by topography and design requirements for conductor clearance. The distance between each structure will depend on site-specific characteristics but will generally be an average of 1,200 feet (or approximately 4 to 5 structures per mile). Spacing between structures will be designed to allow for the longest spans practical for this type of construction. Each lattice structure will have four legs, each set on concrete foundations placed in the ground. Foundations will be up to approximately 4 feet in diameter each, and will be from approximately 18 to 50 feet deep. Foundations will be designed for each structure site consistent with geotechnical conditions. See discussion below for temporary and permanent disturbance estimates for structure foundations.

To accommodate the 345-kV line, the tubular steel poles are expected to be constructed of galvanized or self-weathering steel and will range in height from 90 to 150 feet. The exact height of the structure will be determined by topography and design requirements for conductor clearance. The tubular steel poles will have an approximate diameter at the structure base of 7 to 8 feet and will range from approximately 18 feet deep up to 50 feet deep, depending on the structure type and geological conditions. Foundation depths will be consistent with geotechnical conditions at each structure site. The distance between each structure will depend on site-specific characteristics but is expected to be an average of approximately 900 feet (or approximately 5 to 6 structures per mile). Spacing between structures will be designed to allow for the longest spans practical for this type of construction. Tubular steel poles will be set on a concrete foundation placed in the ground. See discussion below for temporary and permanent disturbance estimates for structure foundations.

Structure selection and individual structure placement will be determined during the final design phase of the Project. The height and spacing of each structure will also be determined during the final design phase of the plan and profile drawings, will be based on detailed engineering, and will depend on the type of terrain. Aerial marker spheres or aircraft warning lighting may be required in certain locations in accordance with Federal Aviation Administration (FAA) requirements. Structure height and proximity to airports are the main factors in determining whether FAA regulations will apply.

Figure 1.1. Project overview 1.

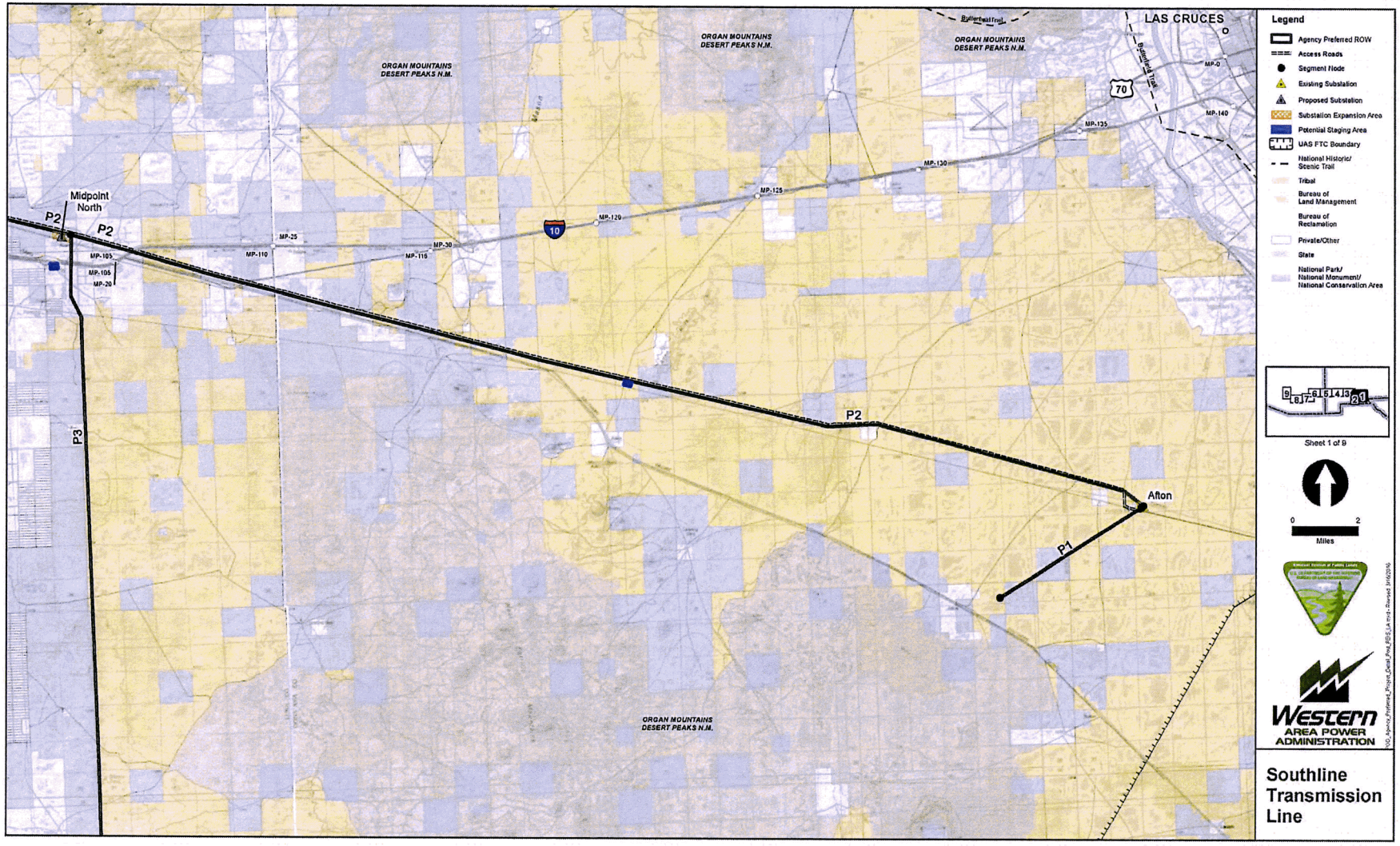

Figure 1.2. Project overview 2.

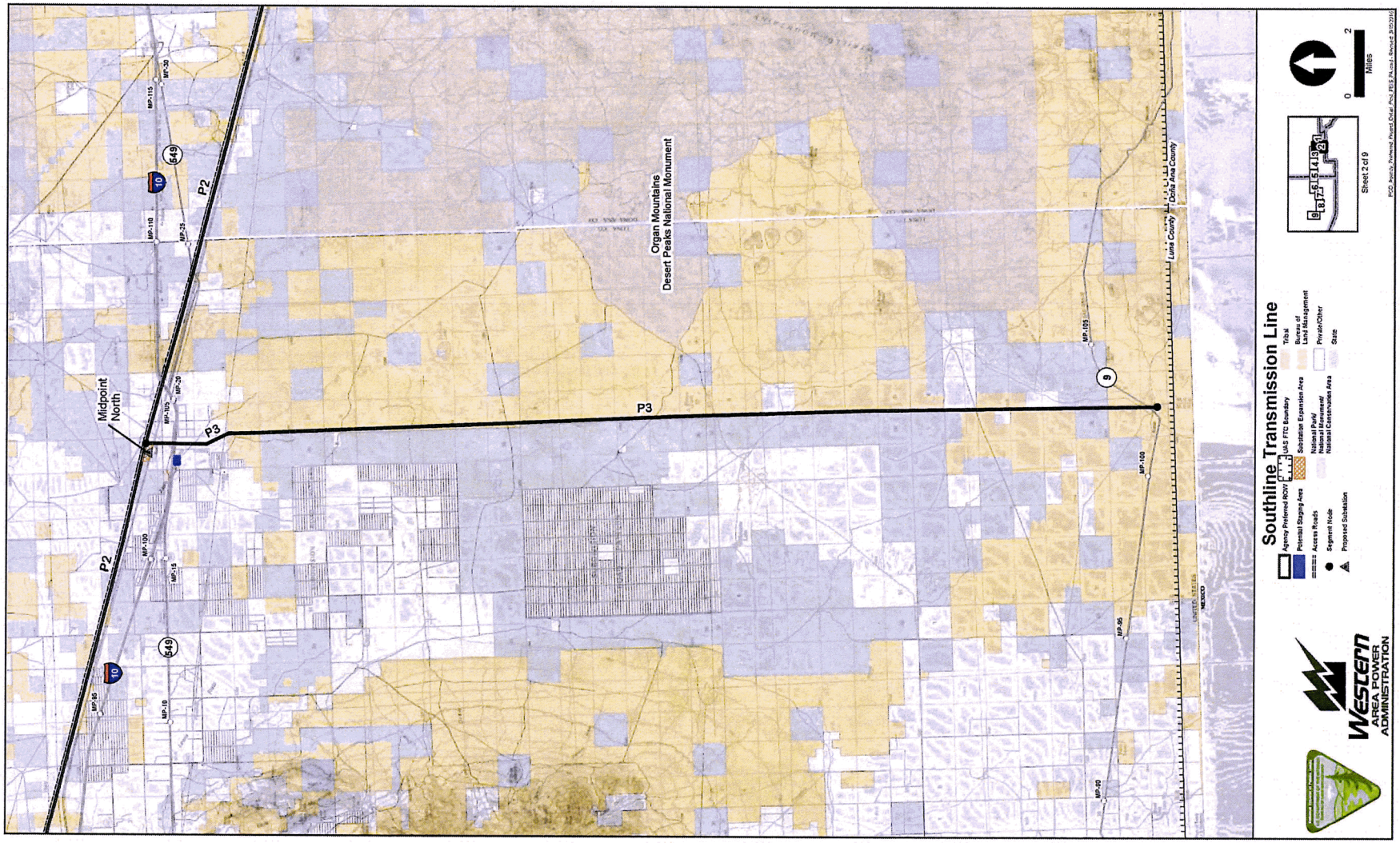

Figure 1.3. Project overview 3.

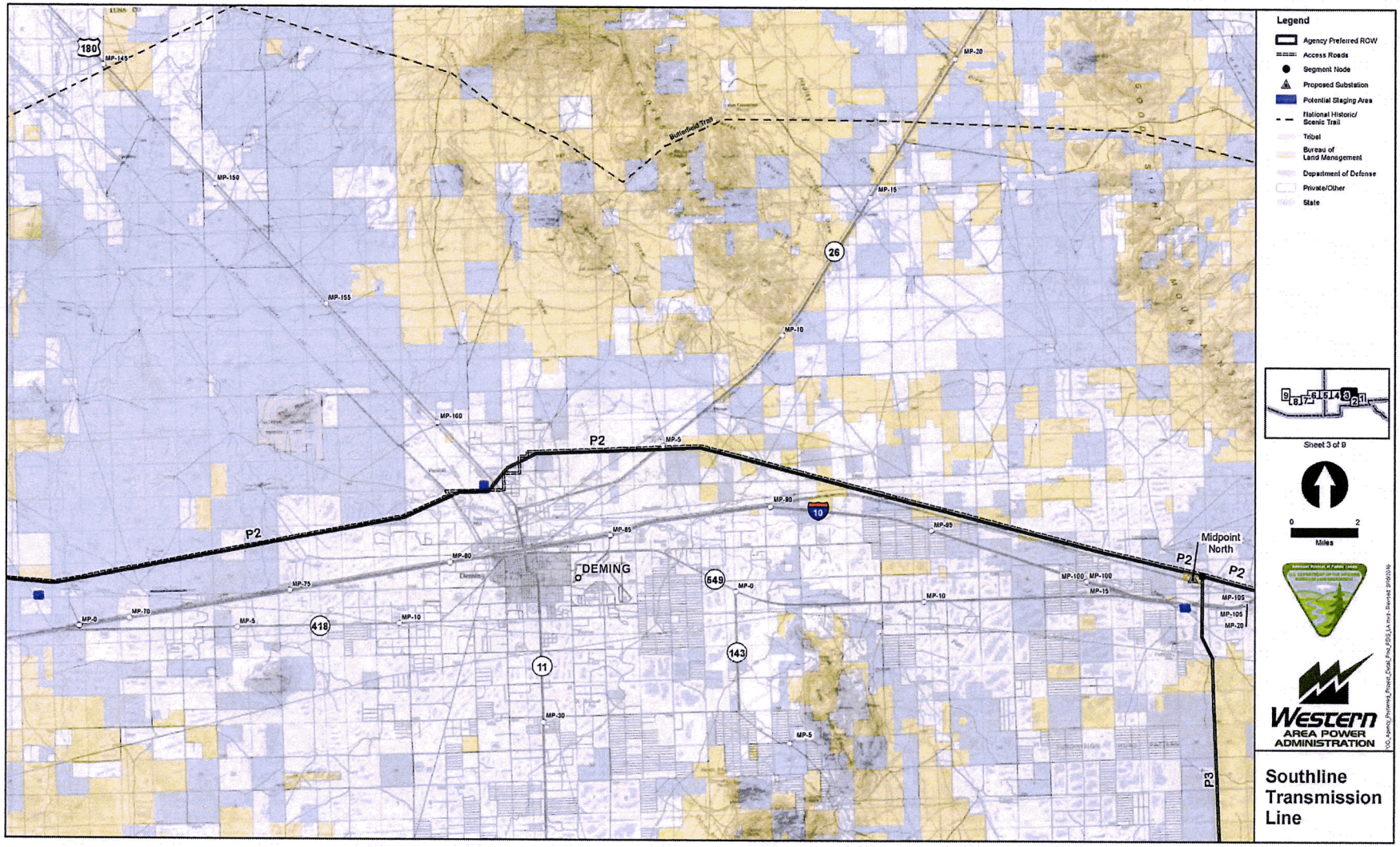

Figure 1.4. Project overview 4.

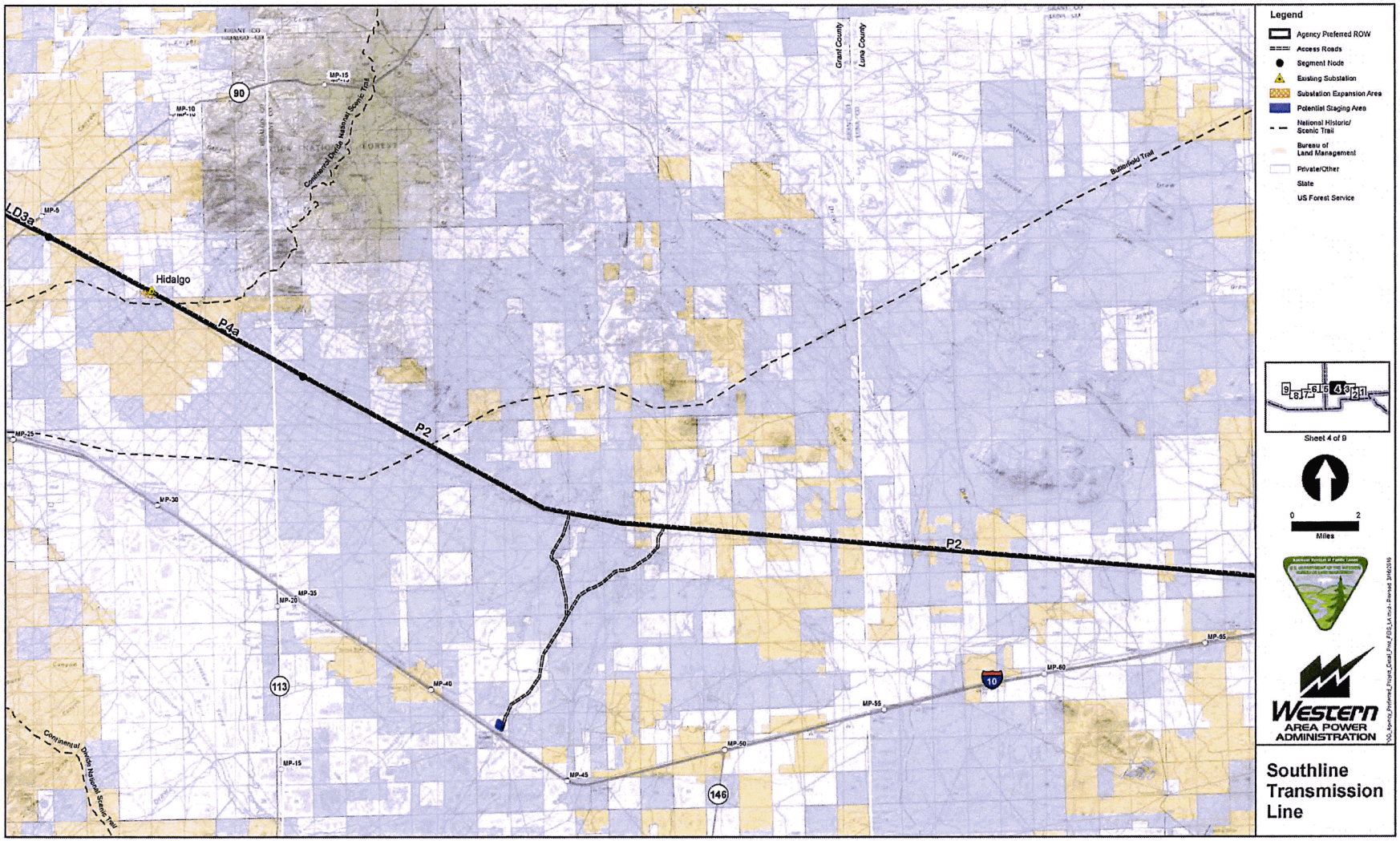

Figure 1.5. Project overview 5.

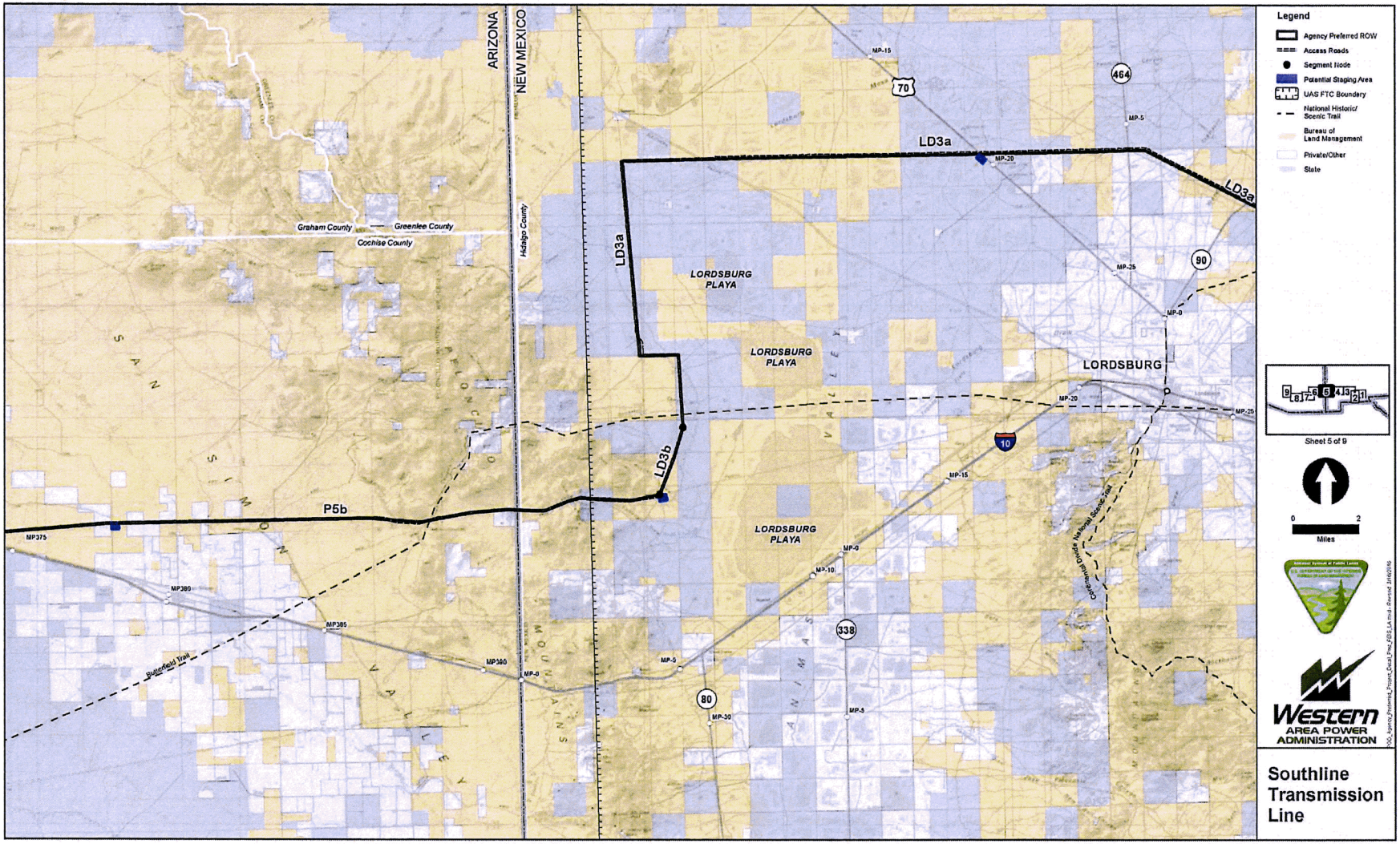

Figure 1.6. Project overview 6.

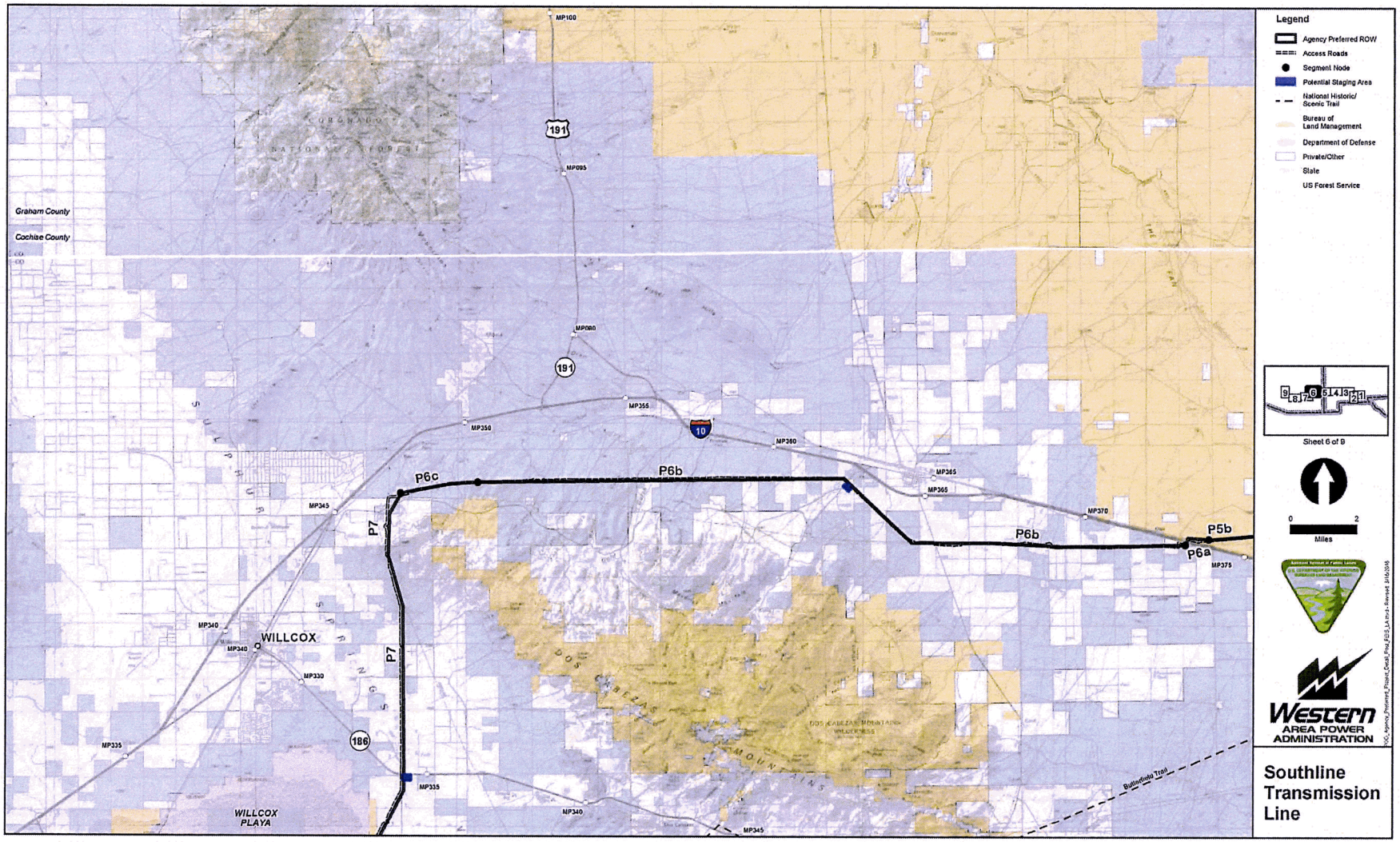

Figure 1.7. Project overview 7.

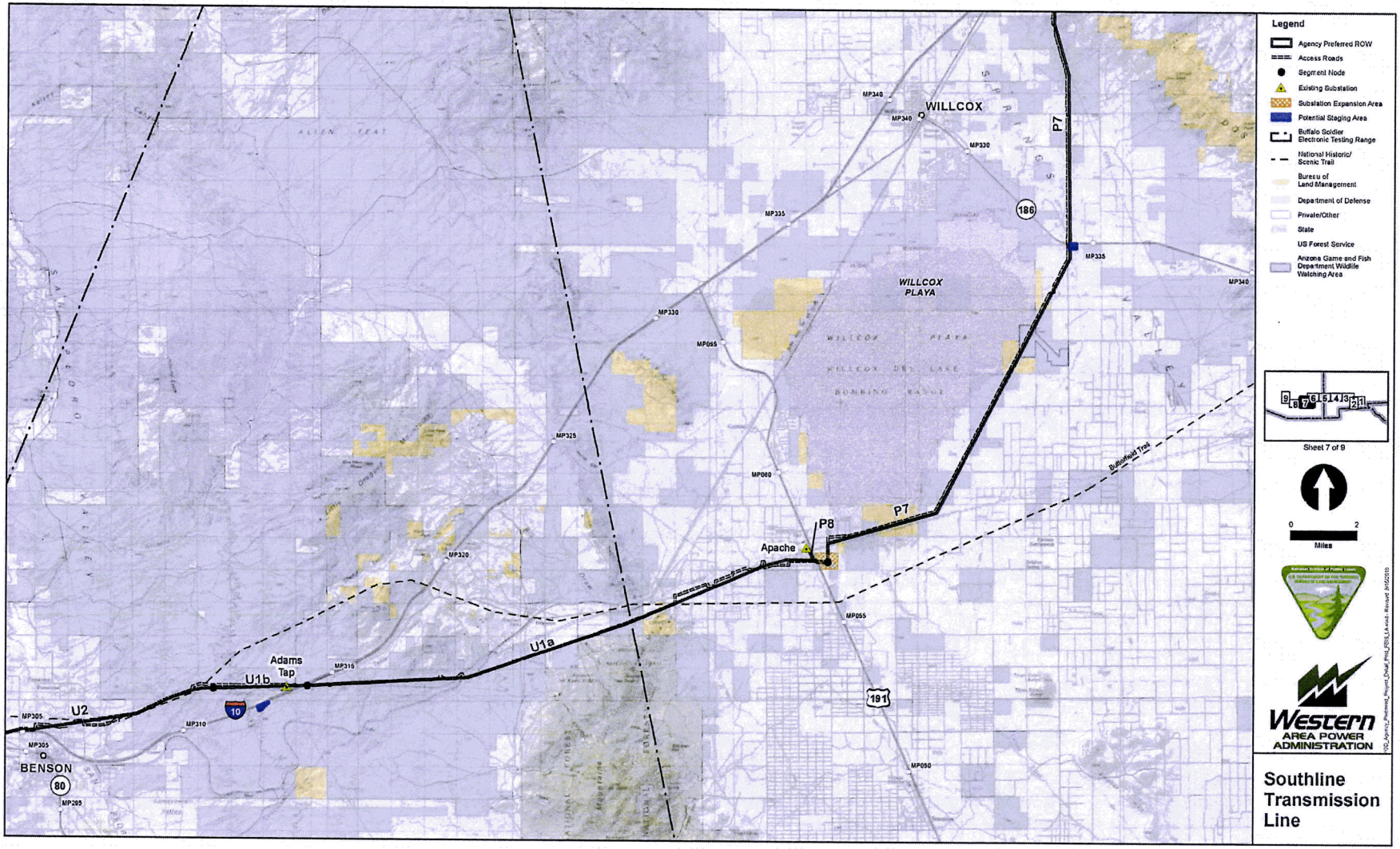

Figure 1.8. Project overview 8.

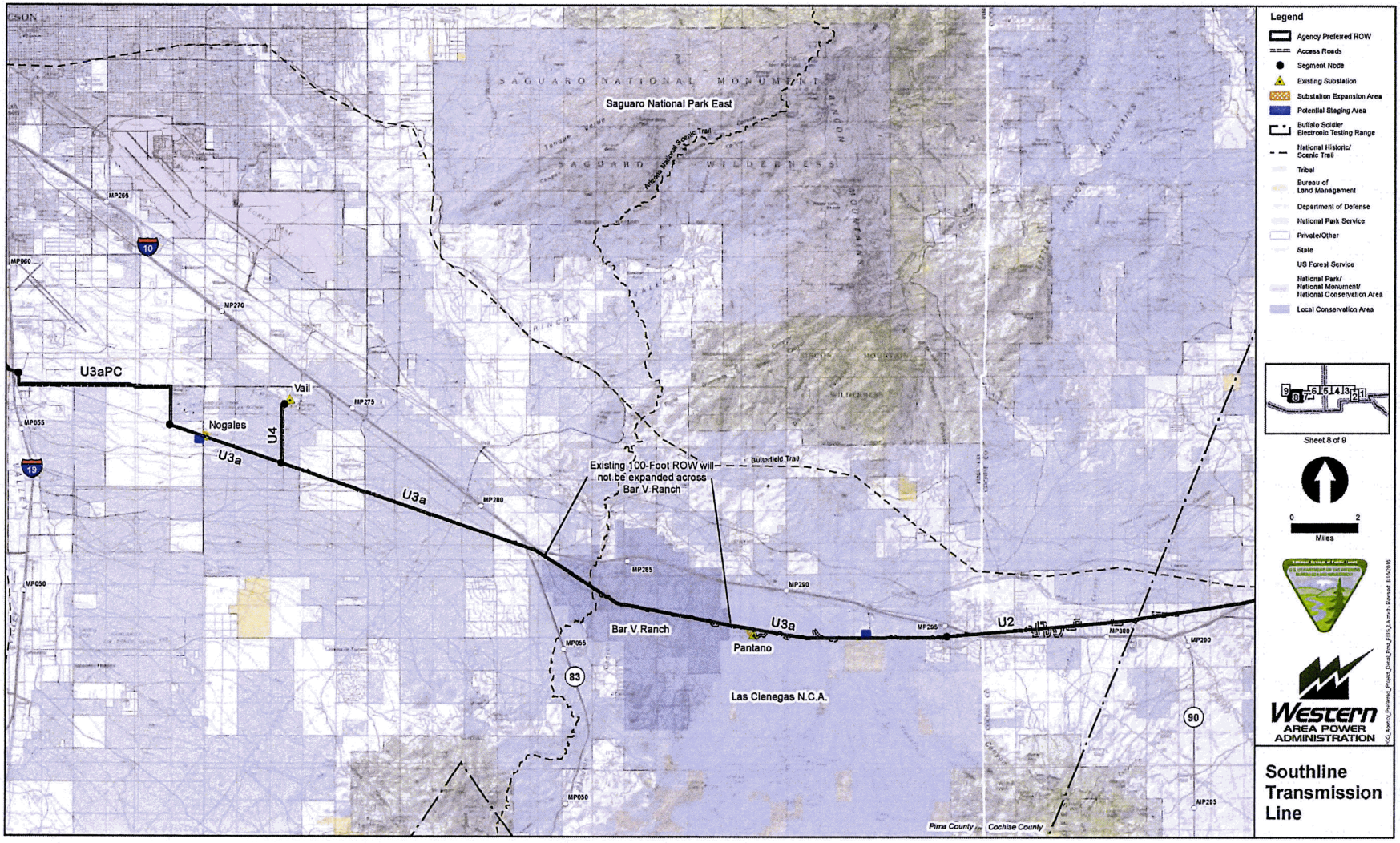

Figure 1.9. Project overview 9.

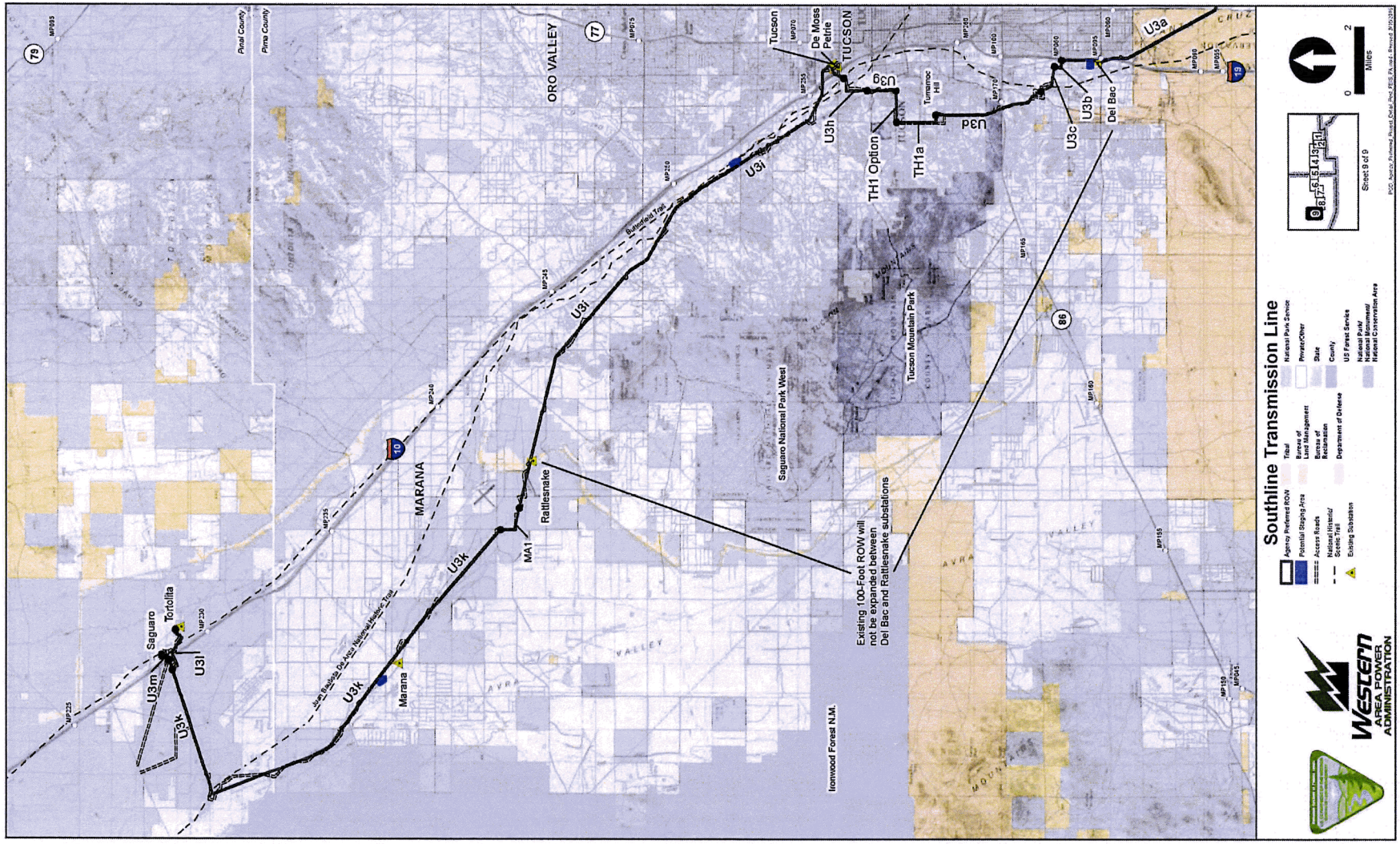

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Figure 2. Typical 345-kV tangent lattice structure diagram.

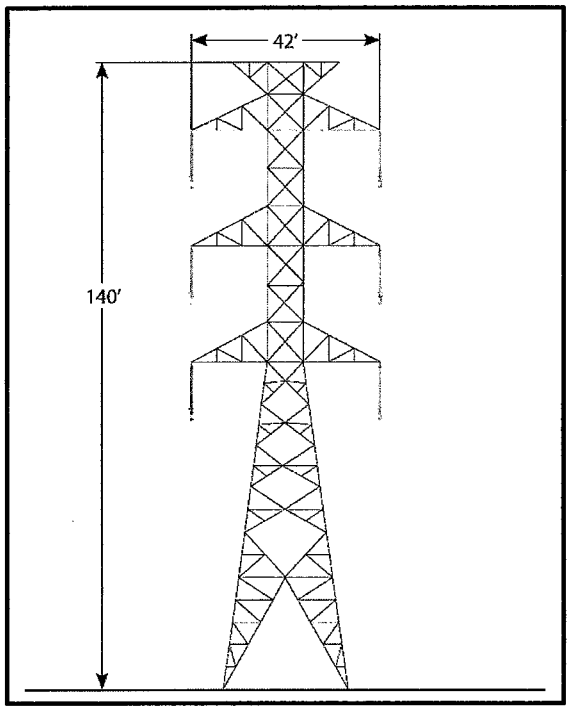


Figure 3. Typical 345-kV angle lattice structure diagram.

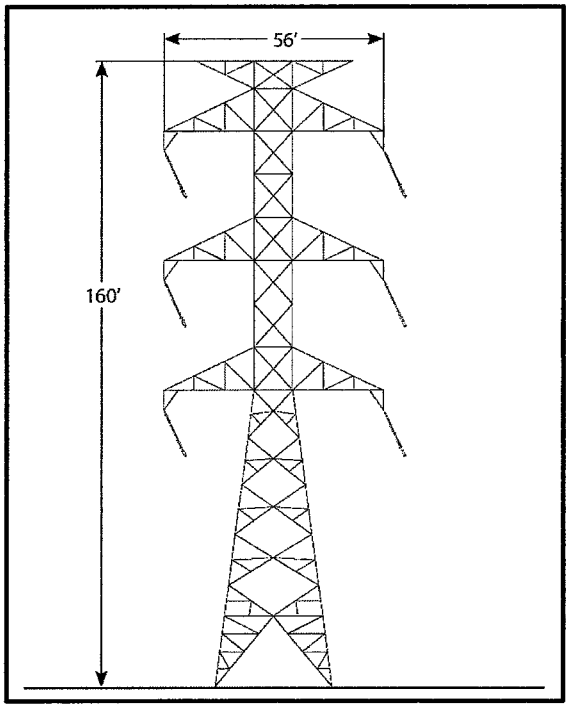


Figure 4. Typical 345-kV dead-end lattice structure diagram.

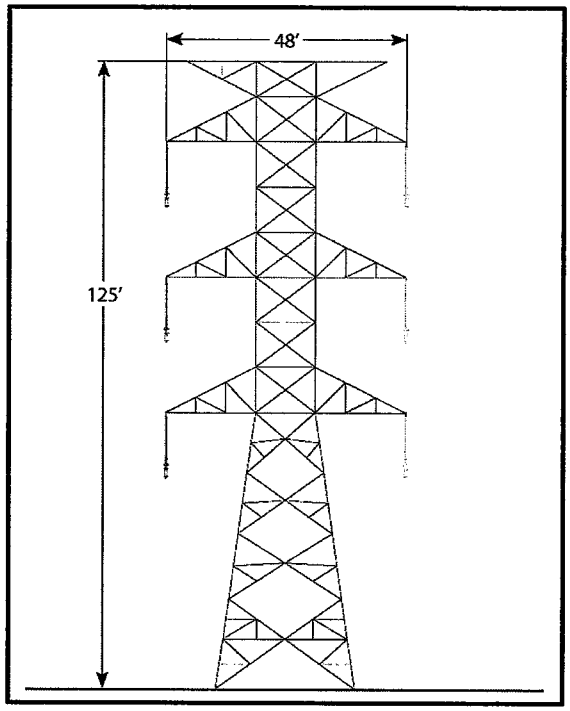


Figure 5. Typical 345-kV tangent tubular steel pole diagram.

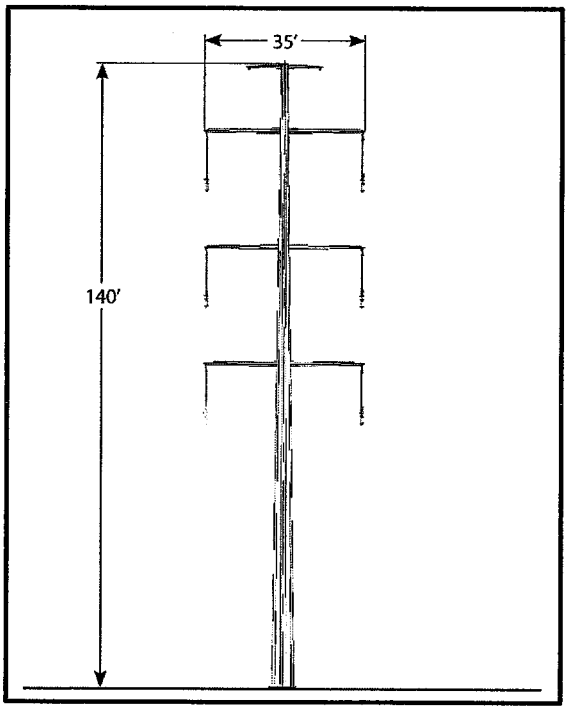
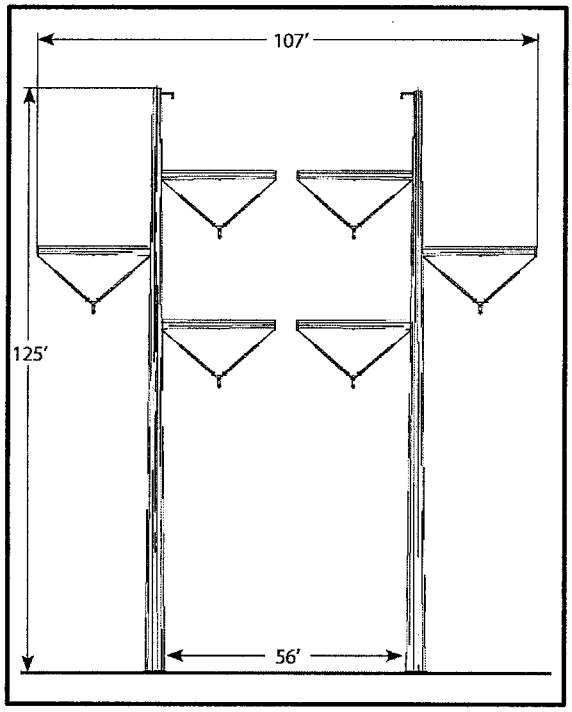


Figure 6. Typical 345-kV transposition tubular steel pole diagram.



It should be noted that the Department of Homeland Security, U.S. Customs and Border Protection, and/or DOD may have additional requirements beyond those described in chapter 5 below. Electrical properties, as described in table 3, indicate that the initial capacity on the New Build Section line will be 1,000 MW, but could ultimately be up to 2,000 MW. The Project has been designed to meet a proposed Western Electricity Coordinating Council (WECC) path rating of 1,000 MW in each direction. Studies conducted to date in support of the WECC path rating (WECC 2015) indicate that the Project will be limited to approximately 1,000 MW to ensure a high degree of reliability in the transmission system. If the existing system is improved and the elements limiting the Project's rating are upgraded, then the Project could potentially have a higher rating in the future based on its physical capacity, which would need to be confirmed with new WECC studies and additional National Environmental Policy Act (NEPA) review as appropriate.

230-kV Structures – Upgrade Section

The 230-kV double-circuit transmission line is proposed to be tubular steel structures (figures 7–10; see also table 4). To accommodate the 230-kV line, the tubular steel structures are expected to be constructed of galvanized or self-weathering steel, with a height ranging from 100 to 140 feet. The exact height of the structure will be determined by topography and safety requirements for conductor clearance. Most tubular steel poles will have an approximate diameter at the structure base of 6 feet or less.

The distance between structures will depend on site-specific characteristics but is expected to be an average of 900 feet (or approximately 5 to 6 structures per mile). By comparison, the distance between existing structures averages approximately 700 feet. Therefore, although the proposed new structures that will be replacing the old structures will be taller, there will be fewer structures per mile. Spacing between the proposed structures will be designed to allow for the longest spans practical for this type of construction. Each structure will be either directly embedded or foundation mounted in concrete. See discussion below for temporary and permanent disturbance estimates.

Figure 7. Typical 230-kV direct embedded tangent tubular steel pole diagram.

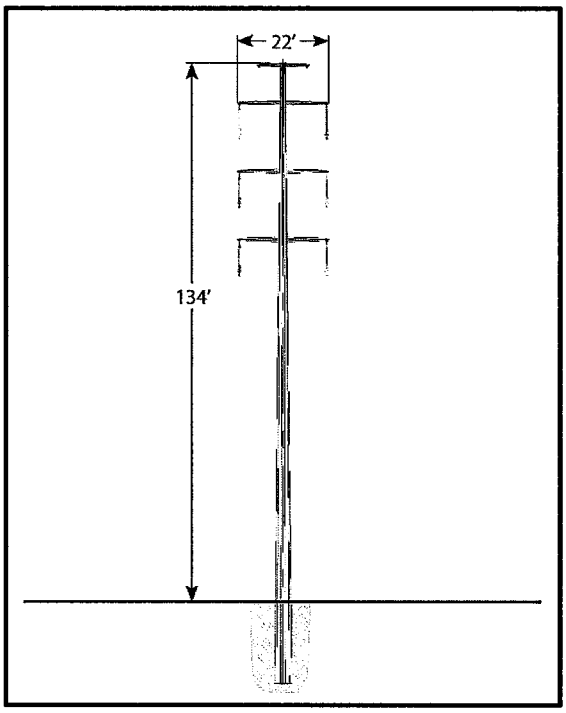


Figure 8. Typical 230-kV tangent tubular steel pole diagram (foundation type).

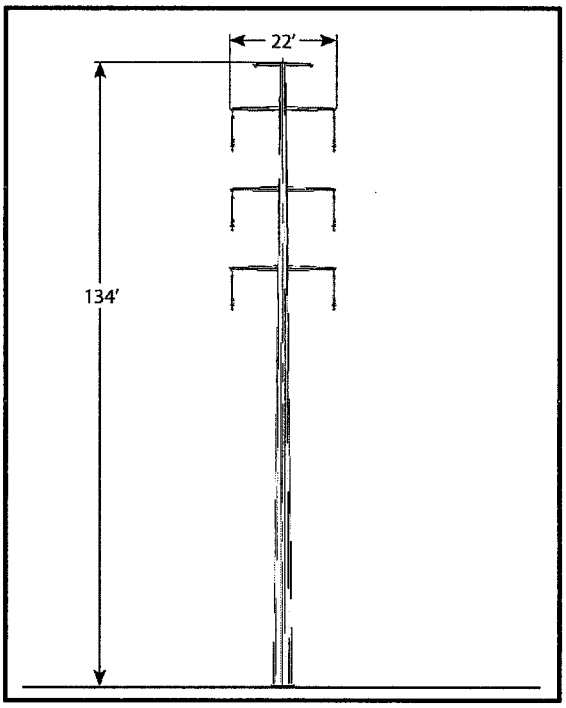


Figure 9. Typical 230-kV suspension angular tubular steel pole diagram.

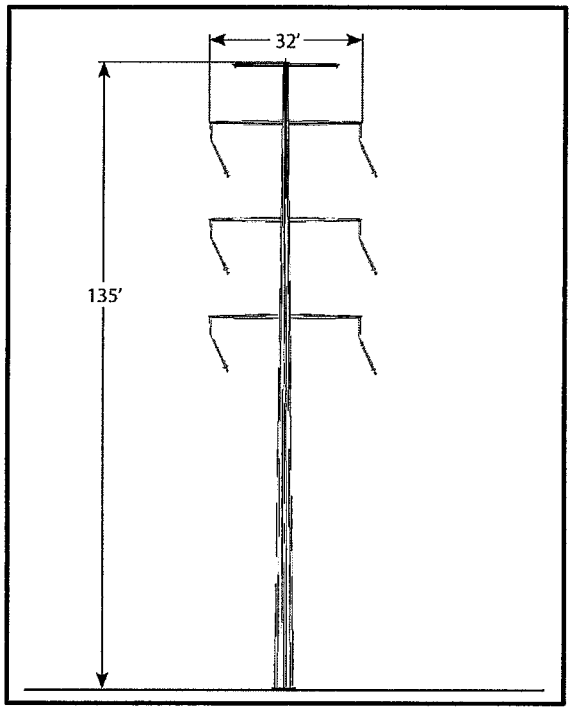


Figure 10. Typical 230-kV dead-end tubular steel pole diagram.

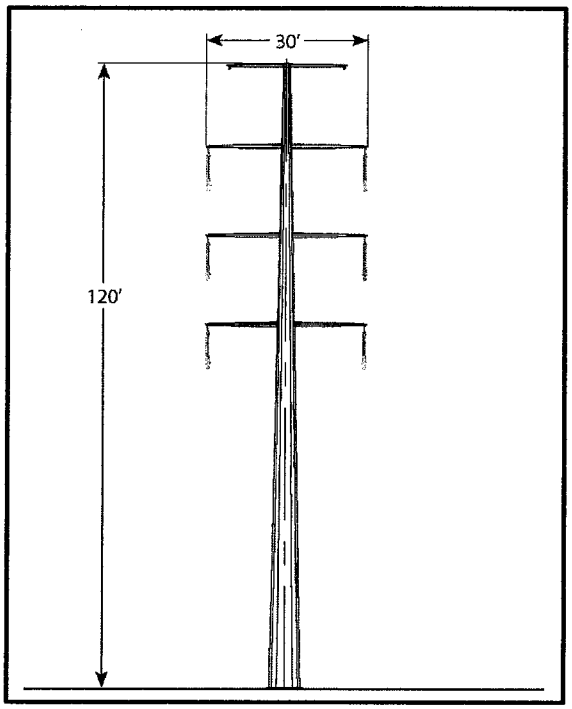


Table 4. Typical Design Characteristics of the Proposed Upgrade Section 230-kV Transmission Line

Feature	Proposed (Description)
General Description	
Structure type	Tubular steel poles (see figures 7–10)
Structure height	100–140 feet
Span length	700–1,100 feet
Number of structures per mile*	5–6
ROW width†	150 feet
Electrical Properties	
Normal voltage	230,000 volts (230 kV)
Capacity	1,000 MW (initial) 1,500 MW (ultimate)
Circuit configuration	Double-circuit
Conductor size	1,272–kcmil ACSR (1 subconductor per phase)
Shield wire size‡	7/16-inch extra-high-strength steel wire
Ground clearance of conductor§	28 feet

Notes: ACSR = aluminum conductor steel reinforced; kcmil = a thousand circular mils (a unit used to express large conductor sizes).

* Variable, depending on structure type and terrain.

† During design, a wider temporary and/or permanent ROW may be needed only in specific locations to accommodate rough terrain or long spans. Through urban Tucson, between Del Bac and Rattlesnake substations, the ROW will likely remain at the existing 100-foot width.

‡ Shield wire size: one shield wire position to be occupied by optical ground wire about 0.5 inch in diameter with 48 optical fibers.

§ Design minimum at temperature of 100 degrees Celsius.

Electrical properties, as described in table 4, indicate that the initial capacity on the Upgrade Section of the proposed line will be approximately 1,000 MW, but could ultimately be up to 1,500 MW. The Project has been designed to meet a proposed WECC path rating of 1,000 MW in each direction. If the existing system is improved and the elements limiting the Project's rating are upgraded, then the Project could potentially have a higher rating in the future based on its physical capacity, which would need to be confirmed with new WECC studies (WECC 2015).

3.2.2 Structure Foundations

Depending on soil and structure type, lattice structures and tubular steel structures are typically supported by cast-in-place drilled concrete pier foundations with detailed design to be completed once site-specific soil conditions can be evaluated. For lattice structures, steel reinforcing cages and stub angles will be installed. For tubular steel structures, either steel reinforcing cages with anchor bolts will be installed or the poles will be embedded directly into the ground. In rocky areas, foundation holes may be excavated by methods such as drilling or detonation of small charges in the drill holes used to break up the rock, or by installing special rock anchor or micro-pile type foundations. The rock anchoring or micro-pile system will be used in areas where site access is limited or where adjacent structures could be damaged as a result of rock breaking or hauling activities.

Each structure location will be evaluated individually during final engineering design to determine the recommended foundation dimensions and types. Anticipated structure type and associated foundation disturbance identified during final engineering will be accounted for in the Final POD.

Temporary and permanent land requirements for the foundations of the various types of both lattice structures and single-pole tubular steel structures for the 345-kV and 230-kV transmission lines are presented in table 5.

Table 5. Typical Structure Foundations – Temporary and Permanent Land Requirements

New Build Section	Disturbance Area
Temporary	
Structure work area	100 × 200 feet (20,000 square feet)
Wire pulling and tensioning (dead-end/angle)	200 × 500 feet (110,000 square feet)
Permanent	
Lattice (tangent)	1,225 square feet 35 × 35–foot structure base
Lattice (angle)	1,600 square feet 40 × 40–foot structure base
Lattice (dead-end)	2,025 square feet 45 × 45–foot structure base
Single-pole tubular steel pole (tangent)	40 square feet 7-foot-diameter foundation
Single-pole tubular steel pole (dead-end/angle)	100 square feet 2 poles × 8-foot-diameter foundation
Upgrade Section	
Temporary	
Structure work area	100 × 200 feet (20,000 square feet)
Wire pulling and tensioning (dead-end/angle)	150 × 500 feet (75,000 square feet)
Permanent	
Single-pole tubular steel pole (tangent)	30 square feet 6-foot-diameter foundation
Single-pole tubular steel pole (dead-end/angle)	50 square feet 8-foot-diameter foundation

3.2.3 Transmission Line Hardware

Conductors

Conductor is the wire cable strung between transmission line structures through which the electric current flows. The New Build Section 345-kV double-circuit transmission line will consist of a double-conductor bundle with two sub-conductors per phase; there will be three phases per circuit (six total).
The sub-conductors are typically spaced approximately 18 inches apart in a vertical or horizontal configuration. For the 230-kV transmission line Upgrade Section, it is anticipated that one conductor per phase will be used. The conductor will be sized to provide adequate current-carrying capacity.

To minimize wind vibration flowing over the conductors, vibration dampers will be used. The type and number of dampers needed will be determined during final design. Each conductor span is anticipated to have two Stockbridge-type vibration dampers per wire; each shield wire/optical ground wire is anticipated to have four spiral dampers per wire for the 345-kV lines and two spiral dampers per wire for the 230-kV lines.

The minimum design height of the conductor aboveground at the maximum operating temperature will be 30 feet on the New Build Section and 28 feet on the Upgrade Section. Conductor phase-to-phase and phase-to-ground clearance parameters are determined in accordance with National Electric Safety Code (NESC) American National Standards Institute (ANSI) C2. This code provides recommendations for the minimum distances between the conductors and ground, crossing points of other lines and the transmission support structure and other conductors, and minimum working clearances for personnel during energized operation and maintenance activities (Institute of Electrical and Electronics Engineers 2007).

Avian Power Line Interaction Committee (APLIC) standards will be used in final design to minimize avian conflicts. The configuration of the bundle will be designed to provide adequate current-carrying capacity while minimizing interference from audible noise and to radio operations.

Insulators and Associated Hardware

Insulators, which are made of an extremely low-conducting material, such as porcelain, glass, or polymer, are used to suspend the conductors from each structure. Insulators inhibit the flow of electrical current from the conductor to the structure. The assemblies of insulators are designed to maintain appropriate electrical clearances between the conductor, the ground, and the structure. The New Build Section will have insulator assemblies that consist of single string or two strings of insulators, predominantly in the form of a "V." The Upgrade Section will have insulator assemblies that consist of suspension strings or braced post insulators.

Overhead Ground Wire

Overhead shield wires and optical ground wires will be installed between each structure for lightning protection. Current from lightning strikes would be transferred through the ground wires and structures into the ground.

Grounding

For the New Build and Upgrade sections, a grounding system will be installed at the base of each transmission structure that will consist of copper or copper-weld ground rods embedded into the ground in immediate proximity to the structure foundation and connected to the structure by buried copper or other suitable conductor.

3.2.4 Other System Facilities

Communication Systems

The Project will include a communications system consisting of a fiber-optic network necessary for control and protection of the transmission system (referred to as supervisory control and data acquisition). For redundancy purposes, a secondary communications path will be provided via a power line carrier or microwave system. The type of communication system will be determined during final design.

The communication system is needed to transfer data for operation of the line and substations. The system will be reserved for the operation of the power system only, and will not be made available for commercial use. Primary communications for relaying and control will be provided via one optical ground wire that will be installed on one of the shield wire positions on the transmission line structures.

As the optical data signal is passed through the optical fiber cable, the signal degrades with distance. Consequently, communication regeneration stations are required to amplify the signals if the distance along the cable exceeds approximately 50 miles.

Communication Regeneration Station

Approximately two new communication regeneration stations will be required along the New Build Section: one between Apache and Hidalgo substations, and one between Hidalgo Substation and a new substation facility proposed for Luna County, New Mexico (referred to as Midpoint Substation). The two new fiber-optic regeneration sites will be located next to or in the ROW such that they will be accessed by access roads already required for transmission line maintenance. The existing substations along the Upgrade Section of the Project are close enough together that required communication equipment will be located within the substation perimeter (either existing or proposed new yards, as described above).

New communication regeneration sites will typically be 100 × 100 feet, with a fenced-in area of 75 × 75 feet. A 12 × 12 × 9–foot tall building (metal or concrete) will be placed on the site, and access will be available from the transmission line access roads. Entrances above the door of each building will be lit to allow for safe entrance and exit, but the rest of the site will not be lit at night.

Microwave regeneration sites will be co-located with fiber-optic sites if possible along the Upgrade Section, and are only anticipated to be needed along the New Build Section of the Project. As above, the existing substations along the Upgrade Section of the Project are close enough together that required communication equipment will be located within the substation perimeter (either existing or proposed new yards, as described above). The two new microwave regeneration sites along the New Build Section will be located off the ROW and their final location will be determined based on line of sight between substations. These locations will be determined during final engineering but will be located such that they would be accessed by access roads already required for transmission line maintenance.

New microwave communication regeneration sites will typically be 100 × 100 feet, with a fenced-in area of 75 × 75 feet. A typical site consists of a microwave equipment building, which houses telecommunication and network equipment, backup batteries, and chargers. The building will be approximately 12 × 12 × 9 feet tall and, where possible, microwave regeneration sites will be co-located with the fiber-optic regeneration site buildings (i.e., all equipment will be housed in the same building). Buildings will be finished to minimize visual impact, and lighting at night will be limited to an entrance light above the door for security and to allow for safe entrance and exit. The site will also have a microwave antenna installed on a self-standing tower approximately 100 feet tall.

Communication Regeneration Station Distribution Supply Lines

Power will likely be provided from a local electric distribution line, located in proximity to the regeneration site. The voltage of the distribution supply line is typically 12 kV or lower and carried on wooden poles. For the estimated two new sites, it will be necessary to extend the electric distribution line from a take-off point on the existing distribution line to the new site. The location and routing of the existing distribution lines to the new sites will be determined during the final design process.

3.2.5 Other Electrical Hardware

In addition to the conductors, insulator, and overhead shield and optical ground wires, other associated hardware will be installed on the structure as part of the insulator assembly to support the conductors and shield wires. This hardware might include clamps, shackles, links, plates, and various other pieces composed of steel and aluminum.

3.2.6 Other Non-Electrical Hardware

Other hardware not associated with the transmission of electricity may be installed as part of the Project. This hardware may include aerial marker spheres or aircraft warning lighting, which may be required for the conductor on certain spans in accordance with FAA guidelines.

3.2.7 Substations

The Project involves interconnection with and upgrades of 14 existing substations along the Project route in New Mexico and Arizona, and the potential construction of the proposed Midpoint Substation.

Project design has progressed resulting in a more refined Project description. As a result, at four substation locations within the Upgrade Section where the proposed Project was anticipated to include expansion of existing facilities, these expansions are more accurately be described as "new" substations. These four substation locations are Apache, Pantano, Marana, and Saguaro. Please note that these changes are only a refinement of the project description and do not change the disturbance areas and impact estimates.

A summary of substations associated with the Project, land ownership, and the respective owner/operator is provided in table 6. Of the existing substations, there are two on BLM lands (Afton and Nogales), three on State lands in Arizona (Adams Tap, Pantano, and Tortolita), one on Reclamation lands (Rattlesnake), and eight on private land (Hidalgo, Apache, Vail, Del Bac, Tucson, DeMoss Petrie, Marana, and Saguaro). The Midpoint North Substation will be on New Mexico State Land Office–administered State and private lands.

Table 6. Project Interconnection Substations (Existing and Proposed)

Interconnection Substation	Owner/Operator	Section	Land Status
Afton	El Paso Electric	New Build	BLM
Midpoint*	Southline (owner); operator TBD	New Build	New Mexico State Land Office and private
Hidalgo	El Paso Electric	New Build	New Mexico State Land Office and private
Apache*	Southwest Transmission Cooperative (SWTC) and Southline	Upgrade	Private
Adams Tap	Western	Upgrade	Arizona State Land Department
Pantano*	SWTC and Southline	Upgrade	Arizona State Land Department
Vail	TEP	Upgrade	Arizona State Land Department and private
Nogales	Western	Upgrade	BLM
Del Bac	Western	Upgrade	Arizona State Land Department
Tucson	Western	Upgrade	Private
DeMoss Petrie	TEP	Upgrade	Private
Rattlesnake	Western	Upgrade	Reclamation
Marana*	SWTC and Western	Upgrade	Private
Tortolita	TEP	Upgrade	Arizona State Land Department
Saguaro*	Arizona Public Service and Western	Upgrade	Arizona State Land Department and private

* Midpoint Substation is a new proposed substation that is not interconnected with an existing adjacent substation. Apache Southline, Marana Tap-Sawtooth, and Sasco substations are new substation yards proposed to interconnect with neighboring substations; all other substations in this table are existing substations.

As shown in table 6, substations along the New Build Section include the existing Afton and Hidalgo substations, as well as the proposed Midpoint Substation in New Mexico. Substations along the Upgrade Section include Apache/Apache (Southline), Adams Tap, Pantano/Pantano (Southline), Vail, Nogales, Del Bac, Tucson, DeMoss Petrie, Rattlesnake, Marana/Marana Tap-Sawtooth, Tortolita, and Saguaro/Sasco. Substation expansions and upgrades vary by substation.

3.2.8 Preliminary Access Road Information

Access roads will be required during construction for the movement of trucks, cranes, concrete trucks, bulldozers, and other light and heavy construction equipment to and along the ROW. Access roads will also serve as the primary means of movement for construction crews and Project materials. During operation, these roads will be needed to access transmission lines, substations, and ancillary facilities for period line inspections and scheduled and emergency maintenance over the life of the Project. As such, access roads must be sufficient to support the weight of construction equipment; upon completion of the Project, access roads will be used by operation and maintenance vehicles.

The Project will be designed, as feasible, to use existing access roads with minimal improvement. The level of construction for access roads will range from unimproved cross-country travel to completely bladed roads (see below for a description of access types A–E). For example, unimproved cross-country travel access (two-track) will be on flat, sparsely vegetated areas, and will be used to maintain the maximum amount of native vegetation and minimize overall disturbance instead of creating new roads, as appropriate. Improvements to existing roads that will be used as access roads will occur in areas where occasional blading will be needed on rough spots and will transition to more blading with other improvements on steep, rocky, or rough country. The intent is to do no more than is necessary to get equipment in and out safely and to prevent erosion. All roads will be within designated ROW, whether inside the main transmission line ROW, or outside in a 30-foot access road ROW.

In areas where improvements are required, access roads will be graded, as needed, to provide a smooth travel surface. Such improvements could include blading, widening of the road, or installing drainage structures, such as culverts. No graveling or paving is planned. Typically, Project access roads will have a travel surface width of 12 to 16 feet but could have a maximum width of 24 feet, depending on site-specific circumstances, such as steep terrain, and where needed to accommodate expanded turning areas for cranes and pole trucks. After construction, wider parts of the access roads will be revegetated. Access road types that could be used for this Project include existing roads that require no improvements, existing roads that require improvements, and new access roads.

Access roads will be designed to go directly from structure to structure, except in difficult terrain or where sensitive resources need to be avoided. In such cases, the road will follow suitable topography from structure to structure and will be built in areas that generally cause the least amount of overall disturbance, which may be outside the ROW in cases of difficult terrain. Typically, where the line spans a river channel, or large steep-sided wash, access may come from either side to avoid damage to riparian vegetation.

The Access Road Plan for the Project assumes that five primary types of access will be used:

- **Access Type A** – Access from adequate private roads. This type of access will be used when there is no existing road adjacent or parallel to the alignment, but where there is a patchwork of existing roads in the area that will be crossed by the Project ROW, and could be used to access the ROW and get close to the structure locations. Grading between the existing roads and each structure location will only be conducted where necessary and will depend on site conditions. Grading and other improvements may not be necessary, depending on site conditions. Typically,

overall disturbance will be limited to a width of 16 feet or less. The purpose of using existing access from private roads will be to minimize overall disturbance.

- **Access Type B** – Parallel to maintained public roads. This type of access will be used when the alignment roughly parallels a nearby public road that is either paved or has gravel surfacing. Short spur roads will be used from the existing roads to each structure location as described below under access type E. Except in rare cases, the existing roads will not be upgraded, but any damage to public roads from construction activities will be repaired. The purpose of access roads parallel to a nearby public road will be to consolidate and minimize overall disturbance.
- **Access Type C** – Parallel to existing utility roads. This type of access will be used when the alignment roughly parallels an existing utility that already has an existing access road. Spur roads will be used from the existing utility roads to each structure location as described below under access type E. Generally, the existing utility roads will be improved. Grading between the existing utility roads and each structure location will only be conducted where necessary and will depend on site conditions. Grading and other improvements may not be necessary, depending on site conditions. Typically, overall disturbance will be limited to a width of 16 feet or less. The purpose of access roads parallel to a utility road will be to consolidate and minimize overall disturbance.
- **Access Type D** – New down-ROW primary access. This type of access will only be used when access types A–C are not feasible. It will consist of a 16-foot-wide road (12-foot travel surface plus 2 feet on either side for berms/ditches). As much as possible, new access will be entirely within the ROW. Typically, new down-ROW access will be used if any parallel roads are more than 700 feet from the alignment. This access type will also normally be used for alignments that parallel interstate highways and railroads because the owners of those facilities generally place restrictions on the use of their ROWs; these restrictions do not allow for the addition of spur roads or their related ROW crossings and gates in ROW fences.
- **Access Type E** – Spur roads–improved and unimproved access. Spur roads will be used to connect type A, B, and C access roads to the ROW and for temporary access to stringing and splicing sites. Spur roads will be unimproved (two-track) roads except in areas where grading may be required based on terrain, with an average of one new spur road per mile for temporary access and approximately five spur roads per mile in areas where type A, B, and C access roads are used for permanent access to structure locations. Only where necessary, spur roads will be improved, and the roads will be graded to 10 to 12 feet wide. Otherwise, spur roads will not be improved in areas with flat terrain and within grassland, desertscrub, sand scrub, and sand dune vegetation communities. Vegetation on unimproved roads may be crushed by driving, but cropping or blading vegetation will not be conducted. This will avoid removal of root mass and organics in the soil (no surface soil will be removed). The purpose of unimproved spur roads will be to preserve the maximum amount of native vegetation and minimize overall disturbance.

Once design is finalized, all access roads described above will be surveyed, appropriate ROW will be acquired, and ROW will be mapped and incorporated into the Access Road Plan and Management Plan.

3.3 INDUCED CURRENTS ON ADJACENT FACILITIES

Alternating current (AC) transmission lines have the potential to induce currents on adjacent metallic structures such as other transmission lines, railroads, pipelines, fences, or structures that are parallel to, cross, or are adjacent to the transmission line. To address induced-current effects on metallic facilities or structures within 200 feet of the Project center line, these structures will be properly grounded as needed. This will eliminate the electric shock potential a person may experience when touching a metallic object

near the Project. Typically, the NESC determines what structures beyond 200 feet or more from the center line will require grounding. If grounding were required outside the ROW, a temporary use permit will be obtained, as needed.

3.4 LAND REQUIREMENTS AND CONSTRUCTION DISTURBANCE

The proposed ROW width for the New Build Section 345-kV double-circuit transmission line is 200 feet. The anticipated ROW width for the Upgrade Section 230-kV transmission line is 150 feet except in areas identified during final design such as urban Tucson between Del Bac and Rattlesnake substations, where the ROW will likely remain at the existing width of 100 feet. These ROW widths have been requested to allow for the safe movement and operation of construction, operation, and maintenance equipment and to allow for sufficient clearance between conductors and the ROW edge, as well as equipment like bucket trucks, as required by the NESC. Southline is also requesting ROWs for ancillary Project facilities and for access to the transmission line.

3.4.1 Right-of-Way / Special-use Authorization Acquisition

New permanent and temporary ROW land rights will be required for the New Build Section.
The requested ROW width for the New Build Section 345-kV double-circuit transmission line is 200 feet. New and temporary ROW may be required in areas along the Upgrade Section, depending on the final design considerations. No new ROW is anticipated in the Upgrade Section across Bar V Ranch in Pima County, and between the Del Bac and Rattlesnake substations; in these areas, the tear-down and rebuild in place method of construction will be necessary because in these congested areas, an additional 50 feet of ROW is not available. Tearing the line out and rebuilding in place requires outages on the existing line while construction is accomplished.

Temporary ROWs are also being requested for construction of the Project facilities. These temporary use areas will include access to work areas at transmission line structure locations, material laydown yards, tensioning and pulling areas, splicing locations, and staging areas. Construction activities will be expected to occur over a 24-month period. Where access is needed outside the transmission line ROW, permanent ROWs for access roads to structure sites are also being requested in order to conduct maintenance throughout Project operation. Where ROW acquisitions are found to be necessary, Western or Southline will negotiate rights and compensate landowners. The landowner will retain the title and use of the easement with a few restrictions.

Before the start of construction of a project element, Southline will obtain a complete project element ROW through a combination of a ROW grant, special use permit, and easements from applicable Federal, State, and local governments, tribes, and private landowners. Close coordination with all property owners and land agencies during surveys and the construction phase of the Project will be important for successful completion of the Project. In the early stages of the Project, landowners will be contacted to obtain right-of-entry for surveys and for geotechnical drilling at selected locations. Additional landowners will be contacted as needed throughout the Project for additional surveys, including geotechnical work. Each landowner along the final centerline route will be contacted to explain the Project and to secure right-of-entry and access to the ROW. Geotechnical drilling on Federal lands may require additional environmental analysis and field clearance under NEPA.

All negotiations with landowners will be conducted in good faith, and the Project's effect on the parcel or other landowner concerns will be addressed. ROWs for transmission line facilities on private lands will be obtained as easements. Land for substation or regeneration stations will be obtained in fee simple where

located on private land. A good-faith effort will be made to purchase the land and/or obtain easements on private lands through reasonable negotiations with the landowners. If Southline is unable to negotiate an easement or obtain clear title for the land right, Western may negotiate the easement, or obtain the necessary rights through condemnation proceedings, in accordance with Federal law. Western's policy is to avoid condemnation if at all possible.

Additional ROW may be required, depending upon site geography and terrain. These areas are identified to the extent possible during the NEPA process; however, some needs might be identified during the final engineering, preconstruction, or construction phases of the Project. In some areas, longitudinal access roads will be sited within the transmission line ROW. In other areas, spur roads will connect existing roads to the transmission line ROW. Specific access road locations will be identified during design and subject to BLM approval via issuance of notice to proceed from the BLM. These areas will be subject to field surveys for cultural and biological resources, including native plant surveys and salvage prior to any disturbance. Planned access roads will be surveyed and specific ROW easements obtained from the landowners. All applicable PCEMs, as well as conditions in the Framework Plans, will apply.

3.4.2 Temporary and Permanent (Long-term) Construction Disturbance

Table 7 below includes a breakdown of potential temporary and permanent construction disturbance estimates, based on the Project as described above and in the EIS. The component descriptions precede this section.

Table 7. Summary of Project Components and Estimated Temporary and Permanent Disturbance by Subroute and Segment

Subroute	Total Length (miles)	Land Ownership (miles)								Access Road Type (miles)					Total Length Access Roads (miles)	Total New Disturbance Access Roads (acres) (using road types C and D at 16-foot width less any existing disturbance and road type E at 12-foot width)	Subroute Structure Ground Disturbance Estimates				Substation Expansion (acres)		Construction Laydown Yard (acres)	Total Temporary Disturbance (acres) (structure, substation, and construction laydown yards)	Total Permanent Disturbance (acres) (access, substation expansion, and structure foundations)
																	Temporary Disturbance		Permanent Disturbance						
		BLM	BIA	DOD	Forest Service	Reclamation	State	County	Private	A	B	C	D	E			Acres	Acres/ Mile	Acres	Acres/ Mile	Temp	Perm			
New Build Route Group 1: Afton (New Mexico) to Hidalgo (New Mexico)																									
P1	5.1	3.0	0.0	0.0	0.0	0.0	1.9	0.0	0.2	0.0	0.0	0.0	5.1	0.0	5.1	9.9	28.7	5.6	0.5	0.1				28.7	10.4
P2	102.0	32.8	0.0	0.0	0.0	0.0	31.3	0.0	37.9	4.9	11.8	98.1	0.0	29.3	144.1	125.9	571.0	5.6	10.2	0.1			80.0	651.0	136.1
P3	31.1	25.4	0.0	0.0	0.0	0.0	1.4	0.0	4.2	0.0	0.0	0.0	31.1	0.0	31.1	60.3	174.2	5.6	3.1	0.1			20.0	194.2	63.4
P4a	8.9	4.2	0.0	0.0	0.0	0.0	3.7	0.0	1.1	0.0	0.0	8.8	0.0	1.9	10.7	10.2	50.0	5.6	0.9	0.1				503.0	11.1
Total	**147.1**	**65.5**	**0.0**	**0.0**	**0.0**	**0.0**	**38.3**	**0.0**	**43.4**	**4.9**	**11.8**	**106.9**	**36.2**	**31.2**	**206.3**	**206.3**	**824.0**		**14.7**		**20.0**	**35.0**	**100.0**	**944.0**	**256.0**
New Build Route Group 2: Hidalgo (New Mexico) to Apache (Arizona)																									
P5b	21.1	17.9	0.0	0.0	0.0	0.0	1.0	0.0	2.2	0.0	0.0	21.2	0.0	2.7	23.9	19.4	118.1	5.6	2.1	0.1			20.0	138.1	21.5
P6a	0.9	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.1	0.8	0.6	4.9	5.6	0.1	0.1			20.0	24.9	0.7
P6b	22.5	0.2	0.0	0.0	0.0	0.0	12.6	0.0	9.7	0.0	0.0	20.8	2.3	2.7	25.8	23.5	125.9	5.6	2.2	0.1				125.9	25.8
P6c	2.4	0.0	0.0	0.0	0.0	0.0	2.4	0.0	0.0	0.0	0.0	2.8	0.0	0.4	3.2	2.9	13.4	5.6	0.2	0.1			20.0	33.4	3.2
P7	22.1	2.3	0.0	0.2	0.0	0.0	10.2	0.0	9.4	0.0	0.5	22.1	0.0	3.8	26.4	21.6	123.8	5.6	2.2	0.1	0.0	0.0	20.0	143.8	23.8
P8	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.0	0.0	0.0	0.0	0.5	0.1	2.8	5.6	0.1	0.1	0.0	0.0	0.0	2.8	0.1
LD3a	29.6	9.1	0.0	0.0	0.0	0.0	17.5	0.0	3.0	0.0	0.4	17.3	11.4	3.0	32.1	41.2	165.8	5.6	3.0	0.1			20.0	185.8	44.2
LD3b	2.2	1.3	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.0	2.0	0.0	2.2	0.0	2.2	4.2	12.2	5.6	0.2	0.1			20.0	32.2	4.4
Total	**101.2**	**31.7**	**0.0**	**0.2**	**0.0**	**0.0**	**44.6**	**0.0**	**24.7**	**0.5**	**0.9**	**84.9**	**15.9**	**12.8**	**114.9**	**113.5**	**566.6**		**10.1**		**20.0**	**53.0**	**120.0**	**706.6**	**176.6**

Table 7. Summary of Project Components and Estimated Temporary and Permanent Disturbance by Subroute and Segment (Continued)

Subroute	Total Length (miles)	Land Ownership (miles)								Access Road Type (miles)					Total Length Access Roads (miles)	Total New Disturbance Access Roads (acres) (using road types C and D at 16-foot width less any existing disturbance and road type E at 12-foot width)	Subroute Structure Ground Disturbance Estimates				Substation Expansion (acres)		Construction Laydown Yard (acres)	Total Temporary Disturbance (acres) (structure, substation, and construction laydown yards)	Total Permanent Disturbance (acres) (access, substation expansion, and structure foundations)
																	Temporary Disturbance		Permanent Disturbance						
		BLM	BIA	DOD	Forest Service	Reclamation	State	County	Private	A	B	C	D	E			Acres	Acres/ Mile	Acres	Acres/ Mile	Temp	Perm			
Upgrade Route Group 3: Apache (Arizona) to Pantano (Arizona)																									
U1a	16.7	0.4	0.0	0.0	0.5	0.0	9.2	0.0	6.6	4.9	0.0	11.9	0.0	7.0	23.9	18.9	85.1	5.1	0.2	0.01				85.1	19.1
U1b	2.9	0.0	0.0	0.0	0.0	0.0	2.9	0.0	0.0	0.0	0.0	2.7	0.0	0.1	2.8	2.5	14.8	5.1	0.0	0.01			20.0	34.8	2.5
U2	15.8	0.5	0.0	0.0	0.0	0.0	2.8	0.0	12.5	1.5	0.0	21.0	0.0	7.0	29.6	28.1	80.6	5.1	0.2	0.01				80.6	28.2
U3a	30.7	0.2	2.9	0.0	0.0	0.2	19.6	0.0	7.7	0.8	0.0	36.2	0.0	3.9	40.9	32.0	156.3	5.1	0.3	0.01			60.0	216.2	32.3
Total	**66.1**	**1.1**	**2.9**	**0.0**	**0.5**	**0.2**	**34.5**	**0.0**	**26.8**	**7.2**	**0.0**	**71.9**	**0.0**	**18.1**	**97.1**	**81.4**	**336.8**		**0.7**		**0.0**	**5.7**	**80.0**	**416.8**	**87.8**
Upgrade Route Group 4: Pantano (Arizona) to Saguaro (Arizona)																									
U3b	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.2	0.0	0.2	0.0	0.1	0.5	0.3	2.3	5.1	0.0	0.01				2.3	0.3
U3c	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.7	0.0	0.0	0.0	0.1	0.8	0.2	4.9	5.1	0.0	0.01				4.9	0.2
U3d	3.4	0.0	0.0	0.0	0.0	0.0	0.0	0.4	3.0	3.1	0.0	1.8	0.0	1.0	5.8	2.7	17.5	5.1	0.0	0.01				17.5	2.8
U3g	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.9	0.0	0.3	0.0	0.1	1.3	0.4	4.6	5.1	0.0	0.01				4.6	0.4
U3h	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.9	0.0	0.0	0.0	0.1	1.0	0.1	5.6	5.1	0.0	0.01				5.6	0.2
U3i	18.2	0.0	0.0	0.0	0.0	0.2	2.7	0.0	15.3	7.4	0.0	12.8	0.0	2.1	22.3	13.9	93.0	5.1	0.2	0.01			20.0	113.0	14.1
U3k	16.7	0.0	0.0	0.0	0.0	0.0	10.8	0.0	5.9	3.3	0.0	15.1	0.0	5.7	24.1	21.1	85.2	5.1	0.2	0.01			20.0	105.2	21.3
U3l	1.6	0.0	0.0	0.0	0.0	0.0	1.1	0.0	0.4	0.6	0.0	0.4	0.2	0.3	1.6	1.3	7.9	5.1	0.0	0.01				7.9	1.3
U3m	0.6	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.4	0.4	0.0	0.0	0.0	0.1	0.5	0.1	3.0	5.1	0.0	0.01				3.0	0.2
U4	1.9	0.0	0.0	0.0	0.0	0.0	1.9	0.0	0.0	0.0	0.0	1.8	0.0	0.5	2.3	1.6	9.8	5.1	0.0	0.01				9.8	1.6

Table 7. Summary of Project Components and Estimated Temporary and Permanent Disturbance by Subroute and Segment (Continued)

Subroute	Total Length (miles)	Land Ownership (miles)								Access Road Type (miles)					Total Length Access Roads (miles)	Total New Disturbance Access Roads (acres) (using road types C and D at 16-foot width less any existing disturbance and road type E at 12-foot width)	Subroute Structure Ground Disturbance Estimates				Substation Expansion (acres)		Construction Laydown Yard (acres)	Total Temporary Disturbance (acres) (structure, substation, and construction laydown yards)	Total Permanent Disturbance (acres) (access, substation expansion, and structure foundations)
																	Temporary Disturbance		Permanent Disturbance						
		BLM	BIA	DOD	Forest Service	Reclamation	State	County	Private	A	B	C	D	E			Acres	Acres/ Mile	Acres	Acres/ Mile	Temp	Perm			
U3aPC	6.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.2	0.0	4.7	1.5	0.0	1.3	7.5	3.1	31.6	5.1	0.1	0.01				31.6	3.2
MA1	1.1	0.0	0.0	0.0	0.0	0.0	1.1	0.0	0.0	1.0	0.0	0.0	0.0	0.2	1.2	0.3	5.6	5.1	0.0	0.01				5.6	0.3
TH1a	1.4	0.0	0.0	0.0	0.0	0.0	0.2	0.0	1.2	0.0	1.5	0.0	0.0	0.2	1.7	0.3	7.2	5.1	0.0	0.01				7.2	0.3
TH1-Option	1.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.3	0.0	0.4	0.0	0.0	0.1	0.5	0.1	5.0	5.1	0.0	0.01				5.0	0.1
Total	**55.5**	**0.0**	**0.0**	**0.0**	**0.0**	**0.2**	**18.9**	**0.4**	**36.0**	**18.5**	**6.6**	**33.9**	**0.2**	**11.9**	**71.2**	**47.3**	**283.07**		**0.6**		**36.0**	**45.4**	**40.0**	**359.1**	**93.3**

Note: Segment information presented only for the Selected Alternative (Agency Preferred Alternative in the Final EIS).

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Chapter 4

OPERATION AND MAINTENANCE

4.1 INTRODUCTION

Regular inspection and maintenance of transmission lines, substations, and support systems is critical for safe, efficient, and economical operation of the Project. This section provides information describing operation and maintenance activities, including transmission line patrols, inspections, tower and wire maintenance, vegetation maintenance, maintenance of access roads, and emergency maintenance.

4.2 SYSTEM INSPECTION, MAINTENANCE, AND REPAIR

Responsibly conducted inspections and routine maintenance activities are anticipated to have minimal impacts and are usually authorized under the transmission line easements and ROW grant. While carrying out routine maintenance activities, field personnel and contractors will adhere to basic standards and guidelines contained in other sections of the Project POD, special use stipulations, and any additional requirements (such as periodic review of the implementation plans associated with operation and maintenance) identified in the decision documents that apply to the specific area where work is to be done. For instance, on lands not managed by BLM operation and maintenance activities will be governed by provisions in the Project-specific PA and in the Final biological opinion, and by requirements included in individual ROW agreements with the State or private landowners.

With the exception of emergency maintenance activities (refer to Section 4.2.3 – Emergency Maintenance Activities), Southline and Western will coordinate with the appropriate land management agency to review any new information or specific requirements concerning cultural, paleontological, and biological resources (e.g., federally listed species, special status species, seasonal restrictions, habitat concerns, etc.), prior to initiating inspection, maintenance (including vegetation management), and/or repair activities. BLM will coordinate with the operation and maintenance operator if any new BLM-specific information is received. PCEMs (refer to Chapter 5 – Environmental Mitigation Measures) apply to construction and operation and maintenance activities. If for any reason the operation or maintenance activities on BLM managed lands require deviation from the approved or basic standards and guidelines, field personnel and contractors will coordinate with the BLM prior to initiating the activity and/or during the activity if any unanticipated biological, cultural, or paleontological resource issues are encountered.

This section describes the typical activities involved in the inspection and maintenance of the transmission line. The different activities can be categorized in three groups: Routine Activities (Section 4.2.1), Major Maintenance Activities (Section 4.2.2), and Emergency Maintenance Activities (Section 4.2.3).

4.2.1 Routine Activities

Routine Inspection

Regular ground and aerial inspections will be performed in accordance with the applicable Western/Southline requirements, which are in turn based on regulations, industry standards, and best management practices (BMPs). The transmission lines and substations will be inspected for corrosion, equipment misalignment, loose fittings, vandalism, and other mechanical problems. The need for

vegetation management will also be determined during inspection patrols. Annual maintenance activities are typically conducted by using helicopters, ground vehicles (4 × 4 trucks or all-terrain vehicles), or on foot. Visual or infrared inspections of the entire Project will be conducted annually. Typically, 10 percent of all structures will be inspected during annual structure-climbing inspections, so that each structure is inspected every 10 years. Aerial inspection will be conducted by helicopter, generally in the spring and fall.

Aerial inspection by helicopter is conducted during the spring and fall of each year based on weather conditions, helicopter availability, and statutory requirements of the states served by Southline. The aerial inspections are conducted in coordination with ground patrol to identify ROW encroachments and conditions that pose an immediate hazard to the public or employees, or that risk immediate loss of supply or damage to the electrical system. The aerial inspections use helicopters to get an observer in a position for observation above the transmission line. The observer assesses the condition of the transmission lines and hardware to determine whether any components need to be repaired or replaced or if other conditions exist that require maintenance or modification activities. Any conditions identified are to be resolved prior to peak demand in the summer and winter months. The aerial inspections are dependent on weather, flight-control restrictions, and the extent of damage assessment required.

Ground inspections will be done on approved access roads or along the transmission line ROW to each structure as appropriate and are anticipated to occur every 2 to 3 years. The inspector will access each of the structures and check all equipment and other components that could require repairs. Inspections assess the condition of the line and hardware to determine whether any component needs to be repaired or replaced and whether other conditions exist that may require maintenance or modification. Inspections also assess any unauthorized encroachments and/or trash dumping in the ROW that could constitute a safety hazard. Inspectors performing such inspections will use conventional four-wheel-drive trucks or four-wheel-drive all-terrain vehicles, or the inspector may walk the line. The annual ground inspection will be conducted at a time deemed appropriate based on the weather conditions, results of aerial inspections, and other conditions subject to change on an annual basis. Southline may perform minor repairs during its ground inspections such as installing new numbers, installing/repairing ground wire, or performing other minor tasks that will not involve long duration, specialized equipment, or large work crews. Climbing inspections will be conducted to coincide with bolt checking and tightening on lattice structures.

In the event of an outage or interruption in the transmission of electricity or other failure, Southline or its contractor will perform detailed inspections of the transmission line to determine the cause. The extent of activities associated with outage inspections is explained in more detail below in section 4.2.3.

Routine Maintenance

Routine maintenance activities are ordinary maintenance tasks that have historically been performed on a routine basis. In the Upgrade Section these activities have been performed following Western's standard procedures. Routine maintenance will include the replacement of individual structures, components, cables, lines, insulators, and other facilities that, due to obsolescence, age, wear, or isolated damage such as lightning or gunshot, are in need of replacement or repair. The work performed is typically repair or replacement of individual components, performed by relatively small crews using a minimum of equipment, and usually is conducted within a period from a few hours up to a few days. Routine maintenance activities may consist of more immediate activities, where repairs must be made within a short period of time in order to ensure the line does not suffer an outage or cause safety concerns, or longer-term routine maintenance activities, where repairs may be made during regularly scheduled maintenance activities.

The type of equipment used to perform routine maintenance activities varies depending on the extent of the work to be performed. Typical equipment used for these kinds of activities include four-wheel-drive pickups, man-lifts, material flatbeds, line trucks, cranes, tractor trailer, high-reach boom trucks, and bulldozer/caterpillar.

Workers require access to the damaged portion of the line to allow for a safe and efficient repair of the facility. Equipment required for this work may include four-wheel-drive trucks, material (flatbed) trucks, low-reach boom trucks, high-reach boom trucks, bulldozer/caterpillar, or man lifts. Routine maintenance is scheduled and is typically required due to issues found during inspections. Typical items that may require periodic replacement on towers include conductors, insulators, shield wires, fiber-optic lines, and related equipment. It is expected these replacements will be required infrequently (every 5 to 10 years) or as determined by inspection.

Maintenance on transmission lines can often be completed safely using live-line techniques in order to avoid interruption of service to critical transmission line infrastructure. High-reach boom trucks, along with other equipment, are used to conduct these activities.

Typically, maintenance vehicles and equipment will remain within the permanent maintenance work area that surrounds the structure, and no new ground disturbance will be required. If maintenance activities and/or equipment are required beyond the permanent maintenance work area, maintenance crews will coordinate with the land management agency to obtain any required temporary use approval/permits to complete the work, and maintenance activities will be conducted within the previously disturbed temporary work areas from Project construction. In such cases, reapplication of reclamation treatments may be required after completion of maintenance activities, as determined by the appropriate land management agency. All PCEMs outlined in this POD apply to design, construction, and maintenance activities as reflected in Chapter 5 – Environmental Mitigation Measures.

Routine Vegetation Management

Work areas adjacent to electrical transmission structures and along the ROW will be maintained for vehicle and equipment access necessary for operations, maintenance, and repair. Vegetation management practices along the ROW will be in accordance with NESC ANSI A300 Part 7, "American Operations Integrated Vegetation Management" (BLM's Integrated Vegetation Management Handbook – H 1740-02, March 25) (BLM 2008), Western Order 430.1A and Order 450.3A (see Appendix C2 – Vegetation Management Standards), electric utility ROWs, and International Society of Arboriculture BMPs (Kempter 2004).

At a minimum, trees and brush, when present, will be cleared within a 10-foot radius of the base or foundation of all electrical transmission structures. Within or adjacent to the ROW, mature vegetation will be removed under or near the conductors to provide adequate electrical clearance, as required by the North American Electric Reliability Corporation (NERC) and Department of Energy. Trees and other vegetation will be removed selectively to provide the required transmission line clearance. Vegetation management activities will focus on establishing sustainable native plant communities that are compatible with the electric facilities. Establishment of vegetation will also reduce the potential for noxious weeds to become established in the ROW. If there is a conflict between the requirements of the land management agency or landowner and Western's standard procedures for vegetation management, the land management agency or landowner requirements will be followed unless they directly result in a violation of NERC standards. Where practicable, vegetation that does not pose a fire hazard or physical impedance will not be cleared.

Southline will create a Project-specific annual plan for vegetation management work that specifies the frequency of vegetation inspections taking into account local and environmental factors, as required by NERC Standard FAC-003-1. The Project primarily crosses areas of low-growing shrubs and grasses. Where needed, vegetation will be removed using mechanical equipment, such as chain saws, weed trimmers, rakes, shovels, mowers, and brush hooks. Shrubs and other obstructions will be removed regularly near structures to facilitate inspection and maintenance of equipment comply with NERC Reliability Standard FAC-003-1, and ensure system reliability. In limited areas, chain saws may be required for trimming larger trees. The duration of activities and the size of crew and equipment required will be dependent on the amount and size of the vegetation to be trimmed or removed. It is assumed that a crew size of four with a working foreman will be able to complete 2 miles a day of vegetation maintenance. Although unlikely to be necessary, species-dependent herbicide could be applied subsequent to vegetation clearing to prevent regrowth of that vegetation and/or noxious and invasive weeds. All pesticide and herbicide applications will be performed by a licensed applicator and in accordance with all label instructions and Federal, State, and local regulations, and in compliance with land management agency and/or landowner requirements, including obtaining a Pesticide Use Permit if herbicide is used on agency-administered lands. Aerial application of herbicide will not be performed.

Routine Right-of-Way and Access Road Maintenance

Repairs to access roads within the ROW will be scheduled as a result of line inspections or will occur in response to a significantly degraded condition or an emergency situation. Ground disturbance during maintenance activities will be approved by the BLM authorized officers or will be authorized at Western's Desert Southwest Region. Where access will be required for maintenance of the line, Southline/Western shall maintain the approved access roads in a safe, usable condition, as directed in consultation with the appropriate land management agency. Required maintenance equipment may include a small bulldozer, a backhoe, a four-wheel-drive pickup truck, a front-end loader, and, on rare occasion, a motor grader. The bulldozer and loader have steel tracks or large tires, whereas the grader, backhoe, and truck typically have rubber tires.

Access road repairs include grading or repair of existing maintenance access roads and work areas and spot repair of sites subject to flooding or scouring. In some cases, cut and/or fill of foreign material may be required to prevent erosion or to repair the access roads into suitable condition for safe travel of maintenance repair vehicles such as high-reach boom trucks. When an approved access route into a structure location will need improvement, heavy equipment appropriate for the required work will be used after notifying the appropriate land management agency. Any berms or boulders that were in place to limit access will also be reclaimed after completion of the maintenance work. Activities related to ROW repair are usually conducted outside of the rainy season.

Routine Substation and Communication Regeneration Site Maintenance

Substation and regeneration stations are unmanned stations. Monitoring and control are performed remotely. Unauthorized entry into facilities is prevented with the provision of fencing and locked gates. Warning signs will be posted and entry to the operating facilities will be restricted to authorized personnel. Remotely monitored security systems will be installed. Several forms of security will be planned for each of the locations. Security measures may include fire detection in the control building via the remote monitoring system, alarming for forced entry, and a perimeter security system coupled with remote-sensing infrared camera equipment in the fenced area of the station to provide the system operator with visual observation of disturbances at the fence line. Minimal lighting for routine needs at the substation will be provided inside the substation fence. Maintenance crews will bring adequate lighting in

the event that emergency repair work is required. All lighting will be shielded downward to minimize contributions to sky glow.

Maintenance activities include equipment testing, equipment monitoring and repair, and emergency and routine procedures for service continuity and preventive maintenance. It is anticipated that maintenance at each substation will require approximately six trips per year by a two- to four-person crew. Routine operations will require one or two workers in a light utility truck to visit the substations monthly. Typically, a major maintenance inspection will take place once per year, requiring up to 15 personnel for 1 to 3 weeks. Regeneration stations will be visited every 2 to 3 months by one individual in a light truck to inspect the facilities. Annual maintenance will be performed by a two-person crew in a light truck over a 2- to 5-day period.

4.2.2 Major Maintenance Activities

Major maintenance activities will be relatively large-scale efforts that occur on an infrequent basis. These activities require planning and budgeting in advance, as well as agency coordination. They may involve larger work crews than routine maintenance activities and a variety of equipment, including heavy equipment, and usually require several days or longer to complete. Examples of major maintenance activities include structure relocation, conductor replacement, or access route reconstruction and relocations. Generally, these types of activities will occur on approximately 1 percent of structures annually, but may also occur during emergency outage conditions to replace damaged infrastructure.

Southline will identify proposed major maintenance activities and notify the designated contact for the appropriate land management agency before initiating major maintenance activities. Southline and the land management agency will identify what, if any, special notification or additional clearance approvals are required prior to conducting the proposed major activities.

When Southline's field personnel and contractors carry out major maintenance activities on BLM-managed land, they will be required to adhere to all standards and guidelines contained in the approved POD, terms and conditions of the ROD, any site-specific activity or timing constraints, and the requirements of any mutually agreed-upon additional clearance or special notification requirements. On BLM-administered public land, all stipulations and PCEMs identified as applicable in any of the POD volumes should be adhered to for the life of the BLM ROW grant.

4.2.3 Emergency Maintenance Activities

During the operation and maintenance of the transmission line, Southline will reduce or prevent, to the greatest extent possible, any emergency activities (defined as situations that could threaten life, property, or resources). Even so, unforeseen emergency conditions may arise.

Examples of emergency maintenance include activities necessary to restore power due to a transmission structure or conductor failure due to natural hazard, fire, or human-caused damages to a line. Such work is required to eliminate a safety hazard, prevent imminent damage to the power line, or restore service if there is an outage. In an emergency, Southline must respond as quickly as possible to restore power.

In practice, as soon as an incident is detected, the control room dispatchers will notify the responsible operations staff in the area(s) affected and crews and equipment will be organized and dispatched to respond to the incident. In these cases, Southline will notify the designated contact from the appropriate land management agency concurrently with responding to the emergency. The land management agency may elect to have a representative present during emergency operations and/or to conduct a post-event

site visit to evaluate Southline's response, assess impacts, and propose remedial measures for discussion. Southline will adhere to the same constraints identified for routine and major maintenance activities to minimize impacts to resources, when possible.

The equipment necessary to carry out emergency repairs is similar to that necessary to conduct routine maintenance, in most cases. Emergency response to outages may require additional equipment to complete the repairs.

Southline's employees and contractors will be equipped with approved suppression tools and equipment. Southline or their construction contractor(s) will notify local fire authorities and the appropriate land management agency if a Project-related fire occurs within or adjacent to a construction area.

If Southline becomes aware of an emergency situation caused by a fire on or threatening agency-managed lands and that could damage the transmission lines or their operation, they will notify the appropriate agency contact (refer to Appendix B10 – Emergency Preparedness and Response Plan for a complete list of appropriate emergency contacts). Specific construction-related activities and safety measures will be implemented during construction of the transmission line to prevent fires and to ensure quick response and suppression if a fire occurs.

Emergencies are events requiring immediate response to a condition and may include fires, car-to-pole contact, downed poles, transformer outages, vandalism, etc. All applicable fire laws and regulations, including land management agency fire-safety standards, will be observed during the operation period. If extreme fire conditions occur, the land management agency representatives will be contacted and access could be restricted. Maintenance personnel will coordinate with the agency representatives and implement practical measures to report and suppress fires. Measures may include brush clearing, stationing a water truck at the site to keep ground vegetation moist in extreme fire conditions, enforcing red flag warnings, etc.

Chapter 5

ENVIRONMENTAL MITIGATION MEASURES

5.1 INTRODUCTION

This section briefly describes the environmental issues by resources and the framework plans to be included as appendices to this POD, when finalized. Environmental mitigation measures are referred to in the EIS as PCEMs. PCEMs and measures outlined within the framework plans are a required condition of both agencies' RODs. They will be applied to all impacted resources as specified in the PCEMs and framework plans.

5.2 SUMMARY OF ENVIRONMENTAL ISSUES BY ENVIRONMENTAL RESOURCE

The summary in this section is intended to provide an overview of the types of environmental impacts associated with the construction, operation, and maintenance of the Project and context for the design features for environmental protection in the Project description and site-specific PCEMs.

5.2.1 Air Quality

Construction of the transmission lines and substations will result in emissions of air pollutants from equipment exhaust, vehicle exhaust from travel to and from construction areas, and fugitive dust from soil disturbance. Overall, impacts on air quality from the Project construction will be temporary, localized to the vicinity of the activity, and will disperse quickly or settle. The overall level of impact will be minor.

5.2.2 Noise

Construction of the transmission line may result in audible noise from Project equipment and vehicles. Unmitigated noise levels could result as high as 83 A-weighted decibels (dBA) to sensitive receptors near Project construction activities (within 100 feet); however, construction noise will be major but temporary in areas where sensitive receptors are in close proximity to construction activity.

Corona-generated noise for both the New Build and Upgrade sections of the Project will be highest in areas where the new lines will be constructed in close proximity to existing transmission lines. Overall, because of the relatively dry nature of the area crossed by the Project, the overall level of operational noise will be minimal.

5.2.3 Geology and Mineral Resources

The only potential impacts identified for geology and mineral resources will be indirect impacts to mining districts during operation and maintenance of the transmission line. The New Build Section crosses small areas of active and inactive mining districts; however, no known mines, active or inactive, will be crossed. No metal or nonmetallic resources were specifically identified within the Upgrade Section. No known mines, active or inactive, will be crossed by the Upgrade Section. The Project will not produce obvious changes to the baseline conditions of the resource, and potential impacts will be minor.

5.2.4 Soil Resources

Potential impacts to the soil resources include accelerated rates of erosion and loss of soil productivity due to the removal of soils during construction of access roads, and at structure and substation sites. Clearing of vegetation and topsoil, as well as grading, will result in newly exposed, disturbed soils that could be subject to accelerated rates of erosion by wind or water. Construction may also cause disturbance to fragile biological crusts, increasing erosion and delaying reestablishment of plant communities. Indirect impacts associated with soil removal may include invasive plant colonization, soil erosion, and reduction in soil water retention due to compaction. Potential impacts have been reduced by the intentional efforts to co-locate the Project with existing linear development and maximizing the use of existing access. Overall impacts to soil resources will be minor.

5.2.5 Paleontological Resources

Potential negative impacts to paleontological resources could result from the loss of important fossils due to ground-disturbing activities during construction in sensitive geological deposits. Potential positive impacts to paleontological resources could result from the discovery of important fossils as an inadvertent result of ground-disturbing activities that will otherwise be unavailable for study. The New Build Section crosses through areas with High Sensitivity for paleontological resources, whereas the Upgrade Section is almost entirely classified as Low Sensitivity.

Overall impacts to paleontological resources will range from no impact to moderate impact. If fossils are present, adverse impacts to paleontological resources will be mitigated in accordance with applicable laws and regulations. PCEMs will include paleontological surveys of sensitive geological deposits, the development and implementation of a Paleontological Resources Treatment Plan, education of construction and maintenance personnel, construction monitoring, and preparation and curation of collected fossils.

5.2.6 Water Resources

Potential impacts to water resources include the potential for discharge of pollutants, including sediment, to groundwater or surface water, the placement of larger structures within floodplains, and potential disturbance of waters of the U.S. (WUS) or wetlands. Proper implementation of BMPs and controls will prevent discharge of pollutants. Avoidance measures during final siting will prevent most disturbances of WUS or wetlands, and impacts will be minor.

5.2.7 Biological Resources

The construction, operation, and maintenance of the Project will result in both direct and indirect effects on biological resources. Direct effects associated with construction activities will likely include (1) behavioral disturbance and the displacement of wildlife (temporary); (2) habitat loss, modification, and fragmentation, including increased potential for the establishment and spread of noxious weeds in disturbed areas (long-term); (3) the long-term displacement of individual animals; and (4) the potential for mortality, primarily for wildlife species with limited mobility (temporary).

Indirect effects associated with Project-related activities can result from the construction of permanent access roads, which can be used by the general public to access currently inaccessible habitats. This additional human presence and activity and vehicle noise can result in displacement, abandonment of habitat, behavioral disruption, and additional stress during critical periods. New access into previously

inaccessible habitats can increase displacement of wildlife and mortality by legal hunting or poaching. Public use of access roads can facilitate the spread of noxious weeds and increase the risk of human-caused wildfire. These indirect effects can be permanent.

Vegetation

The Project will involve the removal of vegetation during construction activities, resulting in the direct loss of plant communities. The primary direct and indirect impacts to vegetation and special status species during construction and operation of the proposed facilities will be associated with removal and/or crushing of vegetation communities from construction of the Project; decreased plant productivity from fugitive dust; and plant community fragmentation.

There will also be indirect effects resulting from the fragmentation of connected vegetation types. Edge areas have different microclimatic conditions and structure, which could lead to a different species composition than in the interior area. The possible introduction and colonization of disturbed areas by invasive exotic plant species also could lead to changes in vegetation communities, including the possible shift to a more wildfire-prone vegetation that favors invasive exotic species over native species.

Much of the Project is located in previously disturbed areas and with the application of PCEMs, impacts to vegetation resources will be minor. PCEMs will be applied to reduce, avoid, or otherwise provide compensation for impacts to sensitive vegetation: (1) vegetation disturbance will be minimized to the extent practicable; (2) a Reclamation, Vegetation, and Monitoring Plan will be developed and implemented; (3) a Plant and Wildlife Species Conservation Measures Plan will be developed and implemented; (4) clearing of riparian vegetation will be avoided where possible; (5) a Noxious Weed Management Plan will be developed and implemented; (6) construction equipment will be washed prior to moving onto the construction site to limit introduction and spread of noxious weeds.; and (7) additional mitigation will be installed around the Willcox Playa Wildlife Area.

Wildlife

Potential Project-related impacts on wildlife include the loss, degradation, and/or fragmentation of habitat; collisions with and crushing by construction vehicles; loss of burrowing animals in burrows in areas where grading will occur; increased invasive and noxious weed establishment and spread; increased noise/vibration levels; increased potential for migratory birds to strike transmission lines; and increased access for off-highway-vehicle (OHV) users.

The transmission line ROW will serve as a movement corridor for some species and act as a barrier to some species in areas where surrounding habitats have a higher vegetation density than the ROW. The Project will increase the amount of edge habitat along the ROW. Effects from increased amounts of edge will include decreased habitat block size. Decreased habitat block size may negatively impact those species that require large blocks of contiguous habitat and benefit other species that use edge habitats or have more general habitat requirements.

The following impacts to general wildlife and special status species may occur with construction and operation of the proposed transmission line:

- Habitat for the northern aplomado falcon (*Falco femoralis septentrionalis*), Sprague's pipit (*Anthus spragueii*), lesser long-nosed bat (*Leptonycteris curasoae yerbabuenae*), and Mexican long-nosed bat (*Leptonycteris nivalis*), will be impacted. Restoration of disturbed areas, measures to minimize invasive plant establishment and spread, and closure of access roads to OHV use will reduce impacts on habitat for these species.

- Segment P7 will pass northwest of Crane Lake and through the AGFD-managed Willcox Playa Wildlife Area. Mitigation (PCEMs) requested by the AGFD includes (1) funding the relocation of Crane Lake away from P7, (2) funding riparian emergent wetlands along Kansas Settlement Road, and (3) funding the management of non-native vegetation; these will be implemented to reduce the intensity of impacts to habitat in the Willcox Playa Wildlife Area.
- Potential mortality of wintering sandhill cranes (*Grus canadensis*) could occur at Willcox Playa where the Project will intersect their daily migration flights to feed in agricultural fields to the south and east. There is the potential for sandhill crane collisions with the transmission line during daily migration, which could impact individual sandhill cranes. Implementing PCEMs such as the relocation of Crane Lake (see above), and installation of line marking devices, will decrease the potential for birds striking transmission lines near Willcox Playa.
- Impacts to northern Mexican gartersnake (*Thamnophis eques megalops*) proposed critical habitat at the Cienega Creek and San Pedro River crossings will be avoided through Project siting.
- Impacts on Gila chub (*Gila intermedia*) designated critical habitat downstream from the Cienega Creek crossing will be avoided through Project siting and erosion-control measures.
- Habitat for BLM Sensitive Species, New Mexico Wildlife Conservation Act Species, New Mexico Species of Greatest Conservation Need, Arizona Wildlife Species of Concern, Arizona Species of Greatest Conservation Need, and migratory birds will be lost, fragmented, and degraded. Measures to limit ground disturbance, avoid aquatic and riparian habitats, limit invasive plant establishment and spread, and restore disturbed areas will reduce impacts on habitat for these species.
- Habitat for the Sonoran desert tortoise (*Gopherus morafkai*) will be impacted.
- Habitat for the Tucson shovel-nosed snake (*Chionactis occipitalis klauberi*) will be impacted near the Santa Cruz River crossing in segment U3k.

With the application of PCEMs, impacts to wildlife resources will be minor. PCEMs to minimize impacts to wildlife habitat could include limiting the area of disturbance and restoration of disturbed areas, and avoidance of aquatic and riparian areas. PCEMs could also include preconstruction surveys, erosion-control measures, a worker training program, and measures to limit invasive species establishment and spread.

5.2.8 Cultural Resources

Potential impacts to cultural resources such as archaeological sites, historic built environment resources, trails, and American Indian traditional use areas and sacred sites could result from construction, operation, and maintenance of the Project. Loss of integrity will be the primary adverse direct or indirect impact to cultural resources. In terms of historic properties, loss of integrity often stems from alterations of a resource's characteristics that make it eligible for the National Register of Historic Places (NRHP). During construction, direct impacts will result from ground disturbance if resources are present and will be long term; indirect impacts will result from visual encroachment on a resource's setting during structure and facility installation and will be long term. During operation and maintenance, long-term visual impacts will occur from the presence of the transmission line if resources are present.

Avoidance of resources through design and micro-siting will be the preferred mitigation measure (PCEMs). Even with the application of PCEMs, there will be some major impacts to cultural resources. If avoidance is not feasible, other types of mitigation such as monitoring or data recovery will be needed. A Historic Properties Treatment Plan (HPTP) will be developed to outline all non-avoidance mitigation. Consultation with agencies, the New Mexico and Arizona State Historic Preservation Officers, and

interested parties is ongoing, including the development of a Programmatic Agreement (PA). The PA outlines steps by the agencies, the Project proponent, and other consulting parties to be taken prior to construction and during operation and maintenance of the Project to comply with the National Historic Preservation Act (NHPA).

5.2.9 Visual Resources

Regional landscapes in the Project area range from developed urban and suburban landscapes to rural areas and areas of intact character. Features within the Project area include foothills, mountains, basins, playas, valleys, and agricultural development ranging across the Chihuahuan and Sonoran deserts.

The construction, operation, and maintenance of the Project will result in direct effects on visual resources where:

- Landscape scenery would be degraded by the presence of vertical elements in the landscape (transmission line structures), areas of cleared vegetation (ROW clearing), and exposed soil from the construction of new permanent access roads.
- Views from sensitive viewpoints would be adversely modified through the introduction of Project components into the landscape
- The Project would not comply with Federal agency visual management objectives where Project components would contrast with or modify the characteristic landscape to a level that would not be consistent with the established management objectives or applicable planning documents.

During Project siting and engineering and design, PCEMs, where feasible, will be applied to all areas of potential moderate/high and moderate initial impacts to reduce impact levels where necessary and effective. Even with the application of PCEMs some minor to major impacts to visual resources will remain.

5.2.10 Land Use, Including Farm and Range and Military Operations

Land Use

The Project will be constructed across lands owned and managed by Federal, State, private, or other entities, under a variety of RMPs, comprehensive plans, or other land use plans. The Project cross large tracts of undeveloped land, as well as urban and suburban areas. Federal and State-managed lands are generally used for grazing, farming, recreation, and open space. BLM and State lands are primarily used for grazing or recreation in open-space areas. Residential uses are located on private lands in rural areas and near small cities and towns.

Major portions of the Project parallel existing linear facilities in disturbed corridors, including transmission and distribution lines, roads, and abandoned railroad ROWs. The eastern portion (New Build Section) of the Project will be located in open range–type land uses, crossing mountain ranges (including the Continental Divide) and valley/basins. Farther west (Upgrade Section), the distance between the valley/basins and mountain ranges becomes less, and urban populations surround the Tucson metropolitan area.

In general, land use impacts will be minimized where linear utilities are constructed within established or designated corridors. The alignment of the transmission line route was sited to maximize the use

of established utility corridors, and to avoid conflicts with incompatible land uses such as wilderness, national parks and monuments, special management areas, conservation areas, densely populated areas, and military installations. Impacts to land uses will occur in some form along portions of the route that cross undeveloped lands, irrigated agricultural lands, residential subdivisions, and areas used for industrial or military testing and training. PCEMs will be effective in avoiding or minimizing direct impacts with land uses in most conditions. There will be no direct displacement of existing land use authorizations or ROWs, or residential, business, or industrial structures. Impacts to land use, including farm and range resources and military operations, will be minor.

Farm and Range Resources

Construction of the transmission line will have direct effects on farmlands and rangelands by removing land acreage from productivity. In the Upgrade Section, the existing transmission line has already resulted in conversion of Natural Resources Conservation Service–classified farmland to non-farmable condition. The Project of upgrading to monopoles may have less of an impact on farmland than the existing H-frame transmission line. Except under extraordinary circumstances, all operation and maintenance activities will occur within the transmission line ROW and access roads. These activities will not directly or indirectly impact adjacent farmlands or rangelands. Landowners will continue to have use of the land within the ROW, and no new fences will be constructed that will block access unless specifically requested by the landowner. No direct effect will occur on farmlands and rangelands during the operation and maintenance phase of the Project beyond the long-term loss of lands resulting from Project construction.

Military Operations

Impacts to military operations could occur from construction, operation, and maintenance of the Project where the transmission line, substations, and ancillary facilities intersect with military-owned, leased, or withdrawn (including Electronic Proving Ground) lands. These lands could include military training visual routes or areas where training is for electronics and communications. Impacts will be minimized through avoidance of military operations and by staying within the existing ROW across the electronic testing range. Impacts will be below thresholds since the sections that may intersect military training areas include existing transmission line facilities, and the military operations have operated in conjunction with these facilities previously.

5.2.11 Special Designations

BLM special designations include congressionally designated national wild and/or scenic rivers; national conservation areas; national byways; and national scenic, historic, or recreation trails. The BLM may also create special designations through administrative resource inventories or during the planning process, such as cooperative management areas and protection areas, outstanding natural areas, forest reserves, wilderness study areas, areas of critical environmental concern, research natural areas, special recreation management areas, special management areas, backcountry byways, and energy zones.

Impacts from construction activities will include direct ground disturbance and temporary increases in ambient noise levels in areas where the transmission line, substations, and ancillary facilities intersect or are adjacent to special designations. Overall impacts on special designations will be minor.

5.2.12 Wilderness Characteristics

The Project will not directly impact wilderness characteristics (naturalness and opportunities for solitude or primitive, unconfined recreation). Potential indirect impacts could result from construction activities

and temporary increases in ambient noise levels in areas where the Project is near lands with wilderness characteristics.

5.2.13 Recreation

The Project will result in minor changes to the recreation setting and desired recreation experiences during construction. The changes will be minor because the majority of the segments that form the Project will follow existing facilities; thus, the recreation setting and desired recreation experiences will already include/anticipate the presence of transmission lines or other linear infrastructure.

Where the Project does not follow existing ROWs, the recreation setting and desired recreation experiences will change from the existing conditions of undeveloped landscape to a developed landscape. This change to the recreation setting is not anticipated to preclude any desired recreation experiences since recreational opportunity for all recreational pursuits in the area will still be available within the area except within the footprints of the transmission line structures. During construction, disrupted hunting opportunities will not be a significant impact, since the areas within game management units that are outside of the Project footprint will remain available for hunting. No hunting opportunities will be displaced during operation and maintenance of the Project. Overall impacts from the Project on recreation will be minor.

5.2.14 Socioeconomics

In general, the Project will not have a significant impact on regional population or housing as a result of construction or operation. Construction of the transmission line will directly and indirectly create jobs, some of which will be filled by local workers. The addition of non-local construction workers has the potential to create isolated, short-term shortages in temporary housing, especially in the more remote portions of the project area. The Project will generate State and local tax revenues during both construction and operation/maintenance; overall impacts will be minor.

5.2.15 Environmental Justice

A high proportion of the census tracts crossed by the Project can be defined as environmental justice communities, meaning they either have higher minority populations or a greater proportion of residents living below the poverty line, or both. These communities may be adversely affected by localized impacts, including noise and other disruptions during the construction phase, and potentially diminished property values and visual characteristics during the operation and maintenance of the Project.

Environmental justice communities may also be positively affected by the benefits of the Project, including the short-term economic stimulus from construction activities and expenditures, short-term and longer-term increases in tax revenues, and added capacity and reduced congestion for electricity transmission. Because these benefits are likely to be more geographically dispersed than the localized adverse effects, however, it is uncertain whether or not low-income and minority populations will receive disproportionate benefits from the Project. Given the prevalence of low-income and minority residents throughout the area, impacts on these groups are likely inevitable from any feasible transmission line alignment. Overall impacts from the Project will be minor.

5.2.16 Public Health and Safety

Potential risks to public health and safety associated with construction and maintenance activities will include, but will not be limited to, electrocution, exposure to extreme weather, falling, exposure to hazardous materials, and injury from equipment and materials. The implementation of Occupational Safety and Health Administration (OSHA) safety requirements through the use of PCEMs, and other safety requirements will minimize the chance that an accident could occur. During operation, potential impacts could occur as a result of increase of electromagnetic fields in areas where they do not currently occur. However, with implementation of the PCEMs, the impacts to public health and safety will be expected to be minor.

5.2.17 Hazardous Materials and Hazardous and Solid Waste

All construction, operation, and maintenance activities will comply with all applicable Federal, State, and local regulations regarding the use of hazardous substance. Hazardous materials will not be drained into the ground or into streams or drainage areas. Totally enclosed containment will be provided for all trash. Portable toilets will be located at designated construction sites. All construction waste, including trash, litter, garbage, and other solid waste, petroleum products, human waste, and other potentially hazardous materials will be removed and transported to a disposal facility authorized to accept such materials. During operation and maintenance, potentially hazardous materials within the ROW could include petroleum products and herbicides; other hazardous materials could potentially be at substation locations. PCEMs will be implemented to prevent spills and leaks of hazardous materials and provide for adequate containment and cleanup if spills and leaks do occur; no impacts are anticipated.

5.2.18 Transportation

In general, the Project will cross a sparsely populated rural area in the New Build Section and in the Upgrade Section with the exception of the Tucson metropolitan area. Traffic will be generated primarily during the construction, but also minimally during the maintenance and operation phases. Continued coordination with Federal, State and local transportation agencies will ensure that the Project will not impact transportation plans in the New Build and Upgrade sections. Continued coordination with airports will ensure that the Project will not interfere with flight paths or airport plans adjacent to the Project area.

The Project in the New Build and Upgrade sections will impact BLM roads by increasing opportunities for illegal access to roads/areas currently closed to public access. This impact will most likely occur from the construction of new access roads. The impact of increasing access to BLM roads will be considered minor.

5.2.19 Intentional Acts of Destruction

Intentional acts of destruction could include sabotage or terrorism. Predicting the occurrence of intentional acts of sabotage or terrorism or the potential damage from these acts is not possible.
By constructing and operating new transmission lines, saboteurs and terrorists will have a new potential target to carry out their acts. Historically, acts of sabotage and terrorism on transmission infrastructure have been rare, and the effects of events that have occurred have not had a significant impact to adjacent lands or public health and safety. Moreover, the addition of transmission lines and associated facilities generally strengthens the reliability of delivering electricity to the general public, because if one line is affected by an intentional act of destruction or any other disruption, other lines will be available to

continue the delivery of electricity. Therefore, the potential impacts from the unlikely event of an act of terrorism or sabotage will be considered minor, and no impacts are anticipated.

5.3 OVERVIEW OF PROPONENT COMMITTED ENVIRONMENTAL MEASURES (BY RESOURCE)

Activities under the Project will include PCEMs that are an integral part of the Project. These design features are measures included in the project design by the Proponent in order to reduce or avoid potential environmental impacts resulting from Project-related activities. The PCEMs are presented in table 8. In addition, the PCEMs also include agency mitigation measures developed by the BLM and Western, as well as based on feedback from cooperating agencies and the public. All PCEMs listed in table 8 will be followed on any route selected, as site-specific circumstances dictate. PCEMs are required as a stipulation of the ROD.

Table 8 presents a summary of the PCEMs required for the project. PCEMs are described in table 8 for the following:

- Standard mitigation
- Reclamation (site restoration, revegetation)
- Air quality and climate change
- Cultural resources
- Hazardous materials and waste
- Health and human safety
- Land use
- Farmlands and rangeland
- Geology and minerals
- Military operations
- Noise
- Paleontology
- Recreation
- Wilderness
- Trails
- Soils
- Socioeconomics
- Transportation
- Vegetation
- Visual resources
- Water resources
- Wildlife

BLM requires that a grant holder post a surety bond to ensure compliance with the terms, conditions, and stipulations of the grant, if issued, which will include PCEMs. The grant authorization, if issued, will be contingent upon Southline's complying with a list of terms, conditions, and stipulations.

Application of PCEMs will be considered and authorized, as part of detailed design and included in the final POD and associated Framework Plans, post-EIS. Because the final POD and Framework Plans are subject to approval by the BLM Authorized Officer, and the PCEMs found in table 8 are also included in the final POD, each PCEM is subject to review and approval by the BLM authorized officer.

5.4 OVERVIEW OF APPENDIX B

Southline and Western will ensure that their respective responsibilities and the requirements for each of the following Framework Plans are implemented. These plans have been developed to cover the entire Project, regardless of the responsible entity (e.g., landowner, ROW administrator, etc.) however some requirements outline in the plans (for example CIC reporting and variance requests) apply to BLM-managed lands only.

5.4.1 Access Road Plan

Access road planning will be finalized if the Project is approved. With the approved route known, the transmission line centerline will be determined and the exact location of all access roads will be refined through detailed engineering. Once road locations are known, cultural resource and biological surveys will be conducted and road locations adjusted to avoid sensitive resources discovered during the surveys. No field disturbance will occur before the completion of these surveys and the completion of any necessary mitigation or treatment measures. Although the exact locations of final access roads are not yet known, the general location of needed access is known and has been used to define the potential environmental impacts and expected environmental protection measures for purposes of the EIS. Access road construction and improvement will include erosion, stabilization/reclamation/revegetation, and dust control measures. Access roads will be designed to ensure that slopes do not cause erosion and that turning radii are sufficient. The road locations will also be georeferenced and the location recorded, and appropriate access rights will be obtained from the landowner.

As feasible, existing access roads will be used with minimal improvement and will include the use of unimproved cross-country travel access where practicable. All roads will be constructed and maintained in accordance with Western and BLM standards for access roads and specified in the Access Road Plan, to be included as a Framework Plan in the POD.

5.4.2 Traffic and Transportation Management Plan

The purpose of a Traffic and Transportation Management Plan is to describe how roads will be improved and maintained for construction of the Project; and to minimize the potential impacts of construction traffic at staging areas, work areas, and other places where traffic may increase. The plan will address equipment access to and from the Project ROW, drainage improvements, dust control and maintenance measures, and reclamation and abandonment of roads. This plan is generally required by the BLM as a condition of the ROW grant and is sometimes required by State or local departments of transportation.

5.4.3 Stormwater Pollution Prevention Plan

Stormwater discharges from construction activities (such as clearing, grading, excavating, and stockpiling) that disturb 1 or more acres are regulated under the National Pollutant Discharge Elimination System (NPDES) stormwater program. Prior to discharging stormwater, construction operators must obtain coverage under an NPDES permit, which is administered by either the U.S. Environmental Protection Agency (EPA) (as is the case in New Mexico) or the State (as in Arizona). Construction stormwater discharges are normally permitted under the Construction General Permit, which requires compliance with effluent limits and other standard permit requirements, such as the development of a Stormwater Pollution Prevention Plan (SWPPP).

Table 8. Environmental Protection Measures by Resource

PCEM	Agency	Feature by Resource	Preconstruction	Construction	Operation and Maintenance	Decommissioning
Standard Mitigation						
	X	The boundaries of construction activities will be predetermined and staked or flagged prior to any construction activity. No permanent markings will be applied to rocks or vegetation.	X			
	X	Prior to construction, all construction personnel will be instructed on the protection of cultural and ecological resources.	X			
	X	All vehicle movement will be restricted to designated access, contracted acquired access, or public roads.	X	X	X	X
	X	To limit disturbance, existing access roads will be used to the extent practicable, provided that doing so does not additionally impact resource values. Widening and grading of roads will be kept to the minimum required for access by Project construction equipment.	X	X	X	X
	X	Structures and/or ground wire will be marked with high-visibility devices such as aerial marker balls, where required by government agencies such as the FAA.	X	X	X	
	X	Transmission line materials will be designed and tested to minimize audible noise, radio interference, electromagnetic interference (EMI), and television interference due to corona.	X	X	X	
	X	No widening or upgrading of existing roads will be undertaken in the area of construction and operations, except for repairs or modifications to make roads safely passable, where soils and vegetation are sensitive to disturbance, in areas of critical habitat for vegetation or wildlife, in areas of habitat for BLM special status species, or where such activities could harm historic properties.		X	X	
	X	During operation of the transmission lines, the ROW will be maintained free of non-biodegradable debris. Desert vegetation will be crushed in place to promote seeding and revegetation, and reduce erosion potential.			X	
	X	BLM and Western road construction specifications will be followed where unimproved spur roads cannot be employed.		X	X	
	X	Unimproved spur roads will be used to the extent practicable in areas where no grading will be warranted to access work areas, within the approved ROW. Unimproved spur roads will be used to access a site without specifically blading a road or significantly modifying the landscape. All vehicle movement will be restricted to designated access, even if that is unimproved access. Vegetation will be crushed where feasible, not cut. For all access types, soil will be compacted, but not removed, except when grading requires displacement of surface soil.		X	X	X
	X	Where new roads will be required, water bars and/or rolling dip cross-drains will be utilized to minimize erosion. Details of their use will be documented in the SWPPP.	X	X	X	
	X	Structures will be placed to avoid, and/or to allow conductors to span, sensitive features such as riparian areas, waterways, roads, trails, and cultural sites within limits of standard transmission line structure design. This will minimize the amount of sensitive features disturbed and/or reduce visual contrast.	X	X	X	
	X	Clearing of trees in and adjacent to the ROW will be minimized to the extent practicable to satisfy conductor-clearance requirements (NESC and up to 10 years' timber growth). Trees and other vegetation will be selectively removed to blend the edge of the ROW into adjacent vegetation patterns, as appropriate.		X	X	
	X	Separation between transmission lines and existing utilities, roads, and railroads will be minimized to the extent practicable. Opportunities to share portions of adjacent ROWs will also be explored.	X			
	X	All construction vehicle movement will be restricted to predesignated access, contractor-acquired access, and public roads.		X		
	X	The width of construction and new temporary access roads will be sited to keep to the minimum needed to avoid sensitive areas and to limit ground disturbance.		X		
	X	Surface elevations will be returned to approximate pre-Project conditions, as practicable.		X		X
WILD-1		A Worker Environmental Awarness Program (WEAP) will be prepared. All construction crews and field contractors will be required to participate in WEAP training prior to starting work on the Project. The WEAP training will include instructions for crews to report any issues; a review of the special status species; WUS; riparian habitat; cultural, paleontological, and other sensitive resources that could be impacted by the proposed Project; the locations of sensitive biological resources and their legal status and protections; and measures to be implemented for avoidance of these sensitive resources. A record of all trained personnel will be maintained during the construction period.	X	X		
	X	The process by which the BLM, Western, and Southline and its construction contractor will conduct environmental monitoring, compliance, and reporting activities during construction will be described in a Project compliance plan that will be prepared by the CIC after theCIC has been selected and reviewed by BLM. After issuance of the notice to proceed, a CIC, designated by the BLM and Western, will provide environmental oversight and compliance monitoring on BLM-managed lands during Project construction to ensure compliance with all design features and mitigation measures.	X	X		

Table 8. Environmental Protection Measures by Resource (Continued)

PCEM	Agency	Feature by Resource	Preconstruction	Construction	Operation and Maintenance	Decommissioning
Reclamation						
	X	A Reclamation, Vegetation, and Monitoring Plan will be developed and implemented.		X	X	X
	X	Reclamation will be accomplished with native species unless otherwise approved.		X	X	X
	X	Seeding will occur between November and March to ensure a greater chance of success. This will be tied to replacement of conserved topsoil with its natural seed stock.		X	X	X
Air Quality and Climate Change						
	X	Project activities will be in compliance with all applicable Federal, State, and local laws and regulations concerning prevention and control of air pollution during construction and operation.		X	X	
	X	An Erosion, Dust Control, and Air Quality Plan will be prepared as part of the final POD. The plan will be developed and implemented to minimize and mitigate potential air quality and climate change impacts. The Erosion, Dust Control, and Air Quality Plan will include a section detailing the Construction Emissions Mitigation Plan (CEMP). See appendix A6 of this POD for an outline of the information in the Erosion, Dust Control, and Air Quality Plan, including the CEMP.	X	X	X	X
	X	All necessary air quality permits will be obtained prior to construction or operating equipment that will result in regulated atmospheric or fugitive dust emissions.	X			
	X	Trackout control devices such as grizzly bars, wheel washers, gravel pads, etc. will be located at all entrances and exits.		X		
	X	Where implementation of these measures will have a meaningful impact on air quality, haul-truck cargo beds will be covered with tarps and travel speeds will be limited to no more than 15 miles per hour (mph) on unpaved roads.		X		
	X	Combustion emissions from mobile sources will be minimized by proper maintenance of equipment.		X	X	
AIR-1		Dust control measures consistent with all applicable State or local standards, as outlined in the Erosion, Dust Control, and Air Quality Plan, will be implemented; these include the following reasonable precautions: (1) frequent watering (no new water sources developed), stabilization, or covering (as appropriate) of excavations, spoils, access roads, storage piles, and other sources of fugitive dust (parking areas, staging areas, other) if construction activity causes visible emissions of fugitive dust beyond the work area; (2) reduction in the amount of disturbed area where possible; (3) planting of vegetative ground cover, as appropriate, in disturbed areas after construction activities have ended; and/or (4) treatment of actively disturbed areas with BLM-approved dust palliatives.		X		
AIR-2		To reduce the potential for greenhouse gas emissions, only properly trained Project personnel will handle sulfur hexafluoride, and a sulfur hexafluoride recovery and recycling program will be implemented.	X		X	X
Cultural Resources						
	X	Cultural resources will continue to be considered during post-EIS phases of work. Specific cultural resource inventory, protection, and mitigation measures to be employed will be outlined in the Project-specific PA, in accordance with Section 106 of the NHPA. The final POD will include the signed PA and the HPTP.	X	X	X	X
	X	A Native American Graves Protection and Repatriation Act (NAGPRA) Plan of Action will be developed to outline the procedures to be followed in the event that human remains are encountered during ground disturbance. The NAGPRA Plan of Action will be applicable to discoveries of human remains on Federal and Tribal land, and compatible with State laws from Arizona and New Mexico, which protect human remains on State or private lands. For State and private lands in Arizona, "burial agreements" are developed through the Arizona State Museum with each tribe that may claim cultural affiliation to possible human remains discoveries.	X	X	X	
CR-1	X	The area of potential effects will be defined in the PA and will consist of the approved alternative corridor and appropriate buffers; all areas and ancillary features that will sustain ground disturbance (access roads, construction yards, etc.) will be subjected to a Class III, 100 percent–coverage pedestrian inventory to identify all historic properties that may be affected by the proposed Project. Survey and reporting requirements will follow BLM Handbook 8110 requirements for a Class III Intensive Field Survey (BLM 2004).	X			
CR-2		Before construction, and as described in the WEAP, Southline and its construction contractor will provide cultural resources sensitivity training to all construction personnel so that Project personnel understand the procedures in the monitoring and discovery portion of the HPTP.	X	X		
CR-3		An HPTP will be developed and implemented to avoid, minimize, and mitigate the adverse effects of the Project on historic properties. Mitigation measures may range from avoidance and preservation in place to data recovery excavations conducted before the destruction of a site if avoidance is not feasible. The HPTP will include a Monitoring and Discovery Plan detailing procedures to be followed in the inadvertent discovery of a potentially significant archaeological site or human remains.	X	X	X	
CR-4		Ground-disturbing activities and other proposed Project components will be sited to avoid or minimize direct impacts on cultural resources listed as, or potentially eligible for listing as, unique archaeological sites, historical resources, or historic properties.	X	X	X	
CR-5		Establish and maintain a protective buffer zone around each recorded archaeological site within or immediately adjacent to the ROW that will be treated as an "environmentally sensitive area" within which construction activities and personnel are not permitted.	X	X		

Table 8. Environmental Protection Measures by Resource (Continued)

PCEM	Agency	Feature by Resource	Preconstruction	Construction	Operation and Maintenance	Decommissioning
CR-6		Evaluate the significance of archaeological resources, buildings, and structures in the area of potential effects in terms of their eligibility for inclusion in the NRHP.	X			
CR-7		Activities will minimize ground surface disturbance within the bounds of significant archaeological sites, historical resources, or historic properties.	X	X		
CR-8		During construction, it is possible that previously unknown archaeological or other cultural resources or human remains could be discovered. Prior to construction, the Proponent will prepare a Construction Monitoring and unanticipated cultural resources Discovery Plan to be implemented if an unanticipated discovery is made.		X		
Hazardous Materials and Waste						
	X	Framework Plans prepared as part of the final POD will be developed and implemented to minimize and mitigate potential hazardous materials and waste; plans include SWPPP; SPCC Plan; Soil Management Plan; and HMMP. These plans will include requirements by the EPA, OSHA, Arizona Department of Environmental Quality, and the New Mexico and Arizona Departments of Transportation.	X	X		
	X	The SWPPP will include BMPs to address the storage and handling of hazardous materials and sediment runoff during construction activities to minimize the risk of an accidental release. The SWPPP is required by, and enforced by, the EPA in New Mexico, and the Arizona Department of Environmental Quality in Arizona.	X	X	X	X
	X	Construction, operation, and maintenance crew members who handle oil or other hazardous substances described in the SPCC Plan will be properly trained to deal with a spill, and appropriate spill response or containment material will be available for use at applicable work sites. Careful handling and designation of specific equipment repair and fuel storage areas, as outlined in the SPCC Plan, will reduce the potential for oil and fuel spills. In the event that there is an oil or fuel spill, immediate measures will be taken to control the spill, and the BLM, National Response Center, and/or Arizona Department of Environmental Quality or New Mexico Environment Department will be notified as defined in the SPCC Plan.	X	X	X	
HAZ-1		Personnel, contractors, and transporters involved with hazardous materials management will be required to comply with Federal and State regulations established for the transportation, storage, handling, and disposal of hazardous substances, materials, and wastes. "Hazardous substances" means any substance, pollutant, or contaminant that is listed as hazardous under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended.	X	X	X	X
HAZ-2		The Project-specific HMMP and program will outline proper hazardous materials use, storage, and transport requirements and applicable handling procedures. EPA procedures for handling and storage of hazardous materials, OSHA requirements for proper storage and labeling on the job site, and New Mexico and Arizona Department of Transportation requirements for transportation of hazardous materials will be followed.	X	X	X	X
HAZ-3		If backfill material to be used is derived from a site that could possibly have contamination, it will be sampled and determined to be free of regulated contaminants before it is used to fill excavations. The results of any tested soils should be shared with the appropriate surface managing agency. No contaminated soils will be used as fill material for the Project.	X	X	X	X
HAZ-4		New or expanded substation locations that involve the purchase or long-term leasing of land, purchased transmission line ROWs, and any other property to be acquired will be screened for environmental liabilities. The degree and level of screening will be based on knowledge or information available on the property to determine the probability of contaminants of concern or other environmental impairment. A Phase I Environmental Site Assessment will be conducted if preliminary screening indicates a reasonable risk that such environmental conditions may exist on the property and the property continues to be targeted for acquisition by the Project, consistent with American Society for Testing and Materials Standard E1527-13.	X	X	X	X
HAZ-5		The Soil Management Plan will provide guidance for the proper handling, onsite management, and disposal of contaminated soil, if encountered during construction, operation, and maintenance activities. Appropriately trained personnel will be onsite during preparation, grading, and related earthwork activities to monitor the soil conditions encountered.	X	X		
HAZ-6		In the event of a spill, workers in the immediate area will cease work, begin spill cleanup operations, and notify appropriate agencies as required by law and specified in the SPCC Plan. Southline and its construction contractor(s) are responsible for cleanup and assume liability for any and all releases of hazardous substances disposed on public land, in accordance with State, Federal, and local laws and regulations. Southline will immediately notify the BLM authorized officer of any and all releases of hazardous substances on public land.	X	X	X	X
HAZ-7		All construction and demolition waste, including trash and litter, garbage, and other solid waste, will be removed and transported to an appropriately permitted recycling or disposal facility. Southline and its construction contractor will prepare a Construction Waste Disposal Plan for all nonhazardous wastes generated during construction of the Project. The plan will contain a description of all nonhazardous solid and liquid construction wastes, recycling plans, and waste management methods to be used for each type of waste.	X	X	X	X
HAZ-8		Southline or the applicable contractors will maintain all vehicles in good working order. Equipment will be properly tuned and maintained to avoid leaks of fluids. Service and refueling procedures will not be conducted within 500 feet of a seep, wash, or other water body. Routine service of any vehicles or equipment will not be done within the ROW.	X	X	X	X

Table 8. Environmental Protection Measures by Resource (Continued)

PCEM	Agency	Feature by Resource	Preconstruction	Construction	Operation and Maintenance	Decommissioning
Health and Human Safety						
HEA-1 HEA-3		The HASP and Fire Protection Plan prepared as part of the Final POD will be developed and implemented to minimize and mitigate potential health and human safety impacts. Southline and its contractors will work with the appropriate surface-managing agencies to incorporate any fire restrictions that are put into effect during construction, operation, and decommissioning of the Project.	X	X	X	X
HEA-2		Southline and its construction contractor will locate overhead and underground utilities that may reasonably be expected to be encountered during construction. If a utility service interruption is known to be unavoidable, Southline and its construction contractor will coordinate with the service provider to notify members of the public, the jurisdiction, and the service providers affected by the interruption via letters and newspapers notices published no later than 7 days prior to the first interruption. Copies of the notices will be provided to the BLM and Western following notification.	X	X		
HEA-4		All permanent metallic objects within the Project's transmission line ROWs will be grounded in accordance with industry standards.	X	X	X	
		Southline and its construction contractor will provide a safety representative at all times with the construction crews, first aid kits stored in each construction vehicle, a worker trained in first aid included in each work group during construction, and the development and implementation of a HASP.		X		
	X	The HASP will address potential situations that workers could encounter during construction and maintenance. The purpose and goal of the worker safety and environmental training will be to communicate Project-related environmental and safety concerns and appropriate work practices to all field and construction personnel prior to the start of construction, including spill prevention, emergency response measures, accident prevention, use of protective equipment, medical care of injured employees, safety education, and fire protection. Training will encompass environmental training related to road designations and speed limits, promote "good neighbor" policies, and institute BMPs for construction. The training will emphasize site-specific physical conditions to improve hazard prevention in accordance with OSHA requirements (29 CFR 1910 and/or 1926, as applicable).	X	X	X	
Land Use						
		Although disturbance to Pima County Conservation Lands will primarily occur within the existing Western ROW for the existing line, every effort will be made to minimize and avoid impacts to these lands (such as Bar V Ranch, Tumamoc Hill, etc.), to the extent practicable.		X	X	
Farmlands and Rangeland						
FARM-1	X	Fences and gates will be repaired or replaced to their original, predisturbed condition (or better), as required by the landowner, BLM Authorized Officer, or other land managing entity if they are damaged or destroyed by construction activities. New temporary and/or permanent gates will be installed only with the permission of the landowner or the BLM. Temporary gates not required for post-construction access control will be removed following construction completion and in accordance with the POD.		X		X
	X	Water facilities (e.g., tanks, developed springs, water lines, wells, etc.) will be repaired or replaced to their predisturbed condition if they are damaged or destroyed by construction, operation, or maintenance activities, as required by the landowner of land management agency. Temporary watering facilities will be provided for wildlife and livestock until permanent repair or replacement is complete.		X	X	X
	X	Laydown areas and substation development will be located on previously disturbed land, where possible, to reduce the impact to farm operations and production in active farmlands. If laydown areas cannot avoid farmlands, Southline will receive approval from the landowner of the farmland to lease the land required for the laydown area.	X	X		
	X	Temporary gates will be installed to prevent livestock from escaping rangelands and accessing roadways. Fences and gates will be repaired or replaced to their original, predisturbed condition, as required by the landowner or the BLM Authorized Officer if they are damaged or destroyed by construction activities. Cattle guards will be installed at access points to prevent livestock from exiting unsecured gates onto roadways.	X	X		
	X	On agricultural land, ROWs will be aligned, in so far as practicable, to reduce the impact to farm operations and agricultural production. This will typically be done in conjunction with negotiating ROW agreements with landowners.	X	X		
Geology and Minerals						
GEO-1		Southline will prepare a geotechnical engineering study prior to the final project design to identify site-specific geological conditions and potential geological hazards. The data collected from the study will be used to guide sound engineering practices and mitigate potential geological hazards.	X			

Table 8. Environmental Protection Measures by Resource (Continued)

PCEM	Agency	Feature by Resource	Preconstruction	Construction	Operation and Maintenance	Decommissioning
Military Operations						
DoD-1	X	The transmission line operator will work with Buffalo Soldier Electronic Testing Range (BSETR) to coordinate, and possibly limit, interconnections to the upgraded Tucson-Apache 230-kV transmission line to the extent allowed by Western's Open Access Transmission Service Tariff and Federal Energy Regulatory Commission (FERC) Orders. The transmission line operator will work with interconnection applicants to locate any future interconnection points on Western's upgraded Tucson-Apache 230-kV transmission line outside the BSETR and within 1 mile of its boundaries. New transmission facilities are defined to include substations, switchyards, and converter stations. Western's Open Access Transmission Service Tariff and the Federal Power Act, as amended, provide the framework, in accordance with Federal law, to consider interconnection requests. Western's Tariff substantively conforms with FERC Orders 888, 889, 890, 2003, and 2006, and ensures open access to Western's transmission system on an equal footing with regulated utilities.	X			
DoD-2	X	Southline and Western will work with BSETR to identify micro-siting opportunities during Project design.	X			
DoD-3	X	The transmission line operator will coordinate with BSETR during the design phase of the proposed Project to limit EMI. The proposed Project will be constructed using the best available construction techniques and technology (i.e., use of grounding, selective conductor type and arrangement, and conductor surface gradients), to the extent feasible and reasonably economical, in order to minimize EMI.	X			
DoD-4	X	The transmission line operator will coordinate with BSETR to allow for an updated measure of the "floor value" of the proposed Project over the first 6 months of operation once the proposed line is energized. Such cooperation could include provision of real-time operating and load information to BSETR to help calibrate the floor value of EMI.	X	X	X	
DoD-5	X	The transmission line operator will coordinate with BSETR to develop reporting standards, for potential inclusion in the transmission line maintenance and inspection program, to the extent allowable by FERC and NERC reliability standards. While normal inspection maintenance will take care of typical EMI issues, specific incidents such as storm damage or vandalism will need to be responded to outside of the normal maintenance cycle. If not detectable through transmission line monitoring, the operator will need to hear from someone experiencing interference in order to respond.	X	X	X	
DoD-6	X	The transmission line operator will coordinate planned outages (curtailment of power line operations for BSETR to implement testing) with BSETR to the extent feasible in order to meet necessary contractual commitments, utility mandates, laws and regulations, and power system requirements. The operator is very limited in the timing and duration of potential outages; outages stress the rest of the system, which can cause system failures.	X		X	
X		Use the optional structure height of 90 feet in areas intersecting the military training route (MTR) VR-263, which has a 100 feet above ground level flight altitude. Additionally, do not erect any structures exceeding 200 feet in height in areas intersecting MTRs VR-260 and VR-1233. Towers crossing the MTRs should also have anti-collision lighting to the maximum extent possible in order to make the hazard of transmission lines more apparent to pilots flying low altitude at night. These measures will mitigate impacts to military training and airspace usage, as well as contribute to the safe conduct of missions.	X	X		
X		Chart the transmission lines before they are erected.	X			
X		Identify transmission structures with high-visibility markers in areas where they intersect or parallel MTRs.	X	X		
MIL-1		The appropriate military scheduler(s) and U.S. Border Patrol representative(s) will be contacted to schedule airspace usage for any construction or maintenance activity on lands that could be used by the military and/or U.S. Border Patrol for training activities or other flights. Coordination will occur with the applicable scheduling office to schedule necessary airspace usage prior to maintenance activities.	X	X		
MIL-2		The proposed Project will comply with FAA regulations, including lighting regulations, to avoid potential safety issues associated with proximity to airports, military bases or training areas, or landing strips.	X	X	X	
Noise						
	X	Schedule construction activities and route construction traffic to minimize disruption to nearby residents and existing operations surrounding the Project.		X		
	X	Noisy construction activities (including blasting) should be limited to the least noise-sensitive times of day (daytime only between 7 a.m. and 10 p.m.) and to weekdays. In sensitive wildlife areas, they should be limited to between 1.5 hours after sunrise and 1.5 hours before sunset.		X		
	X	If warranted, in extreme circumstances, erect temporary wooden noise barriers around areas where construction equipment will disturb sensitive receptors[1] near substations. Barriers may reduce noise by 3 to 10 dBA (EPA 1971).		X		
	X	To the extent possible, locate noisy equipment away from sensitive receptors.		X		
	X	Whenever feasible, schedule noise-generating activities to occur at the same time, since additional sources of noise generally do not add noise. That is, less-frequent noise activities will be less annoying than frequent less-noisy activities.		X		
	X	If blasting or other activities that cause loud bursts of noise are required during the construction period, nearby residents will be notified in advance.		X		

[1] As identified in the EIS, noise sensitive receptors include residential areas, schools and day care facilities, hospitals, long-term care facilities, places of worship, libraries, parks, and recreational areas specifically known for their solitude and tranquility (such as wilderness areas).

Table 8. Environmental Protection Measures by Resource (Continued)

PCEM	Agency	Feature by Resource	Preconstruction	Construction	Operation and Maintenance	Decommissioning
NOI-1	X	If possible, minimize trips for surveillance and monitoring of Project transmission lines.		X	X	
NOI-2		Construction will comply with local noise ordinances. There may be a need to work outside the local ordinances to perform work during available line outage windows in order to take advantage of low electrical draw periods during nighttime hours. The construction contractor will comply with variance procedures required by local authorities.		X		
NOI-3		Construction equipment will be maintained in good working order in accordance with manufacturer's recommendations.		X		
NOI-4		Idling of construction equipment and vehicles will be minimized during construction.		X		X
Paleontology						
PAL-1	X	Workers will be provided with appropriate hearing protection, if necessary, as described in the HASP.	X		X	
PAL-2	X	The Project will avoid Potential Fossil Yield Classification (PFYC) 3 and 4 geological units where possible by spanning resource areas.	X			X
Recreation						
REC-1		In consultation with the appropriate land management agencies, Southline and its contractor will develop a Paleontological Monitoring Plan to address paleontological resources within the project area. This plan will address personnel education, predisturbance surveys, monitoring of ground disturbance, and the deposition and curation of fossils in a qualified repository.	X	X		
REC-2		If scientifically significant fossils are encountered during construction, construction activities will be temporarily diverted away from the discovery and the authorized officer of the BLM will be notified. BLM will then implement the appropriate measures to avoid, protect, and/or recover the fossil remains.	X			X
REC-3		Southline will not site additional workspace areas, such as contractor yards, in recreation areas in order to minimize impacts on recreational users during construction.		X		
	X	Southline and its contractor will coordinate with the BLM to display appropriate "closed" signage at the entrance to new spur roads to structure locations and access roads located on BLM-managed lands. This includes temporary signs during the construction phase of the Project and permanent signs and/or vehicle barriers that will close the spur routes to public travel during the operational phase. Signs will be removed as appropriate upon decommissioning.		X		
		If temporary short-term closures to recreational areas are necessary for construction activities, Southline and its contractor will coordinate those closures with recreational facility owners. To the extent practicable, Southline and its construction contractor will schedule construction activities to avoid heavy recreational use periods (e.g., holidays or tournaments). Southline and its construction contractor will coordinate with the facility owner to post notice of the planned closure onsite 14 calendar days prior to the closure.		X		
	X	Construction will be limited to certain areas of the ROW during specified hunting seasons (e.g., big-game hunting seasons) by sequencing construction activities along the ROW, in coordination with New Mexico Department of Game and Fish (NMDGF) and AGFD, in accordance with each agency's hunting regulations. Such coordination will allow the agencies to notify hunters of potential for T-line construction activities to affect their hunt. Where construction cannot avoid hunting seasons (e.g., mountain lion, "varmint," and other species with year-round hunting seasons) hunters will be required to avoid discharging firearms adjacent to the construction areas, in accordance with NMDGF and AGFD hunting regulations.	X	X		
Wilderness						
	X	If the Arizona National Scenic Trail must be temporarily closed during construction, an alternate trail route (detour) will be provided during the closure. If it is necessary for trail users to leave the trail during the temporary closure, trail users will need to obtain permission from the Arizona State Land Department.	X	X		
	X	Notify Wilderness Inventory Unit users by publication of the construction schedule in local media, posting the schedule at administering agency offices, posting the schedule at trailheads or other recreation access points to Wilderness Inventory Units, or other means of reaching visitors. This notification process will alert wilderness users to the potential temporary impacts of presence and sound of construction on opportunities for experiences of solitude and primitive recreation settings, and allow visitors to decide whether they want to reschedule their visit.	X	X		X
Trails						
	X	Feather the edges of the shrubs and trees adjacent to the ROW when recontouring and revegetating the construction ROW in vegetation communities with a large shrub or tree component, to reduce the line or edge that will be apparent between the shrubs and trees and the grass of the reclaimed ROW.	X	X		X
	X	In accordance with the "Design Features and Best Management Practices for National Trails and Associated Resources" (see Appendix 1 in Manual 6280 (BLM 2012d)), proposed projects within a National Trail Management Corridor will be designed and located in a manner that is compatible with trail purposes.	X	X		X
	X	Minimize visual contrast of Project through use of Project design such as using low profile buildings; siting using the natural topography to hide or screen development, reducing the aerial extent of impact by clustering developments, using vegetative screening; mimicking the line, form, and texture of the surrounding landscape; painting infrastructure, using colors that camouflage the development and prevent glare; and other techniques developed to address the site-specific conditions (BLM 2012d).	X	X		X
	X	Avoid the use of dye, restrict administrative vehicle travel off of designated routes to minimize spread of exotic and invasive species with the National Trail Management Corridor, and consider alternative treatment methods such as use of backpacker sprayer (BLM 2012d).	X	X		

Table 8. Environmental Protection Measures by Resource (Continued)

PCEM	Agency	Feature by Resource	Preconstruction	Construction	Operation and Maintenance	Decommissioning
Soils						
SOIL-1		As appropriate and feasible, Southline and its construction contractor will implement topsoil segregation and conservation practices at substation sites and as directed by the BLM and Western.		X		
	X	In construction areas (i.e., temporary use areas, structure sites, access roads, etc.) where grading is required, surface restoration will be implemented as required by the landowner or BLM authorized officer. The method of restoration will normally consist of returning disturbed areas back to approximate their normal contour, replacing topsoil, reseeding (where required), installing cross drains for erosion control, placing water bars in the road, and/or filling ditches. The Reclamation, Vegetation, and Monitoring Plan will include final details on the details of restoration.		X		
Socioeconomics						
	X	Southline should maximize local hiring, to the extent feasible, during construction. Local hiring could both maximize local economic benefits from the proposed Project, and help reduce potential housing issues and new public service demands.	X	X		
	X	Southline will develop plans for housing the temporary construction workforce during the periods of time when construction will focus on the western portions of the New Build Section (e.g., Hidalgo County) and the eastern portion of the Upgrade Section (e.g., northeastern Cochise County). If the Proponent Alternative is selected, housing planning should also include southern Luna County. The plan should be developed with input and review from local authorities in those areas to both minimize potential impacts on housing and public services and inform the communities of potential challenges associated with construction.	X	X		
Transportation						
TRA-1		Prior to the start of construction, Southline and its construction contractor will prepare a Traffic and Transportation Management Plan for the Project to address the timing and routing of Project trips in an effort to minimize Project impacts on local streets, highways, and railroad operations.	X			
TRA-2		At least 90 days prior to any construction-related helicopter use on the Project, Southline and its construction contractor will coordinate with the FAA for review and approval of plans for any helicopter flights that will take place during construction and operation. Southline and its construction contractor will then provide information to the BLM and Western regarding the intended need and use of helicopters during construction and operation of the Project, including the Flight and Safety Plan; the estimated number of days and hours that the helicopter will operate; the type and number of helicopters that will be used; the location, size, and number of staging areas for helicopter takeoffs and landings; and written approval from property owners for use of helicopter staging areas.	X	X	X	
	X	If any existing roads were to be damaged by Southline or its construction contractor during construction activities and/or truck traffic, the road will be repaired.		X		
	X	In order to mitigate traffic impacts on primary roads in metropolitan areas, shift changes for construction crews will not occur during the peak hours for the road during construction. Oversize or overweight vehicle movements will be planned for nighttime hours, where practical and not detrimental to safety or evening residential noise levels, or those specified in permitting regulations in order to minimize traffic disruptions.	X	X		
	X	In order to reduce public access to BLM roads and adjacent lands that are not currently accessible by the public, the Proponent will fence off or place restricted access signage at new access roads, where appropriate.	X	X	X	
	X	Throughout the permitting and design phase, the Proponent will correspond with Federal, State, and local transportation agencies in order to avoid Project inconsistencies with current and future transportation plans.	X			
	X	Throughout the permitting and design phase, the Proponent will correspond with Federal, State, and local airports in order to ensure that the FAA criteria for structures near airports are met, and to avoid Project inconsistencies with identified airport plans.	X			
	X	Identify transmission structures with high-visibility markers in areas where they intersect or parallel MTRs.			X	
	X	Provide gates and fencing in areas where OHV use will be restricted due to military operations, or to protect sensitive resources.		X	X	X
Vegetation						
VEG-1	X	Efforts will be made to minimize vegetation removal and permanent loss at construction sites to the extent practicable. Access will not be graded unless necessary for erosion control or other engineering reason. Final structure and spur road locations will be selected to avoid special status vegetation to the greatest extent feasible.		X		
VEG-2	X	Southline and its construction contractor have developed a Reclamation, Vegetation, and Monitoring Plan (Appendix B15) that will guide restoration and revegetation activities for all disturbed lands associated with construction of the Project and its eventual termination and decommissioning. The plan addresses all land disturbances, regardless of ownership. It has been developed in consultation with appropriate agencies and landowners and will be provided to these entities for review and input. The plan provides details on topsoil segregation and conservation, vegetation treatment and removal, salvage of appropriate species, and revegetation methods, including use of native seed mixes, application rates, transplants, and criteria to monitor and evaluate revegetation success.	X	X	X	X
VEG-3	X	Special-status plants, including the Pima pineapple cactus (*Coryphantha scheeri* var. *robustispina*), will be avoided. Where avoidance is not possible, special status plants will be conserved by relocating plants and/or reseeding, replacing topsoil with existing topsoil that was removed, and regrading in compliance with local ordinances (Pima County, Tohono O'odham Nation). Measures to conserve special status plants will be implemented through the Reclamation, Vegetation, and Monitoring Plan.	X	X		X

Table B. Environmental Protection Measures by Resource (Continued)

PCEM	Agency	Feature by Resource	Preconstruction	Construction	Operation and Maintenance	Decommissioning
VEG-4	X	Removal of riparian scrubland vegetation will be avoided where possible. Natural regeneration of native plants will be supported by selectively cutting vegetation with hand tools, mowing, trimming, or using other removal methods that allow root systems to remain intact.	X	X	X	X
VEG-5	X	In consultation with local BLM field offices and local resource agencies, Southline and its construction contractor will develop and implement a Noxious Weed Management Plan.	X	X	X	X
VEG-6	(see also PPC-3 and 4)	As required, equipment will be cleaned before ingress to minimize the potential for the spread of invasive species. These details will be described in the Noxious Weed Management Plan. Buffelgrass (*Pennisetum ciliare*) will be specifically addressed in the plan, which will outline efforts to control it within areas disturbed by the proposed Project to ensure that it does not spread to adjoining lands.	X	X	X	X
	X	Preconstruction native plant inventories, including Chihuahua scurfpea, and surveys for noxious weed species as stipulated by the appropriate land management agency will be conducted once transmission line center line, access road, and transmission line structure sites have been located.	X			
	X	Although the 150-foot ROW across the San Xavier District of the Tohono O'odham Nation was surveyed for Pima pineapple cactus in summer 2014, additional preconstruction species-specific surveys for the Pima pineapple cactus will be conducted once transmission line center line, access road, and transmission line structure sites have been located, as needed.	X			
	X	Preconstruction coordination with Pima County, the University of Arizona, and other appropriate groups will be conducted to minimize impacts to Tumamoc globeberry (*Tumamoca macdougalii*) monitoring plots and plants on Tumamoc Hill. Measures to conserve this plant, as well as other special status plants, will be implemented through the Reclamation, Vegetation, and Monitoring Plan.	X	X		
	X	In construction areas where grading is not required, vegetation will be left in place wherever feasible, and original contours will be maintained to avoid excessive root damage and allow for regrowth. All existing roads will be left in a condition that is equal to or better than their condition before the construction of the transmission lines, as determined by the appropriate land management agency.	X			
	X	Field presence/absence surveys will be conducted for special status species in locations where such species are likely to occur within the Project ROW, and specifically locations where vegetation will be impacted, prior to any actual impacts. Surveys will be conducted following established protocols by qualified biologists approved by BLM.	X	X		
	X	Southline and its construction contractor will provide training to all appropriate field personnel working on the Project to identify noxious weeds and prevent spread. Training will discuss known invasive and noxious weed species, known locations, identification methods, and treatment protocols. Training materials and a list of Project personnel completing the course will be provided to the BLM and Western.	X	X	X	
	X	Invasive and noxious weed populations will be mapped and reported to BLM/Western. BLM and Western will determine which areas will necessitate vehicle washing, based on the results of the invasive/noxious weed surveys.	X			
	X	Noxious weeds and other exotic, invasive plant species will be inventoried by a qualified biologist in the immediate proximity to any sensitive plant communities and any special status species populations. This noxious weed inventory will then provide information to supplement mitigation plans for sensitive plant communities and/or special status species habitats, to prevent the expansion of any noxious weeds or other exotic invasive plant species into those locations. Mitigation planning shall be included as part of the Plant and Wildlife Species Conservation Measures Plan.	X	X	X	
	X	Southwest Regional Gap Analysis Project plant associations (communities) that are considered to be environmentally sensitive will be included in ground-truthing field surveys, such as wetlands, riparian areas, drainages, and special status species habitats, to confirm the presence and extent of such communities. If any such sensitive plant communities are identified and documented, the first response will be a determination regarding whether the sensitive community can be avoided. If avoidance is not possible, a mitigation plan (included as part of the Plant and Wildlife Species Conservation Measures Plan) will be developed as needed for those vegetation communities, including options to reduce impacts to those communities. Exclusion zones (at least 10 feet around the perimeter of the plant community) will be delineated around any such plant communities and marked with flagging. Construction monitoring shall be employed around any such sensitive plant communities, and the biological monitor shall have the authority to halt any construction activity deemed intrusive and causing impacts beyond those stated in the mitigation plan. Any changes in construction plans that occur after the Project approval will require additional field presence/absence surveys for such sensitive plant communities and will require a variance request from the BLM if such communities are found, and the above mitigation measures will apply.	X	X		
PPC-1		A compensation plan will be developed as part of the Plant and Wildlife Species Conservation Measures Plan, to meet BLM requirements and approval. The compensation plan will include calculations of compensation ratios and mitigation acreages for special status plant species requiring additional mitigation. Compensatory mitigation could include payment of an in-lieu fee; acquiring mitigation land or conservation easements; or a combination of the two.	X			
PPC-2		For Pima pineapple cactus that cannot be avoided, Southline will purchase credits in a U. S. Fish and Wildlife Service (FWS)-approved conservation bank for Pima pineapple cactus, corresponding to the area of permanent disturbance to occupied Pima pineapple cactus habitat. Alternatively, Southline may purchase suitable mitigation lands within Pima County's Pima pineapple cactus Priority Conservation Areas.	X			
PPC-3		In compliance with Executive Order 13112 regarding invasive species, all disturbed soils that will not be landscaped or otherwise permanently stabilized by construction shall be seeded using species native to the project vicinity.		X		
		Also in compliance with Executive Order 13112 regarding invasive species, all earthmoving and hauling equipment shall be washed at the contractor's storage facility prior to arriving onsite to prevent the introduction of invasive species.		X		

Table 8. Environmental Protection Measures by Resource (Continued)

PCEM	Agency	Feature by Resource	Preconstruction	Construction	Operation and Maintenance	Decommissioning
	PPC-4	To prevent invasive species propagules from leaving the site, the contractor shall inspect all construction equipment and remove all attached plant/vegetation and soil/mud debris identified prior to leaving the construction site.		X		
	PPC-5	Any Pima pineapple cactus that are not within the area of permanent disturbance, but are present within the Project vicinity, shall be flagged by a qualified biologist prior to the commencement of work to avoid accidental damage during construction. Flagging will be removed following construction. Flagging will consist of flagging the area around the Pima pineapple cactus, not flagging the plant itself, and signage will label it as an "Environmentally Sensitive Area". Flagging will be removed following construction.	X	X		
	PPC-6	Any Pima pineapple cactus that cannot be avoided will be conserved by relocating plants within the existing ROW, but outside of the area of any ongoing disturbance.	X	X		
	BO-CM (Biological Opinion-Conservation Measures)	BLM and Western will coordinate with the Arizona-Sonoran Desert Museum in salvaging for the museum's collection if individual Pima pineapple cactus cannot be relocated for some reason.	X	X		
		Pre-construction surveys for Chihuahua scurfpea and other special status plant species will occur in suitable habitat and ground disturbance in occupied habitat will be avoided to the extent practicable. FWS shall be contacted prior to disturbance if an Chihuahua scurfpea are located.	X	X		
	X	Prickly Russian thistle (*Salsola tragus*), Sahara mustard (*Brassica tournefortii*), and fountain grass (*Pennisetum setaceum*) are not identified as noxious weeds in Arizona. However, if these species are present in the ROW and not present in adjacent areas, thus indicating that project activities caused the introduction and spread of these species, then measures will be taken to treat these invasive species in the ROW.				
	X	If noxious weed species on the 2006 list, which currently have small and limited distributions in the state and/or are identified as "alert" species in AZ-WPIG are identified in and/or adjacent to the ROW, the BLM/Southline will attempt to coordinate with the adjacent landowner to treat and eradicate, if possible, these uncommon noxious weeds.				
	X	The responsible Project operator will comply with agency requirements regarding management of noxious weeds within the ROW, along access roads, and at temporary use areas (e.g., cleaning equipment to prevent spread of noxious weeds). Chemical treatment within or adjacent to the ROW generally would be limited only to areas with noxious weeds, and only if absolutely necessary.				
Visual Resources						
VIS-1		In order to restore disturbed areas to an appearance that will blend back into the overall landscape, seeding and/or planting will be conducted in any area that has been cleared or disturbed during construction. Seed mix will be tailored to an area's soil type, existing vegetation, and native species.		X		X
VIS-2	X	The alignment of any new access roads (including unimproved spur roads) will stay within the designated access ROW and will follow the designated area's landform contours and avoid steep areas as much as feasible, provided that such alignment does not additionally impact resource values. This will minimize ground disturbance and/or reduce scarring (visual contrast).	X	X		
VIS-3		During the construction period, dust suppression measures will be used to minimize the creation of dust clouds potentially associated with the use of access roads.		X		
VIS-4	X	The Project will incorporate nonspecular conductors into the Project design to decrease reflectivity and visibility of Project features.	X	X		
	X	Non-transmission line structures such as operations and maintenance buildings, microwave equipment buildings, regeneration structures, emergency generators, and other associated structures will be treated or painted with non-reflective, flat-toned surface treatment. The color of the structures will be painted BLM Environmental Color Chart "Shadow Gray", unless otherwise directed by the authorized officer based on a field evaluation of color choices that will demonstrate better measurable performance over Shadow Gray. BLM Visual Resource Management staff shall be consulted and shall approve color selection relative to site-specific structures to be painted.		X	X	
	X	All lattice towers shall be "dulled" non-specular metal and monopoles properly color treated (BLM Environmental Color Chart "Shadow Gray").	X	X		
	X	Aerial markers or warning lights will be installed on conductors or structures if required by FAA, U. S. Customs and Border Protection, and DOD regulations for structures over 130 feet. The use of red strobe lighting will reduce potential impacts from artificial night lighting and will reduce impacts from night brightness and viewing of night skies. The minimum number and intensity of lights will be used, given that the tallest structures are under the 200-foot FAA requirement (FAA Advisory Circular 70/7460-1K (FAA 2007)). Exterior lights installed on conductors or other facilities will be aviation warning lights, or FAA L-864 aviation red-colored flashing lights with 20 to 40 flashes per minute standard flashing range.		X	X	
	X	The alignment of new access roads or cross-country routes will follow the landform contours where practicable to minimize ground disturbance and reduce visual scarring of the landscape, provided that the alignment does not affect other resource values.	X	X	X	
	X	Clearing of trees in and adjacent to the ROW will be minimized to reduce visual contrast to the extent practicable to satisfy conductor-clearance requirements. Trees and other vegetation will be removed selectively to blend the edge of the ROW into adjacent vegetation patterns, as practicable and appropriate.	X	X	X	
	X	All new or improved access that will not be required for maintenance will be closed or rehabilitated to make it less visually apparent.	X	X	X	
		Tower design may be modified, or an alternative tower type may be selected, to minimize visual contrast as appropriate (BLM 2013o).	X	X	X	
	X	Standard tower design will be modified to correspond to spacing of existing transmission structures, where feasible and within the limits of standard tower design, to reduce visual contrast (BLM 2013).	X	X		
	X	At highway, canyon, and trail crossings, towers will be placed at the maximum feasible distance from the crossing within the limits of standard tower design to reduce visual impacts.	X	X		

Table 8. Environmental Protection Measures by Resource (Continued)

PCEM	Agency	Feature by Resource	Preconstruction	Construction	Operation and Maintenance	Decommissioning
Water Resources						
WAT-1		A Project-specific construction SWPPP will be prepared prior to the start of construction of the transmission line and substations in compliance with Clean Water Act (CWA) Section 402, if required. The SWPPP will use BMPs to address the storage and handling of hazardous materials and sediment runoff during construction activities to minimize the risk of an accidental release. As part of the SWPPP, soil disturbance at structure construction sites and access roads will be the minimum necessary for construction and will be designed to prevent long-term erosion, through activities such as restoration of disturbed soil, revegetation, and/or construction of permanent erosion control structures. A U.S. Army Corps of Engineers permit will be obtained prior to the start of construction of the transmission line and substations for the discharge of dredged or fill material in compliance with CWA Section 404, if required. Activities in and around streams and wetlands will be designed to avoid, minimize, and mitigate impacts to WUS.	X	X		
WAT-2		Construction equipment will be kept out of flowing stream channels, unless feasible alternatives are not available. Structures will be located to avoid active drainage channels, especially downstream of steep slope areas, to minimize the potential for damage by flash flooding and mud and debris flows.	X	X		X
WAT-3		Flood-control devices will be located where required to protect structures from flooding or erosion. Appropriate design of structure foundations will be used to prevent scour or inundation by a 100-year flood and to avoid disturbed areas. The locations of transmission structures will be designed to avoid steep, disturbed, or otherwise unstable slopes. If drainages cannot be avoided by structure placement, Southline and its construction contractor will design drainage crossings to accommodate estimated peak flows and ensure that natural volume capacity can be maintained throughout construction and upon post-construction restoration.	X	X		
	X	Roads will be built as close as possible to right angles to the streams and washes. Culverts or temporary bridges will be installed where conditions warrant. All construction and operations activities shall be conducted in a manner that will minimize disturbance to vegetation, drainage channels, and intermittent or perennial stream banks.		X		
	X	If a route is approved near the internal border, construction activities should be accomplished in a manner that does not change historic surface runoff characteristics at the international border. Copies of any hydrologic or hydraulic studies and site-specific drawings for work proposed in the vicinity of the international boundary will be submitted to the U.S. International Boundary and Water Commission.	X	X	X	X
	X	To the extent practicable, structures will be sited with a minimum distance of 200 feet from streams.	X			
Wildlife						
WILD-2		In consultation with the BLM and Western, Southline and its construction contractor will prepare and implement a Construction Biological Monitoring Plan prior to issuance of a notice to proceed and prior to construction that will specify the level of biological monitoring to be provided throughout construction activities in all construction zones with the potential for presence of sensitive biological resources. The number of monitors and monitoring frequency will be specified for each work zone.	X	X		
WILD-3		Preconstruction surveys will be required in areas where Sonoran desert tortoise (now a separate species: Morafka's desert tortoise (*Gopherus morafkai*)), and Gila monster (*Heloderma suspectum*) are expected to occur. In consultation with the BLM and Western, Southline and its construction contractor will hire qualified biologists to conduct preconstruction surveys in ground disturbance areas within suitable habitat for appropriate special status species.	X			
WILD-4		To reduce impacts on the Sonoran (Morafka's) desert tortoise, known to exist in the western portion of the project area, only authorized biologists with a valid AGFD permit will handle desert tortoises if encountered within the Project area, following the most current desert tortoise handling guidelines published by the AGFD.		X		X
WILD-5		To reduce impacts on all species protected by the Migratory Bird Treaty Act (MBTA), (1) Southline and its construction contractor will conduct preconstruction surveys for active nests, and consult with the appropriate agencies (BLM, FWS, or AGFD) on a case-by-case basis when active nests are found in Project areas, unless directed to do otherwise by these same agencies; (2) a buffer will be placed around active bird nests, and nests will not be moved during breeding season, in compliance with the MBTA, unless the Project is expressly permitted to do so by the FWS or BLM, depending on the location of the nest; (3) all active nests and disturbance or harm to active nests will be reported to the FWS or BLM, upon detection; and (4) work will halt if it is determined that active nests will be disturbed by construction activities, until further direction or approval to work is obtained from the appropriate agencies.	X	X		
WILD-6		To reduce impacts on golden eagles and other raptors, Southline and its construction contractor will develop and implement an APP, in coordination with AGFD and the BLM and Western for approval. The plan will be prepared in accordance with guidance provided by the FWS and in consultation with best practices such as the "Reducing Avian Collisions with Power Lines" (APLIC 2012).	X	X	X	X
WILD-7		Southline and its construction contractor will follow Pima County guidelines for surveys prior to disturbance located in Pima County for western burrowing owls (*Athene cunicularia*). Surveys for western burrowing owl will also be conducted in Cochise County near agricultural fields surrounding the Willcox Playa, and anywhere else throughout the Project where suitable habitat occurs. Surveys for western burrowing owls in Arizona will follow the "Burrowing Owl Project Clearance Guidance for Landowners" (AGFD 2009).	X	X		
		Surveys for western burrowing owl in New Mexico will follow the NMDGF "Guidelines and Recommendations for Burrowing Owl Surveys and Mitigation" (NMDGF 2007).	X	X		
WILD-8		Final structure and spur road locations will be adjusted to avoid sensitive wildlife resources to the greatest extent feasible.	X	X	X	

Table 8. Environmental Protection Measures by Resource (Continued)

PCEM	Agency	Feature by Resource	Preconstruction	Construction	Operation and Maintenance	Decommissioning
AGFD-1	X	Preconstruction surveys for non-game sensitive species such as ornate box turtle (*Terrapene ornata*), western burrowing owl (*Athene cunicularia*), Texas horned lizard (*Phrynosoma cornutum*), kit fox (*Vulpes macrotis*), etc. Timing of the surveys will be determined through consultation with AGFD and NMDGF.	X			
		Preconstruction surveys for species listed under the Endangered Species Act or specified by the appropriate land management agency as sensitive or of concern will be conducted in areas of known occurrences or suitable habitat. Timing of the surveys will be determined by FWS-approved, species-specific survey protocol.	X			
	X	Monitoring of construction activities will be required in some areas to ensure that effects on these species are avoided during construction. If bald eagle (*Haliaeetus leucocephalus*) or golden eagle (*Aquila chrysaetos*) nests are identified during preconstruction surveys, seasonal restrictions on construction within a specified buffer will be implemented where applicable, according to FWS protocols, to comply with the Bald and Golden Eagle Protection Act. Preconstruction nesting-season surveys for migratory birds and surveys for burrowing owls in suitable habitat will be conducted as needed to comply with the MBTA.		X		
	X	Surveys for bat roosts will be conducted within 0.25 mile of the Project ROW in areas that potentially contain caves, karst features, or mines. Occupied bat roosts will be avoided.	X			
	X	Clearing, grubbing, blading, and access road improvements occurring within identified sensitive areas will be conducted outside the breeding season for most desert-nesting migratory birds.	X	X		
	X	Construction holes left open overnight will be appropriately fenced or covered to prevent damage to wildlife or livestock. They will be inspected daily until filled to ensure no wildlife has become entrapped.		X		
	X	Except where otherwise posted or allowed, a Project speed limit of 25 mph will be designated for all construction areas, spur roads, and new access roads to minimize the potential for construction equipment collisions with wildlife. In areas with mountainous terrain and/or poor site distances, the Project speed limit will be 15 mph.		X		
	X	In construction areas where recontouring is not required, vegetation will be left in place wherever possible, to avoid excessive root damage and allow for resprouting.		X		
	X	If designated suitable bighorn sheep (*Ovis canadensis*) habitat along subroute 1.2 in segment S2 were to become occupied by bighorn sheep, then no Project facilities except transmission lines will be built in that area, if that route is selected.		X		
	X	To avoid impacting roosting bats at the Ina Road bridge, blasting activities will be restricted to less than 130 decibels (dB) if possible, and if that is not possible, then blasting activities will occur at night after most bats have left their roost. No blasting will occur in April or May when the maternity colony is present.		X		
AGFD-2	X	Southline will fund the relocation of Crane Lake, including acquisition of land if necessary, construction of the lake and associated infrastructure, revegetation, and visitor facilities. This will include operation and maintenance costs of the lake and infrastructure for the life of the Project, with the renewal of commitment upon future renewal of the Project permit.	X	X	X	
AGFD-3	X	Southline will provide funding to improve riparian emergent wetlands on three historic ponds near Kansas Settlement Road. Wetlands will be constructed to AGFD specifications and adequately equipped with pumps, liners, and drains to ensure that wildlife values are maintained.	X	X	X	
AGFD-4	X	Southline will fund the removal of non-native flora and revegetation with native flora on the Willcox Playa Wildlife Area.	X	X	X	
	LNB-1	All paniculate agaves (*Agave palmeri*, *A. parryi*, and *A. chrysantha*) and saguaros (*Carnegiea gigantea*) will be inventoried within the proposed ROW, and the potential to avoid or salvage each plant will be assessed. The priority will be avoidance when feasible.	X	X		
	LNB-2	All suitable (e.g., healthy, undamaged, not flowering) paniculate agaves that cannot be avoided will be salvaged using methods approved by the BLM/Western and FWS, but mature agaves will be given preference for avoidance when feasible. Plants salvaged from areas of permanent disturbance will be used to reclaim areas of temporary disturbance, or replanted outside disturbed areas if necessary.	X	X		
	LNB-3	Other species of agaves such as *A. schottii*that are not primary food plants for nectar-feeding bats will be salvaged and used for reclamation in accordance with to the Reclamation, Vegetation, and Monitoring Plan.	X	X		
	LNB-4	Saguaros less than 15 feet in height will be salvaged, unless prevented by site-specific conditions or poor plant health. Plants salvaged from areas of permanent disturbance will be used to reclaim areas of temporary disturbance, or replanted outside of disturbed areas if necessary. Larger saguaros will be avoided whenever feasible, but will be topped or removed if necessary.	X	X		
	LNB-5	Agave and saguaro salvage will be augmented, as necessary within 3 years after completion of initial restoration activities. Augmentation will occur within the ROW in areas of higher value to bats (e.g., in the vicinity of active roosts, within areas of high concentration of agaves) to achieve a goal of no net loss of forage plants. Plant stocks from local sources or approved nursery-grown plants will be used.	X	X		
	LNB-6	Salvaged plants will be monitored following reclamation for a period of 3 years, as described in the POD. Supplementary water will be provided, if monitoring indicates that rainfall is insufficient to achieve the goal of no net loss of forage plants. Plant survival through the monitoring period will be reported annually to the BLM/Western and FWS	X	X		
	WF-1	All non-emergency construction and maintenance in riparian woodlands at the San Pedro River, Cienega Creek, and the Santa Cruz River will take place between September 15 and March 1, to avoid disturbance of breeding or nesting southwestern willow flycatchers (*Empidonax traillii extimus*).		X		

Table 8. Environmental Protection Measures by Resource (Continued)

PCEM	Agency	Feature by Resource	Preconstruction	Construction	Operation and Maintenance	Decommissioning
	WF-2 YBC-2	Line marking devices will be placed at the proposed crossings of the San Pedro River, Cienega Creek, Santa Cruz River, and the Willcox Playa Wildlife Area, to minimize the potential for avian collisions with transmission lines.		X		
	YBC-1	All non-emergency construction and maintenance in riparian woodlands at the San Pedro River, Cienega Creek, and Santa Cruz River will take place between September 15 and March 1, to avoid disturbance of breeding or nesting yellow-billed cuckoos (*Coccyzus americanus*).		X		
	BAT-1	Construction activities that create sudden and sporadic loud noise (e.g., blasting) within 0.5 mile of the Volcano Mine complex will be restricted in the Spring (April 1 to May 31), depending on the presence of bats to protect maternity roosts and potential hibernacula.		X		
	BO-CM	BLM and Western will work with FWS, AGFD, and NMDGF to implement recovery actions for lesser long-nosed bat (*Leptonycteris yerbabuenae*), Mexican long-nosed bat (*Leptonycteris curasoae*), southwestern willow flycatcher, and yellow-billed cuckoo.	X			
	BO-CM	BLM and Western will work with FWS, AGFD, and NMDGF to participate in recovery planning and implementation of conservation actions for northern Mexican gartersnake (*Thamnophis eques megalops*), particularly on efforts to remove harmful nonnative species from occupied northern Mexican gartersnake habitat.	X			
	BO-CM	BLM, Western, and Southline will use the smallest mesh size possible (<0.5 inch) for erosion-control products, or products that do not contain any mesh- or net-like attributes near occupied northern Mexican gartersnake habitat. BLM, Western, and Southline will refrain from using erosion-control products (such as wattles), that contain a mesh size of 0.5 inch (or 1.27 cm) within proposed critical habitat for the northern Mexican gartersnake.		X		
	BO-CM (appendix B)	Preconstruction surveys will take place in habitat classified as moderate or high suitability for the northern aplomado falcon (*Falco femoralis septentrionalis*) within the proposed ROW and a 1-mile buffer. Surveys should be conducted several times from January 15 to June 30 in order to detect breeding activity.	X			
	BO-CM (appendix B)	All existing raptor nests or other large nests found during preconstruction surveys will be preserved in place, if possible, or relocated if necessary. No relocation of active nests will occur, and no nests will be relocated until after consultation with the Federal action agencies, State agencies, and FWS.	X	X		
	BO-CM (appendix B)	Construction will not take place within 1 mile of occupied northern aplomado falcon nests between January 15 and September 1. Aplomado falcons are frequently observed on their breeding territories in southern New Mexico in January. Therefore, January 15 is the start date for seasonal restrictions.		X		
	BO-CM (appendix C)	Preconstruction desert tortoise surveys will be conducted in suitable habitat. A WEAP that includes information on desert tortoises will be implemented. Any desert tortoises encountered during preconstruction surveys or during construction activities will be handled in accordance with the AGFD "Guidelines for Handling Sonoran Desert Tortoises Encountered on Development Projects" (AGFD 2007).	X			

A SWPPP for the Project will identify sources of pollutants associated with construction activity that may affect the quality of stormwater, as well as stormwater management practices to abate pollutants in stormwater discharges from the construction site both during and after construction. The SWPPP will detail structural and non-structural controls that will be put in place to minimize negative impacts caused by offsite stormwater discharges to the environment. BMPs in the plan will include specific stabilization measures and structural controls, spill prevention containment and controls, final stabilization measures to be implemented after construction, and requirements for maintenance and inspection, subject to approval by an Erosion Control Coordinator.,

5.4.4 Spill Prevention, Control, and Countermeasures Plan

The Spill Prevention, Control, and Countermeasures (SPCC) Plan will address requirements for petroleum spill prevention, preparedness, response, and notification to prevent oil discharges to waters and adjoining shorelines. The EPA's SPCC rule 40 CFR 112 is part of the Oil Pollution Prevention regulation, which requires specific facilities to prepare, amend, and implement SPCC Plans. The plan will addresses prevention and remediation of oil, hydraulic fluid, and petroleum fuel spills, including spills that could enter WUS.

5.4.5 Historic Properties Treatment Plan

Section 106 of the NHPA requires Federal agencies to consider the effects of their undertakings on historic properties (those cultural resources presently listed or determined to be eligible for listing in the NRHP). Due to the scope and complexity of the Project, and because the effects on historic properties cannot be fully determined prior to the approval of an undertaking, the BLM and Western determined early in the process that the undertaking will have an "adverse effect" on historic properties. To resolve the adverse effects, a Project-specific PA is being developed among the consulting parties.

The PA, an HPTP, and a Monitoring and Discovery Plan will be developed pursuant to the PA, and will be incorporated into the POD. The HPTP provides a framework for conducting historic resource testing and data recovery for the Project. It will describe measures that will be implemented to address the avoidance of impacts, minimization of impacts, and mitigation of possible impacts to historic properties. As noted in the PA, for the purposes of Section 106 of the NHPA, decommissioning would be a new action for Section 106 review and historic properties potentially affected by decommissioning would be considered in the BLM-approved Termination and Reclamation Plan in accordance with the pertinent laws, regulations, and policies extant at the time.

5.4.6 Blasting Plan

A Blasting Plan will outline the procedures and safety measures that the Project contractor will adhere to while implementing blasting activities during construction. It will identify proposed blasting techniques, as well as blasting requirements and procedures such as proposed notification of agencies and affected landowners, safety, use, storage, and transportation of explosives. These procedures must be consistent with the minimum safety requirements defined by Federal, State, and local regulations. This plan will also identify and address areas of potential environmental concern as related to blasting along the Project route. The Blasting Plan will be circulated to the appropriate Federal, State, and local agencies, as appropriate.

5.4.7 Plant and Wildlife Species Conservation Measures Plan

Federal agencies are required to consider the effects of their activities on protected species. The Plant and Wildlife Species Conservation Measures Plan will outline the avoidance and minimization of impacts to special-status plant and wildlife species as related to Project construction activities. It will describe specific measures to be implemented in the event that State or federally listed species, BLM sensitive species, or Forest Service special-status species or their habitats are identified within or adjacent to the Project ROW. The Plant and Wildlife Species Conservation Plan will incorporate appropriate Federal, State, and local agency guidance and regulation, such as the Pima County Regional Flood Control District Regulated Riparian Habitat Mitigation Standards. To the extent practicable, final siting of the transmission line, access roads, and other areas of Project disturbance will avoid sensitive species and their habitats.

5.4.8 Erosion, Dust Control, and Air Quality Plan

In order to maintain air quality in the vicinity of construction areas, the Erosion, Dust Control, and Air Quality Plan will identify sources of fugitive dust, such as grading activities, driving on dirt roads, or wind-driven dust from exposed soil; and then provide appropriate dust mitigation measures (PCEMs) such as application of water or soil additives, control of vehicle access, vehicle speed restrictions, or even work stoppage during extreme wind. The plan will also identify sensitive receptors that could be affected by dust from work areas, and outline dust monitoring and recordkeeping responsibilities. The Erosion, Dust Control, and Air Quality Plan will incorporate appropriate Federal, State, and local agency guidance and regulation and be circulated to the appropriate agencies to verify that the Project is complying with the applicable air quality rules and regulations. Applicable County Plans, Laws, Ordinances, Regulations, and Standards Related to Air Quality are discussed in chapter 3 of the EIS.

Additionally, the Erosion, Dust Control, and Air Quality Plan will include a Construction Emission Mitigation Plan (CEMP) that will include fugitive dust source controls such as:

- stabilization of open storage piles and disturbed areas by covering and/or applying water or chemical/organic dust palliative where appropriate at active and inactive sites during workdays, weekends, holidays, and windy conditions;
- installation of wind fencing and phased grading operations where appropriate;
- operation of water trucks for stabilization of surfaces under windy conditions; and
- prevention of spillage when hauling material and operating non-earthmoving equipment and limiting speeds to 15 miles per hour. Limiting speed of earth-moving equipment to 10 miles per hour.

The CEMP will also include mobile and stationary source controls such as:

- planning construction scheduling to minimize vehicle trips;
- limiting idling of heavy equipment to less than 5 minutes and verification through unscheduled inspections;
- maintenance and tuning of engines per manufacturer's specifications to perform at EPA certification levels, prevent tampering, and conduct unscheduled inspections to ensure these measures are followed; and

- where practicable, use new, clean equipment meeting the most current of applicable Federal or State Standards. In general, commit to the best available emissions control technology. Tier 4 engines should be used for Project construction equipment to the maximum extent feasible. Lacking availability of non-road construction equipment that meets Tier 4 engine standards, the responsible agency should commit to using EPA-verified particulate traps, oxidation catalysts, and other appropriate controls where suitable to reduce emissions of diesel particulate matter and other pollutants at the construction site.

The CEMP will also include administrative controls such as:

- preparation of an inventory of all equipment prior to construction and identify the suitability of add-on emission controls for each piece of equipment before groundbreaking; and
- development of a construction traffic management plan that maintains traffic flow and plan construction to minimize vehicle trips.

5.4.9 Hazardous Materials Management Plan

The purpose of the HMMP will be to reduce the risks associated with the storage, use, transportation, and disposal of hazardous materials anticipated to be used during the construction phase of the Project. The HMMP will be required to meet BLM ROW grant conditions to provide a basic understanding of the hazards and techniques associated with the handling of hazardous materials so that the Project personnel will be better able to protect their personal health, prevent damage to the environment, and comply with applicable laws, regulations, and policies.

5.4.10 Emergency Preparedness and Response Plan

The purpose of the Emergency Preparedness and Response Plan will be to help prevent emergencies, to ensure preparedness in the event emergencies do occur, and to provide a systematic and orderly response to emergencies. Emergencies may include be medical, fire, hazardous materials, extreme weather, or acts of sabotage. The plan will provide project-specific details regarding steps for various types of emergencies, including emergency notification and evacuation procedures, and will take into account the level of severity of each event.

5.4.11 Noxious Weed Management Plan

The primary focus of the Noxious Weed Management Plan will be to minimize the introduction of any noxious weed infestations, as well as the spread of weeds, during construction of the Project and to eradicate noxious weeds following construction. Regulatory authority and requirements are provided by Federal regulations, including the Executive Order on Invasive Species and the Plant Protection Act, plus State regulations on noxious weeds. The plan will outline that invasive weeds are not controlled to the same standards as noxious weeds and will specifically address the elimination of buffelgrass (*Pennisetum ciliare*) from areas disturbed by the Project to ensure that it does not spread to adjoining lands.

5.4.12 Fire Protection Plan

A Fire Protection Plan will help reduce the risk of fires and minimize the dangers posed by fires during construction and operation phases of the Project. Because the Project will be located in remote and isolated locations, the dangers posed by fire may be increased. The objective of this plan will be to eliminate causes of fire, minimize the potential loss of life and property by fire, and comply with OSHA

standards on fire prevention. It also will provide information and guidelines to assist in recognizing, reporting, and controlling fire hazards.

5.4.13 Stream, Wetland, Well, and Spring Protection Plan

General water quality is protected under the Federal Clean Water Act, and a permit may be required if a project will result in discharges to regulated WUS. The purpose of a Stream, Wetland, Well, and Spring Protection Plan will be to describe measures to protect those resources from potential impacts during construction, operation, and maintenance activities. The plan will describe avoidance, minimization, and mitigation measures (PCEMs) and will be intended for use as a guide to determine the appropriate site-specific measures to be implemented during construction activities. The goals of the plan will be to prevent and control the Project-related erosion and sedimentation into streams and wetlands, minimize disturbance and erosion of streambeds and banks, and protect springs and wells from Project impacts due to blasting and hazardous materials contamination. The Stream, Wetland, Well, and Spring Protection Plan will incorporate appropriate Federal, State, and local agency guidance and regulations, such as the Pima County Regional Flood Control District Regulated Riparian Habitat Mitigation Standards.

5.4.14 Soil Management Plan

A Soil Management Plan will define procedures for managing soils that are excavated during construction, along with plans for their storage and later reuse. This plan is often an appendix to a SWPPP. In addition to clean soil excavation, the plan will outline procedures for segregation of potentially contaminated soils, sampling and analysis of those soils, and disposal options if that becomes necessary. It also will define how topsoil would be segregated and stored, how stockpiles will be managed and protected, and used in site restoration. Use of topsoil for restoration activities will be described in the Reclamation, Vegetation, and Monitoring Plan. Erosion and sediment controls for excavated soil will also be discussed.

5.4.15 Reclamation, Vegetation, and Monitoring Plan

The Reclamation, Vegetation, and Monitoring Plan will be prepared to address the reconstruction of disturbed ecosystems by returning the land to a stable and productive condition.
It will describe reclamation, revegetation, native plant management, and noxious and invasive weed control, with the purpose of restoring areas impacted by construction, operation and maintenance, and decommissioning. The plan will distinguish between Interim Reclamation Activities and Final Reclamation Activities with corresponding goals and objectives. Such plans typically include predisturbance site characterization, waste material management, site preparation and seeding, the use of native seeds, invasive species management, and compliance and effectiveness monitoring. Plan elements will help protect subsurface integrity and eliminate sources of ground and surface water contamination. Implementation of these elements will also maintain the biological, chemical, and physical integrity of the topsoil and subsoil, and reestablish slope stability and surface stability. The Reclamation, Vegetation, and Monitoring Plan will incorporate appropriate Federal, State, and local agency guidance and regulations, such as the Pima County Regional Flood Control District Regulated Riparian Habitat Mitigation Standards.

5.4.16 Health and Safety Plan

A HASP is not typically required by Federal law; however, section 18 of the Occupational Safety and Health Act of 1970 encourages States to develop and operate their own safety and health programs in the

workplace. In New Mexico, the Occupational Health and Safety Bureau, part of the New Mexico Environment Department, has the responsibility of enforcing Occupational Health and Safety Regulations. In Arizona, the Arizona Division of Occupational Safety and Health is responsible for enforcement and voluntary compliance.

The purpose of a HASP will be to ensure the safety of the Project employees, construction personnel, and the public. The HASP will be tailored specifically for the Project, and will include a description of hazards that may be encountered during the life of the Project. The HASP will detail employee safety training procedures that will be used, structural and non-structural safety controls that will be put in place, personal protective equipment that will be required, emergency response procedures, protocols for Project-specific procedures such as confined space entry, and applicable standards, practices, and procedures specified by OSHA (29 CFR 1910).

5.4.17 Avian Protection Plan

An APP will be a Project-tailored plan designed to reduce avian electrocution and collision mortality that result from avian interactions with electric utility facilities. The overall goal of an APP is to reduce avian mortality. The 2005 APLIC and FWS APP Guidelines (APLIC 2005) provide a framework, along with principles and examples of APPs.

The APP will be designed as a living document to be continually evaluated and refined over the life of the Project. The elements of the APP will include training, permit compliance, construction design and siting standards, nest management, a reporting system, risk assessment for evaluating the risks posed to migratory birds. The plan will also identify areas and issues of concern, mortality reduction measures, and avian enhancement options.

Examples of avian protection measures that *could* be included in the APP are:

- Marking wires (bird diverters) and/or using special structure design to increase visibility to birds;
- Applying special structural design to decrease the heights of ground wires and conductors;
- Monitoring to ensure that mitigation measures (PCEMs) are implemented; and/or
- Conducting additional avian studies, surveys, and/or monitoring to record the presence of birds and incidence of avian collisions, and provide data that could be useful to minimize the potential for collisions with the Project, as well as with existing and future power lines in other locations.

Southline, BLM and Western will collaborate with agencies such as the FWS, AGFD, and NMDGF and other cooperating agencies on development of the APP, the goal of which is mitigate the collision risk and loss of productivity for all birds.

5.4.18 Waste Management Plan

The purpose of the Waste Management Plan will be to outline non-hazardous waste handling procedures to be used during the construction, operation, and maintenance phases of the Project and to identify expectations for minimizing waste and recycling processes. Waste addressed in this plan will include all non-hazardous waste resulting from construction and land clearing, as well as material that is recycled, reused, salvaged, or disposed of as garbage.

The Waste Management Plan will attempt to predict the quantities and types of waste that will be generated during the construction, operation, and maintenances phases of the Project, identify the final destination of that waste, and estimate waste management costs. The Waste Management Plan will consider waste diversion goals and objectives, and will explore recycling and reuse alternatives.

5.4.19 Helicopter Flight Plan/Flight and Safety Plan

The Helicopter Flight and Safety Plan will describe the hours and estimated number of days that a helicopter will operate for construction of the Project, the type and number of helicopters that will be used, and the kind of work to be performed. Additional information presented in this plan will include the location, size, and number of staging areas for helicopter takeoffs and landings, and safety measures to be implemented during helicopter operations. This plan will be reviewed and approved by the FAA prior to the commencement of helicopter operations.

5.4.20 Decommissioning Plan

The Decommissioning Plan will detail how the structures and facilities of the Project would be removed after the useful life of the Project is reached, and how the affected properties would be reasonably restored in accordance with the BLM ROW grant. This plan will be a general outline of how the Project will be decommissioned and how land would be restored to its original condition. Decommissioning procedures described will include the removal of structures, disposal of waste, and identification of what, if anything, may remain on the land upon completion. Restoration will include the stabilization and revegetation of the disturbance area to minimize erosion and return the land to productive use.

5.5 SELECTIVE MITIGATION BY MILEPOST

Files to be included with Final POD (post Final EIS) - not included herein.

Chapter 6

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Appendix A

CONSTRUCTION CONSIDERATIONS

Full text to be included with Final POD (post Final EIS) – text in the following section not fully developed.

APPENDIX A1
FLAGGING, FENCING, AND SIGNAGE PLAN

A1.1 Introduction

This Flagging, Fencing, and Signage Plan describes the methods that will be used in the field to delineate Southline Transmission Line Project (Project) limits of disturbance and protect sensitive environmental and cultural resources during Project construction. These methods are intended to ensure Southline Transmission, LLC (Southline, or the Proponent) personnel, the construction contractor(s), Bureau of Land Management (BLM), Western Area Power Administration (Western), compliance inspection contractor(s) (CIC), and other monitors and visitors to the Project construction sites stay on approved access routes and within approved work areas.

As indicated in the Plan of Development (POD), this plan is applicable on Federal lands administered by the BLM as enforceable stipulations and measures of the BLM ROW grant. It pertains not only to the construction of the Project, but also to the operation and maintenance phase of the Project. Where Western is involved in the Project, they may adopt this plan, where appropriate and as agreed to by the affected landowner. The measures described in this plan are an integral part of the environmental compliance program for avoiding and minimizing impacts on sensitive resources. The objective of this plan is to provide information on the field markings (i.e., flagging, fencing, and signage) that will be used to identify approved Project travel and work areas, as well as sensitive resource areas where construction or travel is to be excluded.

A1.2 Regulatory Requirements

No Federal, State, or local laws, rules, or regulations specifically address flagging, fencing, and signage protocols for construction projects. However, some of the Proponent Committed Environmental Measures (PCEMs) identified in the Environmental Impact Statement (EIS) for the Project (and also in table 8 in the POD), hinge on adequate field marking of work areas and/or of sensitive resource areas to avoid or reduce impacts. These PCEMs include flagging or fencing requirements to help protect vegetative cover, water quality, cultural resources, and special-status species and minimize the spread of invasive weeds.

A1.3 Methods

A1.3.1 Demarcating Project Facilities

Standard survey flags and stakes will be installed before the start of Project construction to demarcate the limits of the right-of-way (ROW), the centerline of the transmission line, construction areas, and access roads. The construction contractor(s) will demarcate the ROW (i.e., the limit of disturbance) and the transmission line centerline. Structure sites (i.e., structure locations and footprints), substation construction areas, and ancillary facility locations, will be marked by the construction contractor(s). Structures will be either self-supporting lattice or tubular monopole structures. The lattice structures will have a base width of 25 feet with four 4-foot-diameter concrete footings; the monopole will have a single 7- to 8-foot-diameter concrete structure base. Designated Project access roads, spur roads, parking areas, and pullout areas will be marked to facilitate travel to and from the ROW. Wire tensioning and pulling sites, splicing locations, staging areas, and material yards will be demarcated as necessary to indicate the limits of approved work areas. Substation construction areas will be demarcated as well. Prior to the flagging installation, the construction contractor(s) will stake the boundaries of the maximum area needed

for all work areas and will provide the dimensions to BLM's and Western's CIC. During construction, if a larger work area than the approved dimensions for Project facilities is needed the construction contractor(s) will coordinate with the CICs for approval, and consultation with the BLM, Western, and other agencies may be required.

A1.3.2 Environmental Exclusions

Signs, flagging, and/or fencing will be used to establish exclusion areas to protect sensitive environmental resources (e.g., biological, cultural, wetland, and paleontological resources) in the vicinity of construction activities. A system of standardized and simplified exclusion markings will be used to reduce potential confusion during construction and minimize the risk of highlighting types of sensitive resources that could be targeted by vandals (e.g., if exclusion areas protecting archaeological sites were marked differently than those protecting sensitive natural resource areas, the sites would be at a higher risk of unauthorized artifact collecting and other disturbances). Exclusion areas will be set up to protect these areas. Exclusion areas will be provide to the construction contractor(s) and their environmental monitors via geographic information system (GIS) files; however, the construction contractor(s) will not necessarily be told if the exclusion area is for the protection of biological, cultural, wetland, or paleontological resources. The marking of exclusion areas will be done under the guidance of the construction contractor(s) environmental monitors and will be closely coordinated with and verified by the CIC.

A1.3.3 Signing, Flagging, and Fencing Materials and Methods

Table A1-1 provides some standards for marking Project features using signing and flagging that will be needed during Project construction. Fencing will be used in locations where flagging and signing are not sufficient to demarcate exclusion areas. No permanent markings will be placed on rocks or non-deciduous vegetation.

Table A1-1. Signing and Flagging Scheme

Feature	Flagging or Sign Colors	Sign Text	What to Do
Project access road	To be decided by construction contractor(s)	Project Access Road – Road # – Southline Transmission Line Project	To be located at points of intersection, additional intermittent flagging along the routes may be required. Construction contractor(s) to verify that right of entry has been obtained before marking these areas and verify what type of road (A – E) has been specified for each access point (e.g. unimproved, bladed, etc).
Temporary work areas (tensioning and pulling sites, material yards, etc.)	To be decided by construction contractor(s)	Not applicable	Construction contractor(s) to verify that right of entry has been obtained before marking these areas.
Public access	To be decided by construction contractor(s)	No Public Access	To be located at points of intersection with private land or roads closed to the public.
Sensitive environmental areas	Yellow or orange (same as for wetlands)	Sensitive Resource Area – Keep Out	Avoid these areas – do not drive vehicles or equipment near flagged or within flagged areas.
Reclamation project areas	Black	Restoration in Progress – No Vehicle Traffic Allowed	Avoid these areas – do not drive vehicles or equipment near flagged or within flagged areas.

Table A1-1. Signing and Flagging Scheme (Continued)

Feature	Flagging or Sign Colors	Sign Text	What to Do
Wetlands	Yellow or orange (same as for sensitive environmental areas)	No Refueling within 500 feet of Streams and Washes	
Invasive weed cleaning stations	Blue	Weed Cleaning Station # – Southline Transmission Line Project	Signs will be posted at entry points into weed cleaning stations.
Noxious weed problem areas	Blue	No Entry Without Vehicle Cleaning	Signs to be posted at areas identified by Weed Management Specialist
Proposed structure locations	To be decided by construction contractor(s)	Not applicable	Do not disturb the survey stakes.
Structure offsets	To be decided by construction contractor(s)	Not applicable	Do not disturb the survey stakes.
Substation and communication regeneration station locations	To be decided by construction contractor(s)	Not applicable	Do not disturb the survey stakes.
Outside edge of permitted ROW or centerline	To be decided by construction contractor(s)	Not applicable	Do not drive vehicles or equipment outside of designated corridor.
Cadastral survey monument	To be decided by construction contractor(s)	Not applicable	Protect in place.
Non-authorized access road	To be decided by construction contractor(s)	Do Not Enter Not an Authorized Access Road – Southline Transmission Project	Do not drive vehicles or equipment on unauthorized roads.

NOTES:

- Staking and flagging will be done by construction contractor(s) and verified by CIC, including sensitive resource exclusion zones.
- Construction contractor(s) shall stake all proposed structure center hub and footing locations, structure locations, and associated reference points and mark the centerline with intervisible stakes not to exceed 500 feet and at all road crossings.
- Construction contractor(s) shall use staking intervals appropriate to the conditions observed in the field. For example, areas of rough terrain or dense vegetation may require staking at intervals less than 500 feet. In all cases, field staking intervals shall be done at a frequency such that each adjacent stake can be easily discernible.
- Maintain (refurbish as necessary) staking over time as conditions require.

A1.3.3.1 SIGNING

Signs will be used to help identify Project features and work areas such as approved access roads and wire tensioning and pulling areas, as well as certain Project facilities or exclusion areas such as "Sensitive Resource Area." Sign will be a minimum of 8.5 inches by 11 inches on laminated (7-millimeter or greater) color paper or similar material. Signs will be installed on metal or plastic posts and/or wooden stakes or attached to exclusion fencing/roping, as appropriate. Background colors will vary and will be chosen to best enhance sign recognition from a distance. Signs for sensitive resource exclusion areas will be placed and oriented to be visible from both directions of likely travel.

Figures A1-1, A1-2, A1-3, A1-4, A1-5, and A1-6 (included at the end of this appendix) show the size and configuration of typical sign layouts.

A1.3.3.2 FLAGGING

Survey flagging (i.e., surveyor's ribbon tied to wooden stakes, metal posts, or vegetation) will be used to delineate the overall disturbance limits (i.e., boundaries of the ROW) and centerline, as well as the limits of work areas, material yards, wire tension and pulling areas, access roads, parking areas, etc., unless existing fencing or other features clearly indicate the limits of the area. Survey flagging may be used to demarcate sensitive resource exclusion areas situated at safe distance from planned construction activities

but generally will not be used to define sensitive resource exclusion areas close to planned construction activities because of flagging visibility and stability issues during construction activities. Instead, resource exclusion areas near construction will be fenced prior to construction activities (see section A1.3.3.3 Fencing).

The BLM, Western, or the CIC, as needed, will determine whether flagging or fencing (as described below) is the appropriate protective device for a given location. Flagging color will conform to the requirements of Table A1-1.

A1.3.3.3 FENCING

To delineate sensitive resource exclusion areas near construction activities, a combination of one or more of the following fencing materials will be installed by the construction contractor(s):

- rope (minimum 1/4-inch in diameter in yellow or orange coloring);
- plastic or fabric tape in yellow or orange; and/or
- safety fencing (plastic orange or yellow mesh at least 24 inches wide and at least 18 inches off the ground to facilitate travel by small animals).

Roping will be the primary fencing devices used for sensitive resource exclusion areas where flagging is not appropriate. Roping with periodic marking with signs or lengths of flagging tape is a highly visible and effective exclusion device. Roping, tape, and safety fence will be installed using metal posts for increased durability, especially in areas with compact or rocky soils. In most cases, the exclusion device will be installed at the boundaries of the sensitive resource exclusion area which includes any required buffers, rather than at the edge of the work area. If a sensitive resource buffer zone encroaches into the work area, the portions that overlap with the work area will be delineated with fencing and signed as an exclusion zone. However, if necessary, roping, tape, or fencing can be used to demarcate the limits of a work area if multiple sensitive resource exclusion areas are present. In addition, if construction within a wetland is necessary, the boundaries of the approved disturbance area will be demarcated with fencing so impacts are limited to the authorized area.

A1.4 Installation, Monitoring, and Maintenance of Fencing, Flagging, and Signage

The purpose of this Flagging, Fencing, and Signage Plan is to ensure that all personnel, including construction crew, monitors, the CIC, Southline and Western representatives, etc., associated with the Project stay on approved access routes and within approved work areas. The achievement of this goal depends on the proper installation, monitoring, and maintenance of protective devices such as flagging, signage, and fencing. The construction contractor(s) will be responsible for the installation and maintenance of the field markings of construction features (e.g., structures, wire pulling sites, substations, etc.). These markings will be installed in advance of construction activities in the area, maintained during the course of construction (as necessary), and removed after Project cleanup and reclamation activities. Sensitive resource exclusion area markings (e.g., signs, flagging, and fencing) will be installed by the construction contractor(s) in coordination with the CIC along with the assistance of appropriate resource monitors (e.g., botanists, biologists, archaeologists) as needed. These sensitive resource exclusion area markings will be installed prior to the start of construction within and near Project work areas. The CIC will be consulted if there is uncertainty as to the type or location of needed sensitive resource exclusion area markings for botanical, wildlife, wetlands, streams, or archaeological sites.

Routine Project monitoring by the CIC and construction contractor's resource monitors will include an on-going assessment of the need for replacement or repair of exclusionary flagging or fencing. Flagging and fencing maintenance needs will either be corrected at the time of the observation by the CIC, or will be documented as a future maintenance need. If maintenance of flagging or fencing is needed within an active construction area, corrective action will be taken within one workday. Maintenance of signs, flagging, and fencing within inactive work areas will be implemented as necessary. All signs, flagging, and fencing will be removed after Project cleanup and reclamation activities by the construction contractor(s).

PROJECT
ACCESS ROAD
ROAD #

SOUTHLINE TRANSMISSION LINE PROJECT

Figure A1-1. Typical Sign – PROJECT ACCESS ROAD

SENSITIVE
RESOURCE AREA

KEEP OUT

Figure A1-2. Typical Sign – SENSITIVE RESOURCE AREA KEEP OUT

RESTORATION IN PROGRESS
No Vehicle Traffic Allowed

Figure A1-3. Typical Sign – RESTORATION IN PROGRESS No Vehicle Traffic Allowed

NO REFUELING

WITHIN 500 FEET OF
STREAMS AND WASHES

Figure A1-4. Typical Sign – NO REFUELING

DO NOT ENTER

NOT AN
AUTHORIZED
ACCESS ROAD

Figure A1-5. Typical Sign – DO NOT ENTER

APPENDIX A2
GEOTECHNICAL INVESTIGATION

The Plan of Development (POD) for the geotechnical investigation includes detailed information on the geotechnical exploration program, including procedures the Proponent implemented during geotechnical exploration activities, and outlines the stipulations and Proponent Committed Environmental Measures (PCEMs) adopted by the Proponent to minimize potential impacts on resources and to ensure regulatory compliance. As indicated in the POD, stipulations and measures provided herein are applicable on Federal lands administered by the Bureau of Land Management (BLM) as enforceable measures of the BLM right-of-way (ROW) grant. It pertains not only to the construction of the Project, but also to the operation and maintenance phase of the Project. Where Western Area Power Administration (Western) is involved in the Project, they may adopt these stipulations and measures, where appropriate.

Information to be developed.

APPENDIX A3
PROJECT CONSTRUCTION

This section contains an overview of construction activities associated with the transmission line facilities. As indicated in the Plan of Development (POD), stipulations and measures provided herein are applicable on Federal lands administered by the Bureau of Land Management (BLM) as enforceable measures of the BLM right-of-way (ROW) grant. It pertains not only to the construction of the Project, but also to the operation and maintenance phase of the Project. Where Western Area Power Administration (Western) is involved in the Project, they may adopt these stipulations and measures, where appropriate.

Map Sets 1 and 2 of the POD will identify the transmission line route and environmental resources located within or adjacent to the transmission line corridor based on preconstruction surveys conducted prior to issuance of the ROW grant. POD Map Set 3 will identify, in more detail, access roads that will be used to access the construction ROW.

A3.1 Construction Schedule

A3.1.1 Preconstruction Activities

A3.1.1.1 SURVEYING AND STAKING

A3.1.1.2 PRECONSTRUCTION RESOURCE SURVEYS

Table A3-1. Preconstruction Resource Surveys

Survey Type and Resources	Plan Reference	Date Completed	Additional Surveys to be completed
Vegetation and Wetlands			
Special-status plants			
Wetland delineation			
Noxious weeds			
Water Resources			
Watercourse crossing inventory			
Springs/wells			
Wildlife Resources			
Bat roosts[2]			
Sonoran desert tortoise[3]			
Raptors and nests			
Migratory bird nests			
Cultural Resources			

[2] There would be surveys of bat roosts within 0.25 mile of the Project ROW in areas that potentially contain caves, karst features, or mines. Occupied bat roosts would be avoided

[3] Preconstruction desert tortoise surveys would be conducted in suitable habitat. A worker education program including information on desert tortoises would be implemented. Any desert tortoises encountered during preconstruction surveys or during construction activities would be handled in accordance with the AGFD *Guidelines for Handling Sonoran Desert Tortoises Encountered on Development Projects* (AGFD 2007).

Survey Type and Resources	Plan Reference	Date Completed	Additional Surveys to be completed
Literature search and Class III inventory			
Paleontological Resources			
Paleontological resources			

A3.1.1.3 RIGHT-OF-WAY PREPARATION

A3.1.1.4 PRECONSTRUCTION MEETING

A3.1.1.5 NOTICE TO PROCEED (BLM-ADMINISTERED LANDS ONLY)

A3.1.1.6 SPECIAL-USE AUTHORIZATION[4]

A3.2 Equipment Staging and Construction Yards

A3.3 Access Roads

A3.3.1 Snow Removal

A3.3.2 Agency Access Road Requirements

A3.3.3 Ground Disturbance/Access Levels

Table A3-2. Ground Disturbance/Access Levels

Access Levels	Description	Access Type
Level 1	Details on use of existing roads	
Level 2	Details on improvements to existing roads	
Level 3	Construct new access, flat to rolling terrain (0–8 percent slopes)	
Level 4	Construct new access, rolling terrain (8–5 percent slopes)	
Level 5	Construct new access, steep terrain (greater than 15 percent slopes)	

Table A3-3. Summary of Ground Disturbance and Vegetation Clearing

	Temporary Disturbance (acres)	Permanent Disturbance (acres)	Total Disturbance (acres)	ROW Vegetation Clearing (acres)
Total for Selected Route				

[4] Authorization would be required for other federal lands as well.

A3.4 Transmission Line Construction

A3.4.1 Geotechnical Investigations and Soil Boring

A3.4.2 Site Access and Preparation

A3.4.2.1 AGENCY SITE PREPARATION REQUIREMENTS

A3.4.3 Install Structure Foundations

A3.4.4 Erect Support Structures

A3.4.5 String Conductors, Shield Wire, and Fiber-Optic Ground Wire

A3.4.6 Sagging and Clipping

A3.4.7 Cleanup and Site Reclamation

A3.5 Substation Construction

A3.5.1 Access Roads

A3.5.2 Clearing and Grading

A3.5.3 Foundation Installation

A3.5.4 Oil Containment

A3.5.5 Structure and Equipment Erection/Installation

A3.5.6 Conduit and Control Cable Installation

A3.5.7 Landscaping and Construction Cleanup

Attachment A: Construction Schedule[5]

[5] Gantt Chart–type schedule

APPENDIX A4
SPECIAL CONSTRUCTION TECHNIQUES

This section provides an overview of special construction techniques that may be used on the Project depending on location and construction contractor's determination. As indicated in the Plan of Development (POD), stipulations and measures provided herein are applicable on Federal lands administered by the Bureau of Land Management (BLM) as enforceable measures of the BLM right-of-way (ROW) grant. It pertains not only to the construction of the Project, but also to the operation and maintenance phase of the Project. Where Western Area Power Administration (Western) is involved in the Project, they may adopt these stipulations and measures, where appropriate.

A4.1 Blasting

A4.1.1 Bat Roost Avoidance

Construction activities that create loud noise (e.g., blasting) within 0.5 mile of the Volcano Mine complex will be limited to Spring (preferably April 1 to May 31) depending on the presence of bats, to protect maternity roosts and potential hibernacula.

To avoid impacting roosting bats at the Ina Road bridge, blasting activities will be restricted to less than 130 decibels (dB) if possible, and if that is not possible, then blasting activities will occur at night after most bats have left their roost. No blasting will occur in April or May when the maternity colony is present.

A4.2 Helicopter Activities

A4.2.1 Typical Helicopter Construction Description

A4.3 Temporary Water Use During Construction

A4.4 Shipping and Handling Guidelines for Sulfur Hexafluoride

A4.5 Literature Cited

APPENDIX A5
CONSTRUCTION WORKFORCE

A5.1 Introduction

As indicated in the Plan of Development (POD), stipulations and measures provided herein are applicable on Federal lands administered by the Bureau of Land Management (BLM) as enforceable measures of the BLM right-of-way (ROW) grant. It pertains not only to the construction of the Project, but also to the operation and maintenance phase of the Project. Where Western Area Power Administration (Western) is involved in the Project, they may adopt these stipulations and measures, where appropriate.

The Project will be constructed primarily by contract personnel with Southline (Proponent). The Proponent will be responsible for Project administration. The Project will consist of several phases of construction at varying locations along the Project ROW. The construction workforce will consist of laborers, craftsmen, supervisory personnel, support personnel, and construction management personnel who will perform the construction tasks. Construction activities will consist of surveys, road construction, foundation installation, structure steel haul, structure assembly, structure erection, wire installation, cleanup, and road rehabilitation.

The construction contractor(s) will hold daily field meetings with their environmental monitors and the compliance inspection contractor (CIC) to review applicable environmental regulations and stipulations as well as potential environmental issues. The estimated number of workers and types of equipment required to construct the proposed transmission line are shown in tables A5-1 and A5-2.

Table A5-1. Anticipated Construction Workforce and Equipment, New Build Section

Activity	Equipment		Crew
ROW Survey	1 helicopter 2 all-terrain vehicles (ATVs)	2 pickup trucks	6
Geotechnical Investigations	1 (2-ton) drill truck 1 ATV	1 pickup truck	4
Access Road Construction	2 bulldozers (D-6 or D-8) 2 motor graders	2 pickup trucks 2 water trucks	8
Foundation Installation	3 augers 2 wagon drills 2 flatbed trucks w/ booms 2 (15-ton) hydro cranes 1 batch plant 4 concrete trucks 1 water truck	1 bulldozer (D-6) 1 front-end loader 2 dump trucks 2 (2-ton) trucks 3 pickup trucks 1 carry-all	32
Laydown Yard / Receiving	2 (40-ton) cranes 4 forklifts	2 pickup trucks	8
Structure Hauling	6 flatbed trailers 2 boom trucks	1 pickup truck 2 forklifts	10
Structure Assembly	3 (40-ton) cranes 3 carry-alls	3 (2-ton) trucks 3 pickup trucks	24
Structure Erection	2 (100-ton) cranes 2 boom trucks	2 (2-ton) trucks 2 pickup trucks	20

Table A5-1. Anticipated Construction Workforce and Equipment, New Build Section (Continued)

Activity	Equipment		Crew
Wire Stringing	1 light helicopter 3 drum pullers 3 double-wheeled tensioners 6 wire reel trailers 2 D-8 Cats with sag winches 2 splicing trucks	2 diesel tractors 2 haul trailers 2 (30-ton) cranes 6 boom trucks 4 (2-ton) trucks 6 pickup trucks	40
Road/ROW Restoration	1 bulldozer (D-6 or D-8) 1 front-end loader with bucket 1 tractor with seeding equipment 1 motor grader	1 pickup truck 1 dump truck 1 water truck	8
Clean-up	1 flatbed truck with bucket	2 pickup trucks	6

Table A5-2. Anticipated Construction Workforce and Equipment, Upgrade Section

Activity	Equipment		Crew
ROW Survey	1 helicopter 2 all-terrain vehicles (ATVs)	2 pickup trucks	6
Geotechnical Investigations	1 (2-ton) drill truck 1 ATV	1 pickup truck	4
Access Road Construction	1 bulldozer (D-6 or D-8) 1 motor grader	1 pickup truck 1 water truck	4
Foundation Installation	3 augers 2 wagon drills 2 flatbed trucks w/ booms 2 (15-ton) hydro cranes 1 batch plant 4 concrete trucks 1 water truck	1 bulldozer (D-6) 1 front-end loader 2 dump trucks 2 (2-ton) trucks 3 pickup trucks 1 carry-all	32
Laydown Yard / Receiving	2 (40-ton) cranes 4 forklifts	2 pickup trucks	8
Structure Hauling	6 flatbed trailers 2 boom trucks	1 pickup truck 2 forklifts	10
Structure Erection	2 (100-ton) cranes 2 boom trucks	2 (2-ton) trucks 2 pickup trucks	20
Wire Stringing	1 light helicopter 3 drum pullers 3 double-wheeled tensioners 6 wire reel trailers 2 D-8 Cats with sag winches 2 splicing trucks	2 diesel tractors 2 haul trailers 2 (30-ton) cranes 6 boom trucks 4 (2-ton) trucks 6 pickup trucks	40
Road/ROW Restoration	1 bulldozer (D-6 or D-8) 1 front-end loader with bucket 1 tractor with seeding equipment 1 motor grader	1 pickup truck 1 dump truck 1 water truck	8
Clean-up	1 flatbed truck with bucket	2 pickup trucks	6

A5.2 Construction Equipment and Traffic

A5.3 Environmental and Safety Training

APPENDIX A6
ENVIRONMENTAL COMPLIANCE MANAGEMENT PLAN

A6.1 Introduction

As indicated in the Plan of Development (POD), this plan is applicable on Federal lands administered by the Bureau of Land Management (BLM) as enforceable stipulations and measures of the BLM right-of-way (ROW) grant. It pertains not only to the construction of the Project, but also to the operation and maintenance phase of the Project. Where Western Area Power Administration (Western) Western is involved in the Project, they may adopt this plan, where appropriate.

The BLM will be responsible for enforcement of the terms and conditions of the BLM ROW grant on BLM-administered lands (BLM lands). Western will be responsible for enforcing other landowner agreements across Federal, State, and private lands during the term of the grant for the Southline Transmission Line Project (Project). As joint Federal agencies under the National Environmental Policy Act (NEPA), the BLM and Western will approve a third-party Compliance Inspection Contractor (CIC) to act on behalf of the BLM. The CIC may also coordinate with Western and other agencies on those portions of the Project where Western is involved in the Project and oversees relevant portions of the POD.

The CIC will inspect and monitor preconstruction and construction activities, enforce the terms and conditions of the ROW or easement grants, and enforce requirements related to BLM responsibilities under the National Historic Preservation Act (NHPA) and the Endangered Species Act (ESA). In addition, the Project will adhere to any terms and conditions of State and local permits, as well as private landowner agreements.

Southline Transmission, LLC (Southline, or the Proponent), has developed Proponent Committed Environmental Measures (PCEMs) to be incorporated as part of the Project. The goal of these PCEMs is to reduce or avoid potential adverse impacts to sensitive environmental resources (see the Environmental Impact Statement (EIS), and table 8 of the Plan of Development (POD)) in compliance with the terms and conditions of the ROW grant, landowner agreements, and Federal, State, and local permits. The Project ROW grant, landowner agreements, and permitting requirements are specified in the POD chapter 1 – Introduction and Appendix B – Environmental Protection Framework Plans.

A6.2 Environmental Compliance Management Plan Elements and Authority

This Environmental Compliance Management Plan (ECMP) provides guidance and procedures for upholding, documenting, and managing compliance with the ROW grant authorization on BLM-managed lands. Similar procedures with other ROW or easement authorizations on non-BLM lands would be accomplished within Western's own project management framework. It describes the following essential elements:

- Roles and responsibilities of the participants
- Comprehensive inspection and monitoring procedures
- Documentation and corrective procedures in the event of noncompliance
- Protocols and procedures for variance requests

- Communication between participants
- Reporting requirements
- Comprehensive Project-specific environmental compliance training program

Southline's commitment to environmental compliance will be demonstrated by activities prior to, during, and following construction. The ECMP is intended to be a controlled document and may be revised as needed throughout the construction process. As previously stated, this ECMP is required as part of the BLM ROW grant and Western may adopt relevant portions of the ECMP where appropriate. However; because the Project will cross private, State, and Federal lands under the jurisdiction of several agencies as well as BLM-managed land, the ECMP is written as a comprehensive document that where appropriate, can be partially applicable for all non-BLM permitting entities and landowners as well.

Authority for implementation of this ECMP originates from the terms, conditions, and stipulations of the BLM's ROW grant, the POD, the EIS, the BLM Record of Decision (ROD), BLM Notices to Proceed (NTPs), and other conditions associated with Federal or non-Federal agency permits. As part of the Proponent's environmental compliance commitment, the construction contractor(s) will be contractually bound to comply with all laws, regulations, and permit requirements, including the PCEMs and other specific stipulations and methods set forth in the POD.

All Project specific permits and associated documents will be reviewed by the Project participants prior to the commencement of construction activities in order to identify all Project-wide and location specific requirements and PCEMs. These documents will be distributed by the CIC to Southline, the BLM and Western, and the construction contractor(s) for their review prior to the initial construction kickoff meeting. At the kickoff meeting, a document control system to manage Project environmental documents and their revisions will be presented by the CIC.

Southline, the BLM, and Western have agreed to use a third-party CIC to act on the BLM's behalf on BLM-managed lands, and to assist Western where appropriate, to ensure adequate environmental oversight during construction. The CIC will be hired by Southline prior to the BLM authorization of the ROW grant to allow adequate time for the CIC to review documents and develop on-the-ground familiarity with the Project prior to the start of construction. The CIC will be authorized to enforce the PCEMs and the POD; the CIC will also ensure that BLM and Western responsibilities under the NHPA and ESA are met and will have the authority to stop work at a given location in cases where NHPA and ESA conditions are not met (see Section A6.4.1.3 Noncompliance).

The construction contractor(s) will hire an environmental team consisting of an Environmental Reporting Coordinator, inspectors and support staff. The environmental team will report to the Environmental Reporting Coordinator, who will support and take direction on environmental matters from Southline's Environmental Compliance Manager, who will then coordinate with the BLM and/or Western through the CIC (as shown in the organizational chart in figure A6.1 in Section A6.3 – Roles and Responsibilities).

The environmental inspectors will ensure that all Project construction activities are conducted in accordance with the environmental commitments set forth in the POD, PCEMs, permits, and landowner agreements. The CIC will be the primary documenter of environmental compliance-related construction activities and disturbances; however, if the CIC is not present, the environmental inspectors will document all relevant construction activities and disturbance in each work area. Information collected by the CIC and the environmental inspectors will be included in the total Project disturbance tracking maintained by the CIC and presented in the End of Construction Project Report (Section A6.3.2.3 – Compliance Inspection Contractor Project Manager).

The CIC will provide direct oversight of each construction contractor's environmental compliance performance for the BLM/Western and Southline. The CIC will not direct any work of the construction contractor(s). All work direction to the construction contractor(s) will come from the Proponent. Additional information about the construction contractor(s)' role in the ECMP is explained in Section A6.3.3 – Construction Contractor(s).

A6.3 Roles and Responsibilities

This section outlines the roles and responsibilities of Southline, persons, and agencies involved in the Project in executing the ECMP on BLM-managed lands, as well as detailing their reporting relationships (figure A6.1). If additional participants become involved in the Project, they will also be required to adhere to the protocols, terms, and conditions outlined in this ECMP. Their reporting relationships would be case-specific according to their jurisdiction, expertise, and/or nature of their input but would follow the structure presented in figure A6.1. Each environmental support title depicted under the construction contractor(s) environmental team in Figure A6.1 does not necessarily have to be a separate person/position, for example the environmental trainer may also serve as the reporting coordinator.

This section also briefly discusses the variance request procedure for changes on BLM lands. However, a more detailed discussion of this process is found in Section A6.4.2 – Variance Procedures (Unforeseen Circumstances).

A6.3.1 Project Proponent

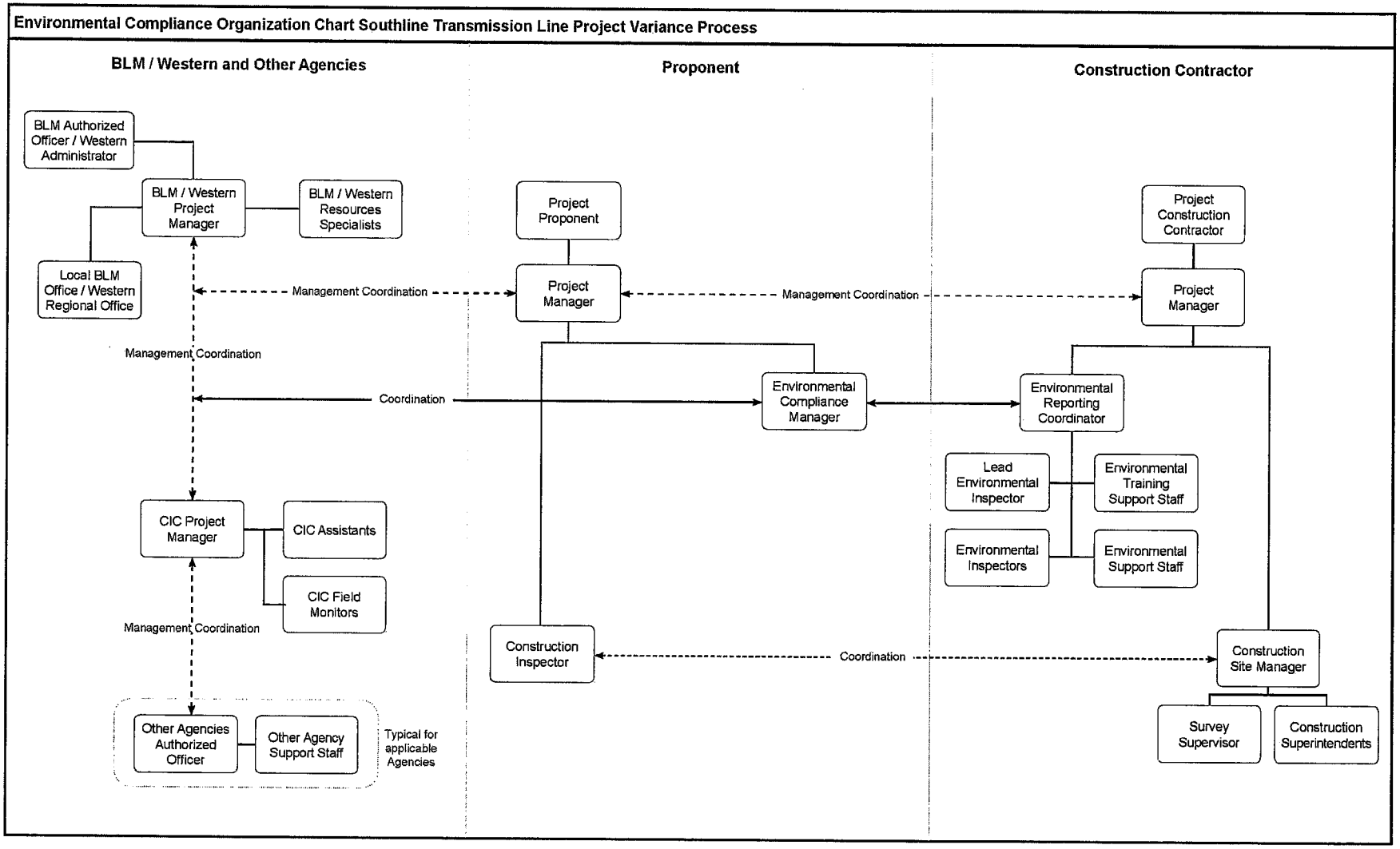
As the Proponent and grant holder, Southline is responsible for administration of the BLM ROW. Western is responsible for administering the ROW where Western is involved in the Project. As such, the Proponent is ultimately accountable for adherence to the environmental permit requirements specified in its agreements on BLM lands. The Proponent is also responsible for ensuring that any adverse environmental impacts do not exceed those described in the Final EIS and approved in the POD. The Proponent and Western are accountable for adherence to the environmental permit requirements where Western is involved. To manage this responsibility, the Proponent will maintain regular and consistent communication with the CIC and the construction contractor(s) to track the success of the implementation of the PCEMs and other compliance efforts prior to, during, and post-construction and will communicate its findings to the BLM and Western. In addition, the Proponent, as the grant holder, is responsible for ensuring that all noncompliance incidents are corrected.

The following describes the roles and responsibilities of Proponent personnel.

A6.3.1.1 PROJECT PROPONENT

- Responsible for Project delivery. Ensures effective coordination and communication occurs between the Proponent Project Manager and Environmental Compliance Manager, BLM's and/or Western's authorized officer or his/her designated representative, the CIC, and the construction contractor's Project Manager to verify that Project environmental compliance meets the applicable environmental requirements.
- Informs the construction contractor(s) that they are contractually bound to comply with all of the Project's environmental requirements, including the implementation of this ECMP and PCEMs. All environmental commitments will be appended to contracts as terms and conditions, with penalties for non-compliance.

Figure A6.1. Project staff organizational chart.



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A6.3.1.2 PROPONENT'S PROJECT MANAGER

- Responsible for Project execution and completion.
- Enforces construction contractor(s) compliance with all environmental laws and regulations, including the ROW grant, POD, permits (Federal, State, and local), and landowner agreements during the construction of the Project. Enforces implementation of the PCEMs and other agreed-upon mitigation measures.
- Manages Proponent's Construction Inspector and Environmental Compliance Manager.
- Coordinates submittal of all Work Authorizations associated with the BLM NTP.

Reporting

- Reviews and evaluates weekly reports.
- Reports environmental noncompliance incidents to the Project Proponent Southline as needed.

Variances

- Reviews and approves construction contractor's written variance requests prior to their submittal to the CIC and/or BLM/Western.
- Delegates authority to approve the submittal of construction contractor's variance requests to the BLM/Western as needed.

A6.3.1.3 PROPONENT'S ENVIRONMENTAL COMPLIANCE MANAGER

- Facilitates oversight and coordination of construction contractor's compliance with all applicable environmental laws and regulations, including the terms of the ROW grant, POD, PCEMs, permits (Federal, State, and local), and landowner agreements, during Project construction.
- Coordinates with Proponent's Project Manager and Construction Inspector (refer to section A6.3.1.4 – Proponent's Construction Inspector), the construction contractor's Environmental Reporting Coordinator (refer to Section A6.3.3.7 – Construction Contractor's Environmental Reporting Coordinator), and the CIC (refer to Section A6.3.2.3 – Compliance Inspection Contractor Project Manager) on a regular basis to evaluate the environmental compliance of Project construction and other activities.
- Monitors completion of all preconstruction and post-construction environmental commitments, including those outlined in the PCEMs and POD.
- Serves as the primary Proponent contact regarding environmental issues.
- Communicates environmental compliance issues to the CIC and tracks resolution of issues, including instances of noncompliance, to completion.
- Coordinates field inspection visits with the construction contractor(s).
- Maintains coordination with the Proponent's environmental department throughout the life of the Project.

Reporting

- Provides updates regarding the environmental compliance of the Project, including corrective actions for incidents of noncompliance, to the Proponent's Project Manager.
- Compiles and distributes environmental permit and plan updates to Proponent's staff and the construction contractor's Environmental Reporting Coordinator in coordination with the CIC.

- Reviews all construction contractors' environmental compliance documentation including, but not limited to, site specific environmental plans, environmental plans, variance requests, daily reports, and weekly reports.

Variances

- Provides review of and comment on construction contractor's written variance requests.
- Submits completed variance request packages to the Proponent's Project Manager for review, approval, and submission to the CIC.

A6.3.1.4 PROPONENT'S CONSTRUCTION INSPECTOR

- Observes, witnesses, and monitors the construction activities of the construction contractor(s) in order to confirm that all engineering contract documents, plans, standards, and specifications are followed and to ensure construction quality.
- Understands the Project's environmental compliance requirements, especially as they relate to specific construction activities.
- Coordinates with Proponent's Environmental Compliance Manager regarding specific construction and other work activities occurring in or near sensitive resource areas that will or may require environmental compliance oversight.
- Provide technical explanations of construction process to Proponent's Environmental Compliance Manager as needed.
- Attends environmental training class.

Reporting

- Review for accuracy and adequacy regarding Project construction activities certain environmental compliance documents prepared by the construction contractor(s) that could include, but are not limited to, Spill Prevention Control and Countermeasures Plan; Stormwater Pollution Prevention Plan(s); and emergency communications contact list.
- Brings to the attention of the construction contractor's Environmental Reporting Coordinator any observations regarding environmental noncompliance.

A6.3.2 Agency Responsibilities

During preconstruction, construction, post-construction, operation, and maintenance of the Project:

- BLM is responsible for ensuring compliance with the PCEMs and terms of the ROW grant on BLM lands, and
- Western is responsible on non-BLM lands for ensuring compliance with the PCEMs, the environmental conditions in construction contracts, and relevant portions of the POD.

The CIC shall represent the BLM and assist Western where appropriate during the construction and reclamation phases of the Project. As their representative, the CIC will assist the BLM in ensuring the Proponent's compliance with the terms of the ROW grant and in making certain that any adverse environmental impacts do not exceed those described in the EIS and approved in the POD. The CIC will assist the BLM and Western by providing regular and consistent field observations, documenting and reporting his/her findings, and/or other deviations for which authority has been delegated to the CIC, and working with the Proponent and construction contractor(s) to identify environmental compliance issues and maintain compliance during construction of the project.

The CIC shall work under the direct supervision and control of the BLM on BLM-managed lands. The Proponent or construction contractor(s) have no authority to direct the CIC as to where, when, or how monitoring will be conducted. If the CIC finds that an activity is in noncompliance, the CIC has the authority to issue an immediate work stoppage order (WSO) for that specific work activity. However, the CIC will coordinate closely with the Proponent and construction contractor(s) to report and document compliance issues observed during monitoring and to allow them the opportunity to resolve the issues (see figure A6.2). As much as possible, WSOs will be limited to situations involving immediate threats to sensitive resources or emergency situations. The CIC is not otherwise authorized to direct work undertaken by the construction contractor(s) with the exception of a WSO. The CIC's primary role is to observe work activities, bring noncompliant situations to the attention of the appropriate party, offer recommendations on how to prevent noncompliance, and ensure noncompliance situations are resolved.

A6.3.2.1 BLM

Authorized Officer

- Ultimate authority and decision maker for issues pertaining to the ROW grant.
- Supervises BLM Project Manager to verify the Project's environmental compliance meets the requirements as specified in the ROW grant, the POD, permits, and landowner agreements.
- Determines, in coordination with others, if any environmental noncompliance events for which the Proponent is accountable qualify as violations to the terms and conditions of the ROW grant.
- In accordance with 43 CFR 2807.17(a), has the authority to suspend or terminate the ROW grant if the Proponent and/or its construction contractor(s) do not comply with applicable laws and regulations or any terms, conditions, or stipulations of the ROW grant.
- Issues BLM decisions unless otherwise designated to the BLM Project Manager.

Project Manager

- Oversees the Proponent's compliance with all environmental laws and regulations, including, but not limited to, the terms of the ROW grant, POD, and permits during construction of the Project.
- Ensures that the environmental compliance of the Project is conducted in a way that allows timely and efficient construction while protecting the public interests and the environment.
- Responsible for ensuring that adverse environmental impacts do not exceed those described in the EIS and ROD.
- Manages third-party CIC where appropriate.
- Solicits BLM resource specialists for their technical expertise and input when needed.
- Acts proactively to prevent ROW violations due to environmental noncompliance. If violations occur, informs the Proponent of environmental noncompliance and enforces their resolution.
- Reports major environmental compliance violations to the BLM authorized officer or his/her designated representative.

Reporting

- Responsible for ensuring that the Project administrative record is maintained accurately.

Variances

- If delegated by the BLM authorized officer, authorizes approval of Level 2 Variances.

A6.3.2.2 WESTERN

Administrator

- Ultimate authority and decision maker for issues pertaining to the Western ROD.
- Ultimate authority for verification that Project's environmental compliance meets the requirements as specified in the ROD, permits, contracts, and landowner agreements.

Project Manager

- Coordinates with and oversees the Proponent's compliance with all environmental laws and regulations, including, but not limited to, the terms of the POD, construction contract, ROD, and permits during construction of the Project.
- Ensures that the environmental compliance of the Project is conducted in a way that allows timely and efficient construction while protecting the public interests and the environment.
- Responsible for ensuring that adverse environmental impacts do not exceed those described in the EIS and ROD.
- Manages third-party CIC where appropriate.
- Solicits BLM or Western resource specialists for their technical expertise and input when needed.
- Acts proactively to prevent environmental noncompliance violations. If violations occur, informs the Proponent of environmental noncompliance and enforces their resolution.
- Determines, in coordination with others, if any environmental noncompliance events for which the Proponent is accountable qualify as violations to the terms and conditions of contract.
- Reports major environmental compliance violations to the Western Administrator or his/her designated representative.

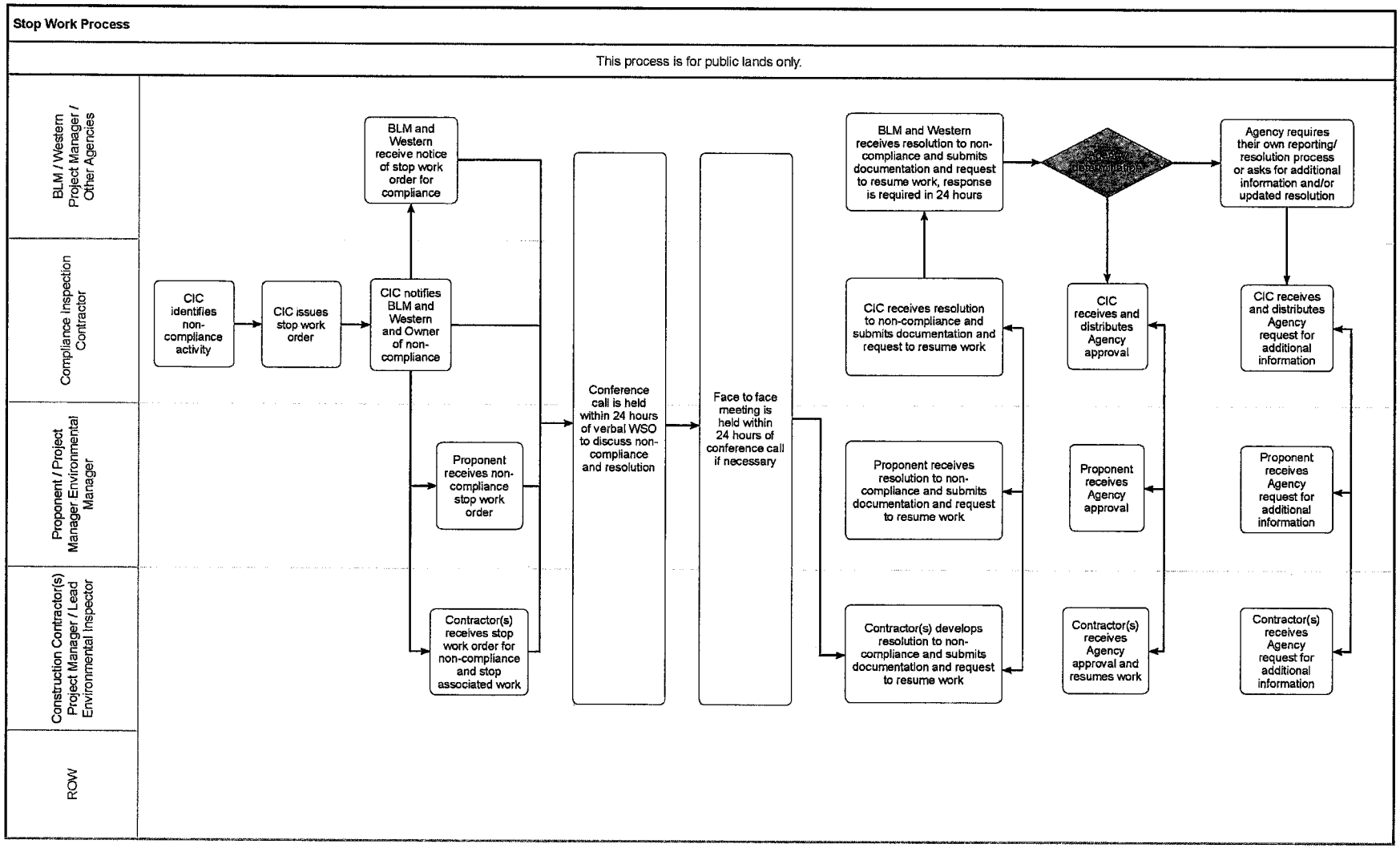
Reporting

- Responsible for ensuring that the Project administrative record is maintained accurately.

A6.3.2.3 COMPLIANCE INSPECTION CONTRACTOR PROJECT MANAGER

- Acts as the BLM representative in the field for environmental compliance activities but maintains a dual reporting/consultation relationship with the Proponent.
- Verifies and reports construction contractor's compliance with all environmental requirements and tracks all reported environmental noncompliance events and their resolution.
- Tracks all Project construction disturbances for inclusion in an End of Construction Project Report (section A6.8.2 – End of Construction Project Report).
- Reports directly to the BLM Project Manager or to Western Project Manager as appropriate (or designated representative). Does not report to the Proponent or construction contractor(s) but keeps Proponent informed of all field issues as they are discovered.
- Works on the Project from preconstruction through completion of reclamation and initial revegetation on termination of the Project unless otherwise directed by the BLM or Western.
- Reviews and understands the ROW grant, EIS, PCEMs, BLM and Western's RODs, POD, and all other Project-specific environmental documents and conditions.

Figure A6.2. Stop work process.



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- Maintains copies of the ROW grant, PCEMs, and POD and possesses a copy of each document for reference while on the ROW.
- Develops post-construction reclamation monitoring protocols, to be approved by the BLM's or Western, per the procedures and requirements identified in Appendix B15 – Reclamation, Vegetation, and Monitoring Plan of the POD.
- Verifies construction occurs within the limits of disturbance analyzed in the EIS as outlined in the POD, ROD, ROW grant, or agreements with other landowners.
- Performs compliance monitoring work in the field and supervises field monitors. The CIC or their designated field monitors are required to be on the ROW when construction activities may cause significant ground disturbance or may harm sensitive resources. Exceptions can be made if the CIC determines that reductions in monitoring would not adversely impact compliance oversight.
- Understand each party's understanding of how and with what result site-specific PCEMs and other specific stipulations and methods will be implemented. If discrepancies in this understanding are found between parties, the CIC is responsible for collaborating with the Proponent and construction contractor(s) to work toward a shared understanding. In some cases, approval from the BLM Project Manager may also be required.
- Coordinates compliance monitoring by CIC field monitors during construction.
- Acts proactively to prevent violations before they occur by being alert to situations in the ROW or exclusion areas that could lead to violations (for example degradation of flagging).
- Discusses any potential compliance issues observed during construction with the construction contractor's environmental inspection staff as soon as possible and informs the BLM/Western Project Manager(s) and Proponent's Project Manager.
- Provides recommendations to the BLM/Western Project Manager(s) on ways to resolve or prevent noncompliance situations.
- Has the authority to stop work when there is a significant noncompliant situation or other violation of the environmental conditions of the ROW grant, permits, or landowner agreements. Initiates the resolution process with notification to BLM, Western, and the owner of non-compliance.
- Attends, either in person or by telephone, a weekly meeting with BLM/Western Project Manager(s) (or designees), to review construction activities and the status of compliance of the previous week.
- Communicates and coordinates regularly with Proponent's Project Manager and Environmental Compliance Manager.
- Coordinates the review variance requests with the BLM/Western Project Manager(s) and Proponent's Project Manager and Environmental Compliance Manager.
- Participates in meetings with BLM/Western Project Manager(s) and Proponent's Project Manager.
- Responsible for tracking total acres of disturbance through construction completion to be presented in the End-of-Construction Report.
- Conducts the final route review and develops End-of-Construction Report, which documents the final status of the ROW and the total amount of construction disturbance.

- Monitors post-construction reclamation as described in Appendix B15 – Reclamation, Vegetation, and Monitoring Plan of the POD, and as directed by the BLM/Western and/or Proponent.

Reporting

- Documents all noncompliance situations or activities and other issues that may result in adverse impacts to sensitive resources. Documentation may include staking, flagging, or photographing problem areas, verifying locations with a global positioning system, and comparing them with the ROW grant and POD maps. Document potential violations that were prevented by the inspector acting proactively.
- Provides weekly summary reports of compliance inspections conducted by the CIC and CIC field monitors to BLM/Western and the Proponent via a secure, but mutually exclusive, website. Reports are due by Tuesday of each week. In the event that the CIC, BLM, or Western temporarily cannot obtain reports through the secure website, reports will be transmitted by mail, e-mail, fax, USB flash drive, or compact disc. Weekly reports shall summarize the prior week's construction activities, compliance issues, planned disturbed acreage, any additional disturbance resulting from variances and/or corrective actions taken, and any foreseeable issues.
- Review CIC field monitor's daily reports for completeness and accuracy.
- Participates in all preconstruction meetings, safety meetings, safety training, environmental training, and other meetings called by the BLM or Western, Proponent, or construction contactor(s) that involve environmental compliance aspects of the Project. The CIC is responsible for preparing meeting notes that highlight all decisions concerning environmental compliance made during these meetings.
- Provides an End of Construction Report within 60 days of the completion of all construction (see Section A6.8.2 – End of Construction Project Report).
- Submits post-construction reclamation monitoring reports to the BLM/Western and Proponent throughout the post-construction monitoring period.

Variances

- Coordinates with BLM Project Managers to review and approve variance requests.
- Issues approval or denial of Level 1 variances involving minor field adjustments within the approved ROW that conforms to the POD, or designates this authority to others.

A6.3.2.4 ASSISTANT COMPLIANCE INSPECTION CONTRACTOR

- Performs the same duties as the CIC when the CIC is not available.
- Works on the Project from preconstruction through completion of reclamation and initial revegetation on termination of the Project unless otherwise directed by the BLM.

A6.3.2.5 COMPLIANCE INSPECTION CONTRACTOR FIELD MONITORS

- Conducts monitoring of construction activities within environmental sensitive areas as needed for biological, cultural, paleontological, or other resources.
- When the CIC is not on-site, represents the BLM in the field for compliance activities.
- Assist the CIC to verify that construction activities and PCEMs occur as outlined in the POD, Final EIS, PCEM, ROD, and ROW grant.

- Verifies construction crews are provided with proper environmental and compliance training appropriate to their tasks.
- In consultation with the CIC, discusses any potential compliance issues with the construction contractor(s)' environmental inspection staff (refer to Section A6.3.3.5 – Construction Contractor's Lead Environmental Inspector and Section A6.3.3.6 – Construction Contractor's Environmental Inspector) as soon as possible.
- Coordinates with the CIC, construction contractor(s)' lead environmental inspector (LEI), and the Proponent's Environmental Compliance Manager.
- Coordinates solutions for correction action on noncompliant situations in consultation with the CIC.
- Verifies corrective action is taken to remedy a potentially noncompliant or noncompliant situation.
- Has authority to temporarily stop activities that may harm sensitive resources and/or where those resources were intended to be avoided or protected, as well as for instances of noncompliance with potentially significant impacts on the environment.
- Conducts daily compliance inspection activities and develops daily reports documenting the results of those inspections.
- Attends safety and environmental coordination meetings when needed.

Reporting

- Submits daily reports to the CIC to document results of inspection and monitoring.

A6.3.3 Construction Contractor(s)

The construction contractor(s) will be contractually bound to comply with all laws, regulations, and other requirements, including the PCEMs and other specific stipulations and methods set forth in the ROW grant, POD, EIS, ROD, and permits (Federal, State, and local) throughout all phases of the Project. Construction personnel are required to attend environmental training prior to work on the Project. The construction contractor(s) will coordinate with the BLM/Western, the Proponent, the CIC, and construction contractor's environmental inspectors to build the Project safely and in compliance with all Project terms and conditions. If a noncompliant incident occurs, the construction contractor(s) will remedy the situation as soon as possible.

A6.3.3.1 PROJECT CONSTRUCTION CONTRACTOR

- Constructs and completes the Project while adhering to all applicable environmental laws and regulations and the construction contract which will include the terms, conditions, stipulations, and/or work authorizations related to the ROW grant, POD, permits (Federal, State, and local), and landowner agreements.
- Facilitates coordination between his/her Project Manager and/or Environmental Reporting Coordinator with the Proponent's Project Manager, Environmental Compliance Manager, and/or LEI, and the BLM and Western Project Manager and/or CIC to verify environmental compliance meets the requirements of all applicable laws, permits, and agreements.
- Oversees the remedy of any environmental compliance issues by the Construction Contractor's Project Manager.

- Ensures all environmental noncompliance situations are remedied in a timely fashion to the satisfaction of the Proponent's Environmental Compliance Manager and the CIC.

A6.3.3.2 CONSTRUCTION CONTRACTOR'S PROJECT MANAGER

- Responsible for the execution and completion of the Project or a portion of the Project.
- Ensure that all construction personnel comply with applicable environmental laws and regulations and the construction contract which will include the ROW grant, POD, permits (Federal, State, and local), and landowner agreements.
- Stays current with all environmental laws and regulations with regard to the Project through regular coordination with his/her superintendent(s), and Environmental Reporting Coordinator, the Proponent's Project Manager, and the Proponent's Environmental Compliance Manager.
- Ensures that all superintendent(s) and foremen implement noncompliance remedies in a timely fashion.
- Assigns the construction contractor(s)' Environmental Reporting Coordinator.
- Ensures that all appropriate construction personnel attend environmental training classes.
- Ensures that environmental factors (such as exclusion areas located in the day's work area) are covered in tailgate meetings at the start of every workday to avoid noncompliance.
- Removes noncompliant personnel from the Project, as necessary.
- Manages construction contractor(s)' superintendent(s), foremen, environmental crew foremen, and Environmental Reporting Coordinator.
- Develops and distributes weekly schedules of construction activities.
- Immediately informs Proponent's Environmental Compliance Manager and CIC of any noncompliance.
- Responsible for resolving noncompliance situations.
- Responsible for environmental compliance of all subcontractors and ensuring that they have received any required training prior to starting work on the project.
- Develops variance requests when needed with the assistance of the construction contractor's environmental inspectors.
- Receives and reviews daily environmental compliance inspection reports from construction contractor(s)' environmental staff.

Reporting

- Ensures that the Proponent is provided with all reports in a timely fashion.
- Reviews and approves environmental compliance reports prior to submittal to Proponent.

Variances

- Develops written variances requests for submittal to Proponent, CIC, and BLM/Western.
- Can delegate to others the authority to submit written variance requests to Proponent, CIC, and BLM.

A6.3.3.3 CONSTRUCTION CONTRACTOR'S SUPERINTENDENT(S)

- Manages construction activities in the field for a segment or portion of the Project.
- Ensures that all contractor and subcontractor personnel adhere to the instructions of the construction contractor(s)' environmental compliance staff on maintaining compliance with all environmental laws and regulations and the construction contract which will include the ROW grant, POD, permits (Federal, State, and local), and landowner agreements during the construction of the Project.
- Ensures that all personnel under their management adhere to all applicable laws, permits, and regulations through coordination with the LEI, and the construction contractor's Environmental Training Coordinator and environmental inspectors.
- Attends environmental training programs developed by the CIC.
- Reviews safety and environmental compliance measures with personnel on a regular basis through meetings and training.
- Communicates noncompliance situation remedies to personnel in a timely fashion.
- Immediately informs construction contractor(s)' Project Manager of any noncompliant situations.

Reporting

- Develops report detailing the resolution of any noncompliance situations and submits them to the construction contractor's Environmental Reporting Coordinator.

Variances

- Develops written variance requests with the construction contractor's Project Manager for submittal to Proponent, CIC, and the BLM.
- Can delegate authority to others for the preparation of written variance requests.

A6.3.3.4 CONTRACTOR'S CIVIL SURVEY SUPERVISOR

- Sets initial and maintains ROW boundary stakes and flagging with agreed on Project flagging scheme (see Appendix A1 – Flagging, Fencing, and Signage Plan).
- Works with environmental inspectors to adjust the boundaries of work areas to comply with environmental avoidance areas and PCEMs.
- Communicates any changes to ROW boundaries to the Proponent's Construction Inspector and Environmental Compliance Manager.
- Maintains a master set of alignment sheets for each spread in the appropriate spread office that reflects all restricted areas/avoidance areas due to ROW status, environmental restrictions, etc.
- Installs signs indicating approved and non-approved Project roads.

Reports and Variances

- Provides data and/or supports development of maps and legal descriptions for Project reports, variance requests, and documentation in the Project Record.

A6.3.3.5 CONSTRUCTION CONTRACTOR'S LEAD ENVIRONMENTAL INSPECTOR

- Responsible for inspection by him-/herself or staff of construction activities to ensure compliance with all environmental laws and regulations and the construction contract which will include the

ROW grant, POD, permits (Federal, State, and local), and landowner agreements, during the construction life of the Project.

- Has authority to stop work in instances of noncompliance.
- Reviews the location of sensitive resources and areas of concern prior to upcoming construction activities and coordinates the appropriate PCEMs with construction personnel.
- Serves as the resource and technical lead for the environmental inspectors.
- Serves as an environmental compliance expert to construction personnel; explains environmental laws and regulations, and how to apply them in the field.
- Acts as the primary point of contact on the construction crew for the CIC field monitors.
- Coordinates the resolution of noncompliant situations.
- Discusses daily upcoming construction activities, potential problem areas, and areas of concern with environmental inspectors.
- Coordinates the assignments of field inspections by environmental inspectors.
- Ensures effective communication about environmental compliance with construction personnel and environmental inspectors.
- Inspects areas of concern identified by environmental inspectors and makes appropriate recommendations regarding corrective action of problems to construction personnel.
- Inspects erosion control devices/measures as defined by the PCEMs to ensure functionality and communicates erosion control devices/measures maintenance needs to the construction contractor(s)' crew foreman.
- Discusses problems that need resolution with the environmental crew foreman.

Reporting

- Receives and evaluates the thoroughness of daily field inspection reports and communicates action items or follow-up items to appropriate parties.
- Compiles daily field inspection reports into weekly summary report.
- Submits daily and weekly reports to construction contractor's Environmental Reporting Coordinator for storage and agency distribution if needed.

Variances

- Reviews written variance requests from the construction contractor(s).
- Informs environmental inspectors and construction personnel about the status of variance requests.

A6.3.3.6 CONSTRUCTION CONTRACTOR'S ENVIRONMENTAL INSPECTOR

- Inspects construction activities on a daily basis for compliance with all applicable environmental laws and regulations and the construction contract with will include the ROW grant, POD, permits (Federal, State, and local), and landowner agreements, during the construction of the Project under the supervision of the LEI.
- Reviews the location of sensitive resources and areas of concern prior to upcoming construction activities and coordinates the appropriate PCEMs with construction personnel.

- Serves as a resource for the construction personnel.
- Verifies construction work areas, access roads, and avoidance areas are properly marked and flagged prior to construction activities in the area.
- Identifies erosion, sediment control, and soil stabilization needs and communicates them to construction personnel.
- Conducts regular inspections of erosion control devices/measures, communicates maintenance needs to the environmental crew foreman, and follows up on repair and maintenance of erosion control devices/measures.
- Ensures that erosion control or other measures do not inadvertently cause impact to sensitive resources.
- Acts proactively to prevent unanticipated environmental impacts or violations before they occur by being alert to situations in the ROW or exclusion areas that could lead to violations (for example degradation of flagging).
- Informs construction contractor(s) Project Manager of all potential and existing environmental compliance issues or problems and coordinates with LEI to determine appropriate remedial actions.
- Identifies, documents, and oversees the remediation and resolution of noncompliant situations.
- Inspects and documents approved reclamation and revegetation activities after construction is complete.

Reporting

- Documents Project construction activities, compliance status, and compliance issue resolutions in daily reports to be submitted to the LEI.

A6.3.3.7 CONSTRUCTION CONTRACTOR'S ENVIRONMENTAL REPORTING COORDINATOR

- Manages documents tracking Project compliance with environmental laws and regulations, including the ROW grant, POD, permits (Federal, State, and local), and landowner agreements, during the construction of the Project.
- Regularly coordinates with Proponent's Project Manager, the construction contractor(s), and BLM/Western to manage and track Project activities and compliance.
- Communicates with the Proponent and all Federal, State, and local agencies regarding the status of Project compliance.

Reporting

- Receives daily/weekly reports from construction contractor's environmental inspectors and the LEI.
- Manages the storage of daily/weekly environmental inspection reports and submits reports to the BLM/Western Project Manager(s) when requested.
- Reviews field reports for consistency and accuracy.
- Tracks problem areas and associated noncompliance reports (including hazardous materials spill reports) and ensures that follow-up and resolution reports are filed.

Variances

- Tracks variance requests and communicates variance request status with construction contractor's Project Manager, superintendent(s), and LEI.
- Coordinates processing and archiving of variance requests and associated documentation.
- Tracks status of any required field surveys (biological, archaeological, etc.) and technical reports in support of variance requests.
- Ensures variance requests and associated documentation are complete prior to submission to the BLM.

A6.3.3.8 CONSTRUCTION CONTRACTOR'S ENVIRONMENTAL TRAINING COORDINATOR

- Develops training program to instruct personnel in proper compliance with all environmental laws and regulations, including the ROW grant, POD, permits (Federal, State, and local), and landowner agreements, during the construction of the Project.
- Provides CIC and Proponent's Environmental Compliance Manager with a course outline and all training materials at least 30 days prior to any training for approval.
- Supports environmental inspectors and other environmental staff in providing routine trainings in the field.
- Maintains records of trainings for construction personnel and submits them to the Proponent on a weekly basis.
- Updates training curriculum as needed.
- Through comprehensive training, facilitates compliance with all environmental laws and regulations applicable to Project.
- Conducts training session for all appropriate Project personnel at least 30 days prior to construction.
- Conducts preconstruction, refresher, and remedial training for Project personnel.
- Provides environmental compliance training to new personnel as they join the Project.
- Prepares and provides field reference guides to Project personnel to aid in the identification of sensitive resources and how to avoid impacting them.

A6.3.3.9 CONSTRUCTION CONTRACTOR'S ENVIRONMENTAL REPORTING COORDINATOR

- Makes certain that work is conducted in compliance with all applicable environmental laws and regulations, including the ROW grant, POD, permits (Federal, State, and local), and landowner agreements, during the construction of the Project.
- References environmental compliance documents to identify and prepare a catalog of all avoidance areas where sensitive resources may occur (biological, archaeological, etc.) and coordinates implementation of avoidance measures with the superintendent(s), and the Proponent's environmental inspection staff.
- Identifies any topics or crews that that require further environmental training, or re-training.
- Coordinates with the Proponent's environmental inspection staff regarding daily construction activities and locations.

- Communicates with the LEI and environmental staff on any potential or existing environmental concerns, compliance issues, or staffing needs and training.
- Communicates environmental issues to the appropriate Project staff.
- Assists the environmental crew foreman and the environmental inspection staff to ensure that all erosion control measures and all standard PCEMs are installed properly and maintained.

Reporting

- Coordinates with the LEI to prepare, review, and submit regular reports to the Proponent.

Variances

- Works with the construction contractor's Project Manager and Environmental Compliance Manager to prepare and submit written variance requests and associated documentation for approval.

A6.3.3.10 CONSTRUCTION CONTRACTOR'S ENVIRONMENTAL CREW FOREMAN

- Supervises the installation and maintenance of erosion control devices/measures, PCEMs, and all other design features of the Project for environmental protection.
- Ensures the repair and maintenance of erosion control devices/measures.
- Ensures that all areas of the ROW are in compliance with all environmental requirements/permits for which the construction contractor(s) are responsible.
- Works with the construction contractor's environmental inspection staff to remedy any problem areas.
- Oversees revegetation and restoration post-construction activities (see Appendix B15-Reclamation, Vegetation, and Monitoring Plan).

A6.4 Procedures

A6.4.1 Compliance Levels

Project activities that are inspected and documented in a daily report will each be assigned a compliance level as defined below. During such daily inspections, the environmental inspectors are to be alert to situations in the ROW or exclusion areas that could potentially lead to unintentional noncompliance issues and proactively take steps to avoid or halt further damage.

Environmental inspectors will evaluate potential noncompliant situations based on the following criteria: the extent and nature of impacts on a resource, the potential for additional impacts on that resource, the intent behind the action, and the history of the situation.

A6.4.1.1 ACCEPTABLE

All activities that are in compliance with the Project's environmental requirements and PCEMs will be documented as acceptable.

A6.4.1.2 PROBLEM AREA

A problem area is a location or activity that does not meet the definition of acceptable but is not yet a noncompliant situation (refer to Section A.6.4.1.3 – Noncompliance). The problem area category can be used in several instances, including, but not limited to, the following:

- A minor accidental or unforeseeable incident that is corrected in a timely manner.
- An activity or location that is not in direct noncompliance but where the inspector or monitor determines damage to a resource could occur if corrective actions are not taken in a timely fashion.
- An isolated and unintentional activity that does not directly damage a resource.

The environmental inspector is to proactively take steps to avoid or halt further damage and the problem area will not be considered a noncompliant situation if the issue is resolved or corrected immediately. If the issue at the problem area has happened at multiple locations or time periods and/or is not corrected in a timely manner, the problem area may be documented as a noncompliant situation by the environmental inspectors or monitors. In the event a problem area is documented, the construction contractor(s)' environmental inspector will inform the construction contractor(s)' foreman onsite of the problem area and discuss and agree on an acceptable time frame for its correction. The construction contractor(s)' environmental inspectors and CIC field monitors will document problem areas and their resolutions in daily reports.

A6.4.1.3 NONCOMPLIANCE

A report of noncompliance will be issued by the CIC when construction activities flagrantly violate the Project's environmental requirements, result in damage to a sensitive resource, or place sensitive resources at unnecessary and avoidable risk. Contributing to a noncompliance are issues such as the extent of the damage to sensitive resources, the intent of the action, and whether or not the action is a repeat occurrence. A noncompliance report may also be issued for direct disregard for Project requirements that do not, but may, damage sensitive resources such as the use of an unapproved access road.

If the CIC or CIC field monitor observes a noncompliant activity, they will notify the Proponent's Environmental Compliance Manager and the construction contractor's LEI and superintendent or foreman immediately to discuss the situation prior to issuing a noncompliance report. The noncompliance report will include the name of the construction contractor's superintendent or foreman contacted and the time of the notification, and if applicable, the immediate resolution of the noncompliance. If immediate resolution is not possible, a follow-up report will be filed documenting the noncompliance resolution. If the construction contractor's superintendent is not immediately available or the severity of the situation requires immediate action, the monitor will inform the construction contractor's Project Manager and the Proponent of the noncompliance. The CIC will submit all noncompliance reports and reports documenting their resolution to the BLM/Western Project Manager(s), Proponent, and construction contractor(s).

If the construction contractor's environmental inspection staff observes a noncompliance, they will notify the superintendent or foreman onsite immediately. The noncompliance will be resolved immediately or within an agreed time frame that has been established by the environmental inspector and the superintendent or foreman. The construction contractor's environmental inspector will also notify the CIC field monitor or CIC and document the noncompliance in a daily report that will be filed with the construction contractor's Environmental Reporting Coordinator and the Proponent's Environmental Compliance Manager. The CIC or CIC field monitors will also file a report as described above

The construction contractor's environmental inspectors and the Proponent's Environmental Compliance Manager and the CIC will work together to establish the appropriate corrective actions and time frames for the resolution of a noncompliance. The construction contractor's environmental inspector will be responsible for communicating the corrective action to the foreman onsite. If necessary, the Proponent's Environmental Compliance Manager and the construction contractor's LEI and Superintendent will determine the level of retraining for the crew involved. Following a serious or repeat noncompliance, the CIC, the construction contractor's Project Manager and Environmental Compliance Manager will discuss the situation and how best to implement measures to prevent it from recurring.

A6.4.1.4 RESPONSE TO NONCOMPLIANT ACTIVITIES

If the resolution of a noncompliance is not achieved through the process described above, the following may occur.

Temporary Suspension

If noncompliant situations remain unresolved after the process described under Section A6.4.1.3 – Noncompliance, the CIC or BLM/Western Project Manager may issue a temporary suspension to halt specific activities or all activities in the noncompliant work area. The temporary suspension shall be issued orally and in writing to the Proponent's Project Manager or designee, and the Proponent shall immediately provide notice of the temporary suspension to the construction contractor's Project Manager.

Work Stoppage Order

If necessary, a WSO to suspend all construction activities may be issued orally or in writing by the CIC or BLM/Western Project Manager to the Proponent's Project Manager. A WSO would be appropriate in the event of serious noncompliance that could reasonably be expected to result in a risk of death or other harm to personnel or repeated or flagrant violations of environmental requirements.

A conference call will be held with the CIC and BLM/Western Project Manager, the Proponent's Project Manager and Environmental Compliance Manager, and the construction contractor's Project Manager and LEI within 24 hours to discuss the WSO and noncompliance incident and its resolution. If necessary, a face-to-face meeting will be scheduled within 24 hours of the initial conference call (excluding weekends and Federal holidays). After conclusion of the conference call and/or meeting, the Proponent and construction contractor(s) will need to resolve the issue(s) identified by the CIC and BLM/Western. Once the issue is resolved and the methods documented, the Proponent may file a written request with the BLM/Western to resume activities. No construction activities shall be undertaken (except emergency or safety-related) until formal approval is provided by the BLM/Western's CIC or Project Manager.
The BLM/Western shall review and respond to the Proponent's written request to resume activities within 24 hours after receipt. The BLM's response shall either approve the request or provide additional criteria citing applicable law(s), agreement(s), and/or permit requirement(s) that must be met prior to approval.

Grant Suspension or Termination

In accordance with 43 CFR 2807.17(a), BLM may suspend or terminate the ROW grant on BLM lands if the Proponent and/or its construction contractor(s) does not comply with applicable laws and regulations and any terms, conditions, or stipulations of the grant (e.g., excessive or continuous noncompliance activities that demonstrate a willful disregard for the terms and conditions of the ROW grant). Prior to suspension or termination, the Proponent will be notified in writing and allowed a reasonable opportunity to correct any noncompliance pursuant to 43 CFR 2807.18(a), and if applicable, provide a hearing pursuant to 43 CFR 2870.18(b).

A6.4.2 Variance Procedures (Unforeseen Circumstances)

This section's intent is to inform all parties (Proponent, BLM, Western, construction contractor(s), and any other Project personnel) about the process for ROW grant variance requests on BLM-managed lands and to minimize potential costly construction delays. BLM, Western, and the Proponent understand that unforeseen circumstances will occur during construction such as realignments to the proposed route, access roads, and/or work area not within the permitted Project ROW and not analyzed in the EIS. In addition, the need to make changes to construction procedures, schedule, and/or PCEMs and other specific stipulations and methods may be required. Under these or similar circumstances, a variance request will need to be filed and approved by the BLM and/or Western to remain in compliance.

The BLM will review all variance requests to ensure compliance with the EIS analysis, NHPA, and ESA (refer to table A6.1). In addition, written approval of the Project change must be obtained from agencies or landowners and provided to the Proponent who will provide it to the CIC for inclusion in the Project Record and End of Construction Project Report (Section A6.8.2 – End of Construction Project Report).

Variance requests will be generated by the construction contractor(s) and provided in writing to the Proponent, who will then review the request. The Proponent will evaluate the variance request and submit it to the CIC to be processed according to the process outlined herein. The Proponent may also initiate variance requests for cause.

The Proponent will be required to submit the variance request and supporting documentation to the CIC. The CIC is responsible for an on-the-ground perspective of the requested variance to the BLM Project Manager or designee. The BLM has authorized the CIC to approve a Level 1 variance (refer to Section A.6.4.2.1 – Level 1 Variance – Variances Accomplished through Field Resolution) in the field. In addition, on consulting with the BLM Project Manager, the BLM has authorized the CIC to approve a Level 2 variance (refer to Section A6.4.2.2 – Level 2 Variance – Variances Beyond Field Resolution, Not Requiring an Amendment to the Right-of-Way Grant or Special-Use Authorization). The BLM Project Manager has the authority to approve or deny Level 3 variance requests (refer to Section A6.4.2.3 – Level 3 Variance – Variances Requiring an Amendment to the Right-of-Way Grant).

A variance request form will be developed by the construction contractor(s), reviewed and approved by the Proponent and the CIC, and then reviewed and approved by the BLM prior to the start of construction. The variance request form will be incorporated into the preconstruction environmental training program. The variance request form will describe the variance request in detail, provide justification and documentation for the variance (including maps and photos), calculate the proposed permanent or temporary acreage affected, describe the original disturbance acreage analyzed in the EIS, and indicate the difference in acreage between the proposed variance and the original disturbance. It will also describe any potentially impacted resources and identify whether additional resource surveys will be required.

The CIC will communicate with the Proponent regarding variance status; and the Proponent will communicate that status with the construction contractor(s). Once the approved variance request is given to the construction contractor(s), it may be implemented.

Table A6.1 summarizes the different variance procedures.

Table A6.1. Variance Procedures and Approval Authority to Be Used during the Project

Variance Level	Potential Use	Approval
Level 1	Minor changes that conform to the POD	CIC
Level 2	Changes outside the POD	BLM Project Manager (may be delegated to others)
Level 3	ROW grant amendment	BLM authorized officer (or designee)

A6.4.2.1 LEVEL 1 VARIANCE – VARIANCES ACCOMPLISHED THROUGH FIELD RESOLUTION

A Level 1 variance is a minor field adjustment within the approved ROW that conforms to the POD. A Level 1 variance must meet the following criteria:

- The area of activity or change lies within the approved ROW, including temporary use areas.
- The area of activity or change is within the area analyzed by the EIS.
- There will be no increase in the total amount of disturbance analyzed in the EIS.
- Impacts to resources will equal or be less than the original location and activity (e.g., does not impact any new cultural resource sites).

The Level 1 variance request process is shown in figure A6.3.

A Level 1 variance request will be developed by the construction contractor(s) and submitted to the Proponent for review. The variance request form will include all attached supporting documentation. On the Proponent's review and approval, the Proponent's Environmental Compliance Manager will submit the variance request package to the CIC for their review. The BLM has delegated authority to the CIC to approve Level 1 variances in the field in consultation with the Proponent's Environmental Compliance Manager. However, the changes must still be documented in a variance request form for inclusion in the Project record and the CIC must include them in that week's progress report.

Examples of minor field adjustments include, but are not limited to, the following:

- Relocation of erosion control devices (Note: this could also require modification to the Stormwater Pollution Prevention Plan);
- Relocating temporary fences inside authorized work areas;
- Allowing rubber-tired vehicles to use additional access roads (in addition to those approved by BLM/Western) where no road improvement will be needed and if the roads are not to be used as additional haul roads for equipment and materials; and
- Temporarily (for not more than seven days) placing parts or other assemblies outside areas designated in the POD but within the authorized ROW provided the materials storage does not create unauthorized surface disturbance.

Level 1 Variance Approval or Denial

The CIC has the authority to approve or deny Level 1 variance requests in the field. In some cases, the CIC may consult with the BLM Project Manager. Level 1 variance requests may be approved if the results of implementing the changes are not significant and will occur within the granted ROW. A Level 1 variance request can be implemented in the field as soon as it is approved and signed by the CIC. In some cases a verbal approval can be given, and followed up with a written, signed variance document. The CIC will document the approved variance in the daily reports.

If a Level 1 variance is denied, the CIC will inform the Proponent's Project Manager within 24 hours and include an explanation for the denial. The Proponent's Project Manager may choose to resubmit the request as a revised Level 1 variance, Level 2 variance, or discontinue pursuit of the request.

Level 1 Variance Distribution

The CIC will give/send the approved Level 1 variance request to the Proponent's Project Manager, who will then distribute the approved variance to the appropriate construction personnel. The CIC will submit

to the BLM/Western Project Manager and the Proponent daily copies of approved Level 1 variances. The CIC will include all Level 1 variances approved during the previous week in their weekly report.

A6.4.2.2 LEVEL 2 VARIANCE – VARIANCES BEYOND FIELD RESOLUTION, NOT REQUIRING AN AMENDMENT TO THE RIGHT-OF-WAY GRANT OR SPECIAL-USE AUTHORIZATION

Level 2 variances are requests for changes that exceed the field decision authority of the CIC. Level 2 variances require approval by the BLM Project Manager (delegated authority from the authorized officers) and may require further review or field studies by agency staff. Level 2 variances generally involve Project changes affecting an area outside of the ROW, but within the area previously surveyed and/or analyzed for cultural resources, Section 404 of the Clean Water Act, paleontological resources, and biological resources. Level 2 variance requests typically require additional supporting or supplemental documents, correspondence, and records. Examples include, but are not limited to, the following:

- Moving a work area outside the approved construction corridor a short distance but within the area previously surveyed where overall disturbance type and acreage remains approximately the same and no additional cultural, paleontological, biological resources or invasive weed populations could be affected;
- Using additional workspace outside of the previously approved work areas (outside the Project ROW);
- Allowing construction or maintenance activities to be conducted in Project areas when seasonal restrictions are in place (refer to PCEMs);
- Relocating proposed culvert location(s) to better accommodate natural drainages (Note: this could also require modification to the Stormwater Pollution Prevention Plan);
- Moving a range fence a specified distance laterally and permanently installing it to avoid proposed construction;
- Modifying an access road due to safety hazards.

The level 2 variance request process is shown in figure A6.4.

Level 2 variance requests may also cover minor changes that would extend beyond the previously surveyed corridor for sensitive resources. In these situations, additional cultural, biological, and/or invasive weed surveys and reports would be required to be submitted with the variance request. If sensitive resources are encountered during the additional surveys, documentation of consultation with applicable agencies must be provided with the variance request. For the variance to be approved, it must adhere to all BLM -approved stipulations and Federal, State, and local regulations.

A Level 2 variance request will be prepared by the construction contractor(s) and submitted to the Proponent for review. The variance request form will include all attached supporting documentation. On the Proponent's review and approval, the Proponent's Environmental Compliance Manager will submit the variance request package to the CIC for review. Following the review the CIC will submit the request package to the BLM Project Manager. The BLM Project Manager, after consulting the appropriate resource specialists, if necessary, will provide the Proponent's Project Manager through the CIC written approval or denial (including an explanation) of the request. The BLM Project Manager may request additional information, or a modification of the request, before approval of the variance request. The Proponent may also initiate variance requests for cause.

Figure A6.3. Level 1 variance process.

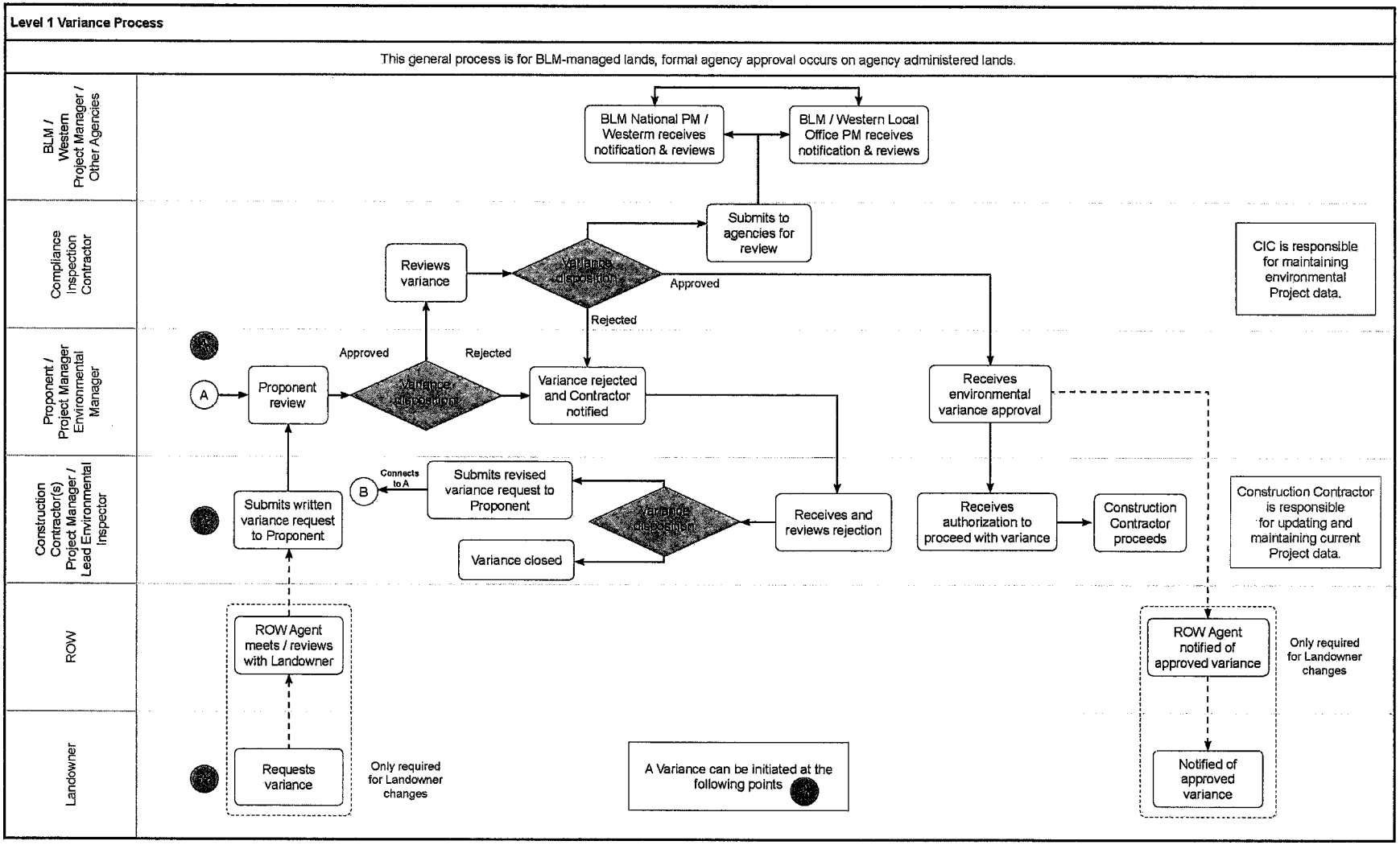
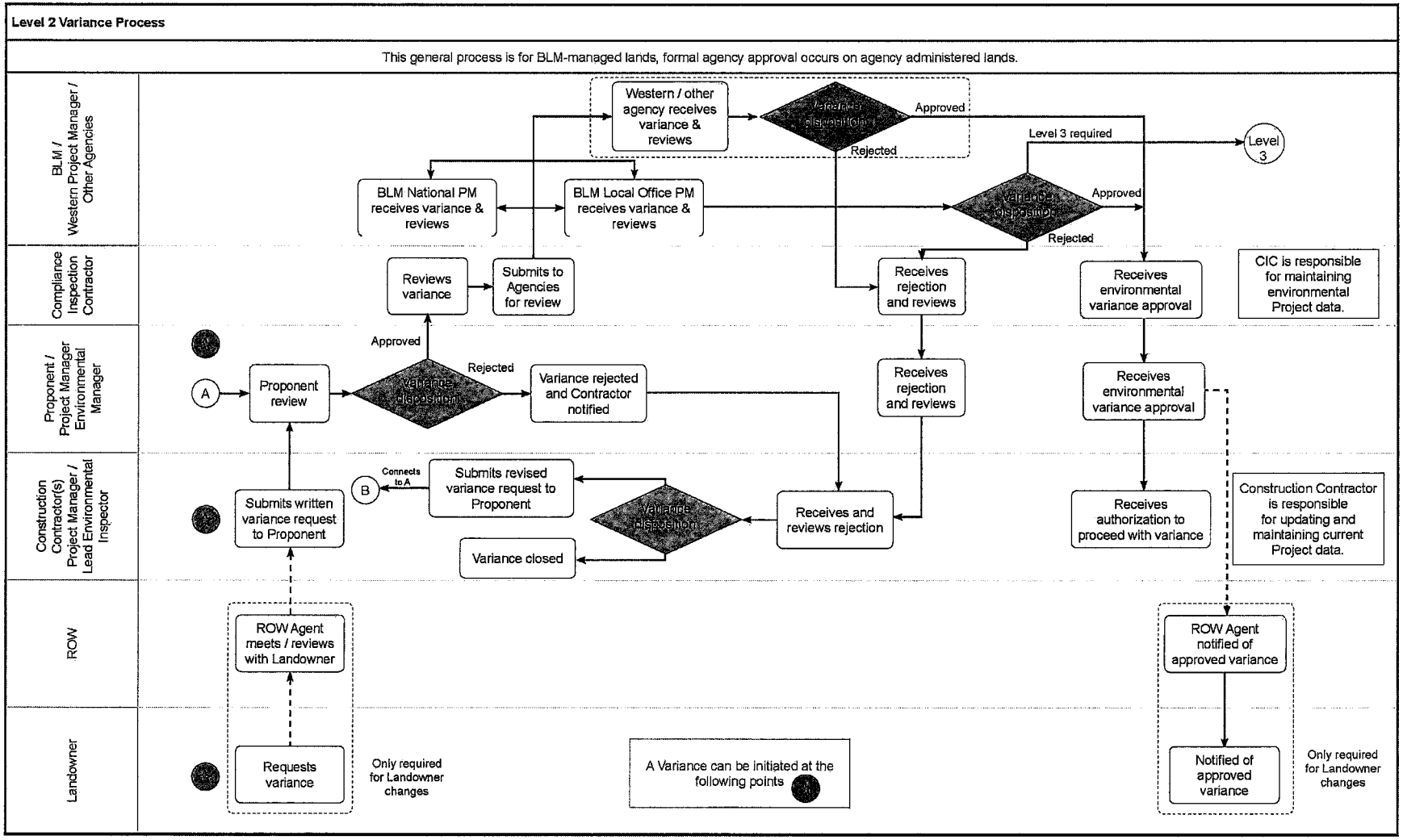


Figure A6.4. Level 2 variance process.



Level 2 Variance Approval or Denial

The BLM Project Manager has the authority to approve or deny a Level 2 variance request. The BLM Project Manager(s) will review the Level 2 variance request form and supporting documentation and will consult with BLM resource specialists as needed. Requests for additional information or a modification of the request will be given to the Proponent's Project Manager who will submit the requested information within 5 business days. The BLM Project Managers will provide the Proponent's Project Manager written approval or denial of the request within 5 business days from receipt of a complete request package including additional requested information.

If a Level 2 variance is denied, the BLM Project Manager will provide the Proponent's Project Manager with a written denial (including an explanation) of the request. The Proponent's Project Manager may choose to resubmit the request as a revised Level 2 variance request, Level 3 variance request, or to discontinue pursuit of the request.

Level 2 Variance Distribution

The CIC will provide the approved Level 2 variance request to the Proponent's Project Manager, who will then distribute the approved variance to the appropriate construction staff. The CIC will submit to the BLM Project Manager and the Proponent daily copies of approved Level 2 variances. The CIC will include all Level 2 variances approved during the previous week in their weekly report.

A6.4.2.3 LEVEL 3 VARIANCE – VARIANCES REQUIRING AN AMENDMENT TO THE RIGHT-OF-WAY GRANT

The BLM Project Manager, the CIC, and Proponent's Environmental Compliance Manager may determine that proposed change which is significant and outside the approved ROW will necessitate submittal of an amendment.

If a proposed change has been determined to be a significant deviation from the ROW grant, the change will require a grant amendment in accordance with 43 CFR 2807.20. An amendment to the ROW grant requires completion of an application on a Standard Form 299. The BLM authorized officer must approve the amendment. The Proponent or its construction contractor(s) will prepare the Standard Form 299 along with the variance request and applicable supporting documentation. The completed package will be submitted to the CIC, who will forward it to the appropriate BLM office. The BLM will process the amendment application pursuant to 43 CFR 2800. The BLM may request additional information, or a modification of the request, prior to approval of the amendment.

Grant amendment approvals or denials will come directly from the BLM. The grant amendment approval may also require issuance of an NTP addressing the amendment, if an NTP is a requirement of the original ROW grant. Examples of grant amendment requests include, but are not limited to, the following:

- Route realignments or facility relocations onto BLM land not analyzed in the EIS and/or included in the ROW grant.
- Certain Project-wide changes to PCEMs.
- Additions to the Project area as defined in the ROW grant and POD.
- Requests affecting sites that are or may be eligible for the National Register of Historic Places or involving State or federally protected species or habitat.
- Modifications of an existing access road to be used by the Project.

The Level 3 variance request process is shown in figure A6.5.

A6.5 Communications

Effective communication between all parties involved in the Project is vital to maintain environmental compliance. Onsite personnel will remain in contact through the use of two-way radios and cellular telephones, allowing for real-time coordination between parties. Ongoing, effective communication will enable timely resolution of questions, monitoring requirements, and compliance issues prior and during to construction activities. However, oral communication will not substitute for written approvals when written approvals are necessary.

A6.5.1 Primary Inter-Party Communication Channels

The following relationships are not intended to limit communication on the Project, but demonstrate the primary channels of routine communication between parties for compliance related issues.

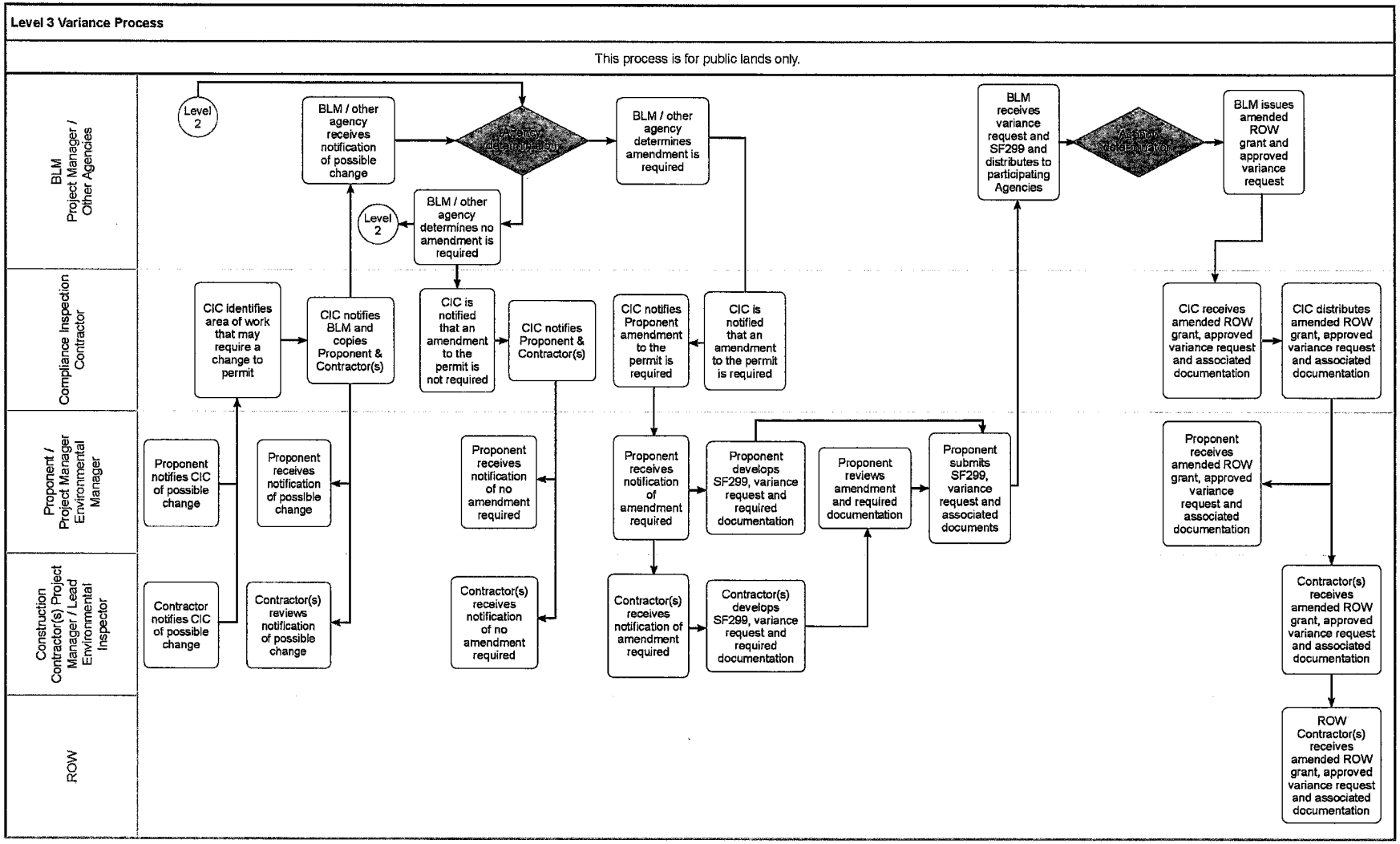
- BLM/Western Project Manager – Proponent's Project Manager and Environmental Compliance Manager
- CIC – CIC Field Monitors, Proponent's Project Manager, Environmental Compliance Manager, and construction contractor's LEI
- Proponent's Project Manager – construction contractor's Project Manager, CIC, and Proponent's Environmental Compliance Manager
- Proponent's Environmental Compliance Manager – construction contractor's LEI, construction contractor's Environmental Reporting Coordinator, and the CIC
- Construction contractor's Environmental Reporting Coordinator – Proponent's Environmental Compliance Manager, CIC or designee and construction contractor's LEI
- Construction contractor's LEI – CIC, Proponent's Environmental Compliance Manager, construction contractor's Environmental Reporting Coordinator and construction contractor's environmental inspectors
- Construction contractor's Project Manager – Proponent's Project Manager and construction contractor's superintendents

A6.5.2 Daily Communications

The construction contractor(s) will host a meeting each morning to review the location and extent of each day's construction activities, safety and environmental issues, and a summary of activities that require monitoring by environmental inspectors and coordination with the CIC. Attendees should include the CIC (or designee); the construction contractor's LEI, Construction Inspector, and Environmental Compliance Manager (or designee); and the construction contractor's superintendent(s) and foreman(s). Meeting topics should include:

- Safety review
- Planned construction activities and locations for the day
- ROW restrictions for those particular areas
- Available access roads
- Reminders of PCEMs specific to the day's construction activities and required for work in proximity to sensitive resources

Figure A6.5. Level 3 variance process.



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- Review of avoidance areas near planned construction activities
- Upcoming potential environmental issues

If needed, the superintendents, foremen, and environmental inspectors will conduct tailgate meetings with construction crew to also address those issues discussed above.

A6.6 Training

A6.6.1 Preconstruction

Prior to working on the Project, contractor personnel are required to attend environmental training classes. Training will focus on how to comply in the field with applicable environmental laws and regulations, the stipulations in the ROW grant, PCEMs, and POD. Overall Project and site specific requirements will be discussed, as well as the roles and responsibilities of the environmental compliance staff such as the environmental inspectors and third-party CIC field monitors. Other topics to be covered include the flagging and signage methodology, PCEMs, and approved areas of disturbance. A master list of all personnel who have completed training will be maintained by the construction contractor's Environmental Training Coordinator for the Proponent and the CIC. Hard hat stickers, cards, badges, or other means of demonstrating attendance of the training will be issued to attendees of the training classes.

A6.6.2 During Construction

Contractor personnel who join the Project after construction has commenced will be required to attend environmental compliance training. A master list of all personnel who have completed training will be maintained by the construction contractor's Environmental Training Coordinator for the Proponent and the CIC. In addition, if needed, environmental compliance training will be held in the field as specific issues occur which need immediate attention. Remedial trainings for specific crews or work area locations may also be held. These trainings will include the construction inspectors and environmental inspectors, as well as the appropriate crew and supervisors.

A6.7 Reporting and Documentation

Several forms and reports will be completed on a daily or weekly basis during construction. The reports and forms will include:

- Daily Inspection Reports. Environmental inspectors and CIC will develop a Daily Inspection Report Form to be filled out daily to record site visits. The reports will document the environmental compliance of observed construction activities observed and will include Problem Area Report Forms and Noncompliance Report Forms if needed. Environmental inspector reports will be submitted to the Proponent and the CIC Project Manager; CIC Field Monitor reports will be submitted to the CIC's Project Manager. All reports and forms will be available to the BLM and Western on request.
- Problem Area Report Forms. This section of the daily report will document and describe a problem area that was observed that day. Photo documentation is required. If the problem is not resolved that day, a follow-up resolution report will be required.
- Noncompliance Report Form. Environmental inspectors and CIC will develop a Noncompliance Report Form to document and describe a noncompliance that was observed that day. Photo documentation may be included. If the noncompliant situation is not resolved within one working

day or within the time agreed for effective corrective action, a follow-up resolution report will be required.

- Variance Request Forms. Environmental inspectors and CIC will develop a Variance Request Form. Variance requests will be produced by the construction contractor(s), produced or reviewed by the Proponent, and submitted to the CIC for review before submittal to BLM and Western, if required, for approval. Variance Request Forms must include the proper accompanying documentation (photos, maps, alignment sheets, drawings, etc.). The construction contractor's Environmental Reporting Coordinator will track, distribute, and archive all approved or denied variances.
- Weekly Compliance Reports. The CIC will submit a weekly compliance report summarizing all observed construction activity with regard to environmental compliance to the BLM/Western and the Proponent. The construction contractor's LEI will submit to the Proponent and the CIC a weekly report documenting the week's compliance activities. The LEI's report will be available to the BLM and Western on request.
- Weekly Training Log. The construction contractor's Environmental Training Coordinator will submit a weekly training log of al personnel who attended training that week to the construction contractor's Environmental Reporting Coordinator, who will provide a copy to the Proponent's Environmental Compliance Coordinator.

A6.8 Project Closeout

A6.8.1 Reclamation and Post-Construction

Once construction of the Project is complete, the CIC will coordinate with the BLM and Western Project Managers and resource staff to conduct final on-the-ground inspections on BLM-managed lands. Similar inspections will occur between Western and their inspectors outside of BLM-managed lands. Inspections will take place within 30 days of construction completion and will focus on ensuring that all construction work was completed in accordance with the ROW grant, POD, PCEMs, and the ROW construction reclamation activities as described in Appendix B15 – Reclamation, Vegetation, and Monitoring Plan.

After the inspections are complete, the BLM and Western will meet with the CIC to determine whether further actions are needed to be in compliance with the construction contract, ROW grant, POD, PCEMs, and the ROW construction reclamation activities. If no further action is required, the post-construction reclamation monitoring period will begin, as described in Appendix B15 – Reclamation, Vegetation, and Monitoring Plan of the POD. Reclamation and post-construction monitoring activities will be conducted by the CIC and in accordance with the Reclamation, Vegetation, and Monitoring Framework Plan (see appendix B15).

A6.8.2 End of Construction Project Report

The CIC will submit to the Proponent, BLM, and Western an End of Constriction Project Report within 60 days of construction completion. The End of Construction Report will include the following:

- Summary of overall construction and associated compliance activities;
- The number of special status animals or plants taken, including the capture, displacement, mortality, injury, and/or harassment by other means, during the Project activities;
- The amount of actual temporary and permanent acreage in comparison with the temporary and permanent disturbance acreage as estimated in the EIS and POD;

- An electronic and hard copy compilation of all daily compliance reports (including digital pictures), variance requests (including approval/denial), temporary suspensions, and WSOs (including documentation of resolution).

The construction contractor(s) will ensure that the CIC is provided all the necessary documents for the End of Construction Project Report.

A6.8.3 Construction Closeout Meeting

As required by the BLM and Western, the CIC will coordinate a construction closeout meeting with the BLM, Western, Proponent, construction contractor(s), other field monitors and affected agencies to document all agency requirements have been met and to ensure all issues (problem areas and noncompliant situations) have been satisfactorily resolved. This may include any noncompliant situations that are in the process of being resolved.

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Appendix B

ENVIRONMENTAL PROTECTION / FRAMEWORK PLANS

Full text to be included with Final POD (post Final EIS) — not included herein.

APPENDIX B1
ACCESS ROAD PLAN

Access road planning will be finalized when the Southline Transmission Line Project (the Project) is approved. With the approved route known, the exact location of all access roads will be refined through detailed engineering. Once road locations are known, cultural resource and biological surveys will be conducted and road locations adjusted to avoid sensitive resources discovered during the surveys. No field disturbance will occur before the completion of these surveys and the completion of any necessary mitigation or treatment measures.

All roads will be constructed in accordance with Western Area Power Administration (Western) and Bureau of Land Management (BLM) standards for access roads and specified in the Access Road Plan, to be included as a framework plan in the Plan of Development (POD). As indicated in the POD, framework plans are applicable on Federal lands administered by the BLM as enforceable stipulations and measures of the BLM ROW grant. This framework plan pertains not only to the construction of the Project, but also to the operation and maintenance phase of the Project. Where Western is involved in the Project, they may adopt this plan, where appropriate.

APPENDIX B2
TRAFFIC AND TRANSPORTATION MANAGEMENT PLAN

B2.1 Introduction

This Traffic and Transportation Management Plan addresses regulatory compliance, traffic management practices, levels of right-of-way (ROW) access, and Proponent Committed Environmental Measures (PCEMs) to help reduce impacts related to transportation and the construction of temporary and long-term access within the vicinity of the Southline Transmission Line Project (Project). As indicated in the Plan of Development (POD), this plan is applicable on Federal lands administered by the BLM as enforceable stipulations and measures of the BLM ROW grant. It pertains not only to the construction of the Project, but also to the operation and maintenance phase of the Project. Where Western is involved in the Project, they may adopt this plan, where appropriate.

B2.2 Purpose

The purpose of this plan is to provide the Bureau of Land Management (BLM), Western Area Power Administration (Western), and other public agencies; the compliance inspection contractor (CIC); and the construction contractor(s) with a description of the type of access associated with the construction, operation, and maintenance of this Project and make evident the potential impacts that could be created by construction and operation of the Project. The goal of this plan is to ensure impacts from construction of the transmission line and any associated access are kept to a minimum through the use of management practices and PCEMs described throughout this appendix. These practices and measures are intended to mitigate the effects of transportation on environmental resources, roads, traffic, travel, and road safety.

B2.3 Regulatory

A number of agencies have jurisdiction over the transportation-related components of the Project. These include the BLM; New Mexico Department of Transportation; Arizona Department of Transportation; Federal Highway Administration; and local law enforcement and road departments. Encroachment permit applications will need to be filed with appropriate road agencies for those areas where the transmission line crosses public roads (e.g., Interstate 10) prior to construction.

Other permits and approvals not directly related to transportation could affect the construction, use, and/or maintenance of roads in certain areas. Persons responsible for Project transportation activities must be familiar with all relevant sections of Project's Plan of Development (POD).

B2.4 Traffic Management Practices

Ground travel will be the primary means of transporting construction and maintenance crews and equipment during Project construction. Helicopters will be used if deemed necessary. All vehicles will obey jurisdictional traffic speed regulations and the posted speed limit. On roads where speed limits are not posted, the speed limit is assumed to be 25 miles per hour (mph), unless otherwise directed by the CIC. Speeds along access roads and spur roads within the ROW may be limited to 15 mph in some areas to prevent excessive amounts of construction related dust or disruption, as necessary (see appendix B8 – Erosion, Dust Control, and Air Quality Plan).

Before construction, authorized access routes will be clearly marked in the field with signs or flagging (see appendix A1 – Flagging, Fencing, and Signage Plan). The construction contractor(s) will review the location of permitted access and will be responsible for ensuring construction travel is limited to designated areas that clearly identify the limits of disturbance.

All field personnel will attend an environmental training program. Through this program, field personnel will be instructed to use only approved access roads, how to identify the access road type, drive within the delineated road limits, and obey jurisdictional and posted speed limits to minimize potential impacts to biological, paleontological, and cultural resources.

Every effort will be made to minimize the effects of the Project construction activities on public transportation and to provide for public safety. The construction contractor(s) and environmental monitors will maintain a communications network using two-way radios or cellular phones. This will allow for coordination of equipment traffic and large trucks delivering structure components along existing access and/or public roads so public safety, traffic impacts, and resource impacts are minimized. In addition, any necessary permits for the movement of equipment and materials will be obtained and complied with.

In general, the number of construction vehicles needed for the Project is not expected to substantially increase traffic volumes. Similarly, road and lane closures are anticipated to be minimal, and will most likely occur during conductor stringing activities, during delivery of structure or substation components, or during blasting, if necessary. If road and lane closures are needed, the appropriate regulatory agencies, affected parties, and emergency service providers will be notified in advance.

Although construction traffic is not expected to disrupt access to residences along the ROW, adjacent landowners will be notified of the construction schedule (where appropriate). Signs will be posted in the Project area to notify landowners and others of the construction activity. Flagging will be maintained until final cleanup and/or reclamation is completed, after which they will be removed.

A flagging scheme will be included in the final plan covering:

- Project access road;
- road access types (private, public, existing utility, new down-ROW access, or overland spur);
- temporary work areas (pulling sites, material yards, etc.);
- protected animals/plants or sensitive environmental areas;
- reclamation project areas;
- invasive weed cleaning stations;
- proposed structure locations;
- structure offsets;
- outside edge of permitted ROW or centerline; and
- cadastral survey monument.

Construction crews will park only in designated areas and will be shuttled to the appropriate work sites if necessary.

B2.5 Types of Right-of-Way Access

The Project ROW and other areas needed for construction such as staging areas will require access for Project construction, operation, and maintenance activities. Listed below are five types of access categories that will be used for this Project.

B.2.5.1 Access Type A

Access from adequate private roads. This type of access will be used when there is no existing road adjacent or parallel to the alignment, but where there is a patchwork of existing roads in the area that will be crossed by the proposed Project ROW, and could be used to access the ROW and get close to the structure locations. Grading between the existing roads and each structure location will only be conducted where necessary and will depend on site conditions. Grading and other improvements may not be necessary, depending on site conditions. Typically, overall disturbance will be limited to a width of 16 feet or less. The purpose of using existing access from private roads will be to minimize overall disturbance.

B.2.5.2 Access Type B

Parallel to maintained public roads. This type of access will be used when the alignment roughly parallels a nearby public road that is either paved or has gravel surfacing. Short spur roads will be used from the existing roads to each structure location, as described below under Access Type E. Except in rare cases, the existing roads will not be upgraded, but any damage to public roads from construction activities will be repaired. The purpose of access roads parallel to a nearby public road will be to consolidate and minimize overall disturbance.

B.2.5.3 Access Type C

Parallel to existing utility roads. This type of access will be used when the alignment roughly parallels an existing utility that already has an existing access road. Spur roads will be used from the existing utility roads to each structure location as described below under Access Type E. Generally, the existing utility roads will be improved. Grading between the existing utility roads and each structure location will only be conducted where necessary and will depend on site conditions. Grading and other improvements may not be necessary, depending on site conditions. Typically, overall disturbance will be limited to a width of 16 feet or less. The purpose of access roads parallel to a utility road will be to consolidate and minimize overall disturbance.

B.2.5.4 Access Type D

New down-ROW primary access. This type of access will only be used when access types A–C are not feasible. It will consist of a 16-foot-wide road (12-foot travel surface plus 2 feet on either side for berms/ditches). As much as possible, new access will be entirely within the ROW. Typically, new down-ROW access will be used if any parallel roads are more than 700 feet from the alignment. This access type will also normally be used for alignments that parallel interstate highways and railroads because the owners of those facilities generally place restrictions on the use of their ROWs; these restrictions do not allow for the addition of spur roads or their related ROW crossings and gates in ROW fences.

B2.5.5 Access Type E

Spur roads–improved and unimproved access. Spur roads will be used to connect type A, B, and C access roads to the ROW and for temporary access to stringing and splicing sites. Spur roads will be unimproved (two-track) roads except in areas where grading may be required based on terrain, with an average of one new spur road per mile for temporary access and approximately five spur roads per mile in areas where type A, B, and C access roads are used for permanent access to structure locations. Only where necessary, spur roads will be improved, and the roads will be graded to 10 to 12 feet wide. Otherwise, spur roads will not be improved in areas with flat terrain and within grassland, desertscrub, sand scrub, and sand dune vegetation communities. Vegetation on unimproved roads may be crushed by driving, but cropping or blading vegetation will not be conducted. This will avoid removal of root mass and organics in the soil (no surface soil will be removed). The purpose of unimproved spur roads will be to preserve the maximum amount of native vegetation, minimize overall disturbance, and reduce erosion.

B2.6 Proponent Committed Environmental Measures

Southline Transmission, LLC (Southline, or the Proponent) has developed environmental protection measures to be incorporated as part of the Project. The goal of these PCEMs is to reduce or avoid potential environmental impacts resulting from Project-related activities and are to be applied to all affected Project areas. The following PCEMs were identified in the Environmental Impact Statement (EIS), and are included in table 8 of the POD. These PCEMs will be implemented by the construction contractor(s) with the Traffic and Transportation Management Plan.

B2.6.1 Transportation PCEMs:

- TRA-1 Prior to the start of construction, Southline and its construction contractor will prepare a Traffic and Transportation Management Plan for the Project to address the timing and routing of Project trips in an effort to minimize Project impacts on local streets, highways, and railroad operations.
- TRA-2 At least 90 days prior to any construction-related helicopter use on the Project, Southline and its construction contractor will coordinate with the Federal Aviation Administration (FAA) for review and approval of plans for any helicopter flights that will take place during construction and operation. Southline and its construction contractor will then provide information to the BLM and Western regarding the intended need and use of helicopters during construction and operation of the Project, including the Flight and Safety Plan; the estimated number of days and hours that the helicopter will operate; the type and number of helicopters that will be used; the location, size, and number of staging areas for helicopter takeoffs and landings; and written approval from property owners for use of helicopter staging areas.
- If any existing roads were to be damaged by Southline or its construction contractor during construction activities and/or truck traffic, the road will be repaired.
- In order to mitigate traffic impacts on primary roads in metropolitan areas, shift changes for construction crews will not occur during the peak hours for the road during construction. Oversize or overweight vehicle movements will be planned for nighttime hours, where practical and not detrimental to safety or evening residential noise levels, or those specified in permitting regulations in order to minimize traffic disruptions.
- In order to reduce public access to BLM roads and adjacent lands that are not currently accessible by the public, the Proponent will fence off or place restricted access signage at new access roads, where appropriate.

- Throughout the permitting and design phase, the Proponent will correspond with Federal, State, and local transportation agencies in order to avoid Project inconsistencies with current and future transportation plans.
- Throughout the permitting and design phase, the Proponent will correspond with Federal, State, and local airports in order to ensure that the FAA criteria for structures near airports are met, and to avoid Project inconsistencies with identified airport plans.
- Identify transmission structures with high-visibility markers in areas where they intersect or parallel military training routes.
- Provide gates and fencing in areas where off-highway vehicle use will be restricted due to military operations, or to protect sensitive resources.

B2.6.2 Other PCEMs:

B2.6.2.1 STANDARD MEASURES

- All vehicle movement will be restricted to designated access, contracted acquired access, or public roads.
- The boundaries of construction activities will be predetermined and staked or flagged prior to any construction activity. No permanent markings will be applied to rocks or vegetation.
- VIS-2 To limit disturbance, existing access roads will be used to the extent practicable, provided that doing so does not additionally impact resource values. Widening and grading of roads will be kept to the minimum required for access by Project construction equipment.
- No widening or upgrading of existing roads will be undertaken in the area of construction and operations, except for repairs or modifications to make roads safely passable, where soils and vegetation are sensitive to disturbance, in areas of critical habitat for vegetation or wildlife, in areas of habitat for BLM special status species, or where such activities could harm historic properties.
- During operation of the transmission lines, the ROW will be maintained free of non-biodegradable debris. Desert vegetation will be crushed in place to promote seeding and revegetation, and reduce erosion potential.
- BLM and Western road construction specifications will be followed where unimproved spur roads cannot be employed.
- Unimproved spur roads will be used to the extent practicable in areas where no grading will be warranted to access work areas, within the approved ROW. Unimproved spur roads will be used to access a site without specifically blading a road or significantly modifying the landscape. All vehicle movement will be restricted to designated access, even if that is unimproved access. Vegetation will be crushed where feasible, not cut. For all access types, soil will be compacted, but not removed, except when grading requires displacement of surface soil.
- Where new roads will be required, water bars and/or rolling dip cross-drains will be utilized to minimize erosion. Details of their use will be documented in Appendix B3, the Stormwater Pollution Prevention Plan.
- All construction vehicle movement will be restricted to predesignated access, contractor-acquired access, and public roads.
- The width of construction and new temporary access roads will be sited to keep to the minimum needed to avoid sensitive areas and to limit ground disturbance.

B2.6.2.2 AIR QUALITY

- Trackout control devices such as grizzly bars, wheel washers, and gravel pads will be located at all entrances and exits.
- AIR-1 Dust control measures consistent with all applicable State or local standards, as outlined in the Erosion, Dust Control, and Air Quality Plan, will be implemented; these include the following reasonable precautions: (1) frequent watering (no new water sources developed) or stabilization of excavations, spoils, access roads, storage piles, and other sources of fugitive dust (parking areas, staging areas, other) if construction activity causes visible emissions of fugitive dust beyond the work area; (2) reduction in the amount of disturbed area where possible; (3) planting of vegetative ground cover, as appropriate, in disturbed areas after construction activities have ended; and/or (4) treatment of actively disturbed areas with BLM-approved dust palliatives.

B2.6.2.3 HAZARDOUS MATERIALS AND WASTE

- HAZ-8 Service and refueling procedures will not be conducted within 500 feet of a seep, wash, or other water body. Routine service of any vehicles or equipment will not be done within the ROW.

B2.6.2.4 FARMLANDS AND RANGELAND

- FARM-1 Fences and gates will be repaired or replaced to their original, predisturbed condition (or better), as required by the landowner, BLM authorized officer, or other land-managing entity if they are damaged or destroyed by construction activities. New temporary and/or permanent gates will be installed only with the permission of the landowner or the BLM. Temporary gates not required for post-construction access control will be removed following construction completion and in accordance with the POD.
- Temporary gates will be installed to prevent livestock from escaping rangelands and accessing roadways. Fences and gates will be repaired or replaced to their original, predisturbed condition, as required by the landowner or the BLM authorized officer if they are damaged or destroyed by construction activities. Cattle guards will be installed at access points to prevent livestock from exiting unsecured gates onto roadways.

B2.6.2.5 RECREATION

- Southline and its contractor will coordinate with the BLM to display appropriate "closed" signage at the entrance to new spur roads to structure locations and access roads located on BLM-managed lands. This includes temporary signs during the construction phase of the Project and permanent signs and/or vehicle barriers that will close the spur routes to public travel during the operational phase. Signs will be removed as appropriate upon decommissioning.

B2.6.2.6 VEGETATION

- VEG-1 Every effort will be made to minimize vegetation removal and permanent loss at construction sites to the extent practicable. Access will not be graded unless necessary for erosion control or other engineering reason. Final structure and spur road locations will be selected to avoid special status vegetation to the greatest extent feasible.
- In construction areas where grading is not required, vegetation will be left in place wherever possible, and original contours will be maintained to avoid excessive root damage and allow for regrowth. All existing roads will be left in a condition that is equal to or better than their condition before the construction of the transmission lines, as determined by the appropriate land-management agency.

B2.6.2.7 VISUAL RESOURCES

- VIS-2 The alignment of any new access roads (including unimproved spur roads) will stay within the designated access ROW and will follow the designated area's landform contours and avoid steep areas as much as feasible, provided that such alignment does not additionally impact resource values. This will minimize ground disturbance and/or reduce scarring (visual contrast).
- All new or improved access that will not be required for maintenance will be closed or rehabilitated to make it less visually apparent.

B2.6.2.8 WATER RESOURCES

- Roads will be built as close as possible to right angles to the streams and washes. Culverts or temporary bridges will be installed where conditions warrant. All construction and operations activities shall be conducted in a manner that will minimize disturbance to vegetation, drainage channels, and intermittent or perennial stream banks.

B2.6.2.9 WILDLIFE

- WILD-8 Final structure and spur road locations will be adjusted to avoid sensitive wildlife resources to the greatest extent feasible.
- Clearing, grubbing, blading, and access road improvements occurring within identified sensitive areas will be conducted outside the breeding season for most desert-nesting migratory birds. Southline and its construction contractor would conduct preconstruction surveys for active nests and consult with the appropriate agencies on a case-by-case-basis when active nests are found (see Appendix B7-Plant and Wildlife Species Conservation Measures Plan).
- Except where otherwise posted or allowed, a Project speed limit of 25 mph will be designated for all construction areas, spur roads, and new access roads to minimize the potential for construction equipment collisions with wildlife. In areas with mountainous terrain and/or poor site distances, the Project speed limit will be 15 mph.

B2.6.3 Other Specific Stipulations and Methods

Design features and selective environmental measures for environmental protection are to be applied to all affected Project areas to help reduce potential access and transportation related impacts. Listed below are transportation-related (TR) design features and selective environmental measures beyond the PCEMs identified in the EIS and POD, for environmental protection to be implemented by the construction contractor(s):

TR 1 A Fire Protection Plan will be developed and incorporated into the POD, which will be approved by the BLM prior to the issuance of a ROW grant.

(FP23): The construction contractor(s) will ensure continuous access will be provided to emergency vehicles along all access roads. Access roads will be maintained in a manner that they may be used as fire breaks in the event of a fire start.

TR 2 Grading will be minimized by driving overland within pre-designated work areas whenever possible.

TR 3 All requirements of those entities having jurisdiction over air quality matters will be adhered to. Any necessary dust control plans will be developed and permits for construction activities will be obtained. Open burning of construction trash will not be allowed, unless permitted by

appropriate authorities. Excessive exhaust emissions from vehicles and heavy equipment will be prevented by proper maintenance.

TR 4 Hazardous material will not be drained onto the ground or into streams or drainage areas. Refuse and other wastes will be stored in a manner to protect against animal intrusion and contamination of stormwater. . Construction waste, including trash and litter, garbage, other solid waste, petroleum products, concrete curing fluid, and potentially hazardous materials will be removed to a disposal facility authorized to accept such materials.

TR 5 Refueling and storing potentially hazardous materials will not occur within a 500-foot radius of a water body, a 200-foot radius of all identified private water wells, and a 400-foot radius of all identified municipal or community water wells. If surface disturbance is required to store potentially hazardous materials or refuel equipment, these activities will not occur within a 500-foot radius of any riparian area or water body. Spill preventive and containment measures or practices will be incorporated as needed.

TR 6 There will be no blading of new access roads in select areas of sensitive resources (e.g., perennial streams, riparian areas, trails) during construction (or maintenance). Existing crossings will be used at perennial streams, national recreational trails, and irrigation channels. Existing or overland access routes are to be used for construction and maintenance in these select areas. Every crossing must be identified and a crossing plan developed. To minimize ground disturbance, overland routes must be flagged with easily seen markers, and the route must be approved in advance of use by the landowner or BLM.

TR 7 To limit unauthorized or unwanted access into the Project area, all new or improved access (e.g., blading, widening existing access) not required for operation or maintenance, and with landowner or land-management agency approval, will be closed or rehabilitated using the most effective and least environmentally damaging methods appropriate to that area and developed through consultation with the landowner or land-management agency. Methods for road closure or management include installing and locking gates, obstructing the path (e.g., earthen berms, boulders, pocking), revegetating the surface of the roadbed to make it less apparent, or restoring the road to its natural contour in combination with vegetation.

TR 8 The construction contractor(s) will use overland access to the greatest extent possible in areas where no grading will be needed to access work areas. Overland access will consist of drive-and-crush and/or clear-and-cut travel. Drive-and-crush is vehicular travel to access a site without significantly modifying the landscape. Vegetation is crushed but not cropped. Soil is compacted, but no surface soil is removed. Clear-and-cut is considered as brushing off (removal) of all vegetation to improve or provide suitable access for equipment. Methods for removal of vegetation will include mowing (brush hog flail type mower), hand clearing with small tools such as loppers, and chain saws, and back dragging a cat blade above the surface of the soil to remove surface vegetation. Soils are compacted, but no surface soil is removed. Prior to work beginning, overland access routes will be staked to a minimum width as specified in the POD. Rutting and other similar damage to overland access shall not exceed 4 inches in depth and shall be repaired and reseeded with the approved seed mixes as soon as ground conditions permit.

TR 9 To reduce visual contrast, soil amendments, mineral emulsions, or asphalt emulsions (i.e., Permeon™ or approved equivalent) will be applied, or grading techniques such as slope rounding and slope scarification will be used to blend road and pad cuts into the landscape in areas of steep terrain where grading is necessary, in rocky areas, or where newly exposed rock color will create strong landscape contrasts.

TR 10 Dust suppression techniques will be applied (such as watering construction areas) to prevent powdering of soils on roads, maintain firm working surfaces, limit fugitive dust, protect topsoil for reclamation, and prevent safety hazards or nuisances on access roads and in construction zones near residential and commercial areas and along major highways and interstates. In addition, dirt tracked onto paved roads will be removed as needed.

TR 11 If the Project proposes to obtain water from wells or surface water sources to suppress dust, written approval from the landowner or land-management agency will be obtained prior to appropriation.

TR 12 If a construction method requires the closure of a state- or county-maintained road for more than one hour, a plan will be developed to accommodate traffic as required by a county or state permit.

TR 13 On county and state maintained roads, caution signs will be posted on roads, where appropriate, to alert motorists of construction and warn them of slow traffic. Traffic control measures, such as traffic control personnel, warning signs, lights, and barriers, will be used during construction to ensure safety and to minimize traffic congestion.

TR 14 To reduce traffic congestion and roadside parking hazards, an equipment yard will be provided for primary parking for employee personal vehicles.

TR 15 Unauthorized vehicles will not be allowed within the construction ROW or along roadsides near ROW.

TR 16 All temporary culverts and associated fill material will be removed from stream crossings after construction.

TR 17 Landowners will be notified at least 48 hours prior to the start of construction within 0.25 mile of a residence.

TR 18 Emergency vehicle access to private property will be maintained.

TR 19 Roads in residential areas will be reclaimed as soon as possible, and construction areas near residences will be fenced off at the end of the construction day.

TR 20 Roads negatively affected by construction and as identified by the agencies will be returned to preconstruction condition.

TR 21 Roads identified by Southline or Western as no longer necessary will be reclaimed as specified in the Reclamation, Vegetation, and Monitoring Plan (see appendix B15).

TR 22 Roads or highway within the ROW corridor shall be used to the maximum extent possible for construction and maintenance of the new ROW.

TR 23 To help set public expectations for when temporary access roads are decommissioned, signs shall be posted on all temporary roads and overland access routes identifying them as reclamation areas. Signs will state "Restoration in Progress – No Vehicle Traffic Allowed."

TR 24 The transportation of explosive materials, if needed, will be addressed in the Blasting Plan (see appendix B6)

APPENDIX B3
STORMWATER POLLUTION PREVENTION PLAN FRAMEWORK

B3.1 Introduction

In compliance with criteria in the U.S. Environmental Protection Agency's (EPA's) Clean Water Act (CWA), all construction site operators engaged in clearing, grading, and excavating activities that disturb 1 acre or more, must obtain a National Pollutant Discharge Elimination System (NPDES) permit for stormwater discharges (40 Code of Federal Regulations 122 and 123).

NPDES Construction General Permits are issued by the EPA in New Mexico, while Arizona Pollutant Discharge Elimination System (AZPDES) Construction General Permits are issued by the Arizona Department of Environmental Quality (ADEQ). The general permits are issued only after submittal of a Notice of Intent (NOI) for construction activities, and preparation of a Stormwater Pollution Prevention Plan (SWPPP) that describes how erosion and sediment transport will be minimized to adjacent water bodies. Measures to ensure construction activities comply with State and EPA requirements for stormwater management to be incorporated into the SWPPP are outlined in this plan framework.

The construction Plan of Development (POD) will identify the party responsible for developing a Project-specific SWPPP and for obtaining coverage under the appropriate Construction General Permit by filing a NOI and appropriate fee in accordance with the NOI instructions.

B3.2 Purpose

The purpose of a SWPPP for the proposed Southline Transmission Line Project (Project) is to identify and implement stormwater pollution prevention measures to reduce the quantity of impacted runoff and to deal with runoff in a manner minimizing environmental impacts during construction of the Project.

A SWPPP is needed to minimize the volume of contaminated runoff, including sediment runoff, and to implement Proponent Committed Environmental Measures (PCEMs) in a manner minimizing environmental impacts. The SWPPP will also spell out design features for environmental protection specific to storing and handling fuel and oil, cement mix, and other materials that may contaminate stormwater. Temporary stabilization methods (silt-fences, straw bales, etc.) are not guaranteed or fail-safe measures without regular maintenance and field inspection throughout construction activities. In addition to conventional methods of erosion control there are numerous new and improved products and the construction contractor(s) is encouraged to review these progressive or improved materials in the development and implementation of a SWPPP. The proper implementation of PCEMs associated with a SWPPP is imperative during all construction activities.

Development and implementation of the SWPPP, and maintenance of the PCEMs and other stipulations presented in the SWPPP will provide the construction contractor(s) with the mechanisms for reducing soil erosion and minimizing pollutants in stormwater during construction. These activities will be conducted in an environmentally sensitive and responsible manner so no discharge of sediment or contaminants may be conveyed directly or indirectly to wetlands, waters of the U.S., or to waters of New Mexico or Arizona.

B3.3 Notification Requirements and Implementation

Before construction begins, the responsible party will develop a SWPPP and will obtain coverage under either the NPDES 2012 Construction General Permit, or the AZPDES 2013 Construction General Permit (Permit Number AZG2013-001) by filing a NOI and appropriate fee with the EPA Region 6 for New Mexico or ADEQ, respectively, in accordance with NOI instructions. The construction contractor(s) will be responsible for implementing a site-specific SWPPP and will be required to perform routine inspections, recordkeeping, and any reporting throughout the duration of construction activities.

For the Project, the main source of potential stormwater contamination will be erosion of soils from construction activities. The primary intent of the erosion and sediment control measures identified in the SWPPP is to control and minimize erosion at the source. The primary means to avoid erosion of soil from a construction site is to keep the amount of disturbed area to an absolute minimum. It will be the responsibility of the construction contractor(s) to implement erosion control measures where necessary to minimize pollutants in stormwater and to keep the Project in compliance with EPA, ADEQ, and New Mexico Environment Department regulations.

Impaired or outstanding waters in the Project area include the San Pedro River and Cienega Creek in Arizona; both crossings will utilize existing crossing points to minimize any impact. For construction sites located within ¼ mile of an impaired or outstanding receiving water, the SWPPP must be submitted to ADEQ for review and approval and must include a sampling and analysis plan for analytical monitoring, unless the construction contractor(s) can clearly demonstrate there is no reasonable potential for construction activities to be a source of the identified pollutant.

A copy of the SWPPP shall remain at the construction site, and be readily available while the transmission line and substations are under construction, from the start of construction activities until completion of final stabilization for the Project. The SWPPP is meant to be a controlled document that identifies potential impacts through inspections and maintenance and also serves as a measure of final site stabilization as part of the general permit requirements. Once construction is complete and final stabilization has been accomplished, the responsible party must file a notice of termination with EPA and ADEQ.

The identified responsible party must retain a copy of the SWPPP with copies of all inspections performed over the duration of Project construction, and a set of construction site maps for the duration of Project construction and for three years after the Notice of Termination, that delineate the following items:

- Areas of soil disturbance that have been stabilized
- Areas to be graded along with a time schedule
- Areas of potential soil erosion where control practices will be implemented
- Types of control practices and time schedule for implementation
- Locations of any post-construction projects

B3.4 Project Modifications

The identified responsible party shall maintain an up-to-date SWPPP and shall amend the SWPPP whenever there is a change in construction or operations that may affect the discharge of pollutants to surface waters. The SWPPP shall also be amended if it is in violation of the Construction General Permit, or has not achieved the general objective of eliminating pollutants in stormwater discharges, or if the EPA

or ADEQ requires amendments. The SWPPP shall be amended, implemented, and changes communicated to relevant on-site construction personnel in a timely manner, but in no case more than 14 days after it has been determined the SWPPP is inadequate. All amendments will be dated and directly attached to the SWPPP.

B3.5 Proponent Committed Environmental Measures

Southline has developed environmental protection measures to be incorporated as part of the Project. The goal of these PCEMs, as identified in the Environmental Impact Statement (EIS) and in table 8 of the Plan of Development (POD), is to reduce or avoid potential environmental impacts resulting from Project-related activities. The following PCEMs will be followed in the development of a SWPPP.

- WAT-1 A Project-specific construction SWPPP will be prepared prior to the start of construction of the transmission line and substations in compliance with CWA Section 402. The SWPPP will use best management practices (BMPs) to address the storage and handling of hazardous materials and sediment runoff during construction activities to minimize the risk of an accidental release. As part of the SWPPP, soil disturbance at structure construction sites and access roads will be the minimum necessary for construction and will be designed to prevent long-term erosion, through activities such as restoration of disturbed soil, revegetation, and/or construction of permanent erosion control structures. A U.S. Army Corps of Engineers permit will be obtained prior to the start of construction of the transmission line and substations for the discharge of dredged or fill material in compliance with CWA Section 404, if required. Activities in and around streams and wetlands will be designed to avoid, minimize, and mitigate impacts to waters of the U.S.
- WAT-2 Construction equipment will be kept out of flowing stream channels, unless feasible alternatives are not available. Structures will be located to avoid active drainage channels, especially downstream of steep slope areas, to minimize the potential for damage by flash flooding and mud and debris flows.
- Trackout control devices such as grizzly bars, wheel washers, and gravel pads, etc. would be located at all entrances and exits.
- AIR-1 Dust control measures consistent with all applicable State or local standards, as outlined in the Erosion, Dust Control, and Air Quality Plan, would be implemented; these include the following reasonable precautions: (1) frequent watering (trucked in, no new water sources developed), or stabilization, or covering (as appropriate) of excavations, spoils, access roads, storage piles, and other sources of fugitive dust (parking areas, staging areas, other) if construction activity causes visible emissions of fugitive dust beyond the work area; (2) reduction in the amount of disturbed area where possible; (3) planting of vegetative ground cover, as appropriate, in disturbed areas after construction activities have ended; and/or (4) treatment of actively disturbed areas with BLM-approved dust palliatives.
- Roads will be built as close as possible to right angles to the streams and washes. Culverts or temporary bridges will be installed where conditions warrant. All construction and operations activities shall be conducted in a manner that will minimize disturbance to vegetation, drainage channels, and intermittent or perennial stream banks.
- To the extent practicable, structures will be sited with a minimum distance of 200 feet from streams.
- Where new roads will be required, water bars and/or rolling dip cross-drains will be utilized to minimize erosion. Details of their use will be documented in the SWPPP.

B3.5.1 Other Specific Stipulations and Methods

Listed below are stormwater protection measures (SW) beyond the PCEMs identified in the EIS and POD. These SW measures will be incorporated into the SWPPP to ensure construction activities comply with State and EPA requirements for stormwater management:

SW 1 The appropriate NPDES Construction General Permit for construction activities that disturb 1 acre or more of land will be obtained from EPA and ADEQ.

SW 2 The NPDES Construction General Permit requirements will be met. This includes implementing and maintaining appropriate industry standards for minimizing impacts to surface water.

SW 3 One or more responsible persons will be designated to manage stormwater issues, conduct the required stormwater inspections, and maintain the appropriate records to document compliance with the terms of the NPDES Construction General Permit.

SW 4 The SWPPP will be modified as necessary to account for changing construction conditions.

SW 5 The SWPPP will identify areas with critical erosion conditions that may require special construction activities or additional industry standards to minimize soil erosion.

SW 6 The SWPPP will identify any impaired or outstanding waters, and if construction is to occur within ¼ mile, provide sampling and analysis plans for discharges from the site.

SW 7 Migration of construction-related sediment to all adjacent surface water bodies will be prevented.

SW 8 Stormwater industry standards will be maintained on all disturbed lands during construction activities as described in the SWPPP.

SW 9 Approved sediment and erosion control meeting industry standards will be installed and maintained until disturbed areas meet final stabilization criteria.

SW 10 Temporary erosion and sediment controls meeting industry standards will be used at multi-use construction yards (equipment storage yards, fly yards, multi-use construction areas) and substations.

SW 11 The construction schedule may be modified to minimize construction activities in rain soaked or muddy conditions. Existing roads and trails will be used for travel to the maximum extent feasible unless otherwise authorized. During wet road conditions, any ruts deeper than 4 inches remaining on the roads from the Project will be repaired at the landowner's discretion.

SW 12 Damaged temporary erosion and sediment control structures will be repaired in accordance with the SWPPP.

SW 13 Upon completion of construction, disturbed areas along the transmission line within the ROW, at substations, and at related facilities will be revegetated with approved vegetation (refer to appendix B15 – Reclamation, Revegetation, and Monitoring Framework Plan) as required by the NPDES Construction General Permit and in accordance with the SWPPP. The specific areas to be revegetated will be coordinated with and approved by the landowner.

SW 14 In areas of drought-susceptible soils, the soil surfaces will be mulched or otherwise stabilized to minimize wind erosion and to conserve soil moisture.

B3.6 Mitigation Maintenance, Inspection, Repair, and Monitoring

The construction contractor(s) will be required to conduct routine maintenance and emergency repair on any structural controls, including the maintenance of erosion and sediment control measures and any required subsequent reporting. As part of the SWPPP, the construction contractor will be required to develop an inspection schedule and conduct routine inspections to identify conditions that could lead to discharges of chemicals or sediment. Schedules will be established for regular inspections of equipment and areas. Inspections of the construction site shall occur in accordance with the general permit applicable to each state to identify areas contributing to a stormwater discharge and to evaluate whether erosion control measures and BMPs are in place and functioning properly. During inspections, the construction contractor will also determine if erosion control measures and BMPs identified in the SWPPP are adequate and whether additional control practices are needed. All monitoring and inspection records produced in association with this SWPPP will be retained for a period of at least 3 years.

B3.7 Training

The construction contractor(s) will be responsible for the SWPPP implementation. The construction contractor(s) and/or the identified responsible party shall be responsible for amendments and revisions to the SWPPP. On-site construction personnel will be responsible for installation and maintenance of on-site erosion control measures and BMPs. Properly trained personnel are more capable of preventing spills, responding safely and effectively to accidents, and recognizing situations that could lead to stormwater contamination. The construction contractor will be responsible for familiarizing their personnel with the information contained within the SWPPP. Training meetings will need to be held for new personnel who join the Project after the initial training has been provided. The purpose of these meetings will be to review the proper installation methods and maintenance of all erosion control measures to be used for the Project. The monitoring/inspection program and all required maintenance and repair will be conducted by trained personnel.

B3.8 Post-Construction Stormwater Management

PCEMs used to reduce pollutants in stormwater discharges after all construction phases have been completed at the sites will take into account local post-construction storm water management requirements, policies, and guidelines, as well as site-specific and seasonal conditions. Post-construction PCEMs will be assessed during future line maintenance. During line maintenance, any areas disturbed by the line installation that are observed to be eroding sediment into drainages will be assessed for the appropriate permanent mitigation measure to control sediment movement off the disturbed area. Disturbed areas will also be reclaimed per appendix B15 – Reclamation, Revegetation, and Monitoring Plan.

APPENDIX B4
SPILL PREVENTION, CONTROL, AND COUNTERMEASURES PLAN

B4.1 Purpose

Southline Transmission, LLC (Southline), has developed this Spill Prevention, Control, and Countermeasures (SPCC) Plan for the Southline Transmission Line Project (Project). This SPCC Plan is not a complete Plan, but rather serves as the framework document for the development of a complete SPCC Plan and will lay the foundation for both the construction and the operation and maintenance phases of the Project. The party responsible for completing the final SPCC Plan will be detailed in the construction Plan of Development (POD).

A SPCC Plan addresses prevention and control of oil, hydraulic fluid, and petroleum fuel spills, primarily spills that could enter navigable waters of the United States. This SPCC Plan addresses four basic issues:

- design, operation, and maintenance procedures to prevent and control oil spills
- measures designed for the prevention of operational error and equipment failure involving oil, which are the causes of most spills
- control and recovery of oil spills by containment structures to prevent a spill from entering navigable waters
- oil discharge response procedures for project personnel: this encompasses countermeasures (a contingency plan) to contain, clean up, and mitigate the effects of an oil spill at or from the project

This SPCC Plan is required in defined circumstances by the U.S. Environmental Protection Agency (EPA) regulations contained in Title 40, Code of Federal Regulations, Part 112 (40 CFR 112), titled "Oil Pollution Prevention." This SPCC Plan provides preventive procedural actions associated with spills or releases of oil, including fuel, lubricant, or heat transfer media, during construction refueling activities and during operation and maintenance. This SPCC Plan also presents applicable Proponent Committed Environmental Measures (PCEMs) that were identified in the Environmental Impact Statement (EIS) and are included in table 8 of the Plan of Development (POD) as methods to minimize the environmental impact.

B4.2 Responsibility of Implementation

The SPCC Rule, administered by the EPA, is a rule that includes requirements for oil spill prevention, preparedness, and response to prevent discharges to navigable waters and adjoining shorelines. Specifically, the rule requires facilities to prepare, amend, and implement SPCC Plans. A facility is subject to SPCC regulations if the total aboveground storage capacity of oil and oil products exceeds 1,320 gallons; or if the underground storage capacity exceeds 42,000 gallons; and if, because of its location, the facility could reasonably be expected to discharge oil into navigable waters of the United States. Containers with a capacity of less than 55 gallons of oil or oil products are exempted from the requirements under the Oil Pollution Prevention regulations.

Southline, its construction contractor(s), and their inspectors shall be responsible for the implementation of the procedural actions, PCEMs, and other specific stipulations and methods of any and all applicable SPCC Plans. The construction contractor(s) will implement the SPCC Plan to ensure compliance with

applicable Federal, State, and local regulations applicable to the location of refueling, storage, waste removal, and other activities involving fuels and petroleum products in coordination with Southline. The final plan(s) shall be reviewed by Southline as appropriate.

A key component of SPCC implementation is training. All oil-handling personnel including construction contractor employees and subcontractors involved with transporting or handling fueling equipment or maintaining construction equipment will be required to complete spill training before they commence work on the project. Spill training will also be required for all contractor and subcontractor personnel before beginning work on the project.

Spill training programs will be conducted by the construction contractor and the site safety coordinator and will accomplish the following:

- Provide information concerning pollution control laws, regulations, and rules
- Inform personnel of the proper operation and maintenance of fueling equipment
- Inform personnel of spill prevention and response requirements, including the operation and maintenance of equipment to prevent discharges
- Describe the measures and provisions of the SPCC Plan and discharge procedure protocols
- Assign roles and responsibilities for implementing the SPCC Plan

Measures, responsibilities, and provisions of this SPCC Plan and spill training will be provided through ongoing safety briefings, which will discuss safety and spill prevention and response, including personal responsibility to initiate appropriate procedures.

B4.3 Spill Prevention

It is anticipated that fuel and petroleum products will be stored and used in the Project area in various quantities. Therefore, PCEMs are to be used to minimize the potential for spills and for pollutants to enter the environment. The most economical and effective control for pollutants generated on construction sites is the exercise of "good housekeeping" practices and an awareness by construction workers, planners, engineers, and developers of the need for and purpose of compliance with Federal, State, and local regulations. The following general "good housekeeping" practices will be used:

- Designate areas for equipment refueling, maintenance, and repair. These areas must have provisions to contain any pollutants in an area that can be regularly removed and disposed of.
- Provide appropriate waste receptacles at convenient locations and provide regular collection of used oil, if generated on-site.
- Locate equipment washdown areas on-site and provide appropriate control of washwaters.
- Provide protected storage areas for petroleum products. These storage areas will be enclosed with temporary fencing where practicable. Where required, curbing will be installed to minimize oil spills from reaching navigable waterways.
- Contractors/subcontractors will be provided with a storage yard in which to park vehicles during off-hours.
- Properly cover and store materials, minimize contact of materials with rainfall and runoff, minimize waste, properly dispose of waste, and recycle where possible.

- Each contractor and subcontractor will be encouraged to bring to the job site only the material to be used that day as practicable. Large quantities will be placed adjacent to their installation locations so as to minimize handling.
- Retain sediments that contain oil on the construction site. Soil erosion and sediment control practices can effectively accomplish this.

Petroleum products are widely used during construction activities. These products are used as fuels and lubricants for vehicular operations and power tools. For general operation and equipment maintenance, these products include oils and fuels such as gasoline, diesel oil, kerosene, lubricating oils, and grease. Most of these pollutants adhere to soil particles and other surfaces easily. Oil and oily wastes, such as crankcase oil, cans, rags, and paper dropped in oil and lubricants, can be best disposed of in proper receptacles or recycled. Used oil for recycling will not be mixed with degreasers, solvents, antifreeze, or brake fluid. A further source of these pollutants is leaky vehicles. Proper refueling and maintenance of equipment will further reduce pollution by this source.

General practices for storing petroleum products and solvents include:

- Store products in weather-resistant sheds, where practical.
- Line the storage area with a durable impervious material.
- Create an impervious berm around the perimeter or appropriate parts of the perimeter to contain any spills.
- Capacity of bermed area will be at a minimum 110 percent of the capacity of the largest container.
- Clearly label all products.
- Keep tanks off the ground, where feasible, and keep lids securely fastened.
- Locate the storage area where it is protected from vehicle traffic.
- Post or provide access to information for procedures in case of spills. Persons trained in handling spills will be onsite or on-call at all times.
- Materials for cleaning up spills will be kept onsite and easily available. Spills will be cleaned up immediately and the contaminated material properly disposed of.
- Specify a staging area for all vehicle refueling and maintenance activities. This area will be located away from all drainage courses.
- All storage facilities will be regularly monitored for leaks and repaired as necessary. Workers will be reminded during subcontractor or safety meetings about proper storage and handling of materials.
- Construction activity accumulating dangerous wastes that do not contain free liquids will be protected from stormwater run-on.
- Where material is temporarily stored in drums, a containment system can be used.
- Drums stored in an area where unauthorized persons may gain access must be secured in a manner that prevents accidental spillage, pilferage, or any unauthorized use.
- An employee trained in emergency spill cleanup procedures will be present when dangerous wastes, liquid chemicals, or other wastes are loaded or unloaded.
- No material, liquid or otherwise, is to be discharged through any storm drain system.
- Cleaning agents that can be recycled will be chosen where practical.

B4.4 Petroleum Spills and Emergency Response

While each spill, leak, or response is unique, standard procedures generally apply. These may include the following steps:

1. First response/assessment and initiation of action (internal and agency notification may be required)
2. Spill control and containment
3. Cleanup
4. Disposal
5. Documentation and reporting
6. Agency notification/external reporting
7. Assessment

These steps are covered in detail below.

B4.4.1 First Response / Assessment and Initiation of Action

When a leak or spill is detected, human health and safety is paramount. Once the situation is deemed safe, the priority will become preventing further damage. The responsibility of the first responder is to first determine the immediate threat to human health and safety, and to the environment, then to evaluate the extent of the spill, its source, whether the release can be stopped, and whether available resources are sufficient to mitigate it. Additional personnel and resources should be requested if needed.

B4.4.2 Spill Control and Containment

All releases will be stopped as soon as possible. The spill will be contained as soon as possible to minimize damage to human health and the environment. This could involve placement of absorbent socks or booms, constructing an earthen dike, spreading absorbent materials on the affected area in the event of small spills, or simply shoveling all contaminated soil into a plastic bag or drum that are carried on vehicles specifically available for the purpose.

B4.4.3 Cleanup

Cleanup operations will begin as soon as possible after the active spill has been stopped and the spread of spilled materials has been contained. Cleanup could be as simple as placing absorbent socks in a bin for proper disposal, or as complex as excavation and hauling of contaminated soil followed by confirmatory soil and water testing.

B4.4.4 Disposal

The correct method of waste disposal varies with the material. Contaminated soils, liquids, and cleanup materials will be managed through a licensed waste management firm or treatment, storage, and disposal company. Copies of shipping/disposal manifests will be filed with the documentation of the event.

B4.4.5 Documentation and Reporting

Appropriate forms documenting the release and cleanup must be completed and signed, and stored along with any sample results, manifests, chains of custody, photographs, and other relevant materials.

B4.4.6 Agency Notification/External Reporting

If a spill occurs on Federal or State land, the appropriate agency office or landowner will be notified, and a copy of the manifest for disposal of the affected materials will be provided to the appropriate agency if required. Any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR 117 shall be reported as required by the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, Section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the authorized officer concurrent with the filing of the reports to the involved Federal agency or State government.

The EPA has determined that discharges of oil into navigable waters of the United States in quantities that may be harmful to public health or the environment include those that:

- Violate applicable water quality standards;
- Cause a film or "sheen" upon, or discoloration of the surface of the water or adjoining shorelines;
- Cause a sludge or emulsion to be deposited beneath the surface of the water or upon adjoining shorelines.

The National Response Center (NRC) shall immediately be notified of such discharges, as shall any required state and/or municipal agencies. This notification will be documented by the SPCC Coordinator. Information on the notification will follow the requirements described in the beginning of this subsection.

For discharges more than 1,000 gallons in a single event; or discharges more than 42 U.S. gallons of oil in each of two discharges occurring within any 12-month period, the final SPCC Plan, with the site-specific information listed in 40 CFR 112.4(a), will be submitted within 60 days to the EPA Regional Administrator.

The written report will contain the following information:

- Name, telephone number, and address of facility where spill occurred
- Name of owner/operator
- Name, title, telephone number, and address of reporter
- Name and telephone number of the person responsible for facility operations at the spill site
- Date and time of the spill or release
- Maximum storage or handling capacity of oil on the site and normal daily throughput
- Corrective action taken, with description of equipment repairs and replacements
- Facility description with maps, flow diagrams, and topographical information
- Estimated quantity of material released or spilled and the time/duration
- Exact spill location, including the name of the waters threatened or other affected media
- Source of the release or spill

- Cause of accident/spill
- Steps being taken or proposed to contain/clean up the spill, and precautions taken to minimize impacts
- SPCC Plan and failure analysis
- Cause of spill, with failure analysis
- Additional preventive measures taken or contemplated to minimize recurrence
- Other information pertinent to the SPCC Plan or spill event

Additionally, States often have their own reporting requirements for spills. Both New Mexico and Arizona have their own reporting requirements detailed below:

B4.4.6.1 NEW MEXICO REPORTING REQUIREMENTS

- According to the New Mexico Environment Department (NMED), a discharge of any material in a quantity that may, with reasonable probability, injure or be detrimental to human health, animal/plant life, or property; or may unreasonably interfere with the public welfare or the use of the property must be reported. This includes chemicals, biohazard materials, petroleum products, and sewage. In addition to recent spills, the discovery of evidence of previous unauthorized discharges, such as contaminated soil or groundwater, also must be reported.
- Emergency: (505) 827-9329, Non-Emergency: (866) 428-6535 or (505) 476-6000
- Website: http://www.nmenv.state.nm.us/gwb/nmed-gwqb-NotificationofSpillsandUnauthori.htm
- Oral notification must be provided to NMED as soon as possible after learning of a discharge, but in no event more than twenty-four (24) hours thereafter.

B4.4.6.2 ARIZONA REPORTING REQUIREMENTS

- According to the Arizona Department of Environmental Quality, Federal reportable quantities apply. However, a spill of any quantity that impacts a waterway within the state of Arizona must be reported.
- Emergency: (602) 390-7894, Non-Emergency: (800) 234-5677 or (602) 771-2330
- Website: http://www.azdeq.gov/er.html

B4.4.7 Assessment

This is time to reflect on the cause of the spill, the response, and how the situation could have been improved. The assessment will include:

- Evaluation of what caused the spill, how it could have been prevented, and what other locations this may apply to.
- Evaluation of the emergency response and how it could be improved.
- Evaluation of the availability and utility of the equipment that was necessary to mitigate the spill.
- Implementation of changes to the facility, this SPCC Plan, and personnel training as appropriate.

B4.5 Proponent Committed Environmental Measures

The following PCEMs, which were identified in the EIS and are included in table 8 of the POD, will be implemented in conjunction with this SPCC Plan:

- Construction, operation, and maintenance crew members who handle oil or other hazardous substances described in the SPCC Plan will be properly trained to deal with a spill, and appropriate spill response or containment material will be available for use at applicable work sites. Careful handling and designation of specific equipment repair and fuel storage areas, as outlined in this SPCC Plan, will reduce the potential for oil and fuel spills. In the event that there is an oil or fuel spill, immediate measures will be taken to control the spill, and the EPA, BLM, NRC, and/or Arizona Department of Environmental Quality or NMED will be notified as defined in this SPCC Plan.
- HAZ-5: In the event of a spill, workers in the immediate area will cease work, begin spill cleanup operations, and notify appropriate agencies as required by law and specified in this SPCC Plan. Southline and its construction contractor are responsible for cleanup and assume liability for any and all releases of hazardous substances disposed on public land, in accordance with State, Federal, and local laws and regulations. Southline will immediately notify the BLM authorized officer of any and all releases of hazardous substances on public land.
- HAZ-7: Southline or the applicable contractors will maintain all vehicles in good working order. Equipment will be properly tuned and maintained to avoid leaks of fluids.
- HAZ-8: Service and refueling procedures will not be conducted within 500 feet of a seep, wash, or other water body. Routine service of any vehicles or equipment will not be done within the right-of-way.
- Several Framework Plans prepared as part of the final POD will be developed and implemented to minimize and mitigate potential hazardous materials and waste; plans include a Stormwater Pollution Prevention Plan (refer to appendix B3); Soil Management Plan (refer to appendix B14); and Hazardous Materials Management Plan (refer to appendix B9). These plans will include requirements by the EPA, Occupational Safety and Health Administration, NMED, Arizona Department of Environmental Quality, and the New Mexico and Arizona Departments of Transportation.

B4.6 Emergency Contacts

National Response Center (Washington, D.C.)
The NRC is the sole Federal point of contact for reporting all hazardous substances releases and oil spills. The NRC receives all reports of releases involving hazardous substances and oil that trigger Federal notification requirements under several laws.

Phone: (800) 424-8802

Website: http://www.nrc.uscg.mil/

U.S. Environmental Protection Agency
Superfund, Toxic Release Inventory, Emergency Planning and Community Right-to-Know Act, Risk Management Program, and Oil Information Center:

Phone: (800) 424-9346

Type of Coverage: Staffed by live Information Specialists. Assistance is also available through the Emergency Management Frequently Asked Question Database, which provides answers to frequently asked questions and an option to submit questions electronically to the Information Center.

Description: A publicly accessible service that provides up-to-date information on the regulatory requirements of the Oil Pollution Prevention Program, including Spill Prevention, Control, and Countermeasures (SPCC) Plans, Facility Response Plans (FRPs), and oil discharges. The Information Center does not provide regulatory interpretations. It does, however, maintain up-to-date information on the availability and distribution of publications and other resources pertaining to its program areas.

Additional Notes: This hotline is shared and managed by the following EPA Programs: the Toxics Release Inventory, EPCRA, Risk Management Plans, Superfund, and Oil Spill Prevention.

EPA Region 6 Customer Service Line:
Phone: (800) 887-6063; Outside Region 6 call 214-665-6444
Serving Region 6 (AR, LA, NM, OK, and TX).

EPA Region 9 Customer Service Line:
Phone: (866) 372-9378; Outside EPA Region 9 call 415-947-8000.
Serving Region 9 (AZ, CA, HI, NV, and Pacific Islands).

BLM, Las Cruces District Office:
1800 Marquess Street, Las Cruces, NM 88005
(575) 525-4300
District Manager: Bill Childress

BLM, Safford Field Office
711 14th Avenue, Safford, AZ 85546
(928) 348-4400
District Manager: Tim Shannon
Field Manager: Scott Cooke

BLM, Tucson Field Office
3201 East Universal Way, Tucson, AZ 85756
(520) 258-7200
District Manager: Tim Shannon
Field Manager: Vi Hillman

New Mexico Environment Department
Emergency: (505) 827-9329, Non-Emergency: (866) 428-6535 or (505) 476-6000
Website: http://www.nmenv.state.nm.us/gwb/nmed-gwqb-NotificationofSpillsandUnauthori.htm

Arizona Department of Environmental Quality
Emergency: (602) 390-7894, Non-Emergency: (800) 234-5677 or (602) 771-2330
Website: http://www.azdeq.gov/er.html

APPENDIX B5
HISTORIC PROPERTIES TREATMENT PLAN

Appendix B5 is a confidential appendix that will contain the Historic Properties Treatment Plan (HPTP) that is being developed for the Project. As identified in the Programmatic Agreement, the HPTP will provide information on the following:

- A brief description of the proposed action
- A list of the properties where data recovery is to be carried out
- A list of properties that will require archaeological monitoring during construction
- An archaeological construction monitoring plan
- Research questions to be addressed
- Methods to be used during fieldwork for data recovery
- A cultural resource unanticipated discovery plan
- Methods to be used during analysis
- Reporting and curation of artifacts
- Schedule for the submission of progress reports
- Recommendations for treatment of cultural resources during operation and maintenance of the Project
- Qualifications of consultants employed to undertake the work
- Training protocols for contractors

Content to be developed.

APPENDIX B6
BLASTING PLAN

B6.1 Introduction

A blasting plan is needed if blasting will be required on the Southline Transmission Line Project (Project) to ensure human health and safety during construction blasting operations. The blasting plan also mitigates the effects of noise and vibration, impacts to flora and fauna, and ensures compliance with myriad rules and regulations regarding the transportation, storage, handling, and use of explosives. This Blasting Plan Framework is not a complete blasting plan, but rather serves as the baseline document for the development of a complete Blasting Plan to be developed by the construction and blasting contractor(s).

This Blasting Plan is a framework that outlines methods to mitigate risks and potential impacts associated with blasting procedures that may be required for construction of the Project. Also included in this section is a preliminary outline for the Blasting Plan and Proponent Committed Environmental Measures (PCEMs), as identified in the Environmental Impact Statement (EIS) and table 8 of the Plan of Development (POD). These measures are developed to reduce or avoid potential environmental impacts resulting from Project-related blasting activities. The Blasting Plan is to be prepared by the construction contractor(s) and submitted to Southline Transmission, LLC (Southline, or the Proponent), the Bureau of Land Management (BLM), and Western Area Power Administration (Western), if blasting is required. Blasting on State lands or other relevant jurisdictions may require additional approval. As indicated in the POD, this plan is applicable on Federal lands administered by the BLM as enforceable stipulations and measures of the BLM ROW grant. Where Western is involved in the Project, they may adopt this plan, where appropriate.

B6.2 Purpose

Once completed, the Blasting Plan will provide construction crews, the compliance inspection contractor (CIC), and environmental monitors with Project-specific information concerning blasting procedures, including the safe use and storage of explosives. The objective of the Blasting Plan is to prevent adverse impacts on human health and safety, property, and the environment that could potentially result from the use of explosives during Project construction.

B6.3 Regulatory Compliance and Procedures

The construction and blasting contractor(s) will be responsible for preparing and implementing the Blasting Plan and must comply with all applicable Federal, State, and local laws and regulations that pertain to explosives. No blasting operations will be undertaken until approval and appropriate permits have been obtained from the applicable agencies. Failure to comply with such laws could result in severe consequences.

The construction and blasting contractor(s) will comply with rules and regulations set forth by the U.S. Department of Transportation; Federal Bureau of Alcohol, Tobacco, Firearms and Explosives; Occupational Safety and Health Administration (OSHA);, and all federal, state, county, and local rules and regulations relating to the transportation, storage, handling, and use of explosives. The construction and blasting contractor(s) will use experienced and qualified blasting personnel that will use current and professionally appropriate blasting methods and implement appropriate safety precautions. Blasting

procedures will be closely monitored by the CIC. Any damages that result solely from the blasting activity will be repaired by the construction and blasting contractor(s), or the owner will otherwise be fairly compensated.

B6.4 Blasting Plan Outline

The Blasting Plan prepared by the construction and blasting contractor(s) shall contain the information necessary to, and shall be presented in a format to meet or exceed the industry standard and meet regulatory approval. Although the Blasting Plan will provide some general specifications and procedures for blasting on the Project, site-specific plans or amendments may be necessary in some circumstances and must first be approved by Southline and any applicable governmental authority that is required. The following is a suggested outline for the Blasting Plan:

- Purpose and Scope of Blasting
- Personnel and Chain of Command, Including:
    - Blast officer and other personnel who will be present
    - Site Safety Officer
- Site, Location, and Date(s) of planned blasting
    - Description of blasting area
    - Description of bedrock and geological problems
    - Description of adjacent utility facilities
- Explosives and blast design:
    - Type, quantity, and detonator device
    - Details of subsurface strata
    - Drilling pattern and spacing
    - Other, as required
- Means of transporting, storing, securing explosives:
- Procedures:
    - Handling explosive charges
    - Setting explosive charges
    - Wiring explosive charges
    - Firing explosive charges
    - Packaging and transportation of explosive materials
- Safety Considerations:
    - General
    - Procedures
    - Traffic control
    - Fire prevention
    - Emergency and first aid
    - Required personal protective equipment (PPE)
    - Minimum standoff distances
    - Clearing and controlling access to blast danger

    - Warning signs and signals
    - Minimum acceptable weather conditions
    - Stray current, static electricity, and lightning
    - Other, as required
- Mitigation measures for:
    - Protection of structures and utilities
    - Flying rock and debris
    - Ground vibration
    - Other, as required
- Procedures for handling misfires or other unusual occurrences
- Environmental Considerations
- Notifications for:
    - Nearby residences and businesses
    - Posted warning signs at Project entry points
    - Coordination with pipeline operators in the vicinity
    - Police, fire, and rescue
- Emergency action plan:
    - Phone numbers for ambulance, fire department, police
    - Location and phone number of nearest medical services facility
- Health and Safety Plan
- Attach a copy of Safety Data Sheet (SDS) for each explosive or other hazardous material expected to be used.
- Attach blast records, safety forms, approvals, and other relevant documents

B6.5 Safety Procedures

Due to the nature of working with explosives, a framework plan could not possibly encompass the array of specific safety procedures that must be in place. Specific explosives safety protocols will be described in detail in the blasting plan and/or health and safety plan. The following is an overview of safety procedures for transportation, storage, handling, and use of explosives on the Project and is intended as general guidelines.

B6.5.1 Transportation

Transportation of explosive materials must comply with federal and state departments of transportation rules and regulations. These laws relate to packaging, labeling, materials compatibility, driver qualifications, and safety of transported explosives. Vehicles must be well-maintained and properly marked with placards. Specific rules apply regarding what may be carried in the vehicle and cargo area of the vehicle, and vehicles carrying explosives may not be left unattended.

B6.5.2 Storage

Explosives must be stored in an approved structure (magazine) that is properly labeled and is resistant to bullets, weather, theft, and fire. The storage area must be in a remote (out of sight and isolated or protected from construction activities) location with restricted access. Detonators will be stored separately from explosives, and the quantity of stored explosives will be the minimum necessary. A log of all explosive stored shall be maintained by the blasting contractor and made available upon request.

B6.5.3 Handling

Personnel who handle explosives must be trained to understand the potential hazards and risks associated with each operation. Supervisors must be trained to recognize and abate hazards associated with their operations. Handling precautions include the following:

- Detonators, blasting caps, and other initiating devices will be carried separately in protective containers.
- The containers must prevent item-to-item contact and be marked to identify the contents.
- Containers will not be tumbled, dragged, dropped, thrown, rolled, or walked.
- Carts, hand trucks, and forklifts may be used when appropriate and necessary, where the circumstances allow and their use would not create additional risk.
- Construction and blasting contractor(s) will handle and dispose of dynamite storage boxes in accordance with relevant federal, state, and local laws.

B6.5.4 Use

At least one person who is thoroughly familiar with accepted firing procedures, knowledgeable of static electricity, hazards of electromagnetic radiation to ordinance, grounding procedures, and overall safety procedures shall be present at any firing site. Two-way radios will not be used when working with explosives, and safety precautions against fire and unintended explosions will be taken. Approved distances will be maintained, and appropriate notifications will be served to personnel on the site. Protocols to be followed will be detailed in the final Blasting Plan and health and safety plan.

B6.6 Proponent Committed Environmental Measures

As noted in the EIS, and in table 8 of the POD, Southline has developed environmental protection measures to be incorporated as part of the Project. The goal of these PCEMs is to reduce or avoid potential environmental impacts resulting from Project-related activities. The following PCEMs will be used in the development of the blasting plan and will be adhered to by the construction and blasting contractor(s):

- Noisy construction activities (including blasting) will be limited to the least noise-sensitive times of day (daytime only between 7 a.m. and 10 p.m.) and to weekdays. In sensitive wildlife areas, they will be limited to between 1.5 hours after sunrise and 1.5 hours before sunset.
- If blasting or other activities that cause loud bursts of noise are required during the construction period, nearby residents will be notified in advance.
- To avoid impacting roosting bats at the Ina Road bridge, blasting activities will be restricted to less than 130 decibels (dB) if possible, and if that is not possible, then blasting activities will

occur at night after most bats have left their roost., No blasting will occur in April or May when the maternity colony is present.

- BAT-1 Construction activities that create sudden and sporadic loud noise (e.g., blasting) within 0.5 mile of the Volcano Mine complex will be restricted in the Spring (April 1 to May 31), depending on the presence of bats to protect maternity roosts and potential hibernacula.

B6.7 Other Specific Stipulations and Methods

Additional stipulations, procedures, protocols, and methods may be required by federal, state, or local agencies. These may relate to safety, storage, and use of explosives, or they may be provisions for protecting sensitive species or habitats. The blasting contractor will adhere to the below specific stipulation and any other additional stipulations placed on the blasting plan.

- FP 14: No blasting will be allowed without the notification of the CIC and Fire Marshal. All blasting operations will adhere to guidelines outlined in the Fire Protection Plan (appendix B12). The blasting contractor's vehicles will be equipped with appropriate fire suppression equipment and all crew members will be trained in emergency response.

APPENDIX B7
PLANT AND WILDLIFE SPECIES CONSERVATION MEASURES PLAN

B7.1 Introduction

The purpose of the Plant and Wildlife Species Conservation Measures Plan for the Southline Transmission Line Project (Project) is to assist the Bureau of Land Management (BLM), Western Area Power Administration (Western), Southline Transmission, LLC (Southline, or the Proponent), the construction contractor(s), compliance inspection contractor (CIC), and other monitors in meeting their obligations to protect biological resources during the planning, design, and implementation of the proposed Project. This plan includes information on (1) regulatory requirements and agency considerations pertaining to biological resources, and (2) specific plant and wildlife species conservation Proponent Committed Environmental Measures (PCEMs) developed to reduce Project-related impacts on biological resources.

This plan provides information on anticipated impacts on plant and wildlife resources associated with the Project and identifies the PCEMs (as presented in the Environmental Impact Statement (EIS) for the Project and also in table 8 in the Plan of Development [POD]), along with stipulations, protocols, and/or techniques required to reduce these impacts. This plan does not identify PCEMs for aquatic biological resources. Protection for water resources, including PCEMs identified in Appendix B13 – Stream, Wetland, Well, and Spring Protection Plan, have met agency requirements to protect aquatic species. The plan is not intended to provide comprehensive, location-specific restrictions within the Project area.

As indicated in the POD, this plan is applicable on Federal lands administered by the BLM as enforceable stipulations and measures of the BLM right-of-way (ROW) grant. It pertains not only to the construction of the Project, but also to the operation and maintenance phase of the Project. Where Western is involved in the Project, they may adopt this plan, where appropriate. While neither BLM nor Western has the authority to enforce the POD and its PCEMs on State or private lands, BLM expects that most landowners would want the same protections afforded resources on BLM administered lands to be extended to their properties as well. Therefore, the agencies anticipate that the PCEMs and other specific stipulations and methods identified in the POD will largely be implemented over the entire length of the Project, regardless of jurisdiction.

B7.2 Regulatory Framework

B7.2.1 Federal Endangered Species Act

Pursuant to the federal Endangered Species Act (ESA) of 1973, the U.S. Fish and Wildlife Service (FWS) has authority over actions that may affect the continued existence of a species federally listed as Threatened or Endangered. Take of federally listed species is prohibited without specific exceptions or permits issued under Sections 7 or 10 of the ESA. Under the ESA, the definition of "take" includes to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in any such conduct. FWS has further defined harm to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, or sheltering. Federal agencies must consult with the FWS under Section 7 of the ESA on actions they authorize, fund, or carry out to ensure these actions are not likely to jeopardize the continued

existence of a listed species or result in the destruction or adverse modification of designated critical habitat.

BLM and Western, as the lead Federal agencies in preparation of an EIS for the Project, consulted with FWS on the potential effects of the Project on federally listed species. The FWS concurred on December 30, 2014, that the Project may affect, and is likely to adversely affect, the lesser long-nosed bat (*Leptonycteris curasoae yerbabuenae*), the Mexican long-nosed bat (*Leptonycteris nivalis*), Pima pineapple cactus (*Coryphantha scheeri* var. *robustispina*), and southwestern willow flycatcher (*Empidonax traillii extimus*). The Project may affect, but is not likely to adversely affect, the Gila chub (*Gila intermedia*) and its critical habitat; Huachuca water umbel (*Lilaeopsis schaffneriana* var. *recurva*); northern Mexican gartersnake (*Thamnophis eques megalops*) and its proposed critical habitat; and the yellow-billed cuckoo (*Coccyzus americanus*) and its proposed critical habitat. The biological assessment was amended on July 27, 2015, and consultation re-initiated due to a change in the proposed route. FWS in their Final biological opinion (BO), dated November 10, 2015, concurred with the determination that the changes to the proposed route would not change the effects determination for any of the listed species as given in the December 30, 2014, BO.

B7.2.2 Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (16 U.S.C. 668) applies primarily to taking, hunting, and trading activities that involve bald or golden eagles. The act prohibits the taking of any individuals of these two species, as well as any part, nest, or egg. The term "take" as used in the act includes pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest, or disturb (16 U.S.C. 668).

B7.2.3 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) (16 U.S.C. 703) makes it unlawful to pursue, hunt, take, capture, kill, or possess any migratory bird, part, nest, or egg of such bird listed in wildlife protection treaties among the United States and Great Britain (on behalf of Canada), Mexico, Japan, and the former Union of Soviet Socialist Republics (USSR). This act also contains a clause that prohibits baiting or poisoning of these bird species. A list of species covered by the MBTA can be found in 50 Code of Federal Regulations (CFR) 10.13. The MBTA applies to many bird species, including raptors, and protects them from prohibited activities during construction, operation, and maintenance of the Project.

B7.2.4 Bureau of Land Management – Land Use Plans

The BLM Resource Management Plans provide management guidance and desired population and habitat conditions for wildlife on BLM-administered lands. BLM Field Offices monitor habitat conditions and manage crucial wildlife habitat jointly with the Arizona Game and Fish Department (AGFD) and New Mexico Game and Fish Department (NMGFD). The BLM manages habitat for wildlife species by assessing the ability of a land area to supply the forage, cover, water, and space requirements of wildlife. Trend studies determine the directional change of a habitat from or toward desired conditions. These habitat and trend studies (BLM Manuals 6630.2, 6630.3, and 6630.4) allow the BLM to adjust management prescriptions through grazing or other public uses to improve habitat.

B7.2.5 Bureau of Land Management – Special Status Species Management Policy

BLM Manual 6840, "Special Status Species Management Policy," authorizes each BLM State Director to designate and protect sensitive species on lands managed by the BLM. In New Mexico, the BLM list of

special status species is adopted from the Biota Information System of New Mexico (BISON-M) list of sensitive wildlife species, and the New Mexico Rare Plant Technical Council's list of New Mexico rare plants. In Arizona, the BLM State Director has issued a list of species designated as BLM Sensitive. As stated in Instruction Memorandum No. AZ-2006-002 (BLM 2005), "BLM Sensitive species are not covered by any other 'safety net' of status designation. Therefore, the Arizona BLM Sensitive Species List does not include species that are already Federally-listed or State-listed."

The BLM affords its designated sensitive species the same level of protection as ESA Candidate Species. BLM Sensitive Species are those for which population viability is a concern, which is warranted by a downward trend in population numbers, density, or habitat conditions that would reduce a species' existing distribution. The BLM is responsible for ensuring that its actions do not further contribute to the need for Sensitive Species to become listed as threatened or endangered.

B7.2.6 Coronado National Forest – Management Indicator Species Policy

Forest Service Manual (FSM) 2670 directs each Regional Forester to designate sensitive species on public lands administered by the U.S. Forest Service. According to the manual, sensitive species are defined "as plant or animal species identified by a Regional Forester for which population viability is a concern, as evidenced by a significant current or predicted downward trend in population numbers or density, or significant current or predicted downward trends in habitat capability that would reduce an existing distribution of the species."

The FSM 2670 also establishes the following management direction and objectives for Forest Service sensitive species:

- Maintain viable populations of all native and desired non-native wildlife, fish, and plant species in habitats distributed throughout their geographic range on Forest Service–administered lands.
- Review programs and activities as part of the National Environmental Policy Act of 1969 process, through a biological evaluation, to determine their potential effect on sensitive species.
- Analyze, if impacts cannot be avoided, the significance of potential adverse effects on the population or its habitat within the area of concern and on the species as a whole.

The PCEMs described in this Plant and Wildlife Species Conservation Measures Plan will ensure that the Project is constructed, operated, and maintained in compliance with FSM 2670.

FSM 2620.5 defines Management Indicator Species (MIS) as "plant and animal species, communities or special habitats selected for emphasis in planning, and which are monitored during forest plan implementation in order to assess the effects of management activities on their populations and the populations of other species with similar habitat needs which they may represent" (Forest Service 1991:6). These regulations require that certain vertebrate and/or invertebrate species present in the area be identified as MIS within the planning area (i.e., Coronado National Forest lands) and that these species be monitored, as "their population changes are believed to indicate the effects of management activities" (36 CFR 219.19(a)(1)). Standard and Guideline No. 1 for Wildlife and Fish within the Coronado National Forest Plan (Forest Service 1986:31-1) directs the Coronado National Forest to "maintain or improve occupied habitat of . . . listed threatened and endangered species, and MIS through mitigation of Forest activities." The Coronado National Forest also maintains a list of sensitive species that are known to occupy Coronado National Forest lands.

B7.2.7 Bureau of Land Management – Executive Order 13112

Executive Order (EO) 13112 (Invasive Species) requires Federal agencies prevent the introduction and spread of invasive species and "not authorize, fund, or carry out actions that it believes are likely to cause or promote the introduction or spread of invasive species."

B7.2.8 Bureau of Land Management – Executive Order 11990

Executive Order 11990 (Wetlands) requires Federal agencies to minimize the destruction, loss, or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands in carrying out the agency's responsibilities.

B7.2.9 Sections 401, 402, and 404 of the Clean Water Act

Sections 401, 402, and 404 of the Clean Water Act regulate drainage and discharge of dredged or fill materials into waters of the U.S., including wetlands.

B7.2.10 Bureau of Land Management - Terms and Conditions of Right-of-Way Grants and Temporary Use Permits, 43 CFR 2881.2

"The authorized officer shall impose stipulations which shall include, but not be limited to requirements for reclamation, revegetation, and curtailment of erosion of the surface of the land [and] requirements designed to control or prevent damage to the environment (including damage to fish and wildlife habitat)."

B7.2.11 Federal Land Policy Management Act of 1976

In accordance with the Federal Land Policy Management Act (FLPMA), BLM must make land-use decisions based on principles of multiple use and sustained yield. As such, a grant of ROW must be limited to its necessary use and must contain terms and conditions that reflect BLM's management responsibilities under the FLPMA, including minimizing impacts on fish and wildlife habitat.

B7.2.12 Wild Free-Roaming Horses and Burros Act of 1971

Wild free-roaming horses and burros are living symbols of the historic and pioneer spirit of the West; they contribute to the diversity of life forms within the Nation and enrich the lives of the American people. It is the policy of the Congress that wild free-roaming horses and burros shall be protected from capture, branding, harassment, or death; and to accomplish this, they are to be considered in the area where presently found as an integral part of the natural system of the public lands.

B7.2.13 New Mexico State Requirements

The NMDGF, in accordance with the New Mexico Wildlife Conservation Act of 1978 (NMSA 1978, 17-2-37, et seq.), established a list of animal species considered threatened or endangered within the state of New Mexico. The Forestry Division of the New Mexico Energy, Minerals, and Natural Resources Department administers plant resources listed under the New Mexico Endangered Plant Species Act of 1985 (NMSA 1985, 75-6-1). ESA-listed species may be included as state-listed species, as appropriate.

B7.2.14 Arizona State Requirements

The state of Arizona has no legislated protection for individual threatened and endangered species. Legislation pertaining to wildlife resources is contained in chapter 17 of the Arizona Revised Statutes (ARS), and administered by the AGFD. Some protection for species of conservation concern is provided by the Arizona Game and Fish Commission through bag limits and regulation of hunting seasons, including permanent hunting season closure for some sensitive species.

The Arizona Native Plant Law (ARS 3-901-907), administered by the Arizona Department of Agriculture, establishes a list of native plants afforded legal protection under the law, and defines four categories of protected native plants. Highly Safeguarded and Salvage Restricted plant species, the two highest protection categories, are included in this review of sensitive resources within the study corridor. The other two categories of protected native plants are not included as they are not considered to be in jeopardy, and regulatory permitting and compensation measures are in place for these categories. Compensation for these native plants is discussed in section B7.5 below.

B7.2.15 Tribal

The Tohono O'odham Nation maintains a list of tribally sensitive species. At the request of the tribe, tribally sensitive species for the Tohono O'odham Nation were considered in the EIS and in the development of this Framework Plan when they were also protected under a Federal, State, or county law. For those species that are not specifically addressed in the EIS or herein, Western will coordinate with the Tohono O'odham Nation to determine appropriate mitigation.B7.2.14 Pima County Requirements

B7.2.16 Pima County – Sonoran Desert Conservation Plan

The Pima County Board of Supervisors initiated the development of the Sonoran Desert Conservation Plan (SDCP), a region-wide plan to address the long-term conservation needs of cultural and natural resources in Pima County. Through the development of the SDCP, a goal of developing a conservation plan and obtaining an ESA Section 10 permit was established. Thus, to avoid, minimize, and mitigate the effects of future growth of the human-built environment, Pima County developed the Multi-Species Conservation Plan (MSCP), which is part of the SDCP, to apply for a 30-year Section 10 permit under the ESA (Pima County 2010). The MSCP identifies 49 covered Priority Vulnerable Species for the forthcoming Section 10 permit, including 4 plants, 8 mammals, 8 birds, 6 fish, 2 amphibians, 7 reptiles, and 14 invertebrates.

In 2001, the Pima County Board of Supervisors adopted the Conservation Lands System regional plan policy, which applies the science-based policies and principles of conservation developed in the SDCP (Pima County 2010). Riparian areas are one of the five elements considered for conservation in the plan. As such, the Pima County Board of Supervisors has adopted maps of Regulated Riparian Habitat (RRH) throughout the county. As part of the floodplain use permit process, proposed developments are subject to review for impacts to mapped RRH if more than 0.3 acre of a property's RRH is disturbed. In some instances where disturbed RRH is classified as Hydroriparian, Mesoriparian, and/or Important Riparian Area (IRA), a mitigation plan needs to be approved by the Pima County Board of Supervisors.

Once final Project design is complete, and if the Project impacts RRH outside the existing ROW, Pima County Regional Flood Control District (PCRFCD) approval is required. If impacts greater than 0.3 acre (14,520 square feet) occur outside the existing ROW and within an RRH classified as Hydroriparian, Mesoriparian, and/or IRA then a mitigation plan will be required for either onsite or offsite mitigation, including in-lieu fee (PCRFCD 2011a).

ONSITE MITIGATION

The purpose of onsite mitigation is to replace habitat of similar value to RRH that will be disturbed as a result of site development. The Ordinance requires that replacement habitat (mitigation area) be of similar or equal value to removed habitat within 5 years of installation. Onsite mitigation is required when greater than 0.3 acre (14,520 square feet) of RRH is disturbed. A Riparian Habitat Mitigation Plan is required for onsite mitigation (PCRFCD 2011a).

Onsite mitigation needs to include the location of the mitigation area(s); planting and seeding of trees, shrubs, and understory; irrigation to facilitate the establishment of plants; maintenance for a period of 5 years to ensure reestablishment of riparian plants; and monitoring for 5 years to ensure that the Riparian Habitat Mitigation Plan is implemented and successful. The Riparian Habitat Mitigation Plan shall be considered successful if 80% of the plants are living and actively growing without supplemental irrigation or significant die back or loss at the end of the 5-year monitoring period. (PCRFCD 2011a).

OFFSITE MITIGATION

Three offsite mitigation options are available: "(1) Restoration of disturbed or degraded RRH on another parcel of land that provides comparable or superior biological function similar to the RRH proposed for disturbance, with appropriate long-term protection measures; (2) Land transfer proposals; and (3) Payment of an in-lieu fee" (PCRFCD 2011b).

Restoration

Restoration may be implemented to enhance or restore riparian habitat function and may include hydroseeding, water harvesting, check dams, and/or other low-cost methods at an offsite parcel using onsite mitigation requirements. Additional details on restoration requirements can be found in the "Regulated Riparian Habitat Mitigation Standards and Implementation Guidelines" (PCRFCD 2011a) and "Regulated Riparian Habitat Offsite Mitigation Guidelines for Unincorporated Pima County" (PCRFCD 2011b).

Land Transfer Proposals

Applicants may propose transfer of land in Pima County that provides multiple benefits such as "preservation of valuable habitat corridors, providing habitat connectivity and augmenting habitat preserved on public land, parks, preserves and habitat restoration projects" (PCRFCD 2011b). PCRFCD has a land acquisition map with the location of lands that may qualify for land transfer. Lands proposed for transfer must have biological and hydrological value that is of comparable or higher quality than the disturbed RRH. Values considered include biological productivity, water availability, and vegetation density (PCRFCD 2011b).

Considerations for land transfer include the following:

- Land within the same watershed as the RRH area to be disturbed will be given preference;
- Land proposed for transfer must have equal or higher quality riparian habitat to the disturbed RRH;
- A biological evaluation of land proposed for transfer must be completed;
- Mechanisms to protect resources and conservation values in perpetuity; and
- All land transfer proposals are subject to PCRFCD review and approval (PCRFCD 2011b).

Additional details on requirements can be found in the "Regulated Riparian Habitat Offsite Mitigation Guidelines for Unincorporated Pima County" (PCRFCD 2011b).

In-Lieu Fee

The following costs for mitigation components are considered to determine in-lieu fee costs:

- Plant material;
- Labor for plant installation;
- Hydroseed materials and labor;
- Irrigation system materials and labor;
- Five years of maintenance; and
- Five years of monitoring (PCRFCD 2011b).

Additional details on requirements and cost determinations can be found in the "Regulated Riparian Habitat Offsite Mitigation Guidelines for Unincorporated Pima County" (PCRFCD 2011b).

B7.3 Plant and Wildlife Concerns and Issues

Biological resource concerns and issues were identified throughout the planning stages of the Project. Several sensitive biological resources that potentially occur within the Project area were identified through discussions with biologists from the BLM, Western, NMDGF, AGFD, and FWS. These included:

- Federally listed, candidate, and proposed species
- State of New Mexico threatened and endangered species
- Big-game species, primarily pronghorn (*Antilocapra americana*) and desert bighorn sheep (*Ovis canadensis nelsoni*)
- Migratory birds, including impacts to nesting birds, raptors, and the collision risk associated with transmission lines in areas of high bird use
- Loss and fragmentation of terrestrial habitats, and erosion or other potential effects on aquatic habitats
- Other special status wildlife and rare plants
- Noxious weeds (addressed in Appendix B11 – Noxious Weed Management Plan)

Details for each of these resources, including their known distribution or potential for occurring within the Project area of influence, are found in the Project EIS and its appendices, the biological assessment, and in this Plant and Wildlife Conservation Measures Plan, as appropriate.

This plan identifies mitigation measures that will be implemented to protect specific plants and wildlife in the Project area. Mitigation measures, including stipulations to minimize disturbance levels and reclamation practices, can also be found below in Section 4 – Proponent Committed Environmental Measures and in Appendix B15 – Reclamation, Vegetation, and Monitoring Framework Plan of the POD.

B7.3.1 Plan Priorities and Goals

Mitigation measures for the Project were designed to reduce three types of Project-related impacts on plant and wildlife resources: (1) disturbance and displacement, (2) habitat loss and fragmentation, and

(3) plant and wildlife mortality. This section describes the impact types evaluated for each resource and identifies mitigation goals used to develop and apply mitigation measures. General mitigation measures are described in section 5 of the POD – Environmental Mitigation Measures.

B7.3.1.1 DISTURBANCE AND DISPLACEMENT

The Project will result in disturbance and displacement of plants and wildlife within and adjacent to the ROW. Disturbance and displacement of wildlife includes temporary changes in habitat use related to construction activities and long-term changes related to the presence of Project features and increased human activity associated with operation and maintenance of the Project and new public access. Disturbance and displacement of plant species includes effects related to increases in erosion and dust associated with the Project, the creation of temporary work areas during construction, maintenance, and physical disturbance associated with new public access.

Mitigation Goal

Implement measures compatible with Project design standards to minimize disturbance and displacement of wildlife as a result of construction, operation, and maintenance activities in the Project area.

B7.3.1.2 HABITAT LOSS AND FRAGMENTATION

The Project will result in the permanent loss and fragmentation of plant and wildlife habitat due to clearing and grading for access roads, work areas, and substation sites; installation of transmission structures; and vegetation management within the ROW. These actions will remove or alter plant and wildlife habitat within the ROW to accommodate Project features. Habitats outside the ROW could experience reduced suitability for plant and wildlife species as the linear Project may fragment previously connected populations. The Project may also impact plant and wildlife habitat by increasing the potential for the establishment and spread of noxious weeds and the frequency of human-caused wild fire.

Mitigation Goal

Implement measures compatible with Project design standards to address potential impacts associated with habitat loss and fragmentation. As stated in Table 8 of the POD, a compensation plan will be developed and include calculations of compensation ratios and mitigation acreages for special status plant species requiring additional mitigation. Compensatory mitigation could include payment of an in-lieu fee; acquiring mitigation land or conservation easements; or a combination of the two. Development of a fire protection plan to reduce frequency of human-caused fires (see appendix B12).

B7.3.1.3 PLANT AND WILDLIFE MORTALITY

Implementation of the Project will result in mortality of plants and wildlife in the Project area. Plant and wildlife species with limited mobility will experience mortality during vegetation management, clearing, and grading operations associated with construction, operations, and maintenance of the Project. Wildlife species that occupy burrows may experience mortality if burrows are damaged by heavy machinery. The Project will also result in increased potential for avian mortality due to collisions with shield wires/fiber-optic ground wire and/or conductors. The presence of transmission line structures will increase perching and roosting habitat for raptors and ravens, and may lead to increased predation of wildlife that are prey to these species. Use of herbicides for vegetation management within the ROW will result in plant mortality. Additionally, the creation of new access roads will increase public accessibility and associated plant mortality from trampling and vehicle trespass and may increase wildlife mortality from hunting, poaching, and vehicle collisions.

Mitigation Goal

Implement measures compatible with Project design features for environmental protection to reduce the potential for increased plant and wildlife mortality.

B7.4 Biological Resource Proponent Committed Environmental Measures

This section of the plan describes PCEMs designed to achieve the goals for plant and wildlife resources previously identified in section B7.3.1 above. This discussion includes (1) an overview of each resource's presence in the Project area, (2) resource-specific agency concerns and impacts for which mitigation was identified, and (3) PCEMs to address concerns and reduce resource impacts during the design, construction, operation, and maintenance of the Project.

The Project construction contractor(s) shall adhere to the PCEMs applicable to the engineering/design phase of the Project, as well as those measures that address construction and reclamation activities. The CIC is responsible for the oversight of the implementation of these measures, to ensure that Southline and their construction contractor(s) meet the intent of the PCEMs.

An adequate number of biological monitors will be present to cover each construction front to ensure impacts on plant and wildlife resources are minimized and PCEMs are used. The number of monitors will depend on the resource being impacted and the BLM's determination of a sufficient monitoring level. Activities that occur in biologically sensitive areas or during periods of heightened sensitivity (e.g., occupied sensitive species habitat, migratory bird nesting seasons, brood-rearing seasons, fawning seasons, etc.) are likely to require additional monitoring.

The responsibilities of the biological monitor during construction would include, but not be limited to, the following:

- Preconstruction wildlife surveys.
- Identification of resource presence/absence in biologically sensitive areas.
- Daily briefing of construction crews outlining restrictions associated with biologically sensitive areas.
- Daily contact with the environmental inspectors.
- Preparation of regular (at least monthly) progress reports.
- Immediate notification of the CIC and authorized agency (BLM, Forest Service, NMDGF, AGFD, and/or FWS) in the event construction operations violate terms and conditions of the POD and/or Project Record of Decision.
- A summary of plan compliance given to BLM, NMDGF, AGFD, and/or FWS biologists on completion of the construction phase of the Project.

B7.4.1 Resources of Concern

B7.4.1.1 MIGRATORY BIRDS

Background

Migratory birds protected under the MBTA occur in every habitat throughout the Project area. Several hundred species may winter in the Project area, migrate through the region, or occur infrequently as "accidentals." Fewer species are year-round residents or migrate into the Project area to nest, given the high temperatures and low humidity at lower elevations during the nesting season. PCEMs will assist in reducing impacts to migratory birds.

Concerns

Project-related impacts to migratory birds identified as significant concerns of the agencies include (1) loss of habitat associated with construction of the transmission line, substations, and access roads and vegetation management operations; (2) mortality and loss of production due to destruction of eggs and occupied nests during construction or maintenance activities; and (3) loss of production due to occupied nest disturbance during construction or maintenance activities.

B7.4.1.2 RAPTORS

Background

A variety of raptor species are known to nest and forage in the Project area. All raptors are protected under the MBTA. In addition to protection under the MBTA, several raptor species occurring in the Project area are also designated as BLM Sensitive Species, including bald eagle (*Haliaeetus leucocephalus*), golden eagle (*Aquila chrysaetos*), American peregrine falcon (*Falco peregrinus anatum*), ferruginous hawk (*Buteo regalis*), cactus ferruginous pygmy-owl (*Glaucidium brasilianum cactorum*), and western burrowing owl (*Athene cunicularia hypugaea*). Eagles are afforded additional protections under the Bald and Golden Eagle Protection Act.

PCEMs will be applied to protect active raptor nests during construction and maintenance activities. Activities should not occur within the spatial/seasonal buffer of any nest (occupied or unoccupied) when raptors are in the process of courtship and nest-site selection. The location of active nests and the species that occupy each nest may or may not change from year to year. The construction contractor(s) will be required to conduct raptor nest surveys prior to conducting ground-disturbing activities if construction occurs within the raptor nesting season (December 1 to September 30).

If a nest site within a territory is deemed unoccupied after sufficient surveys have been conducted, human activity could be allowed within the nesting area in the current breeding season and prior to the beginning of the next year's breeding season. This period varies, depending on raptor species. BLM concurrence is required before raptor nests or territories can be deemed unoccupied.

Concerns

Project-related impacts to raptors identified as significant concerns of federal and State agencies include (1) destruction of nests and loss of nesting habitat associated with construction of the transmission line, substations, and access roads, and vegetation management operations; (2) disruptions to nesting activities and loss of raptor productivity due to Project-related increases in human activity and new public access;

(3) increased mortality due to poaching associated with increased public access; and (4) fragmentation and loss of high-quality raptor habitat.

B7.4.1.3 BIG-GAME HABITAT

Background

Big-game animals occurring in the Project area that were identified by the BLM, Forest Service, NMDGF, and AGFD are black bear (*Ursus americanus*), mountain lion (*Puma concolor*), mule deer (*Odocoileus hemionus*), white-tailed deer (*Odocoileus virginianus*), bighorn sheep, javelina (*Pecari tajacu*), and pronghorn. PCEMs will assist in reducing impacts to all big-game species.

Concerns

Project related impacts to big-game species identified as significant concerns of federal and State agencies include (1) loss of habitat associated with construction of access roads, the transmission line, and substations; (2) disturbance and displacement of animals during sensitive periods due to increases in Project-related human activity and new public access; and (3) mortality due to increases in hunting and poaching associated with increased public access.

B7.4.1.4 SPECIAL STATUS WILDLIFE SPECIES

Background

As analyzed in the EIS, special status wildlife species listed in table B7-1 have the potential to occur in the Project area. Special status wildlife species include species listed as threatened, endangered, or candidates under the ESA or classified as sensitive by the BLM, NMDGF, or AGFD.

There are numerous special status species that have the potential to occur in the Project area. These include 10 ESA-listed, candidate, and proposed species. The Project may affect, and is likely to adversely affect the lesser long-nosed bat, Mexican long-nosed bat, and southwestern willow flycatcher. The Project may affect, but is not likely to adversely affect the Gila chub and its critical habitat and the Huachuca water umbel. There will be no impact on the Chiricahua leopard frog or its designated critical habitat. Impacts will be unlikely to jeopardize the *continued existence to the 10 (j) experimental, non-essential population of the northern aplomado falcon (Falco femoralis septentrionalis)*. For the Sonoran desert tortoise (*Gopherus morafkai*) and Sprague's pipit (*Anthus spragueii*) there will be no effect on the viability of these species or contribution toward a downward population trend or listing of these species as threatened or endangered.

Table B7-1. Special Status Wildlife Species with Potential to Occur in the Project Area

Common name	Scientific Name
Federally Listed Species	
Lesser long-nosed bat	*Leptonycteris yerbabuenae*
Mexican long-nosed bat	*Leptonycteris nivalis*
Northern aplomado falcon	*Falco femoralis septentrionalis*
Southwestern willow flycatcher	*Empidonax traillii extimus*
Sprague's pipit	*Anthus spragueii*

Table B7-1. Special Status Wildlife Species with Potential to Occur in the Project Area (Continued)

Common name	Scientific Name
Western yellow-billed cuckoo	*Coccyzus americanus*
Chiricahua leopard frog	*Lithobates chiricahuensis*
Gila chub	*Gila intermedia*
Northern Mexican gartersnake	*Thamnophis eques megalops*
Sonoran desert tortoise	*Gopherus morafkai*
BLM Sensitive Species	
Allen's big-eared bat	*Idionycteris phyllotis*
Banner-tailed kangaroo rat	*Dipodomys spectabilis*
Big free-tailed bat	*Nyctinomops macrotis*
California leaf-nosed bat	*Macrotus californicus*
Cave myotis	*Myotis velifer*
Fringed myotis	*Myotis thysanodes*
Greater western mastiff bat	*Eumops perotis*
Little brown myotis	*Myotis lucifugus*
Long-legged myotis	*Myotis volans*
Mexican long-tongued bat	*Choeronycteris mexicana*
Pale Townsend's big-eared bat	*Corynorhinus townsendii*
Spotted bat	*Euderma maculatum*
Western small-footed myotis	*Myotis ciliolabrum*
Yuma myotis	*Myotis yumanensis*
American peregrine falcon	*Falco peregrinus anatum*
Arizona grasshopper sparrow	*Ammodramus savannarum ammolegus*
Bald eagle	*Haliaeetus leucocephalus*
Cactus ferruginous pygmy-owl	*Glaucidium brasilianum cactorum*
Desert purple martin	*Progne subis*
Gilded flicker	*Colaptes chrysoides*
Golden eagle	*Aquila chrysaetos*
Loggerhead shrike	*Lanius ludovicianus*
Western burrowing owl	*Athene cunicularia*
White-faced ibis	*Plegadis chihi*
Arizona striped whiptail	*Aspidoscelis arizonae*
Colorado River toad (aka Sonoran desert toad)	*Incilius alvarius*
Desert ornate box turtle	*Terrapene ornata luteola*
Great Plains narrow-mouthed toad	*Gastrophryne olivacea*
Lowland leopard frog	*Lithobates yavapaiensis*
Ornate box turtle	*Terrapene ornata ornata*
Plains leopard frog	*Lithobates blairi*
Sonoran green toad	*Bufo retiformis*

Table B7-1. Special Status Wildlife Species with Potential to Occur in the Project Area (Continued)

Common name	Scientific Name
Sonoran mud turtle	*Kinosternon sonoriense sonoriense*
Texas horned lizard	*Phrynosoma cornutum*
Tucson shovel-nosed snake	*Chionactis occipitalis klauberi*
New Mexico Wildlife Conservation Act Species	
Desert bighorn sheep	*Ovis canadensis mexicana*
Abert's towhee	*Melozone aberti*
American peregrine falcon	*Falco peregrinus*
Bell's vireo	*Vireo bellii*
Gila woodpecker	*Melanerpes uropygialis*
Lucifer hummingbird	*Calothorax lucifer*
Varied bunting	*Passerina versicolor*
Gila monster	*Heloderma suspectum*
Great Plains narrow-mouthed toad	*Gastrophryne olivacea*
State of New Mexico Species of Greatest Conservation Need	
Pocketed free-tailed bat	*Nyctinomops femorosacca*
Western red bat	*Lasiurus blossevillii*
American bittern	*Botaurus lentiginosus*
Bank swallow	*Riparia riparia*
Bendire's thrasher	*Toxostoma bendirei*
Common black hawk	*Buteogallus anthracinus*
Eared grebe	*Podiceps nigricollis*
Northern harrier	*Circus cyaneus*
Northern pintail	*Anas acuta*
Painted bunting	*Passerina ciris*
Sandhill crane	*Grus canadensis*
Yellow warbler	*Setophaga petechia*
State of Arizona Wildlife Species of Concern	
Abert's towhee	*Melozone aberti*
Antelope jackrabbit	*Lepus alleni*
Arizona pocket mouse	*Perognathus amplus*
Harris' antelope squirrel	*Ammospermophilus harrisii*
Kit fox	*Vulpes macrotis*
Little pocket mouse	*Perognathus longimembris*
Mexican free-tailed bat	*Tadarida brasiliensis*
Pocketed free-tailed bat	*Nyctinomops femorosacca*
Bank swallow	*Riparia riparia*
Bell's vireo	*Vireo bellii*

Table B7-1. Special Status Wildlife Species with Potential to Occur in the Project Area (Continued)

Common name	Scientific Name
Common nighthawk	*Chordeiles minor*
Crested caracara	*Caracara cheriway*
Dusky-capped flycatcher	*Myiarchus tuberculifer*
Gila woodpecker	*Melanerpes uropygialis*
Northern harrier	*Circus cyaneus*
Rufous-winged sparrow	*Aimophila carpalis*
Savannah sparrow	*Passerculus sandwichensis*
Yellow warbler	*Setophaga petechia*
Canyon spotted whiptail	*Aspidoscelis burti*
Colorado River toad (aka Sonoran desert toad)	*Anaxyrus alvarius*
Desert ornate box turtle	*Terrapene ornate*
Gila monster	*Heloderma suspectum*
Hooded nightsnake	*Hypsiglena* sp. *nov*
Regal horned lizard	*Phrynosoma solare*
Saddled leaf-nosed snake	*Phyllorhynchus browni*
Sonora mud turtle	*Kinosternon sonoriense sonoriense*
Sonoran collared lizard	*Crotaphytus nebrius*
Sonoran coralsnake	*Micruroides euryxanthus*
Sonoran whipsnake	*Coluber bilineatus*
Tiger rattlesnake	*Crotalus willardi obscurus*
Variable sandsnake	*Chilomeniscus stramineus*
State of Arizona Species of Greatest Conservation Need	
Desert bighorn sheep	*Ovis canadensis mexicana*
Mexican free-tailed bat	*Tadarida brasiliensis*
Western yellow bat	*Lasiurus xanthinus*
American bittern	*Botaurus lentiginosus*
American peregrine falcon	*Falco peregrinus*
Buff-collared nightjar	*Caprimulgus ridgwayi*
Eared grebe	*Podiceps nigricollis*
Northern harrier	*Circus cyaneus*
Northern pintail	*Anas acuta*
Sandhill crane	*Grus canadensis*
Savannah sparrow	*Passerculus sandwichensis*
Lincoln's sparrow	*Melospiza lincolnii*
Mississippi kite	Ictinia mississippiensis
Western grasshopper sparrow	*Ammodramus savannarum perpallidus*
Wood duck	*Aix sponsa*
Goode's horned lizard	*Phyrnosoma goodei*

Table B7-1. Special Status Wildlife Species with Potential to Occur in the Project Area (Continued)

Common name	Scientific Name
Coronado National Forest Sensitive Species	
Cockrum's desert shrew	*Notiosorex cockrumi*
Greater western mastiff bat	*Eumops perotis californicus*
Hooded skunk	*Mephitis macroura milleri*
Northern pygmy mouse	*Baiomys taylori ater*
Pale Townsend's big-eared bat	*Plecotus townsendii pallescens*
Plains harvest mouse	*Reithrodontomys montanus*
Yellow-nosed cotton rat	*Sigmodon ochrognathus*
Abert's towhee	*Melozone aberti*
American peregrine falcon	*Falco peregrinus*
Arizona grasshopper sparrow	*Ammodramus savannarum ammolegus*
Western burrowing owl	*Athene cunicularia*
Reticulate Gila monster	*Heloderma suspectum suspectum*
Coronado National Forest Management Indicator Species	
White-tailed deer	*Odocoileus virginianus couesi*
American peregrine falcon	*Falco peregrinus*
Bell's vireo	*Vireo bellii*
Pima County Species	
Merriam's mesquite mouse	*Peromyscus merriami*
Western red bat	*Lasiurus blossevillii*
Rufous-winged sparrow	*Aimophila carpalis*
Swainson's hawk	*Buteo swainsoni*
Ground snake	*Sonora semiannulata*

Concerns

Project-related impacts to special status wildlife species identified as significant concerns of Federal and State agencies include (1) habitat loss and fragmentation associated with construction of access roads, the transmission line, and substations; vegetation management operations; and spread of non-native species; (2) loss of production due to disturbance and displacement of wildlife during breeding periods as a result of increased Project-related human activity and new public access; and (3) mortality due to vehicle collisions and destruction of occupied nests and burrows with heavy machinery.

B7.4.1.5 SPECIAL STATUS PLANT SPECIES

Background

The following special status plant species include those known or expected to occur in the Project area. Special status wildlife species include species listed as threatened, endangered, or candidates under the ESA or classified as sensitive by the BLM, NMDGF, or AGFD.

No ESA-listed species have the potential to occur within the New Build Section of the Project. However, the following sensitive species have potential to occur along the New Build Section of the Project; dune pricklypear (*Opuntia arenaria*), Gregg night-blooming cereus (*Peniocereus greggii*), slender needle corycactus (*Coryphantha scheeri* var. *valida*), devilthorn hedgehog cactus (*Echinocereus pseudopectinatus*), Wilcox pincushion cactus (*Mammillaria wrightii* var. *wilcoxii*), San Carlos wild-buckwheat (*Eriogonum capillare*), varied fishhook cactus (*Mammillaria viridiflora*), playa spider plant (*Cleome multicaulis*), Chihuahuan scurfpea (*Pediomelum pentaphyllum*), and Parish's alkali grass (*Puccinellia parishii*). In the Project BO, the FWS (2014) concurred that the Project may affect, and is not likely to adversely affect the Huachuca water umbel.

The Pima pineapple cactus, listed as endangered under the ESA, has potential to be present on the southern portions of the Upgrade Section and is known to be present in this vicinity. In the BO, the FWS (2014d) found that the Project was "not likely to jeopardize the continued existence of the Pima pineapple cactus" due to PCEMs.

Of the other sensitive plant species considered, the following have some potential to occur in the Upgrade Section of the Project; broadleaf groundcherry (*Physalis latiphysa*), button cactus (*Epithelantha micromeris*), Chihuahua scurfpea, devilthorn hedgehog cactus, desert barrel cactus (*Ferocactus cylindraceus*), Engelmann pricklypear (*Opuntia engelmannii* var. *flavispina*), magenta-flowered hedgehog cactus (*Echinocereus fasciculatus*), giant sedge (*Carex gigantea*), littleleaf false tamarind (*Lysiloma watsonii*) , needle-spined pineapple cactus (*Echinomastus erectocentrus* var. *erectocentrus*) , Pima pineapple cactus (*Coryphantha scheeri* var. *robustispina*), San Carlos wild-buckwheat, San Pedro River wild-buckwheat (*Eriogonum terrenatum*), staghorn cholla (*Opuntia versicolor*), Thornber fishhook cactus (*Mammillaria thornberi*), Tumamoc globeberry (*Tumamoca macdougalii*), varied fishhook cactus, night-blooming cereus (*Peniocereus greggii* var. *transmontanus*), Pima Indian mallow (*Abutilon parishii*), hybrid Kelvin cholla (*Opuntia × kelvinensis*), and Wilcox pincushion cactus .

Table B7-2. Special Status Plant Species with Potential to Occur in the Project Area

Common name	Scientific Name
Broadleaf Ground Cherry	*Physalis latiphysa*
Button Cactus	*Epithelantha micromeris*
Chihuahua Scurfpea	*Pediomelum pentaphyllum*
Desert barrel cactus	*Ferocactus cylindraceus*
Devilthorn Hedgehog Cactus	*Echinocereus pseudopectinatus*
Dune Pricklypear	*Opuntia arenaria*
Engelmann pricklypear (var. *flavispina*)	*Opuntia engelmannii* var. *flavispina*
Giant Sedge	*Carex gigantea*
Gregg Night-blooming Cereus	*Peniocereus greggii*
Huachuca Water Umbel	*Lilaeopsis schaffneriana* spp. *recurva*
Kelvin Cholla	*Opuntia x kelvinensis*
Littleleaf False Tamarind	*Lysiloma watsonii*
Magenta Flowered Hedgehog Cactus	*Echinocereus fasciculatus*
Needle-spined Pineapple Cactus	*Echinomastus erectocentrus* var. *erectocentrus*
Night-blooming Cereus	*Peniocereus greggii* var. *transmontanus*
Parish's Alkali Grass	*Puccinellia parishii*

Table B7-2. Special Status Plant Species with Potential to Occur in the Project Area (Continued)

Common name	Scientific Name
Pima Indian Mallow	*Abutilon parishii*
Pima Pineapple Cactus	*Coryphantha scheeri* var. *robustispina*
Playa Spider Plant	*Cleome multicaulis*
San Carlos Wild-Buckwheat	*Eriogonum capillare*
San Pedro River Wild Buckwheat	*Eriogonum terrenatum*
Slender Needle Corycactus	*Coryphantha scheeri* var. *valida*
Staghorn Cholla	*Opuntia versicolor*
Thornber fishhook cactus	*Mammillaria thornberi*
Tumamoc Globeberry	*Tumamoca macdougalii*
Varied Fishhook Cactus	*Mammillaria viridiflora*
Wilcox Pincushion Cactus	*Mammillaria wrightii* var. *wilcoxii*

Concerns

Project-related impacts to special status plant species identified as significant concerns of Federal and State agencies include (1) habitat loss and fragmentation associated with construction of access roads, the transmission line, and substations; vegetation management operations; alteration of local hydrology; and spread of non-native species; (2) disturbance and displacement associated with creation and use of temporary work areas and vehicle trespass off of new public access; and (3) mortality due to removal of special status plant species during construction and maintenance operations.

B7.4.1.6 NATIVE PLANT SALVAGE

Plants salvaged from areas of permanent disturbance will be used to reclaim areas of temporary disturbance, or replanted outside of disturbed areas if necessary. Salvaging of plants presents a substantial shock to plant specimens. Plants that are identified to be salvaged shall be replanted within one day if at all possible. If plants will not be re-planted within one day, salvaged plant material shall be planted and stored in a salvage yard that is watered regularly to sustain the plant health until the time that they will be replanted in a permanent location. In Arizona, the saguaro is categorized as a Highly Safeguarded and Salvage Restricted plant species (see Section B7.2.14-Arizona State Requirements). Salvaging of saguaros is highly volatile, and industry standard practices such as maintaining a structurally sound root ball, maintain original polar orientation, etc. must be followed. Salvaging should be focused on saguaros in spear form and saguaros less than 15 feet in height will be salvaged unless prevented by site-specific conditions or poor plant health. Once a saguaro grows arms, salvage mortality substantially increases. Larger saguaro or those with arms should be avoided whenever feasible.

B7.4.2 Plant and Wildlife Proponent Committed Environmental Measures

Environmental protection measures, or PCEMs, were developed to be incorporated as part of the Project. The goal of these PCEMs is to reduce or avoid potential environmental impacts resulting from Project-related activities and are to be applied to all affected Project areas. The following PCEMs were identified and listed in the EIS, and are included in table 8 of the POD. These PCEMs will be implemented by the construction contractor(s) with this Plant and Wildlife Conservation Measures Plan.

B7.4.2.1 VEGETATION PCEMS

- VEG-1 Efforts will be made to minimize vegetation removal and permanent loss at construction sites to the extent practicable. Access will not be graded unless necessary for erosion control or other engineering reasons. Final structure and spur road locations will be selected to avoid special status vegetation to the greatest extent feasible.
- VEG-2 Southline and its construction contractor have developed a Reclamation, Vegetation, and Monitoring Plan (Appendix B15) that will guide restoration and revegetation activities for all disturbed lands associated with construction of the Project and its eventual termination and decommissioning. The plan addresses all land disturbances, regardless of ownership. It has been developed in consultation with appropriate agencies and landowners and will be provided to these entities for review and input. The plan provides details on topsoil segregation and conservation, vegetation treatment and removal, salvage of appropriate species, and revegetation methods, including use of native seed mixes, application rates, transplants, and criteria to monitor and evaluate revegetation success.
- VEG-3 Special status plants, including the Pima pineapple cactus, will be avoided. Where avoidance is not possible, special status plants will be conserved by relocating plants and/or reseeding, replacing topsoil with existing topsoil that was removed, and regrading in compliance with local ordinances (Pima County, Tohono O'odham Nation). Measures to conserve special status plants will be implemented through the Reclamation, Vegetation, and Monitoring Plan (appendix B15).
- VEG-4 Removal of riparian scrubland vegetation will be avoided where possible. Natural regeneration of native plants will be supported by selectively cutting vegetation with hand tools, mowing, trimming, or using other removal methods that allow root systems to remain intact.
- VEG-5 In consultation with local BLM field offices and local resource agencies, Southline and its construction contractor will develop and implement a Noxious Weed Management Plan (appendix B11).
- VEG-6 As required, equipment will be cleaned before ingress to minimize the potential for the spread of invasive species. These details are described in the Noxious Weed Management Plan. Buffelgrass (*Pennisetum ciliare*) is specifically addressed in the plan, which outlines efforts to control it within areas disturbed by the proposed Project to ensure that it does not spread to adjoining lands.
- Preconstruction native plant inventories, including Chihuahua scurfpea, and surveys for noxious weed species as stipulated by the appropriate land management agency will be conducted once transmission line center line, access road, and transmission line structure sites have been located.
- Although the 150-foot ROW across the San Xavier District of the Tohono O'odham Nation was surveyed for Pima pineapple cactus in summer 2014, additional preconstruction species-specific surveys for the Pima pineapple cactus will be conducted once transmission line center line, access road, and transmission line structure sites have been located, as needed.
- Preconstruction coordination with Pima County, the University of Arizona, and other appropriate groups will be conducted to minimize impacts to Tumamoc globeberry (*Tumamoca macdougalii*) monitoring plots and plants on Tumamoc Hill. Measures to conserve this plant, as well as other special status plants, will be implemented through the Reclamation, Vegetation, and Monitoring Plan.
- In construction areas where grading is not required, vegetation will be left in place wherever feasible, and original contours will be maintained to avoid excessive root damage and allow for regrowth. All existing roads will be left in a condition that is equal to or better than their

condition before the construction of the transmission lines, as determined by the appropriate land management agency.

- Field presence/absence surveys will be conducted for special status species in locations where such species are likely to occur within the Project ROW, and specifically locations where vegetation will be impacted, prior to any actual impacts. Surveys will be conducted following established protocols by qualified biologists approved by BLM.
- Southline and its construction contractor will provide training to all appropriate field personnel working on the Project to identify noxious weeds and prevent spread. Training will discuss known invasive and noxious weed species, known locations, identification methods, and treatment protocols. Training materials and a list of Project personnel completing the course will be provided to the BLM and Western.
- Invasive and noxious weed populations will be mapped and reported to BLM/Western. BLM and Western will determine which areas will necessitate vehicle washing, based on the results of the invasive/noxious weed surveys.
- Noxious weeds and other exotic, invasive plant species will be inventoried by a qualified biologist in the immediate proximity to any sensitive plant communities and any special status species populations. This noxious weed inventory will then provide information to supplement mitigation plans for sensitive plant communities and/or special status species habitats, to prevent the expansion of any noxious weeds or other exotic invasive plant species into those locations. Mitigation planning is be included as part of the Plant and Wildlife Species Conservation Measures Plan.
- Southwest Regional Gap Analysis Project plant associations (communities) that are considered to be environmentally sensitive will be included in ground-truthing field surveys, such as wetlands, riparian areas, drainages, and special status species habitats, to confirm the presence and extent of such communities. If any such sensitive plant communities are identified and documented, the first response will be a determination regarding whether the sensitive community can be avoided. If avoidance is not possible, a mitigation plan (included as part of the Plant and Wildlife Species Conservation Measures Plan) will be developed as needed for those vegetation communities, including options to reduce impacts to those communities. Exclusion zones (at least 10 feet around the perimeter of the plant community) will be delineated around any such plant communities and marked with flagging. Construction monitoring shall be employed around any such sensitive plant communities, and the biological monitor shall have the authority to halt any construction activity deemed intrusive and causing impacts beyond those stated in the mitigation plan. Any changes in construction plans that occur after the Project approval will require additional field presence/absence surveys for such sensitive plant communities and will require a variance request from the BLM if such communities are found, and the above mitigation measures will apply.
- A compensation plan will be developed as part of the Plant and Wildlife Species Conservation Measures Plan, to meet BLM requirements and approval. The compensation plan will include calculations of compensation ratios and mitigation acreages for special status plant species requiring additional mitigation. Compensatory mitigation could include payment of an in-lieu fee; acquiring mitigation land or conservation easements; or a combination of the two.
- For Pima pineapple cactus that cannot be avoided, Southline will purchase credits in FWS-approved conservation bank for Pima pineapple cactus, corresponding to the area of permanent disturbance to occupied Pima pineapple cactus habitat. Alternatively, Southline may purchase suitable mitigation lands within Pima County's Pima pineapple cactus Priority Conservation Areas.

- In compliance with EO 13112 regarding invasive species, all disturbed soils that will not be landscaped or otherwise permanently stabilized by construction shall be seeded using species native to the project vicinity.
- Also in compliance with EO 13112 regarding invasive species, all earthmoving and hauling equipment shall be washed at the contractor's storage facility prior to arriving onsite to prevent the introduction of invasive species.
- To prevent invasive species propagules from leaving the site, the contractor will inspect all construction equipment and remove all attached plant/vegetation and soil/mud debris identified prior to leaving the construction site.
- Any Pima pineapple cactus that are not within the area of permanent disturbance, but are present within the Project vicinity, will be flagged by a qualified biologist prior to the commencement of work to avoid accidental damage during construction. Flagging will consist of flagging the area round the Pima pineapple cactus, not flagging the plant itself, and signage will label it as an "Environmentally Sensitive Area". Flagging will be removed following construction.
- Any Pima pineapple cactus that cannot be avoided will be conserved by relocating plants within the existing ROW, but outside of the area of any ongoing disturbance.
- BLM and Western will coordinate with the Arizona-Sonoran Desert Museum in salvaging for the museum's collection if individual Pima pineapple cactus cannot be relocated for some reason.
- Preconstruction surveys for Chihuahua scurfpea and other special status plant species will occur in suitable habitat and ground disturbance in occupied habitat will be avoided to the extent practicable. FWS shall be contacted prior to disturbance if any Chihuahua scurfpea are located.

B7.4.2.2 WILDLIFE PCEMS

- WILD-1 A Worker Environmental Awareness Program (WEAP) will be prepared. All construction crews and field contractors will be required to participate in WEAP training prior to starting work on the Project. The WEAP training will include instructions for crews to report any issues; a review of the special status species; WUS; riparian habitat; cultural, paleontological, and other sensitive resources that could be impacted by the proposed Project; the locations of sensitive biological resources and their legal status and protections; and measures to be implemented for avoidance of these sensitive resources. A record of all trained personnel will be maintained during the construction period.
- WILD-2 In consultation with the BLM and Western, Southline and its construction contractor will prepare and implement a Construction Biological Monitoring Plan prior to issuance of a notice to proceed and prior to construction that will specify the level of biological monitoring to be provided throughout construction activities in all construction zones with the potential for presence of sensitive biological resources. The number of monitors and monitoring frequency will be specified for each work zone.
- WILD-3 Preconstruction surveys will be required in areas where Sonoran desert tortoise (now a separate species: Morafka's desert tortoise (*Gopherus morafkai*), and Gila monster (*Heloderma suspectum*) are expected to occur. In consultation with the BLM and Western, Southline and its construction contractor will hire qualified biologists to conduct preconstruction surveys in ground disturbance areas within suitable habitat for appropriate special status species.
- WILD-4 To reduce impacts on the Sonoran (Morafka's) desert tortoise, known to exist in the western portion of the project area, only authorized biologists with a valid AGFD permit will handle desert tortoises if encountered within the Project area, following the most current desert tortoise handling guidelines published by the AGFD.

- WILD-5 To reduce impacts on all species protected by the MBTA: (1) Southline and its construction contractor will conduct preconstruction surveys for active nests, and consult with the appropriate agencies (BLM, FWS, or AGFD) on a case-by-case basis when active nests are found in Project areas, unless directed to do otherwise by these same agencies; (2) a buffer will be placed around active bird nests, and nests will not be moved during breeding season, in compliance with the MBTA, unless the Project is expressly permitted to do so by the FWS or BLM, depending on the location of the nest; (3) all active nests and disturbance or harm to active nests will be reported to the FWS or BLM, upon detection; and (4) work will halt if it is determined that active nests will be disturbed by construction activities, until further direction or approval to work is obtained from the appropriate agencies.
- WILD-6 To reduce impacts on golden eagles and other raptors, Southline and its construction contractor will develop and implement an Avian Protection Plan, in coordination with AGFD and the BLM and Western for approval. The plan will be prepared in accordance with guidance provided by the FWS and in consultation with best practices such as the "Reducing Avian Collisions with Power Lines"" (APLIC 2012).
- WILD-7 Southline and its construction contractor will follow Pima County guidelines for surveys prior to disturbance located in Pima County for western burrowing owls. Surveys for western burrowing owl will also be conducted in Cochise County near agricultural fields surrounding the Willcox Playa, and anywhere else throughout the Project where suitable habitat occurs. Surveys for western burrowing owls in Arizona will follow the "Burrowing Owl Project Clearance Guidance for Landowners" (AGFD 2009).
- Surveys for western burrowing owl in New Mexico will follow the NMDGF "Guidelines and Recommendations for Burrowing Owl Surveys and Mitigation" (NMDGF 2007).
- WILD-8 Final structure and spur road locations will be adjusted to avoid sensitive wildlife resources to the greatest extent feasible.
- Preconstruction survey will be conducted in suitable habitat for non-game sensitive species such as ornate box turtle (*Terrapene ornata*), western burrowing owl, Texas horned lizard (*Phrynosoma cornutum*), kit fox (*Vulpes macrotis*), etc. Timing of the surveys will be determined through consultation with AGFD and NMDGF.
- Preconstruction surveys for species listed under the ESA or specified by the appropriate land management agency as sensitive or of concern will be conducted in areas of known occurrences or suitable habitat. Timing of the surveys will be determined by FWS-approved, species-specific survey protocol.
- Monitoring of construction activities will be required in some areas to ensure that effects on these species are avoided during construction. If bald eagle (*Haliaeetus leucocephalus*) or golden eagle (*Aquila chrysaetos*) nests are identified during preconstruction surveys, seasonal restrictions on construction within a specified buffer will be implemented where applicable, according to FWS protocols, to comply with the Bald and Golden Eagle Protection Act. Preconstruction nesting-season surveys for migratory birds and surveys for burrowing owls in suitable habitat will be conducted as needed to comply with the MBTA.
- Surveys for bat roosts will be conducted within 0.25 mile of the Project ROW in areas that potentially contain caves, karst features, or mines. Occupied bat roosts will be avoided.
- Clearing, grubbing, blading, and access road improvements occurring within identified sensitive areas will be conducted outside the breeding season for most desert-nesting migratory birds.

- Construction holes left open overnight will be appropriately fenced or covered to prevent damage to wildlife or livestock. They will be inspected daily until filled to ensure no wildlife has become entrapped.
- Except where otherwise posted or allowed, a Project speed limit of 25 miles per hour (mph) will be designated for all construction areas, spur roads, and new access roads to minimize the potential for construction equipment collisions with wildlife. In areas with mountainous terrain and/or poor sight distances, the Project speed limit will be 15 mph.
- In construction areas where recontouring is not required, vegetation will be left in place wherever possible, to avoid excessive root damage and allow for resprouting.
- To avoid impacting roosting bats at the Ina Road bridge, blasting activities will be restricted to less than 130 decibels (dB) if possible, and if that is not possible, then blasting activities will occur at night after most bats have left their roost. No blasting will occur in April or May when the maternity colony is present.
- All paniculate agaves (*Agave palmeri*, *A. parryi*, and *A. chrysantha*) and saguaros (*Carnegiea gigantea*) will be inventoried within the proposed ROW, and the potential to avoid or salvage each plant will be assessed. The priority will be avoidance when feasible.
- All suitable (e.g., healthy, undamaged, not flowering) paniculate agaves that cannot be avoided will be salvaged using methods approved by the BLM/Western and FWS, but mature agaves will be given preference for avoidance when feasible. Plants salvaged from areas of permanent disturbance will be used to reclaim areas of temporary disturbance, or replanted outside disturbed areas if necessary.
- Other species of agaves such as *A. schottii* that are not primary food plants for nectar-feeding bats will be salvaged and used for reclamation in accordance with the Reclamation, Vegetation, and Monitoring Plan.
- Saguaros less than 15 feet in height will be salvaged, unless prevented by site-specific conditions or poor plant health. Plants salvaged from areas of permanent disturbance will be used to reclaim areas of temporary disturbance, or replanted outside of disturbed areas if necessary. Larger saguaros will be avoided whenever feasible, but will be topped or removed if necessary.
- Agave and saguaro salvage will be augmented, as necessary, within 3 years after completion of initial restoration activities. Augmentation will occur within the ROW in areas of higher value to bats (e.g., in the vicinity of active roosts, within areas of high concentration of agaves) to achieve a goal of no net loss of forage plants. Plant stocks from local sources or approved nursery-grown plants will be used.
- Salvaged plants will be monitored following reclamation for a period of 3 years, as described in the POD. Supplementary water will be provided, if monitoring indicates that rainfall is insufficient to achieve the goal of no net loss of forage plants. Plant survival through the monitoring period will be reported annually to the BLM/Western, FWS, and AGFD.
- All non-emergency construction and maintenance in riparian woodlands at the San Pedro River, Cienega Creek, and the Santa Cruz River will take place between September 15 and March 1, to avoid disturbance of breeding or nesting southwestern willow flycatchers.
- Line marking devices will be placed at the proposed crossings of the San Pedro River, Cienega Creek, Santa Cruz River, and the Willcox Playa Wildlife Area, to minimize the potential for avian collisions with transmission lines.

- All non-emergency construction and maintenance in riparian woodlands at the San Pedro River, Cienega Creek, and Santa Cruz River will take place between September 15 and March 1, to avoid disturbance of breeding or nesting yellow-billed cuckoos.
- BAT-1 Construction activities that create sudden, and sporadic loud noise (e.g., blasting) within 0.5 mile of the Volcano Mine complex will be restricted in the Spring (April 1 to May 31), depending on the presence of bats to protect maternity roosts and potential hibernacula.
- BLM and Western will work with FWS, AGFD, and NMDGF to implement recovery actions for lesser long-nosed bat, Mexican long-nosed bat, southwestern willow flycatcher, and yellow-billed cuckoo.
- BLM and Western will work with FWS, AGFD, and NMDGF to participate in recovery planning and implementation of conservation actions for northern Mexican gartersnake (*Thamnophis eques megalops*), particularly on efforts to remove harmful nonnative species from occupied northern Mexican gartersnake habitat.
- BLM, Western, and Southline will use the smallest mesh size possible (<0.5 inch) for erosion-control products, or products that do not contain any mesh- or net-like attributes near occupied northern Mexican gartersnake habitat. BLM, Western, and Southline will refrain from using erosion-control products (such as wattles), that contain a mesh size of 0.5 inch (or 1.27 cm) within proposed critical habitat for the northern Mexican gartersnake.
- Preconstruction surveys will take place in habitat classified as moderate or high suitability for the northern aplomado falcon within the proposed ROW and a 1-mile buffer. Surveys should be conducted several times from January 15 to June 30 in order to detect breeding activity.
- All existing raptor nests or other large nests found during preconstruction surveys will be preserved in place, if possible, or relocated if necessary. No relocation of active nests will occur, and no nests will be relocated until after consultation with the Federal action agencies, State agencies, and FWS.
- Construction will not take place within 1 mile of occupied northern aplomado falcon nests between January 15 and September 1. Aplomado falcons are frequently observed on their breeding territories in southern New Mexico in January. Therefore, January 15 is the start date for seasonal restrictions.
- Preconstruction desert tortoise surveys will be conducted in suitable habitat. A WEAP that includes information on desert tortoises will be implemented. Any desert tortoises encountered during preconstruction surveys or during construction activities will be handled in accordance with the AGFD "Guidelines for Handling Sonoran Desert Tortoises Encountered on Development Projects" (AGFD 2007).

B7.4.3 Other Specific Stipulations and Methods

Design features and selective environmental measures for environmental protection are to be applied to all affected Project areas to help reduce impacts to biological resources. Qualified biologist are to be used for handling of any sensitive species. Listed below are plant and wildlife species conservation (PWC) design features and selective environmental measures beyond the PCEMs identified in the EIS and POD, for environmental protection to be implemented by the construction contractor(s):

DESIGN AND ENGINEERING

PWC-1 Structures will be located to allow conductors to span identified sensitive features within the limits of standard tower design. Structures will be placed so as to avoid sensitive features to

the extent practicable, including, but not limited to, wetlands, riparian areas, water courses, hazardous substance remediation, and cultural sites. Avoidance measures may include selective tower placement, spanning sensitive features, or realigning access routes.

CONSTRUCTION, OPERATION, AND MAINTENANCE

PWC-2 Clearing of vegetation in and adjacent to the ROW will be minimized to reduce loss and fragmentation of migratory bird nesting habitat, to the extent practicable to satisfy conductor-clearance requirements.

PWC-3 To reduce habitat loss and fragmentation, the construction contractor(s) will use overland access to the extent practicable in areas where no grading would be needed to access work areas. Overland access will consist of drive-and-crush and/or clear-and-cut travel. Drive-and-crush is vehicular travel to access a site without significantly modifying the landscape. Vegetation is crushed but not cropped. Soil is compacted, but no surface soil is removed. Clear-and-cut is considered as brushing off (removal) of all vegetation to improve or provide suitable access for equipment.

PCW-4 Where feasible, access roads that traverse sensitive habitats will be gated or otherwise blocked to limit public access.

PCW-5 There will be no blading of new access roads in select areas of sensitive resources (e.g., perennial streams, riparian areas, trails) during construction or maintenance. To reduce habitat loss and fragmentation, existing or overland access routes are to be used for construction and maintenance in these select areas. To minimize ground disturbance, overland routes must be flagged with easily seen markers, and the route must be approved in advance of use by the landowner or land-management agency.

B7.5 Compensation Plan

This compensation plan includes compensation ratios and approximate cost per acre for Pima pineapple cactus compensatory mitigation. It also addresses species listed under the Arizona Native Plant Law occurring on lands administered by the Arizona State Land Department (ASLD), BLM and on private lands. Compensatory mitigation could include payment of an in-lieu fee; acquiring mitigation land or conservation easements; or a combination of measures.

Currently, there are two conservation banks for Pima pineapple cactus, one on a private ranch in the Altar Valley (Palo Alto Ranch Conservation Bank) and another owned by Pima County that includes areas in both the Altar Valley and south of Green Valley. The cost of compensatory mitigation at the Palo Alto Ranch Conservation Bank is currently $5,500 per credit and will rise to $6,000 per credit after 30 more credits are sold. The number of acres to be purchased in the conservation bank by Southline will be determined during pre-construction surveys and will include mitigation credits on a 1:1 ratio to the number of occupied acres of Pima pineapple cactus to be disturbed during Project construction. Ground disturbance from the Project in Pima pineapple cactus habitat will be approximately 155 acres; however, compensatory credits will only be purchased for the number of acres of occupied habitat disturbed. To calculate the number of acres of compensatory mitigation required, habitat considered occupied will be those areas within the ROW with Pima pineapple cactus present where permanent disturbance occurs.

While possible, it is unclear if Pima County Pima pineapple Priority Conservation Area lands would be available for compensatory mitigation or if they are only for Pima County sponsored projects.

On lands administered by the ASLD certain plants are protected under the Arizona Native Plant Law. A compensatory fee must be paid to the ASLD for each plant removed or destroyed. Compensation will be based on the required native plant survey conducted prior to disturbance activities and following ASLD standard survey protocol. The current valuation of protected plants is given in the Native Plant Disposition and Valuation memo (ASLD 2011), and the associated Native Plant Fee Structure is provided at https://land.az.gov/sites/default/files/documents/files/Native_Plant_Fee_Structure.pdf.

Mitigation for impacts to the Willcox Playa Wildlife Area have been developed with AGFD and include off-site mitigation measures. The mitigation measures include funding to relocate Crane Lake which includes construction of the lake and associated infrastructure, revegetation, and visitor facilities. This will include operation and maintenance costs of the lake and infrastructure for the life of the Project, with the renewal of commitment upon future renewal of the Project permit. Funding will be provided to improve riparian emergent wetlands on three historic ponds near Kansas Settlement Road. Wetlands will be constructed to AGFD specifications and adequately equipped with pumps, liners, and drains to ensure that wildlife values are maintained. Mitigation also includes funding for the removal of non-native flora and revegetation with native flora on the Willcox Playa Wildlife Area.

B.7.6 Literature Cited

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APPENDIX B8
EROSION, DUST CONTROL, AND AIR QUALITY PLAN

B8.1 Introduction

This Erosion, Dust Control, and Air Quality Plan addresses regulatory compliance, environmental concerns, and Proponent Committed Environmental Measures (PCEMs) to ensure impacts associated with construction, operation, and maintenance activities on the Southline Transmission Line Project (Project) are minimized as they relate to soil conservation and air quality. As indicated in the Plan of Development (POD), this plan is applicable on Federal lands administered by the BLM as enforceable stipulations and measures of the BLM ROW grant. It pertains not only to the construction of the Project, but also to the operation and maintenance phase of the Project. Where Western is involved in the Project, they may adopt this plan, where appropriate.

B8.2 Purpose

This plan provides a detailed summary of the PCEMs identified in the Environmental Impact Statement (EIS) and other specific stipulations and measures to be used by Southline Transmission, LLC (Southline), and the construction contractor(s) to ensure regulatory compliance and protection of the soils and air quality that will be affected by the Project. This plan is a framework of the actions to be implemented during the construction, operation, and maintenance phases of the Project that were developed to address (1) soil erosion from wind and (2) air quality from fugitive dust and emissions from Project-related activities.

This plan first describes the concerns for impacts related to soil erosion and air quality and then presents the PCEMs and other specific measures that will be used to minimize the impacts. Determination of the appropriate control measures to use in a particular area will depend on a variety of factors, including weather conditions, selected construction techniques, site characteristics, extent of area to be disturbed, and other factors. Stormwater erosion is not covered in this plan but is discussed at length in Appendix B3 – Stormwater Pollution Prevention Plan. Proper methods for soil reclamation and revegetation are not covered in this framework plan, but are discussed at length in Appendix B15 – Reclamation, Revegetation, and Monitoring Plan.

B8.3 Regulatory Compliance

Construction, operation, and maintenance activities for the Project are subject to various regulations designed to protect environmental resources and the public from wind erosion, dust, and other possible effects on air quality. The following permits and documents contain requirements for preventing accelerated erosion and minimizing dust and emissions. Some permits appear unrelated to this topic; however, dust suppression and erosion control are conditions of those permits. Southline and the construction contractor(s) can refer to these documents, along with this plan, when assessing which PCEMs and other specific measures are appropriate for a specific area.

Since 1963, the Clean Air Act and subsequent amendments in 1970, 1977, and 1990 have provided the authority and framework for regulation of air emission sources. At a minimum, Southline and the construction contractor(s) will need to adhere to or obtain the following permits as required.

B8.3.1.1 State – New Mexico

At the New Mexico State level, temporary sources, such as concrete batch plants, must obtain a Notice of Intent (NOI) for a General Construction Permit (GCP) from the State if the facility meets certain regulatory thresholds. Emission rates above 10 tons per year (tpy) of any regulated air pollutant (with the exception of lead), require submittal of an NOI to the State for the facility; emission rates greater than 25 tpy of criteria pollutants require a permit to construct. A GCP for concrete batch plants is available from the State if the facility meets certain siting, sizing, and regulatory requirements (e.g., facility is not subject to any National Emission Standards for Hazardous Air Pollutants or Maximum Achievable Control Technology standards; facility has production rates equal to or less than 2,400 cubic yards per day) (New Mexico Administrative Code 20.2.72). The New Mexico Environment Department does not currently require dust control permits. However, the State is soliciting input from stakeholders and the public regarding whether or not a statewide dust regulation is necessary or desired, and permits may be required in the future.

B8.3.1.2 State – Arizona

Air quality in Arizona is regulated with Air Quality Permits from the Arizona Department of Environmental Quality Air Quality Division. Arizona air quality statutes are codified in Arizona Revised Statutes (ARS), Title 49, Chapter 3. Air quality regulations in Arizona are codified in the Arizona Administrative Code (AAC), Title 18, Chapter 2. The State of Arizona has incorporated the National Ambient Air Quality Standards by reference and does not have any additional ambient air quality standards. Two Arizona counties (Pima and Pinal) associated with the proposed Project and alternatives have their own air pollution control programs and operate pursuant to ARS 49-402.

For concrete batch plants, regulations at the State of Arizona level provide an application to permit the source under a concrete batch plant general permit in lieu of an individual permit.

Air quality regulations governing general construction activities are codified at AAC R18-2-604(A) and (B), R18-2-605, -606, -607, -802, and -804. These regulations require that reasonable precautions be made to limit excessive amounts of particulate matter (PM) from becoming airborne from sites or activities such as open areas, roadways and streets, and site cleaning machinery. The relevant air quality regulations include:

- R18-2-604: Open Areas, Dry Washes, or Riverbeds
- R18-2-605: Roadways and Streets
- R18-2-606: Material Handling
- R18-2-607: Storage Piles
- R18-2-802:Off-road Machinery
- R18-2-804: Roadway and Site Cleaning Machinery

B8.3.1.3 Local

City and county conditional use permits, temporary use permits for staging areas, road crossing permits and/or encroachment permits may have permit conditions that must be met regarding air quality. Requirements vary by county.

In New Mexico, Doña Ana and Luna counties have additional ordinances that apply to the proposed Project and alternatives. Grant and Hidalgo counties have no additional county-specific air quality

regulations that apply to the proposed Project and alternatives. In Arizona, Cochise, Pima, and Pinal counties have additional county-specific ordinances and/or air quality regulations that apply to the proposed Project and alternatives. Greenlee and Graham counties have no additional county-specific air quality regulations that apply to the proposed Project and alternatives. A summary of county-specific regulations are presented in table B8-1 below.

Table B8-1. Applicable County Plans, Laws, Ordinances, Regulations, and Standards Related to Air Quality

County and Regulation	Summary of Regulation
Doña Ana County, New Mexico	
Ordinance 194-2000 on Erosion Control Regulations (Doña Ana County 2000)	Requires an erosion control plan approved by the county planning director to minimize the creation or aggravation of erosive forces.
Luna County, New Mexico	
Ordinance 75 on Buildings (Luna County 2010)	Requires a plan approved by the officer to prevent soil, sand, dust, building materials, construction waste, and other materials from being blown by the wind from the land.
Cochise County, Arizona	
Ordinance 00-030 on Land Clearing (Cochise County 2000)	Any activity that includes the clearing of more than 1 acre of land is required to have a clearing permit from the county. Dust and erosion control measures are required to be submitted along with the permit application.
Pima County, Arizona	
Pima County Air Quality Control District Code of Regulations, Title 17, Air Quality Control (Pima County 2013)	Specific permitting and emission limitations regulations apply for Class I areas and nonattainment areas. The county has dust control regulations associated with the permitting program so that dust is controlled at all times, even if a project is not active.
Pinal County, Arizona	
Pinal County Air Quality Control District Code of Regulations (Pinal County 2010)	The county has dust control regulations associated with the permitting program that apply to earthmoving and stockpiling activities.

B8.4 Environmental Concerns

All requirements of those entities having jurisdiction over wind erosion, dust control, and air quality will be adhered to, and any permits needed for construction or operation and maintenance activities will be obtained. The construction contractor(s) will not proceed with any construction activities without taking reasonable precautions to prevent excessive airborne soil from leaving the site and creating nuisance conditions.

B8.4.1 Soil Conservation and Erosion

Soil conservation for the Project includes minimizing impacts that will affect soils from the construction and operation of the proposed transmission line, such as minimizing wind erosion, soil compaction, and surface disturbance. Prior to ground disturbance, soil/geotechnical conditions will be assessed, and any recommendations related to more specific detail/measures regarding soil conservation for the Project will be documented and provided to the appropriate contractor(s).

Erosion potential is the result of several factors including slope, vegetation cover, climate, and the physical and chemical characteristics of the soil. Increased soil erosion may occur when vegetation is removed during construction, or in areas where the surface is disturbed by heavy equipment. Wind is also an erosion factor throughout portions of the Project area. In addition, soil compaction could be a concern if there is repeated traffic use on sections of access roads.

Erosion controls include both stabilization practices, as well as structural controls that will be implemented as needed. The PCEMs and other specific measures to control soil erosion on the Project site are presented in sections B8.4.5 and B8.4.6 below.

B8.4.2 Air Quality and Dust Control

Construction of the transmission line and related facilities will cause a temporary increase in fugitive dust from earthmoving and vehicle travel on paved and unpaved surfaces. Ambient levels of nitrogen oxides, hydrocarbons, carbon dioxide, carbon monoxide, and diesel particulates near the construction zone may also be temporarily increased due to tailpipe emissions from heavy construction equipment, some of which are thought to contribute to climate change as well, although this is a global-scale issue rather than being localized, and the Project greenhouse gas emissions would be expected to have an insignificant impact on climate change. Related facilities and operations will cause a minimal increase in fugitive dust from vehicle travel on paved and unpaved surfaces.

All applicable regulations will be adhered to, and any permits needed for construction activities will be obtained. The construction contractor(s) will not proceed with any construction activities without taking reasonable precautions to minimize PM from becoming airborne and creating nuisance conditions.

The factors that affect dust emission include ambient conditions (temperature, wind, and humidity), size and weight of vehicles, vehicle speed, frequency and number of active vehicles, soil characteristics (chemical composition, particle size distribution, organic components), and day-to-day aggressiveness of mitigation efforts (e.g., application of water or dust suppressants). Impacts from fugitive dust will be controlled by applying the appropriate control measures (e.g., watering unpaved roads, covering piles, etc.) by mitigation measures identified below and/or as otherwise stipulated by applicable air quality control agencies. PCEMs and other specific stipulations and methods are discussed in sections B8.4.3 and B8.4.4 below.

B8.4.3 Proponent Committed Environmental Measures

Southline has developed environmental protection measures, or PCEMs, to be incorporated as part of the Project. The goal of these PCEMs is to reduce or avoid potential environmental impacts resulting from Project-related activities. The following PCEMs were identified in the EIS, and are included in table 8 of the Plan of Development (POD). Southline and the construction contractor(s) will use these PCEMs in the development of the final Erosion, Dust Control, and Air Quality Plan:

- General PCEM: All vehicle movement will be restricted to designated access, contracted acquired access, or public roads.
- AIR: Project activities will be in compliance with all applicable Federal, State, and local laws and regulations concerning prevention and control of air pollution during construction and operation.
- AIR: An Erosion, Dust Control, and Air Quality Plan will be prepared as part of the final POD. The plan will be developed and implemented to minimize and mitigate potential air quality and climate change impacts. The Erosion, Dust Control, and Air Quality Plan will include a section detailing the Construction Emissions Mitigation Plan (CEMP).
- AIR: All necessary air quality permits and/or fugitive dust permits will be obtained prior to construction or operating equipment that will result in regulated air quality pollutants or fugitive dust emissions.
- AIR: Trackout control devices such as grizzly bars, wheel washers, gravel pads, etc. will be located at all entrances and exits.

- AIR: Where implementation of these measures will have a meaningful impact on air quality, haul-truck cargo beds will be covered with tarps and travel speeds will be limited to no more than 15 miles per hour (mph) on unpaved roads.
- AIR: Combustion emissions from mobile sources will be minimized by proper maintenance of equipment.
- AIR-1: Dust control measures consistent with all applicable State or local standards, as outlined in the Erosion, Dust Control, and Air Quality Plan, will be implemented; these include the following reasonable precautions: (1) frequent watering (no new water sources developed), stabilization, or covering (as appropriate) of excavations, spoils, access roads, storage piles, and other sources of fugitive dust (parking areas, staging areas, other) if construction activity causes visible emissions of fugitive dust beyond the work area; (2) reduction in the amount of disturbed area where possible; (3) planting of vegetative ground cover, as appropriate, in disturbed areas after construction activities have ended; and/or (4) treatment of actively disturbed areas with approved dust palliatives.
- AIR-2: To reduce the potential for greenhouse gas emissions, only properly trained Project personnel will handle sulfur hexafluoride, and a sulfur hexafluoride recovery and recycling program will be implemented.
- SOIL-1: As appropriate and feasible, Southline and its construction contractor(s) will implement topsoil segregation and conservation practices at substation sites and as directed by the Bureau of Land Management (BLM) and Western Area Power Administration.
- SOIL: In construction areas (i.e., temporary use areas, structure sites, access roads, etc.) where grading is required, surface restoration will be implemented as required by the landowner or BLM authorized officer. The method of restoration will normally consist of returning disturbed areas back to approximate their normal contour, replacing topsoil, reseeding (where required), installing cross drains for erosion control, placing water bars in the road, and/or filling ditches. The Reclamation, Vegetation, and Monitoring Plan will include final details on the details of restoration.
- VIS-3: During the construction period, dust suppression measures would be used to minimize the creation of dust clouds potentially associated with the use of access roads.

B8.4.4 Other Specific Stipulations and Methods

Design features and selective environmental measures for environmental protection are to be applied to all affected Project areas to help reduce potential erosion and air quality related impacts. Listed below are additional design features and selective environmental measures beyond the PCEMs identified in the EIS and POD, for environmental protection to be implemented by the construction contractor(s):

- Project construction supervisors will be trained on dust control procedures.
- Earthmoving activities will include, but not be limited to, water application by means such as trucks, water tanks, water wagons, water trailer hoses, or sprinklers at sufficient frequency and quantity to control fugitive dust prior to, during, and after earthmoving operations. The construction sites for affected earthmoving activities will be pre-watered in advance of vegetation clearing where feasible. In addition, earth-loading activities will be executed carefully by maintaining the bucket close to the truck while dumping (i.e., minimizing material drop height).
- To the extent practicable, grading will be limited during high-wind events. If wind conditions cause fugitive dust emissions to exceed the visible emissions requirement, despite implementation

of planned measures, the construction contractor will ensure that other control measures are implemented or cease dust-generating operations and stabilize any disturbed surface area.

- Trackout onto paved roads at construction access points must be cleaned up as quickly as possible if it extends a cumulative distance of 25 linear feet or more along an area accessible to the public, including curbs, gutters, and sidewalks. All trackout/carryout must be cleaned up no later than the end of the work day or no later than 8:00 p.m.
- Exposed storage piles of soil and other excavated materials will be sprayed with water or approved dust suppressants daily as needed, or covered with tarps and/or canvas.
- Areas that remain inactive for longer than 30 days must be stabilized after the 30th day (for 24 hours per day, 7 days per week) until the area again becomes active or is permanently stabilized. Permanent stabilization of disturbed surface areas is required within 10 days following the completion of the dust-generating activity if finished for a period of 30 days or longer. For sequenced construction that may include inactive periods that last longer than 30 days, temporary stabilization will be achieved using the primary control measure of water spraying, but other measures may be utilized if appropriate.
- Vegetation removal and soil disturbances (including temporary road improvements) will be minimized; the use of overland travel without blading a road will be maximized. In areas of overland construction, where vegetation removal is required, mowing or cutting will be the preferred method used.
- Erodible slopes that do not require grading should be cleared using equipment that results in the minimum practicable soil disturbance.
- Native vegetation cover will be reestablished in highly erodible areas as quickly as feasible following construction, where determined necessary.
- To prevent accelerated wind erosion on dirt roads, gravel, recycled asphalt, or other suitable material will be applied and maintained. Steeper slopes may require additional erosion control structures.

B8.5 Monitoring

During construction, air quality monitoring will be conducted as required according to permit requirements. Emissions from roadways and roadway conditions will be observed daily or more often when necessary. Monitoring of erosion control mitigation measures will continue until reclamation efforts are considered complete and successful, and accelerated erosion and air emissions have been controlled (see Appendix B3 – Stormwater Pollution Prevention Plan). Roughened surfaces should be periodically inspected. Areas exhibiting accelerated erosion will be filled and reseeded as necessary.

After construction and reclamation, monitoring of the reclamation/revegetation success will begin and monitoring the erosion control mitigation measures will continue on an annual basis during the operation and maintenance phase until affected soils have been stabilized. Monitoring should continue until there is no or minimal accelerated erosion or air emissions and until reclamation efforts are considered complete and successful.

APPENDIX B9
HAZARDOUS MATERIALS MANAGEMENT PLAN

B9.1 Introduction

The Hazardous Materials Management Plan (HMMP) for the Southline Transmission Line Project (Project) is intended to reduce the risks associated with the use, storage, handling, transportation, and disposal of hazardous materials (which in this document may include hazardous substances and hazardous wastes regardless of the statutory definitions of those terms). The term "hazardous materials," as presented in this plan, will refer to hazardous substances, hazardous wastes, marine pollutants, elevated temperature materials, and materials designated as "hazardous materials" for transportation as defined in 49 CFR 171.8.

This plan will identify Project-specific Proponent Committed Environmental Measures (PCEMs), as in the Environmental Impact Statement (EIS) and table 8 in the Plan of Development (POD), and other specific stipulations and methods to address spill prevention, response, and cleanup procedures for the Project. This document provides a template for the development of a detailed HMMP to be completed once the construction POD is finalized by Southline Transmission Line (Southline).

As indicated in the Plan of Development (POD), this HMMP is applicable on Federal lands administered by the BLM as enforceable stipulations and measures of the BLM ROW grant. It pertains not only to the construction of the Project, but also to the operation and maintenance phase of the Project. Where Western is involved in the Project, they may adopt this plan, where appropriate. The HMMP will clearly identify which legal requirements apply to specific types of hazardous materials and will identify design features of the proposed action for environmental and human protection which, although not necessarily legally required, will be followed to reduce risks associated with hazardous materials. Nothing in this plan or in the final HMMP (once developed) shall be construed as an admission regarding the legal applicability of requirements or practices to any particular class of hazardous material.

B9.2 Purpose

The goal of this plan is to (1) minimize the potential for a spill of fuel or other hazardous material, (2) contain any spillage to the smallest possible area, (3) protect areas that are environmentally sensitive, (4) minimize risks to human health, and (5) provide a template for the development of a detailed final HMMP. This plan includes the following components:

- Framework for developing the HMMP
- Spill prevention procedures related to the transportation, storage, and disposal of hazardous materials
- Spill control, response, and cleanup methods
- An overview of the notification and documentation procedures to be followed in the event of a spill
- Operation and maintenance considerations
- Sample hazardous materials management forms which may be used as examples.

In general, hazardous materials will be stored in approved containers until they can be properly transported and disposed of at an approved treatment, storage, and disposal facility. Persons responsible

for handling or transporting hazardous materials for the Project will be trained in the proper use/management of the materials and will be familiar with all applicable laws, policies, procedures, and the PCEMs applicable to their tasks..

It is the responsibility of the construction contractor(s) to maintain file records of proper training/certification for any individual(s) who may potentially handle hazardous materials for the Project. Southline reserves the right to audit any contractors or subcontractors to verify compliance.

B9.3 Regulatory Compliance

Major legislation pertaining to hazardous materials includes the Comprehensive Environmental Response, Compensation, and Liability Act; Resource Conservation and Recovery Act; Clean Air Act; and Clean Water Act.

Numerous other Federal, State, and local laws and regulations also govern the use, storage, transportation, production, and disposal of hazardous materials. Some of the key requirements of these laws are outlined in:

- Occupational Safety and Health Act (29 CFR 1900–1910 and 1926)
- Clean Water Act (40 CFR 100–149)
- Clean Air Act (40 CFR 50–99)
- Toxic Substances Control Act (40 CFR 700–799)
- Comprehensive Environmental Response, Compensation, and Liability Act/Superfund Amendments and Reauthorization Act (40 CFR 300–399)
- Resource Conservation and Recovery Act (40 CFR 239–282)
- Hazardous Materials Transportation Act (49 CFR 100–199)
- State-Specific Regulations

B9.4 Framework for Developing the Hazardous Materials Management Plan

The HMMP will include certain information, such as site plans that show storage areas; an inventory of hazardous materials on the site; procedures and best management practices (BMPs) for transportation, handling, use, and disposal of hazardous materials; and a spill contingency plan. This section is an expanded outline of the HMMP.

The HMMP is designed to reduce the risks associated with the storage, use, transportation, and disposal of hazardous materials anticipated to be used during the construction phase of the project.

Other environmental documents associated with the HMMP that are being developed for the construction phase of the Project shall be reviewed and used in conjunction with the HMMP. They include:

- Stormwater Pollution Prevention Plan (SWPPP) (refer to appendix B3) to address erosion and stormwater control and prevent migration of contaminated stormwater off the construction site
- Spill Prevention, Control, and Countermeasures (SPCC) Plan (refer to appendix B4) to address prevention, control and response related to oil, hydraulic fluid, and petroleum fuel spills

- Blasting Plan (refer to appendix B6) to ensure human health and safety during construction blasting operations and to address mitigation of impacts such as noise and vibration.
- Waste Management Plan to address the handling of non-hazardous solid and liquid wastes generated at the Project site

B9.4.1 Certifications, Acknowledgments, and Designation of Coordinator / Responsible Person(s)

The final construction POD will identify the responsible party that shall certify with a signature that all of the information provided in the HMMP is accurate and complete to the best of their knowledge. The construction contractor(s) also will certify with a signature they are committed to implementing the plan as written.

The identified responsible party shall agree to make all necessary and appropriate amendments to the HMMP and submit any and all such amendments to Southline (if appropriate), Western Area Power Administration (Western), and the appropriate county (if required), State, or Federal authorities within 7 days of finding that an amendment is necessary. Amendments to the HMMP shall be necessary when any of the following apply:

- Applicable laws or regulations are substantively revised
- A 100 percent or more increase of a previously disclosed hazardous material unless such increase is demonstrated through a risk assessment to be insignificant
- Any handling of a previously undisclosed hazardous material subject to inventory requirements
- A change in formulation of a previously disclosed hazardous material (e.g., solid to liquid)
- A change of responsible party's business address, name, or ownership
- The list of emergency coordinators or contact information changes
- The list of emergency equipment changes

The final HMMP shall identify an Emergency Coordinator/Responsible Person for hazardous materials management and emergency response. Two alternates shall also be identified. Business, residential, and mobile phone numbers shall be provided for all three persons to allow for contact 24 hours a day. Primary and alternate emergency response coordinators shall be knowledgeable of the chemicals and processes involved in construction of the Project, and will have the authority to commit construction contractor(s) resources to implement the plan. They also shall have stop-work authority in case of noncompliance or danger to human health or the environment.

B9.4.2 Facility Description

A site map/facility map will be provided in the HMMP that contains storage and safety precautions for hazardous materials.

B9.4.2.1 SITE MAPS

Because of the linear nature of the Project, all hazardous materials that will be stored during the construction of the transmission line will be stored in designated storage/staging areas.
No prolonged storage will occur in the right-of-way (ROW) outside designated areas. The locations of the proposed material storage/staging areas shall be shown on maps. A site map will be developed for each of

the material yards to identify material storage areas where hazardous materials will be stored and where safety precautions will be implemented.

B9.4.2.2 TYPES AND AMOUNTS OF HAZARDOUS MATERIALS

The construction contractor(s) will maintain a complete inventory of the types and amounts of all hazardous materials stored or used on the construction project site. This will include potentially hazardous materials such as fuels, oils, hydraulic fluid, lubricating oils and solvents, cleansers, explosives, and herbicides. One common method to inventory hazardous materials is using a Hazardous Materials Inventory Statement (HMIS). A hazardous materials inventory method will be developed by the construction contractor(s) and approved by Southline.

A list of the typical fuel, lubricants, and hazardous materials used on the Project will be provided as an appendix to the HMMP. The construction contractor(s) will provide, maintain, and make available the appropriate Safety Data Sheet (SDS) documents for all hazardous materials used or stored in the material storage/staging areas or used on the ROW.

B9.4.3 Hazardous Waste and Materials Management

Containers holding hazardous wastes will be kept closed at all times, except when it is necessary to add or remove contents. Before the handling or transportation of containers carrying hazardous waste, the containers will be inspected to ensure that they are sealed so no spilling of the material can occur.

B9.4.3.1 RESPONSIBILITIES

It is the construction contractor's responsibility to properly collect, store, and contain hazardous construction waste in accordance with all Federal, State, and local rules, regulations, and ordinances until such time as it can be removed from the Project site to a disposal facility authorized to accept such materials. It is the construction contractor's and subcontractor's responsibility to ensure that their employees are familiar with the HMMP and take appropriate actions if they become aware of an issue. It is the employees' responsibility to follow the directions outlined in the HMMP and report any variances to their supervisor.

Hazardous waste will be removed from the Project site and disposed of by a contracted, permitted transporter facility. U.S. Environmental Protection Agency (EPA)-approved waste manifest forms, or the state equivalent if the state has been delegated authority by EPA, will be used when hazardous waste is transported. The final HMMP will address the different categories of hazardous waste generators as applicable to the Project and the associated requirements for registration, storage and recordkeeping. Copies of all waste manifests will be retained in the HMMP for a minimum of 3 years.

All Project documents relating to hazardous waste and materials management will be maintained on-site until Project construction is complete. Upon Project completion, project documents will become part of the permanent Project construction record maintained by Southline and Western and made available to regulatory personnel at any time.

This includes:

- SDS documents (not required for hazardous waste)
- Training records
- Spill reports

- Laboratory reports
- Chain-of-custody forms
- Waste manifests
- Transportation documents
- Compliance reports and audits
- Site inspection reports
- Vehicle inspection reports
- Other related environmental documents

B9.4.3.2 TRAINING

All construction personnel, as well as contractor employees and subcontractors, will be required to complete training before they commence work on the Project. Hazardous waste and materials management and spill response will be addressed during Project orientation. Additional training/certifications will be provided to employees who are responsible for handling or transporting hazardous materials for the Project. This will include training on the proper use and management of the materials. Refresher training will be performed at least annually or may be conducted as part of mandatory weekly safety and environmental meetings. Training records will be maintained by the construction contractor(s) as part of the permanent construction record.

Training topics will include items such as:

- Information about the Hazard Communication Program (HCP), including the location of the HCP binder, organization of the SDSs, availability of the SDSs for their use and what information they contain, the manner in which hazardous materials are labeled, and the list of hazardous materials that may be encountered at the job site
- Information on the handling, labeling, and storage of hazardous materials they may use or encounter
- An explanation of any operations that will take place in the work area where hazardous materials are present, the physical and health hazards of the material, and protection measures to be used to prevent exposure (such as appropriate work practices, emergency procedures, and proper use of personal protective equipment)
- The importance of immediately reporting leaks and spills to a project supervisor

B9.4.3.3 LABELING AND HAZARD COMMUNICATION

The construction contractor(s) will label all hazardous waste storage containers, as required by 40 CFR 262. Hazardous waste labels will include the following:

- Identity of the hazardous chemical
- The accumulation start date and/or the date of the 90-day storage period
- The words "Hazardous Wastes"
- A warning indicating the hazards of the particular waste (such as flammable, corrosive, or reactive)
- The name and address of the facility that generated the waste

Each construction contractor and subcontractor is required under the Occupational Safety and Health Administration (OSHA) to have its own HCP that identifies methods for informing and training employees on hazardous substances that may be encountered on the job site; contents, use, and availability of SDSs; and labeling procedures. Master SDSs will be maintained in the HCP, and sheets shall be updated if and when they are updated by the supplier. All SDSs must be readily accessible to employees.

B9.4.3.4 OVERVIEW OF HAZARDOUS MATERIALS AND EXPECTED PROJECT WASTE

Hazardous materials used during Project construction may include petroleum products such as gasoline, diesel fuel, and hydraulic fluid; lubricating oils and solvents; cleansers; explosives; and other substances. Some of these materials will be used routinely at material yards/staging areas as necessary and on the ROW to operate and maintain equipment during construction. Explosives may be used for blasting rock where needed to install transmission towers.

Because of the remote nature of portions of this Project, it is likely that diesel fuel will need to be stored in relatively large quantities (up to 500 gallons) at material storage/staging areas or used on the ROW to operate and maintain equipment during construction. To the extent possible, storage and use of hazardous materials in the material storage/staging areas and in the ROW will be minimized to the amount necessary to perform the work.

Smaller quantities of other materials such as pesticides and fertilizers, paints, and chemicals (e.g., sulfur hexafluoride) will be used during Project construction, operation and maintenance. Pesticides and herbicides are potentially hazardous and shall be used according to labeling instructions (refer to Appendix B11 – Noxious Weed Management Plan). Sulfur hexafluoride will only be present or used at substation sites.

Common construction-generated hazardous waste includes items such as used undrained aerosol cans, used oil that is not recycled and exempt from key sections of the hazardous waste regulations or oil products, empty hazardous material containers with hazardous substance residue (as defined in the regulation), or material associated with a leak or spill of a hazardous material. The construction contractor(s) will properly collect, store, and contain hazardous construction waste on the Project site until such time as it can be removed to a waste management facility authorized to accept such materials. All hazardous materials will be stored in closed labeled containers.

B9.4.4 Operating Procedures

The following hazardous materials mitigation measures will be implemented by all construction contractors:

- Totally enclosed containment will be provided for all hazardous waste
- All potentially hazardous construction waste will be removed to a waste management facility authorized to accept such material
- An SPCC Plan framework (see appendix B4) has been prepared and will be completed using the specific methods described in this HMMP to address prevention and control of oil, hydraulic fluid, and petroleum fuel spill, including spills that could enter navigable waters of the United States
- Oils or chemicals will be hauled to an approved site for disposal or recycling

- Training of all personnel on procedures and immediate steps to clean up a spill. Cleanup materials will be available at every work site (or every vehicle). To minimize impacts and as practicable, contaminated soil will be scooped up and contained (in a plastic bag or drum for the purpose) immediately.
- If a spill occurs on Federal or State land, the appropriate agency office will be notified, and a copy of the manifest for disposal of the affected materials will be provided to the appropriate agency if required.

B9.4.4.1 REFUELING AND SERVICING

Refueling of equipment in the ROW will be necessary throughout the construction phase. As needed, fuel will be transferred from bulk storage tanks in the materials yard to refueling tankers or transported from non-project related facilities. Fuel will then be transported to specific locations within the ROW that are generally flat to minimize the chance of a spilled substance reaching a stream or wash. All refueling activities will be monitored by the contractor's site coordinator or their designee. Transfer of materials from large bulk tanks to small refueling tankers will be performed using the appropriate equipment, including pumps, hoses, and safety equipment. All fuel nozzles will be equipped with functional automatic shut-off valves. Devices such as drip trays and sorbent pads will be used during on-site refueling to minimize spills. Fuel/service vehicles will carry (1) suitable absorbent material to collect approximately 20 gallons of spilled materials, and (2) containment (such as plastic bags, plastic-line fiber drums, or steel drums) for that material and contaminated soil. Prior to departure of any refueling tanker, all outlets on the vehicle will be examined by the driver for leakage and tightened, adjusted, or replaced as necessary to prevent leaking while in transit. Details on spill prevention measures and procedures that will be used at the Project site are addressed in the SPCC Plan (see appendix B4) and SWPPP (see appendix B3).

B9.4.4.2 TRANSPORTATION OF HAZARDOUS MATERIALS

Procedures for loading and transporting fuels and other hazardous materials will meet the minimum requirements established by the U.S. Department of Transportation (USDOT) and by the Arizona or New Mexico Department of Transportation. Transportation of hazardous materials will be performed by a hazardous material transport company, and appropriate shipping papers shall be completed by properly trained personnel in accordance with federal and state regulations and guidance. During transportation, all hazardous materials used for the Project will be properly labeled and stored in USDOT-approved containers. The Project Blasting Plan (see appendix B6) contains special provisions specific to the transportation and storage of explosives.

B9.4.4.3 STORAGE AND LABELING OF HAZARDOUS MATERIALS

Storage methods and quantities will vary with the length of Project construction phases, the time of year, and the type of terrain. SDSs for all hazardous materials used or stored in the ROW or in material yards will be made accessible to all construction contractor and subcontractor employees. The SDSs will provide basic emergency response information for small and large releases of hazardous materials. In addition, the construction contractor(s) will make copies of the USDOT-produced Emergency Response Guidebook available for employee reference.

Proper storage and handling of hazardous materials can reduce or eliminate many associated risks. Proper storage information can usually be obtained from the SDS, label, or other chemical reference material. An SDS must be available for every chemical in the Project worksite. The SDS and chemical label can be consulted for information on special storage requirements.

The SDS can also answer questions such as:

- Is the chemical a flammable?
- Is the chemical a corrosive?
- Does the chemical need to be stored other than at ambient temperature?
- Is the chemical an oxidizer or reducer?
- Is the chemical light sensitive?
- Does the chemical require any special handling procedures?

Storage Containers

Typical storage considerations may include temperature, ignition control, ventilation, segregation, and identification. If cabinets are used to segregate chemicals, consider the compatibility of the chemicals with the cabinet. For example, corrosives, like strong acids and caustics, will corrode most metal cabinets. Non-metallic or epoxy-painted cabinets are available and will provide a better service life with these types of chemicals.

There are cabinets available specifically for flammable materials. It is important to be aware of maximum allowable container size and maximum quantities for storage in cabinets based on the category of the flammable. The class of a flammable is determined by its flash point and boiling point.

All hazardous materials stored on the Project site will be located in secured fenced materials storage/ staging area at least 100 feet away from washes, ditches, or other waterways and away from environmentally sensitive areas or areas subject to periodic flooding. All storage containers will remain sealed when not in use, and storage areas shall be gated, locked, and/or guarded at night or during non-construction periods.

Totally enclosed containment will be provided for all hazardous materials. Containers holding hazardous materials or waste will be compatible with the specific materials stored. At a minimum, containers shall be inspected weekly to verify the integrity of the containers and containment system. If the container is damaged or shows signs of leaking, the material will be transferred to a container in good condition.

Containers holding hazardous materials will be kept closed at all times, except when it is necessary to add or remove contents. Before the handling and/or transportation of containers carrying hazardous wastes, the containers will be inspected to ensure they are sealed such that no material spillage occurs.

Incompatible Materials

Materials, including hazardous wastes, will not be stored with incompatible materials or be placed in containers that previously held an incompatible waste or material. Proper segregation is necessary to prevent incompatible materials from inadvertently coming into contact. If incompatible materials were to come into contact, fire, explosion, violent reactions or toxic gases could result. When segregating chemicals, acids will not be stored with bases, and oxidizers will not be stored with organic materials or reducing agents. A physical barrier and/or distance is effective for proper segregation.

Figure B9-1 below is a general guide to the types of hazardous products you can store together and the types you need to separate by 20 feet or a 1-hour firewall. Refer to the product label or SDS to determine the product type.

The products indicated by the placards are compatible with each other if shown within the same red lines and incompatible with products shown in other areas surrounded by red lines. The red lines indicate a minimum of 20 feet separation or a 1-hour firewall. However, it may still be preferable to separate these products even farther; for instance, try not to store flammable solids with flammable liquids or compressed gases with flammables.

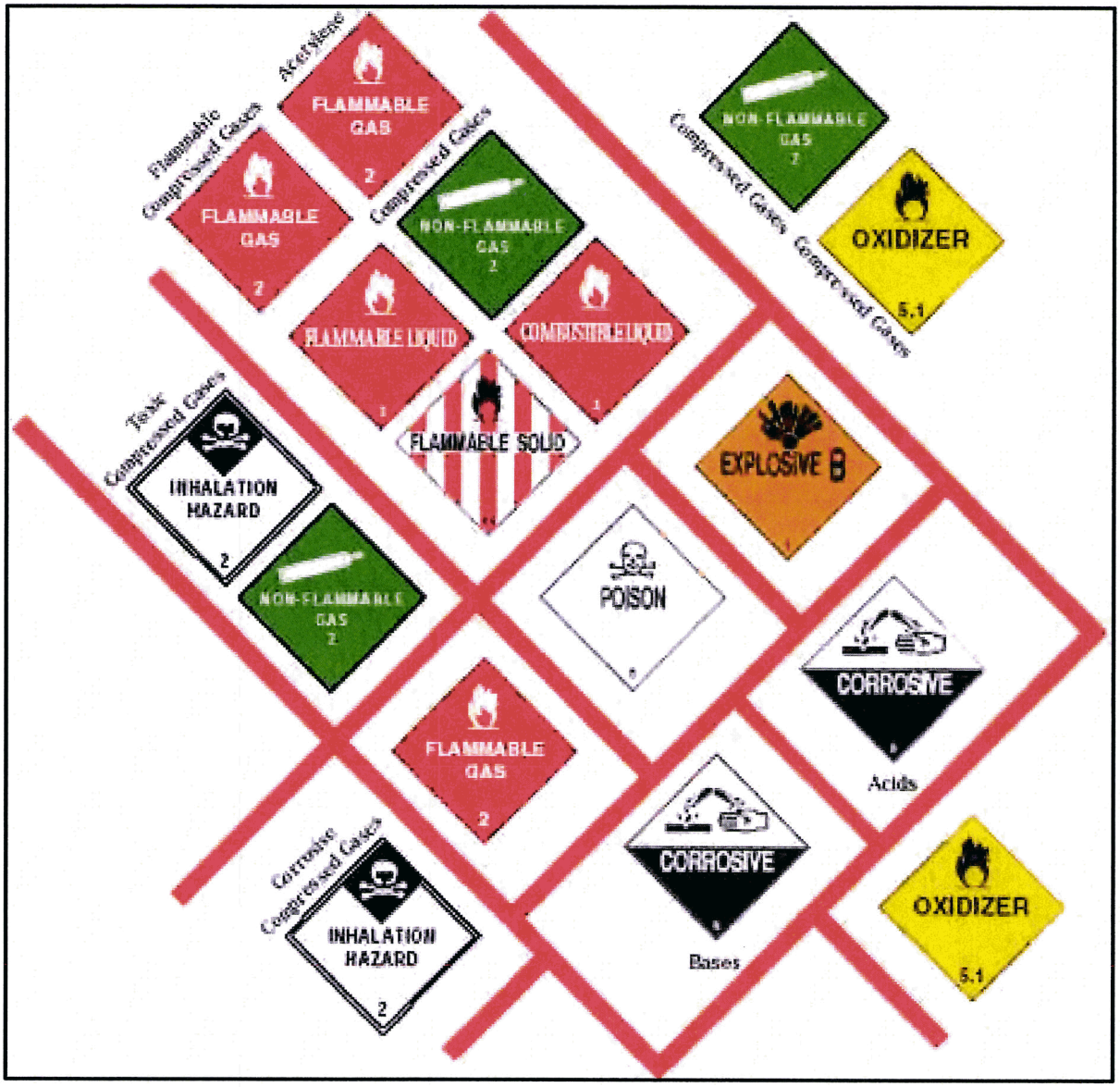

Figure B9-1. Types of hazardous products you can store together and the types you need to separate by 20 feet or a 1-hour firewall. Source: http://www.fs.fed.us/t-d/pubs/htmlpubs/htm04712810/page30.htm.

Ignitable or Reactive Materials

Containers holding hazardous materials that are reactive or may ignite must be located at least 50 feet from the material yard's property line. "NO SMOKING" signs shall be conspicuously placed wherever there is a hazard from ignitable or reactive material.

Secondary Containment

Liquid hazardous materials will be placed within secondary containment and inspected daily for spills or leaks. Diesel fuel is the only hazardous material that is expected to be stored on the project site in large bulk quantities. Secondary containment for large volumes of diesel include devices such as dual-walled aboveground tanks or bermed areas lined with impervious material designed to provide a minimum containment volume equal to 110 percent of the volume of the largest storage vessel contained within the bermed area. Small volumes of materials such as paints or solvents will be stored in properly labeled containers in fireproof boxes inside contractor vehicles or on-site structures.

Security

Hazardous materials will be stored in secure areas to prevent damage, vandalism, or theft.
All storage containers will remain sealed when not in use and storage areas shall be secured (gated, locked, and/or guarded) at night and/or during non-construction periods.

Explosives

Storage of explosives is discussed in Appendix B6 – Blasting Plan.

B9.4.4.4 DISPOSAL

In general, hazardous materials, hazardous wastes, and used cleanup materials will be stored in approved containers until they can be properly transported and disposed of at an approved waste management facility. Persons responsible for handling or transporting hazardous materials for the Project will be trained in the proper use/management of the materials and will be familiar with all applicable laws, policies, procedures, and PCEMs related to such handling or transportation.

Hazardous materials and hazardous waste must be properly, legally, and safely disposed of according to federal and state rules and regulations. Copies of manifests of all hazardous wastes disposed of must be retained and provided to agencies upon request.

Hazardous Waste

Hazardous waste will be removed from the Project site and disposed of at a properly-permitted waste management facility by a contracted, permitted transporter. EPA-approved waste manifest forms will be used when hazardous waste is transported, and such manifests will become part of the Project's permanent construction record.

Container Management

Containers that once held hazardous materials as products or held hazardous wastes must be considered as potential hazardous wastes due to the possible presence of residual hazardous material. Regulations specify that for the container to be handled as a nonhazardous waste, as much of the contents have been removed as possible, the pressure in the container approaches atmospheric (for compressed gases), and if empty containers are less than 5 gallons, they may be disposed of as a nonhazardous solid waste. If the empty containers are greater than 5 gallons, they must be returned to the vendor for reuse, sent to a drum recycler, or be used or recycled onsite. Additional regulations may apply.

Used Oil and Oil Filters

Used oil containing less than 1,000 parts per million total halogens can be managed as nonhazardous waste. Used metal canister oil filters can be managed as nonhazardous wastes if:

- They are thoroughly drained of free-flowing oil
- The filters are accumulated, stored, and transferred in a closed, rainproof container
- The filters are transferred for the purposes of recycling
- The filters are not terne-plated (an alloy of tin and lead).

Terne-plated oil filters are a hazardous waste, exhibiting the hazardous characteristics of lead. Terne-plated oil filters not recycled must be managed as a hazardous waste.

B9.4.5 Spill Contingency Plan

An SPCC Plan framework has been prepared for the Project and is available as appendix B4. The SPCC Plan details the spill response procedures, employee training, and spill response equipment and will be finalized as the construction POD is developed.

B9.4.5.1 SPILL EMERGENCY CONTACTS

In the event that there is an oil or fuel spill, immediate measures will be taken to control the spill, and the BLM, National Response Center, and/or Arizona Department of Environmental Quality or New Mexico Environment Department will be notified. Information on Project emergency contact for spill response will be provided as an appendix to the HMMP and shall be posted in conspicuous locations wherever hazardous materials are transported, loaded/unloaded, stored, or used. Spill emergency contact information is available as an appendix to the HMMP, in section B9.4.6.2 below.

B9.4.5.2 SPILL RESPONSE PROCEDURES

In the instance of a spill of hazardous materials, immediate response activities will be initiated by field personnel. Only persons having received proper training and with the appropriate protective clothing and clean-up materials should attempt to clean up or control a spill. Untrained individuals should notify the appropriate response personnel.

All spills must be reported to the Spill Coordinator and/or the Site Representative. If a spill occurs on Federal or State land, the appropriate agency office will be notified, and a copy of the manifest for disposal of the affected materials will be provided to the appropriate agency if required (see Section 6.5 – Notification and Documentation below).

B9.4.5.3 EMPLOYEE TRAINING

The SPCC Plan (see appendix B4) details employee training regarding spill prevention and emergency response procedures for the Project. Employee training also includes:

- Use of spill cleanup materials and equipment
- Procedures for coordinating emergency response teams
- Procedures for notifying agencies
- Procedures for documenting spills
- Identification of sites/areas requiring special treatment

B9.4.5.4 SPILL CONTINGENCY RESPONSE EQUIPMENT

The construction contractor(s) shall supply spill response kits, which shall be stored at all material yards/staging areas and readily accessible during construction. The Spill Coordinator will make known to all personnel involved with construction the contractor's location of the spill response kits. The contractor shall also provide a smaller portable spill kit for each truck.

B9.4.5.5 NOTIFICATION AND DOCUMENTATION

Spill Notification

If a spill occurs on Federal or State land, the appropriate agency office or landowner will be notified, and a copy of the manifest for disposal of the affected materials will be provided to the appropriate agency if required. Following is standard information required when notifying a regulatory agency of a spill, followed by specific reporting criteria for federal and state agencies.

When notifying a regulatory agency, the following information should be provided:

- Current threats to human health and safety, include known injuries, if any;
- Spill location, including landmarks and nearest access route;
- Reporter's name and phone number;
- Time spill occurred;
- Type and estimated amount of hazardous materials involved;
- Potential threat to property and environmental resources, especially streams and waterways; and
- Status of response actions.

Any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity shall be reported as required by the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, Section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the authorized officer concurrent with the filing of the reports to the involved Federal agency or State government. The EPA has determined that discharges of oil in quantities that may be harmful to public health or the environment include those that:

- Violate applicable water quality standards;
- Cause a film or "sheen," or discoloration of the surface of the water or adjoining shorelines; or
- Cause a sludge or emulsion to be deposited beneath the surface of the water or upon adjoining shorelines.

New Mexico Reporting Requirements

- According to the New Mexico Environment Department (NMED), a discharge of any material in a quantity that may, with reasonable probability, injure or be detrimental to human health, animal/plant life, or property; or may unreasonably interfere with the public welfare or the use of the property must be reported. This includes chemicals, biohazard materials, petroleum products, and sewage. In addition to recent spills, the discovery of evidence of previous unauthorized discharges, such as contaminated soil or ground water, also must be reported.
- Emergency: (505) 827-9329, Non-Emergency: (866) 428-6535 or (505) 476-6000

- Website: http://www.nmenv.state.nm.us/gwb/nmed-gwqb-NotificationofSpillsandUnauthori.htm
- Oral notification must be provided to NMED as soon as possible after learning of a discharge, but in no event more than twenty-four (24) hours thereafter.

Arizona Reporting Requirements

- According to the Arizona Department of Environmental Quality, federal reportable quantities apply. However, a spill of any quantity that impacts a waterway within the state of Arizona must be reported.
- Emergency: (602) 390-7894, Non-Emergency: (800) 234-5677 or (602) 771-2330
- Website: http://www.azdeq.gov/er.html

Spill Documentation

Appropriate forms documenting the release and cleanup must be completed and signed, and stored, along with any sample results, shipping manifests, chains of custody, photographs, and other relevant materials. The construction contractor(s) is to retain these records and make them available to agencies upon request. Details to be collected for even small spills include the following:

- Date and time
- Name of person recording the data
- Persons and agencies notified
- Type and quantity of spill
- Resources affected (i.e., soil, surface water, etc.)
- Cleanup actions taken
- Reason for the spill
- Photographs of the spill site
- How cleanup materials and contaminated soil, water, and equipment were disposed of
- Other pertinent details

B9.4.6 APPENDICES TO THE HMMP

The following appendices will be included in the HMMP.

B9.4.6.1 APPENDIX A. SITE PLAN

Detailed site plans will be provided by the construction contractor(s), reviewed periodically, and updated when necessary.

B9.4.6.2 APPENDIX B. EMERGENCY INFORMATION FOR SPILL RESPONSE (POSTED ONSITE)

Emergency information for spill response shall be posted in conspicuous locations wherever hazardous materials are transported, loaded/unloaded, stored, or used. The posting will include the following information at a minimum (certain of these may not apply in Arizona versus New Mexico):

Phone numbers for:

- Local emergency (i.e., 911)
- Local fire, ambulance, and police
- Local hospital
- The Construction Contractor's Emergency Coordinator/Responsible Person, and two alternate contractor contacts, for contact 24 hours per day

National Response Center (Washington, D.C.)

The National Response Center (NRC) is the sole Federal point of contact for reporting all hazardous substances releases and oil spills. The NRC receives all reports of releases involving hazardous substances and oil that trigger Federal notification requirements under several laws.

Website: http://www.nrc.uscg.mil/

Phone: (800) 424-8802

U.S. Environmental Protection Agency

Superfund, Toxic Release Inventory, Emergency Planning and Community Right-to-Know Act, Risk Management Program, and Oil Information Center:

Phone: (800) 424-9346

Type of Coverage: Staffed by live Information Specialists. Assistance is also available through the Emergency Management Frequently Asked Question Database, which provides answers to frequently asked questions and an option to submit questions electronically to the Information Center.

Description: A publicly accessible service that provides up-to-date information on the regulatory requirements of the Oil Pollution Prevention Program, including Spill Prevention Control and Countermeasures (SPCC) Plans, Facility Response Plans (FRPs), and oil discharges. The Information Center does not provide regulatory interpretations. It does, however, maintain up-to-date information on the availability and distribution of publications and other resources pertaining to its program areas.

Additional Notes: This hotline is shared and managed by the following EPA Programs: the Toxics Release Inventory, EPCRA, Risk Management Plans, Superfund, and Oil Spill Prevention.

EPA Region 6 Customer Service Line:
Phone: (800) 887-6063; Outside Region 6 call 214-665-6444
Serving Region 6 (AR, LA, NM, OK, and TX).

EPA Region 9 Customer Service Line:
Phone: (866) 372-9378; Outside EPA Region 9 call 415-947-8000.
Serving Region 9 (AZ, CA, HI, NV, and Pacific Islands).

BLM, Las Cruces District Office:
1800 Marquess Street, Las Cruces, NM 88005
(575) 525-4300
District Manager: Bill Childress

BLM, Safford Field Office
711 14th Avenue, Safford, AZ 85546
(928) 348-4400
District Manager: Tim Shannon
Field Manager: Scott Cooke

BLM, Tucson Field Office
3201 East Universal Way, Tucson, AZ 85756
(520) 258-7200
District Manager: Tim Shannon
Field Manager: Vi Hillman

Western Area Power Administration
Desert Southwest Region
PO Box 6457, Phoenix, AZ 85005-6457
Contact: TBD

New Mexico Environment Department
Emergency: (505) 827-9329, Non-Emergency: (866) 428-6535 or (505) 476-6000
Website: http://www.nmenv.state.nm.us/gwb/nmed-gwqb-NotificationofSpillsandUnauthori.htm

Arizona Department of Environmental Quality
Emergency: (602) 390-7894, Non-Emergency: (800) 234-5677 or (602) 771-2330
Website: http://www.azdeq.gov/er.html

B9.4.6.3 APPENDIX C. SPILL RESPONSE PROCEDURES (POSTED ONSITE)

As noted in appendix B4 (the SPCC Plan), while each spill, leak, or response is unique, standard procedures generally apply. Steps are detailed in the SPCC Plan (appendix B4) and may include the following:

1. First response / assessment and initiation of action
2. Spill control and containment
3. Cleanup
4. Disposal
5. Documentation and reporting
6. Agency notification, federal and state
7. Assessment and evaluation

B9.4.6.4 APPENDIX D. SAFETY DATA SHEETS

Material Safety Data Sheets and/or Safety Data Sheets will be stored in this appendix, reviewed periodically, and updated when necessary.

B9.4.6.5 APPENDIX E. EXAMPLE HAZARDOUS WASTE LABELS

HAZARDOUS WASTE

FEDERAL LAWS PROHIBIT IMPROPER DISPOSAL

IF FOUND, CONTACT THE NEAREST POLICE OR PUBLIC SAFETY AUTHORITY OR THE U.S. ENVIRONMENTAL PROTECTION AGENCY

GENERATOR INFORMATION:

NAME: _____

ADDRESS: _____

CITY _____ STATE _____ ZIP _____

EPA ID NO. _____ EPA WASTE NO. _____

ACCUMULATION START DATE _____ MANIFEST TRACKING NO. _____

_____

_____

_____

D.O.T. PROPER SHIPPING NAME AND UN OR NA NO. WITH PREFIX

HANDLE WITH CARE!

Waste

HOLD FOR ANALYSIS

Sample Collected:

Results Expected:

Questions?

Contact:

Phone:

B9.4.6.6 APPENDIX F. TYPICAL FUEL, LUBRICANTS, AND HAZARDOUS MATERIALS

Generic List of Chemicals Used During the Construction of an Overhead Transmission Line

2-cycle oil (contains distillates and hydrotreated heavy paraffinic)
ABC fire extinguisher
Acetylene gas
Air tool oil
Ammonium hydroxide
Automatic transmission fluid
Battery acid (in vehicles and in the meter house of the substations)
Bee Bop Insect Killer
Canned spray paint
Chain lubricant (contains methylene chloride)
Connector grease (penotox)
Contact cleaner 2000
Diesel de-icer
Diesel fuel
Diesel fuel additive
Explosives (detonators, detonator assemblies – non-electric, tubular primers, cap-type primers, ammonium nitrate fertilizers)
Eye glass cleaner (contains methylene chloride)
Gasoline
Gasoline treatment
Herbicides (used for vegetation control)
Hot Stick cleaner (cloth treated with polydimethylsiloxane)
Insulating oil (inhibited, non-PCB)

Lubricating grease
Mastic coating
Methyl alcohol
North wasp and hornet spray (1,1,1-trichloroethene)
Oxygen
Paint thinner
Petroleum products (gasoline, diesel fuel, jet fuel A, lubricants, brake fluid, hydraulic fluid)
Prestone 11 antifreeze
Propane.
Puncture seal tire inflator
Safety fuses
Starter fluid
Wagner brake fluid
WD-40
ZEP (safety solvent)
ZIP (1,1,1-tricholorethane)

B9.5 Proponent Committed Environmental Measures

Southline has developed environmental protection measures to be incorporated as part of the Project. The goal of these PCEMs is to reduce or avoid potential environmental impacts resulting from Project-related activities. The following PCEMs were identified in the EIS, and are included in table 8 of the POD. These PCEMs will be used in the development of the HMMP:

- Framework Plans prepared as part of the final POD will be developed in more detail and implemented to minimize and mitigate potential hazardous materials and waste; plans include SWPPP; SPCC Plan; and Soil Management Plan. These plans will include requirements by the EPA, OSHA, Arizona Department of Environmental Quality, and the New Mexico and Arizona Departments of Transportation.
- The SWPPP (see appendix B3) includes BMPs to address the storage and handling of hazardous materials and sediment runoff during construction activities to minimize the risk of an accidental release. The SWPPP is required by, and enforced by, the EPA in New Mexico, and the Arizona Department of Environmental Quality in Arizona.
- Construction, operation, and maintenance crew members who handle oil or other hazardous substances described in the SPCC Plan will be properly trained to deal with a spill, and appropriate spill response or containment material will be available for use at applicable work sites. Careful handling and designation of specific equipment repair and fuel storage areas, as outlined in the SPCC Plan, will reduce the potential for oil and fuel spills. In the event that there is an oil or fuel spill, immediate measures will be taken to control the spill, and the BLM, National Response Center, and/or Arizona Department of Environmental Quality or New Mexico Environment Department will be notified as defined in the SPCC Plan (see appendix B4).
- Personnel, contractors, and transporters involved with hazardous materials management will be required to comply with Federal and State regulations established for the transportation, storage, handling, and disposal of hazardous substances, materials, and wastes. "Hazardous substances" means any substance, pollutant, or contaminant that is listed as hazardous under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended.
- HAZ-1 The Project-specific HMMP and program will outline proper hazardous materials use, storage, and transport requirements and applicable handling procedures. EPA procedures for handling and storage of hazardous materials, OSHA requirements for proper storage and labeling

on the job site, and New Mexico and Arizona Department of Transportation requirements for transportation of hazardous materials will be followed.

- HAZ-2 If backfill material to be used is derived from a site that could possibly have contamination, it will be sampled and determined to be free of regulated contaminants before it is used to fill excavations. The results of any tested soils will be shared with the appropriate surface managing agency. No contaminated soils will be used as fill material for the Project.
- HAZ-3 New or expanded substation locations that involve the purchase or long-term leasing of land, purchased transmission line ROWs, and any other property to be acquired will be screened for environmental liabilities. The degree and level of screening will be based on knowledge or information available on the property to determine the probability of contaminants of concern or other environmental impairment. A Phase I Environmental Site Assessment will be conducted if preliminary screening indicates a reasonable risk that such environmental conditions may exist on the property and the property continues to be targeted for acquisition by the Project, consistent with American Society for Testing and Materials Standard E1527-13.
- HAZ-4 The Soil Management Plan (see appendix B14) will provide guidance for the proper handling, onsite management, and disposal of contaminated soil, if encountered during construction, operation, and maintenance activities. Appropriately trained personnel would be onsite during preparation, grading, and related earthwork activities to monitor the soil conditions encountered.
- HAZ-5 In the event of a spill, workers in the immediate area will cease work, begin spill cleanup operations, and notify appropriate agencies as required by law and specified in the SPCC Plan. Southline and its construction contractor(s) are responsible for cleanup and assume liability for any and all releases of hazardous substances disposed on public land, in accordance with State, Federal, and local laws and regulations. Southline will immediately notify the BLM authorized officer of any and all releases of hazardous substances on public land.
- HAZ-6 All construction and demolition waste, including trash and litter, garbage, and other solid waste, will be removed and transported to an appropriately permitted recycling or disposal facility. Southline and its construction contractor will prepare a Construction Waste Disposal Plan for all nonhazardous wastes generated during construction of the Project. The plan will contain a description of all nonhazardous solid and liquid construction wastes, recycling plans, and waste management methods to be used for each type of waste.
- HAZ-7 Southline or the applicable contractors will maintain all vehicles in good working order. Equipment will be properly tuned and maintained to avoid leaks of fluids.
- HAZ-8 Service and refueling procedures will not be conducted within 500 feet of a seep, wash, or other water body. Routine service of any vehicles or equipment will not be done within the ROW.

APPENDIX B10
EMERGENCY PREPAREDNESS AND RESPONSE PLAN

B10.1 Introduction

Despite an organization's best efforts, accidents, acts of nature, and other emergency situations can occur. Effective preparations for emergency and response can reduce injuries, prevent or minimize environmental impacts, protect employees and the community, reduce asset losses, and minimize downtime. An effective emergency preparedness and response program will include provisions for identification of hazards, a chain of command and responsibility, and a strategy for emergency communications.

This Emergency Preparedness and Response Plan is intended to provide methods for prevention of and response to a broad spectrum of emergency situations. This document discusses the chain of command and emergency communications strategy to be used as a guide for an Emergency Preparedness and Response Plan to be completed by Southline Transmission, LLC (Southline), and other responsible parties identified in the construction Plan of Development (POD). As indicated in the POD, this plan is applicable on Federal lands administered by the BLM as enforceable stipulations and measures of the BLM ROW grant. It pertains not only to the construction of the Project, but also to the operation and maintenance phase of the Project. Where Western is involved in the Project, they may adopt this plan, where appropriate.

The final Emergency Preparedness and Response Plan will be approved by the Bureau of Land Management (BLM), Western Area Power Administration (Western), and other agencies as appropriate. More specific emergency procedures for blasting, hazardous materials, and fire are included in Appendix B6 – Blasting Plan, Appendix B9 – Hazardous Materials Management Plan, and Appendix B12 – Fire Protection Plan.

Emergency response procedures will be implemented for the following potential events, or similar events:

- Downed transmission lines, structures, or equipment failure
- Fires and explosions
- Spills or releases of hazardous materials
- Sudden loss of power
- Natural disasters
- Serious personal injury

B10.2 Purpose

No plan can describe specific procedures and protocols for every potential event. However, having a general plan in place with hazards identification, a chain of command and responsibility, a strategy for emergency communications, and foresight and planning can mitigate for most significant events. This is particularly true and important for the initial response phase of an emergency situation.

The purpose of an Emergency Preparedness and Response Plan is to provide clear procedures and information to enable Southline, the construction contractor(s), the compliance inspection contractor (CIC), and the BLM, Western, or other agency authorized officer or his/her designated representative to

prepare for and effectively respond to emergency situations. The primary objective of this plan is to prevent adverse impacts on human health and safety, property, and the environment that could potentially occur as a result of potential emergencies during the construction, operation, and maintenance of the Southline Transmission Line Project (Project).

B10.3 Regulatory Compliance

There are numerous regulatory drivers that call for the preparation of an Emergency Preparedness and Response Plan. Health and safety guidelines related to high-voltage transmission lines are provided by a number of sources, including the National Electric Safety Code, American National Standards Institute, American Medical Association Council on Scientific Affairs, American Conference of Governmental Industrial Hygienists, various State regulations, other organizations, and Western. The Occupational Safety and Health Administration also provide regulations for construction and operational workplace activities.

Additional regulatory drivers include the Clean Water Act (CWA) requirements for Stormwater Pollution Prevention Plans (SWPPPs) and the CWA, Oil Pollution Act requirement for a Spill Prevention, Control, and Countermeasure Plan (SPCC Plan), and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, a.k.a. Superfund). The SWPPP (appendix B3) and SPCC Plan (appendix B4) also include response procedures for spills of oil or hazardous materials.

B10.4 Responsibilities

Southline and the construction contractor(s) are responsible for the effective response to any emergency situation or event related to the construction, operation, and maintenance of the Project. To ensure a coordinated and effective response, a chain of command will be developed as part of the Emergency Preparedness and Response Plan and followed in the event of an emergency. In the establishment of a chain of command, considerations to be taken into account include the levels of vertical and horizontal activation and the participation necessary to respond to specific situations are. In other words, does the response need to move further up the chain of command, or does the response need to broaden to include additional divisions or disciplines? Sometimes the response will be both, and higher levels of command may be needed to authorize or oversee additional divisions or disciplines. The following are factors for the establishment of a chain of command:

- Type of event (natural, injury, environmental, electrical supply/outage, external forces)
- Severity, location, and physiographic surroundings
- Multiple, interconnected, or combined events
- Anticipated duration
- Multi-division and/or multi-discipline response required
- External agency coordination
- Authority of various command levels

B10.5 Response Coordination

The amount of resources and coordination required for response to a specific hazard or emergency is determined by type, severity, location, and duration of the event. Most events require managing at the field operations level and will require increasing resource requirements to match the severity and duration

of the event. This emergency management organization will be included as part of this Emergency Preparedness and Response Plan and will provide increasing levels of resources and the coordination necessary to support immediate or escalating emergency events. Because the field level is often where an emergency response is initiated, field level personnel must be aware of and have access to emergency contact information, procedures, and equipment.

In the event of an emergency, crews will be dispatched quickly to repair or replace any damaged equipment. While protection of human health and life is paramount, repair of the transmission line will have priority under emergency conditions and all reasonable efforts will be made to protect plants, wildlife, and other natural resources. Reclamation procedures following completion of repair work will be similar to those prescribed during construction (see Appendix B15 – Reclamation, Vegetation, and Monitoring Plan).

B10.6 Emergency Communications

Effective communication and exchange of information is essential in every emergency response. Misdirected, incorrect, or untimely information can be detrimental and even increase the threat to life or property. As an emergency event escalates, the rapid increase of information creates chaos and confusion. Simple communication diagrams can help to alleviate this situation.

B10.6.1 Emergency Contact List

In case of emergency, call 911 first. Additional potential emergency contacts are listed below and should be called as appropriate, depending on the situation (e.g., fire, injury). Further guidance on emergency response, notification, and reporting protocols are included in Appendix B3 – SWPPP, Appendix B4 – SPCC Plan, Appendix B6 – Blasting Plan, Appendix B9 – Hazardous Materials Management Plan, and Appendix B12 – Fire Protection Plan. The Emergency Contact List shall be verified at the beginning of construction and updated throughout the Project by the construction contractor(s) to ensure accurate contact information. Emergency contacts are just that – persons to be contacted to respond to an emergency. Notifications, both internal and to State and Federal agencies, may also be required on a case-by-case basis. When the emergency contact list is posted at a jobsite, it may be tailored to the locale as appropriate.

In case of emergency – Call 911

Fire: Call 911 first

Southwest Coordination Center
The interagency focal point for coordinating the mobilization of resources between the twelve Federal and State Dispatch Centers of the Southwest Area and, when necessary, the National Coordination Center in Boise, ID.

Website: http://gacc.nifc.gov/swcc/

To report a wildfire in New Mexico: Silver City Dispatch Center (575) 538-5371
To report a wildfire in Arizona: Tucson Interagency Dispatch Center (520) 202-2710

Emergency Medical: Call 911 first

List all local hospitals and clinics as appropriate

Law Enforcement: Call 911 first

New Mexico County Sheriffs:
Doña Ana County Sheriff's Office (575) 525-1911
Luna County Sheriff's Department (575) 546-2655
Grant County Sheriff's Office (575) 574-0100
Hidalgo County Sheriff's Office (575) 542.3833

Arizona County Sheriffs:
Cochise County Sheriff's Office (520) 432-9505
Pima County Sheriff's Department (520) 351-4900
Pinal County Sheriff's Office (520) 866-5111

Hazardous materials and oil spills:

National Response Center (Washington, D.C.)
The National Response Center (NRC) is the sole Federal point of contact for reporting all hazardous substances releases and oil spills.
Website: http://www.nrc.uscg.mil/
Phone: (800) 424-8802

U.S. Environmental Protection Agency
EPA Region 6 Customer Service Line:
Phone: (800) 887-6063; Outside Region 6 call 214-665-6444
Serving Region 6 (AR, LA, NM, OK, and TX).

EPA Region 9 Customer Service Line:
Phone: (866) 372-9378; Outside EPA Region 9 call 415-947-8000.
Serving Region 9 (AZ, CA, HI, NV, and Pacific Islands).

New Mexico Environment Department
Emergency: (505) 827-9329, Non-Emergency: (866) 428-6535 or (505) 476-6000
Website: http://www.nmenv.state.nm.us/gwb/nmed-gwqb-NotificationofSpillsandUnauthori.htm

Arizona Department of Environmental Quality
Emergency: (602) 390-7894, Non-Emergency: (800) 234-5677 or (602) 771-2330
Website: http://www.azdeq.gov/er.html

Bureau of Land Management Contacts

BLM, Las Cruces District Office:
1800 Marquess St, Las Cruces, NM 88005
(575) 525-4300
District Manager: Bill Childress

BLM, Safford Field Office
711 14th Avenue, Safford, AZ 85546
(928) 348-4400
District Manager: Tim Shannon
Field Manager: Scott Cooke

BLM, Tucson Field Office
3201 East Universal Way, Tucson, AZ 85756
(520) 258-7200
District Manager: Tim Shannon
Field Manager: Vi Hillman

Western Area Power Administration Contacts

List as appropriate

Southline Transmission, LLC Contacts

List as appropriate

Divisions of Emergency Services & Homeland Security

New Mexico Department of Homeland Security & Emergency Management
Mission: To protect the people of New Mexico and the nation through a comprehensive, consolidated, and coordinated program of mitigating hazards, preparing for emergencies, preventing attacks, and responding and recovering from events that occur without regard to cause
Website: http://www.nmdhsem.org/
Phone: (505) 476-9600

Arizona Division of Emergency Management
Mission: To provide military and emergency management capabilities to citizens of Arizona and the Nation
Website: http://www.dem.azdema.gov
Phone: (800) 411-2336 / (602) 244-0504

Arizona Department of Homeland Security
Website: http://www.azdohs.gov/
Phone: (602) 542-7013

Construction Contractor Manager

List as appropriate

Compliance Inspection Contractor

List as appropriate

B10.7 Hazard Identifications and Key Response Criteria

Potential hazards or threats will always be present in association with construction and operation of the Project. It is effective and necessary to identify likely and potential hazards in advance, and the associated risks, so as to outline potential effects and consequences, and determine the resources and actions for an adequate response.
It is not feasible to anticipate all potential hazards and describe an exact response for each. Responses to different events may vary as the event evolves, and even responses to identical events may differ based on geography, local circumstances, response time, and myriad other factors. However, response methods and

responsibilities to be determined in the Emergency Preparedness and Response Plan will be essential for any possible situation. Having a general plan in place with hazards identification, a chain of command and responsibility, a strategy for emergency communications, and foresight and planning can mitigate for most significant events.

Effective emergency response training is based on plausible scenarios and then developing the understanding, elements, and actions necessary to respond. Scenarios to consider are: electrocution, fatality, massive equipment failure, structure failure, weather/environment, etc. Because the field level is often where an emergency response is initiated, field level personnel must be trained on and have access to emergency contact information, procedures, and equipment. Field level personnel and supervisors must be trained to identify hazards within their purview, and the importance of mitigating those hazards before they become emergencies.

APPENDIX B11
NOXIOUS WEED MANAGEMENT PLAN

B11.1 Background

The Bureau of Land Management (BLM) defines noxious weeds as "a plant that interferes with management objectives for a given area of land at a given point in time." The New Mexico Noxious Weed Act defines noxious weeds as "any weed or plant which the board of county Commissioners acting as the governing body of the district, and with the advice of the county agent, declares to be harmful or to possess noxious characteristics." The Arizona Department of Agriculture (ADA) defines a noxious weed as "any species of plant that is, or is liable to be, detrimental or destructive and difficult to control or eradicate and shall include any species that the director [Department of Agriculture], after investigation and hearing, shall determine to be a noxious weed." Noxious weeds are opportunistic plant species that may aggressively colonize in disturbed areas. Once established in an area, noxious weeds typically out-compete native plants for resources and may permanently degrade the native plant community.
In addition, noxious weeds often become monocultures, which may alter the local fire regime by increasing the fine fuel load. Such changes usually exclude reestablishment of the native plant community in disturbed areas, and result in a long-term or permanent change in the local ecology. Infestations of noxious weeds may also have negative economic impacts. Infestations of certain noxious weeds on rangelands may poison livestock, and infestations in agricultural fields may lower crop yields.

The format and content of this Noxious Weed Management Plan is based on the principles and procedures outlined in the BLM Integrated Weed Management Manual 9015 (BLM 1992) and in Section 11.0 of the Western Area Power Administration (2011) Integrated Vegetation Management Guidance Manual (Western 2011). This plan includes a discussion on (1) the plan purpose, goals, and objectives, (2) the noxious weed inventory, (3) noxious weed management practices, (4) post-construction monitoring, and (5) the proper use of herbicides within the Project area. As indicated in the Plan of Development (POD), this plan is applicable on Federal lands administered by the BLM as enforceable stipulations and measures of the BLM right-of-way (ROW) grant. It pertains not only to the construction of the Project, but also to the operation and maintenance phase of the Project. Where Western is involved in the Project, they may adopt this plan, where appropriate.

B11.1.1 Plan Purpose

This purpose of this Noxious Weed Management Plan is to provide preventive and treatment methods to control the potential occurrence of noxious weeds during and following construction-related activities for the Southline Transmission Line Project (Project). It is the responsibility of Southline Transmission, LLC (Southline), and the construction contractor(s), working in coordination with the Compliance Inspection Contractor (CIC) and the BLM and Western or their designated representative, to ensure that noxious weeds are identified and controlled during construction, operation, and maintenance of Project facilities and that all Federal, State, county, and other local noxious weed requirements are satisfied. The BLM and/or Western will review and approve this Noxious Weed Management Plan prior to implementation.

B11.1.2 Goals and Objectives

The goal of this Noxious Weed Management Plan is to implement early detection, containment, and control of noxious weeds during Project construction. Information gathered by Southline during preconstruction surveys and provided by the BLM will be used to monitor and control the spread of

noxious weeds during the construction and operation of the Project. An evaluation of the effectiveness of the prescribed control measures will also be implemented during the operational phase of the Project.

B11.2 Regulatory Framework

This Plan is written to address guidelines set forth in the BLM Intergraded Weed Management Manual 9015 (BLM 1992). This manual ensures BLM compliance with all Federal laws regulating noxious weeds and sets forth the BLM's policy relating to the management and coordination of noxious weed activities on BLM-administered lands. In addition, the New Mexico Department of Agriculture (NMDA) and ADA have ordinances designed to deter the spread of noxious weeds within each state. These ordinances are discussed in sections B11.2.3 and B11.2.4 below.

- Federal Land Policy and Management Act of 1976 (43 U.S.C. 1701–1712).
- Public Rangelands Improvement Act of 1978 (43 U.S.C. 1901 et seq.).
- Federal Noxious Weed Act of 1974 (as amended 1990) (7 U.S.C. 2801–2813).
- Carlson-Foley Act of 1968 (Public Law 90-583).
- Executive Order (EO) 11987, Exotic Organisms.

B11.2.1 Bureau of Land Management Manual 9015

BLM Integrated Weed Management Manual 9015 directs the BLM to manage noxious weeds and undesirable plants on BLM lands by preventing the establishment and spread of new infestations, reducing existing population levels, and managing and controlling existing stands (BLM 1992). Required management for ground-disturbing actions includes determining the risk of spreading noxious weeds associated with the Project and ensuring that contracts contain provisions that hold contractors responsible for the prevention and control of noxious weeds caused by their operations if the activity is determined to be moderate to high risk (i.e., Class A weeds as defined by the BLM).

B11.2.2 New Mexico Noxious Weed Act

The NMDA regulates noxious weeds under the Noxious Weed Management Act (76-7-23 to 76-7-30 NMSA 1978). This Act authorized the formation of a Noxious Weed Control District with the power to set forth rules and regulations regarding noxious weeds aimed at reducing the negative effects of noxious weeds within the state. Through the implementation of this Weed Management Plan and in conjunction with the BLM (as described above), the Project will be in compliance with the New Mexico noxious weed laws.

B11.2.2.1 STATE LISTED NOXIOUS WEEDS – NEW MEXICO

The State of New Mexico and the U.S. Department of Agriculture (USDA) maintain an official list of weed species designated as noxious for the state. The following is an explanation of the categories established for noxious weeds by the NMDA. The State of New Mexico has officially designated 33 weed species as noxious (USDA 2015a). The noxious weed species regulated by the State of New Mexico are shown in table B11-1.

Categories for Noxious Weeds in New Mexico

The NMDA separates noxious weeds into four management categories. The following is an explanation of the categories established for noxious weed management by the NMDA. While State management priorities are outlined below, all noxious weeds in the Project area will be treated as outlined in this plan.

- Class A species are currently not present in New Mexico, or have limited distribution. Preventing new infestations of these species and eradicating existing infestations is the highest priority.
- Class B species are limited to portions of the state. In areas with severe infestations, management should be designed to contain the infestation and stop any further spread.
- Class C species are widespread in the state. Management decisions for these species should be determined at the local level, based on feasibility of control and level of infestation.
- Watch List species are species of concern in the state. These species have the potential to become problematic. More data are needed to determine whether these species should be listed. When the species are encountered, the State requests location documentation and contact of appropriate authorities.

Table B11-1. Noxious Weed Species of Potential Concern – New Mexico

Scientific Name	Common Name	State Category	Known to Occur in the Project Area
Acroptilon repens	Russian knapweed	Class B	
Aegilops cylindrica	Jointed goatgrass	Class C	
Alhagi maurorum	Camelthorn	Class A	
Alhagi pseudalhagi	Camelthorn	Class A	
Asphodelus fistulosus	Onionweed	Class A	
Cardaria draba	Hoary cress	Class A	X
Carduus nutans	Musk thistle	Class B	
Centaurea calcitrapa	Purple starthistle	Class A	
Centaurea diffusa	Diffuse knapweed	Class A	
Centaurea melitensis	Starthistles	Class B	
Centaurea solstitialis	Yellow starthistle	Class A	
Centaurea maculosa	Spotted knapweed	Class A	
Cirsium arvense	Canada thistle	Class A	
Cirsium vulgare	Bull thistle	Class B	
Conium maculatum	Poison hemlock	Class B	
Convolvulus arvensis	Field bindweed	Class C	
Dipsacus fullonum	Teasel	Class B	
Drymaria arenarioides	Alfombrilla	Class A	
Elaeagnus angustifolia	Russian olive	Class C	
Euphorbia esula	Leafy spurge	Class A	
Halogeton glomeratus	Halogeton	Class B	
Hydrilla verticillata	Hydrilla	Class A	
Hyoscyamus niger	Black henbane	Class A	

Table B11-1. Noxious Weed Species of Potential Concern – New Mexico (Continued)

Scientific Name	Common Name	State Category	Known to Occur in the Project Area
Isatis tinctoria	Dyer's woad	Class A	
Lepidium latifolium	Perennial pepperweed	Class A	
Linaria dalmatica ssp. *dalmatica*	Dalmatian toadflax	Class A	
Linaria vulgaris	Yellow toadflax	Class A	
Lythrum salicaria	Purple loosestrife	Class A	
Myriophyllum spicatum	Eurasian watermilfoil	Class A	
Onopordum acanthium	Scotch thistle	Class A	
Peganum harmala	African rue	Class B	X
Tamarix sp.	Saltcedar	Class C	X
Ulmus pumila	Siberian elm	Class C	

B11.2.3 Arizona Noxious Weed Act

The ADA (under Title 3, Chapter 4, of the AAC) prohibits certain noxious weeds from entering the State, and regulates noxious weeds to prevent further infestation or contamination within the state. Restricted species are quarantined to prevent further infestation or contamination (ADA 2015). Through the implementation of this Noxious Weed Management Plan and in conjunction with the BLM (as described below), the Project will be in compliance with the Arizona noxious weed laws.

B11.2.3.1 STATE LISTED NOXIOUS WEEDS – ARIZONA

The State of Arizona and the USDA maintain an official list of weed species designated noxious for the state. The following is an explanation of the categories established for noxious weeds by the ADA. The State of Arizona has officially designated 58 weed species as noxious (USDA 2015b). The noxious weed species regulated by the State of Arizona are shown in table B11-2.

Categories for Noxious Weeds in Arizona

The ADA separates noxious weeds into four management categories. All categories of Arizona noxious weeds pertain to plants, stolons, rhizomes, cuttings, and seed. While State management priorities are outlined below, all noxious weeds in the Project area will be treated as outlined in this plan.

- Prohibited species are prohibited from entry into the state.
- Regulated species, if found within the state, may be controlled or quarantined to prevent further infestation or contamination.
- Restricted species, if found within the state, shall be quarantined to prevent further infestation or contamination.
- Other species include BLM noxious weeds of concern, which are controlled and managed by the Arizona BLM field offices.

Table B11-2. Noxious Weed Species of Potential Concern – Arizona

Scientific Name	Common Name	State Category	Known to Occur in the Project Area
Acroptilon repens	Russian knapweed	Prohibited/Restricted	
Aegilops cylindrica	Jointed goatgrass	Prohibited/Restricted	
Alhagi pseudalhagi	Camelthorn	Prohibited/Restricted	
Alternanthera philoxeroides	Alligator weed	Prohibited	
Cardaria pubescens	Hairy whitetop	Prohibited	
Cardaria chalepensis	Lens-podded hoary cress	Prohibited	
Cardaria draba	Whitetop (globed-podded hoary cress)	Prohibited/Restricted	
Carduus acanthoides	Plumeless thistle	Prohibited/Regulated	
Cenchrus echinatus	Southern sandbur	Prohibited	
Centaurea calcitrapa	Purple starthistle	Prohibited	
Centaurea iberica	Iberian starthistle	Prohibited	
Centaurea squarrosa	Squarrose knapweed	Prohibited	
Centaurea sulphurea	Sicilian starthistle	Prohibited	
Centaurea solstitialis	Yellow starthistle	Prohibited/Restricted	
Centaurea diffusa	Diffuse knapweed	Prohibited/Restricted	
Centaurea maculosa	Spotted knapweed	Prohibited/Restricted	
Chondrilla juncea	Rush skeletonweed	Prohibited	
Cirsium arvense	Field bindweed	Prohibited	
Coronopus squamatus	Creeping wartcress (coronopus)	Prohibited	
Cucumis melo L. var. *Dudaim Naudin*	Dudaim melon (Queen Anne's melon)	Prohibited	
Cuscuta spp.	Dodder	Prohibited/Restricted	
Drymaria arenarioides	Alfombrilla (lightningweed)	Prohibited	
Eichhornia crassipes	Floating water hyacinth	Prohibited/Regulated	
Eichhornia azurea	Anchored water hyacinth	Prohibited	
Elytrigia repens	Quackgrass	Prohibited/Restricted	
Euphorbia esula	Leafy spurge	Prohibited	
Halogeton glomeratus	Halogeton	Prohibited/Restricted	
Helianthus ciliaris	Texas blueweed	Prohibited	
Hydrilla verticillata	Hydrilla (Florida elodea)	Prohibited	
Ipomoea spp.	Morning glory. All species except *ipomoea carnea*, Mexican bush morning glory	Prohibited	
Ipomoea triloba	Three-lobed morning glory	Prohibited/Restricted	
Isatis tinctoria	Dyer's woad	Prohibited	
Linaria genistifolia var. *dalmatica*	Dalmatian toadflax	Prohibited/Restricted	
Lythrum salicaria	Purple loosestrife	Prohibited	
Medicago polymorpha	Burclover	Prohibited/Regulated	

Table B11-2. Noxious Weed Species of Potential Concern – Arizona (Continued)

Scientific Name	Common Name	State Category	Known to Occur in the Project Area
Nassella trichotoma	Serrated tussock	Prohibited	
Onopordum acanthium	Branched broomrape	Prohibited/Restricted	
Orobanche ramosa	Hemp broomrape	Prohibited	
Panicum repens	Torpedo grass	Prohibited	
Peganum harmala	African rue (Syrian rue)	Prohibited	
Pennisetum ciliare	Buffelgrass	Prohibited/Regulated	X
Portulaca oleracea	Common purslane	Prohibited/Regulated	
Rorippa austriaca	Austrian fieldcress	Prohibited	
Salvinia molesta	Giant salvina	Prohibited/Regulated	
Senecio jacobaea	Tansy ragwort	Prohibited	
Solanum carolinense	Carolina horsenettle	Prohibited	
Sonchus arvensis	Perennial sowthistle	Prohibited	
Solanum viarum	Tropical soda apple	Prohibited	
Stipa brachychaeta	Puna grass	Prohibited	
Striga spp.	Witchweed	Prohibited	
Trapa natans	Water-chestnut	Prohibited	
Tribulus terrestris	Puncturevine	Prohibited/Regulated	
Cenchrus incertus	Field sandbur	Regulated	
Convolvulus arvensis	Field bindweed	Regulated	
Euryops subcarnosus subsp. *vulgaris*	Sweet resinbush	Restricted	
Ipomoea triloba	Three-lobed morning glory	Restricted	
Onopordum acanthium	Scotch thistle	Restricted	
Asphodelus fistulosus	Onionweed	Other	

B11.3 Noxious Weed Inventory

Prior to ground-disturbing activities in predetermined areas, a qualified weed specialist will survey the proposed disturbance area and map existing populations of noxious, invasive weeds. The preconstruction surveys will establish a baseline for construction and post-construction noxious weed management procedures.

Based on weed data from Phil Smith (Rangeland Management Specialist, BLM Las Cruces District Office) the primary noxious weed of concern known to occur within the vicinity of the proposed Project in New Mexico is African rue (*Peganum harmala*). Starthistles (*Centaurea* spp.) and saltcedar (*Tamarix* spp.) are known to occur in segment P5 and in the San Simon Creek vicinity (National Institute of Invasive Species Science [NIISS] 2015). In addition, whitetop (*Cardaria draba*) has been documented in the vicinity of Lordsburg (NIISS 2015) and potentially along segment LD3a. Other weed species, including Russian thistle (*Salsola* sp.), filaree (*Erodium* spp.), kochia (*Bassia* sp.), Lehmann lovegrass (*Eragrostis lehmanniana*), and mustards (*Brassica* spp.), are also known to occur throughout the New Build Section. However, these species are not classified as noxious weeds in New Mexico; thus, they are not discussed in this plan.

Based on data received from Darrell Tersey (Natural Resource Specialist, BLM, Ironwood Forest National Monument), the primary noxious weed of concern along the Upgrade Section is buffelgrass (*Pennisetum ciliare*), which has been documented in the Tucson area (NIISS 2015). This species is known to occur in segment U3, and likely to occur in segment U4. Other invasive species of concern along the Upgrade Section include Russian thistle, fountain grass (*Pennisetum setaceum*), filaree, and mustards. However, these species are not classified as noxious weeds in Arizona; thus, they are not discussed in this plan.

B11.4 Noxious Weed Management

Regulatory agencies along the Project alignment, and specifically the BLM, have varying requirements for weed management. A noxious weed risk assessment (see attachment B11-1) will be performed based on the results of the noxious weed inventory survey, and using the principles and procedures outlined in the BLM Integrated Weed Management Manual 9015 (BLM 1992). Based on the results of the assessment, a risk rating will be determined for the Project. Additional mitigation measures may be required if the Project is determined to have a high risk of spreading noxious weeds. The management of noxious weeds will be considered throughout all stages of the Project, including:

- Educating appropriate construction personnel regarding the identified problem areas and the importance of preventive measures and treatment methods.
- Specific preventive measures to prevent the spread of noxious weeds.
- Pre- and post-construction treatment methods to be applied to areas of noxious weed infestation.

Following is a description of the measures that may be required for noxious weed management as directed by the BLM or State Quarantine Officer. Applicable measures will be agreed upon prior to initiation of any ground-disturbing activities, and this Noxious Weed Management Plan will be modified accordingly.

B11.4.1 Identification of Problem Areas and Education

Prior to the initiation of construction activities, all relevant construction personnel will be instructed on the importance of controlling noxious weeds. As part of the start-up activities, Southline will provide its construction contractor(s) with information and training regarding noxious weed management. The importance of preventing the spread of noxious weeds in areas not infested and controlling the proliferation of weeds already present will be emphasized.

B11.4.1.1 WEED MANAGEMENT PERSONNEL REQUIREMENTS

Weed management actions shall be carried out by a specialist experienced in weed management with the following qualifications:

- Training and experience in native plant taxonomy/identification.
- Training and experience in field ecology and plant community mapping.
- Possession of a Commercial Applicator's License for herbicides from the State Department of Agriculture (New Mexico and/or Arizona as appropriate).
- Training in weed management or Integrated Pest Management with an emphasis in weeds.
- Experience in coordination with agency and private landowners.
- Recent attendance at a BLM-approved noxious weed training course or equivalent in current experience.

B11.4.2 Project Specific Noxious Weed Stipulations and Methods

Southline has developed environmental protection measures to be incorporated as part of the Project. The goals of these Proponent Committed Environmental Measures (PCEMs) is to reduce or avoid potential environmental impacts resulting from Project-related activities, and they are to be applied to all affected Project areas. The **following** PCEMs were identified in the Southline Transmission Project Final Environmental Impact Statement (FEIS) and are included in table 8 of the POD. These PCEMs will be implemented by the construction contractor(s) as part of the Noxious Weed Management Plan.

- VEG-5 In consultation with local BLM field offices and local resource agencies, Southline and its construction contractor will develop and implement a Noxious Weed Management Plan.
- VEG-6 As required, equipment will be cleaned before ingress to minimize the potential for the spread of invasive species. These details will be described in the Noxious Weed Management Plan. Buffelgrass (*Pennisetum ciliare*) is specifically addressed in the plan, which will outline efforts to control it within areas disturbed by the proposed Project to ensure that it does not spread to adjoining lands.
- Preconstruction native plant inventories and surveys for noxious weed species as stipulated by the appropriate land management agency will be conducted once transmission line center line, access road, and transmission line structure sites have been located.
- Southline and its construction contractor will provide training to all appropriate field personnel working on the Project to identify noxious weeds and prevent spread. Training will discuss known invasive and noxious weed species, known locations, identification methods, and treatment protocols. Training materials and a list of Project personnel completing the course will be provided to the BLM and Western.
- Invasive and noxious weed populations will be mapped and reported to the BLM. The BLM will determine which areas would necessitate vehicle washing, based on the results of the invasive/noxious weed surveys.
- Noxious weeds and other exotic, invasive plant species will be inventoried by a qualified biologist in the immediate proximity to any sensitive plant communities and any special status species populations. This noxious weed inventory will then provide information to supplement mitigation plans for sensitive plant communities and/or special status species habitats, to prevent the expansion of any noxious weeds or other exotic invasive plant species into those locations. Mitigation planning will be included as part of the Plant and Wildlife Species Conservation Measures Plan (appendix B7).
- In compliance with EO 13112 regarding invasive species, all disturbed soils that will not be landscaped or otherwise permanently stabilized by construction shall be seeded using species native to the Project vicinity.
- Also in compliance with EO 13112 regarding invasive species, all earthmoving and hauling equipment will be washed at the contractor's storage facility prior to arriving onsite to prevent the introduction of invasive species.
- To prevent invasive species propagules from leaving the site, the contractor will inspect all construction equipment and clothing and remove all attached plant/vegetation and soil/mud debris identified prior to leaving the construction site.
- Prickly Russian thistle (*Salsola tragus*), Sahara mustard (*Brassica tournefortii*), and fountain grass (*Pennisetum setaceum*) are not identified as noxious weeds in Arizona. However, if these species are present in the ROW and not present in adjacent areas, thus indicating that project

activities caused the introduction and spread of these species, then measures will be taken to treat these invasive species in the ROW.

- If noxious weed species on the 2006 list, which currently have small and limited distributions in the state and/or are identified as "alert" species in AZ-WPIG are identified in and/or adjacent to the ROW, the BLM/Southline will attempt to coordinate with the adjacent landowner to treat and eradicate, if possible, these uncommon noxious weeds.
- The responsible Project operator will comply with agency requirements regarding management of noxious weeds within the ROW, along access roads, and at temporary use areas (e.g., cleaning equipment to prevent spread of noxious weeds). Chemical treatment within or adjacent to the ROW generally would be limited only to areas with noxious weeds, and only if absolutely necessary.

B11.4.3 Additional Preventive Measures

The following preventive measures will be implemented to avoid the spread of noxious weeds during construction activities, as well as during Project restoration and reclamation efforts. These preventive measures are to be applied on a case-by-case basis, where applicable and necessary, based on the recommendations of the weed specialists as approved and/or required by the BLM and CIC.

- Prior to arrival at the work site, all contractor vehicles and equipment will be cleaned of all soil and plant material using compressed air or high-pressure water spraying equipment. All wash station locations will be approved by the BLM or appropriate landowner. The cleaning activities will concentrate on tracks, feet, or tires and the undercarriage with special emphasis on axles, frame, cross members, motor mounts, underneath steps, running boards, and front bumper/brush guard assemblies. Vehicle cabs will be swept out and refuse will be disposed of in waste receptacles. The location of vehicle cleaning stations will be identified by the construction contractor(s), and the location and design of the wash stations will be reviewed by the BLM and/or Western for approval. Also, when moving from weed infested areas to other areas along the Project ROW, all construction vehicles and equipment will be cleaned before proceeding to new locations before the vehicles and equipment are allowed use of access roads on the ROW.
- Where feasible, construction will begin in weed-free areas before operating in weed-infested areas. The feasibility of this measure will be determined after survey data are complete to identify weed-free and weed-infested areas.
- Prior to construction, areas of concern identified during the weed survey, will be flagged by qualified personnel and reviewed by the CIC. This flagging will alert construction personnel and prevent area access until noxious weed management control measures have been implemented (see Appendix A1 – Flagging, Fencing, and Signage Plan).
- All movement of construction vehicles outside the ROW will be restricted to predesignated access, contractor-acquired access, or public roads. All construction sites and access roads will be clearly marked or flagged at the outer limits prior to the onset of any surface-disturbing activity. All personnel shall be informed their activities must be confined within the marked or flagged areas (see appendix A1).
- Inspect access roads before maintenance to prevent the spread of weeds by vehicles or equipment.
- In areas of temporary disturbance where infestations are identified or noted, predisturbance treatment of noxious weeds will be implemented. In limited cases (i.e., isolated noxious weed locations), as directed by the BLM, topsoil infested with noxious weed material may be removed from the site for disposal. Where it is not feasible to remove topsoil off-site (i.e., large, contiguous infestation sites), the movement of stockpiled vegetation and salvaged topsoil will be

limited to minimize the transport of soil-borne noxious weed seeds, roots, or rhizomes, and marked as containing noxious weed-seed materials to avoid mixing with weed-free soil. Other control methods may also be considered with approval from BLM.

- Where necessary, during reclamation, weed-free topsoil will be brought to locations where infested topsoil has been removed from the site. In areas where infested topsoil has not been removed from the site, the contractor will return the topsoil and vegetative material back to their original locations and, as directed by the BLM, may provide additional treatments (i.e. pre-emergent herbicides) to prevent return of noxious weeds.
- The construction contractor(s) will ensure straw or hay bales, used for sediment barrier installations or mulch application, are obtained from State-approved sources that are certified free of noxious weeds, as outlined in Appendix B3 – Stormwater Pollution Prevention Plan.
- Immediately following construction, Southline will implement the reclamation of disturbed land as outlined in Appendix B15 – Reclamation, Vegetation, and Monitoring Plan, as required. Continuing revegetation efforts will ensure adequate vegetative cover, minimizing the potential for noxious weed colonization.
- Reclamation treatments, such as seeding, will be based on site-specific conditions and the appropriate seed mix identified for those conditions. Seeding will help to reduce the spread of noxious weeds by revegetating exposed soils. If areas are not seeded until the following spring, because of weather or scheduling constraints, all undesirable vegetation will be eradicated before seeding.

B11.4.3.1 NOXIOUS WEED CONTROL METHODS

The construction contractor(s) will implement noxious weed control measures in accordance with existing regulations and BLM requirements. Control measures will be based on species-specific and site-specific conditions (e.g., proximity to water or riparian areas, agricultural areas, season) and will be coordinated with the BLM Authorized Officer and/or Western. If existing populations are currently under treatment by the BLM or other individuals, Southline will engage in cooperative management efforts to treat the noxious weeds associated with the Project area. In the event noxious weed infestations are identified in the future, the following protocols and methods will be followed. The weed specialist contracted by Southline shall provide a detailed control methodology for each noxious weed species documented. The BLM Authorized Officer and/or Western will review and approve this method prior to implementation. Control measures may include one or more of the following methods prior to implementation of reclamation actions, as described below.

Mechanical Control

Mechanical methods rely on equipment that can be used to mow or disk weed populations. This type of methodology is useful for smaller, isolated populations or if larger populations occur in agricultural lands where tillage can be implemented. Appropriate mechanical methodology will vary by species. For example, disking or tilling may actually benefit some rhizomatous weeds and would therefore be inappropriate for such species. If disking or tilling is used in areas to be reclaimed, subsequent seeding will be conducted to reestablish a desirable vegetative cover that will stabilize the soils and slow the potential reestablishment of noxious weeds.

Manual Control

Removing plants by hand-pulling works well for small infestations of annual and biennial plants; the entire root system will be thoroughly removed to ensure that the plant species does not resprout from

residual roots. Trees, such as saltcedar (*Tamarix ramosissima*), will not be able to be hand-pulled; thus, heavy equipment to remove all of the root system is required. Cut-stump herbicide treatments are also effective in eradicating noxious tree species. All plant material, especially seeds, will be removed from the Project area and stored, transported and disposed of in a manner that will not allow propagation (e.g. placing weed material in trash bags and disposing at a landfill). Also, some plants produce chemicals that cause allergic reaction or dermatitis in some people. Workers will wear personal protection equipment (long sleeves, gloves, etc.) and avoid areas where chemical treatments or other safety restrictions apply.

Chemical Control

Noxious weeds located within the Project area that are actively growing (not dormant) will be treated with herbicide. Herbicide will be applied using either the cut-stump treatment method or foliar spray treatment method. All herbicide application methods will adhere to the manufacturer's label and instructions. In addition, all herbicide applications will be applied in accordance with BLM herbicide use policies. An herbicide use proposal shall be prepared by the construction contractor and submitted to the CIC for BLM/Western weed coordinator approval prior to herbicide application. A list of herbicides approved for use on public lands (BLM 2014)is provided as attachment B11-2 of this document.

To avoid damage to native species from the herbicide applications, all native vegetation within the Project area will be avoided. In addition, all herbicide applicators shall be trained and knowledgeable in identification of noxious and native species within the Project area. All equipment shall be calibrated to ensure proper application rate, and spray-nozzle pressures shall be monitored on a regular basis. Only areas identified in this plan will be treated.

B11.4.3.2 SPECIES-SPECIFIC NOXIOUS WEED CONTROL METHODS

African Rue (Peganum harmala)

African rue is a perennial forb that is native to the Middle East and Asia. African rue blooms between May and June; however, this species can reproduce both vegetatively and by seed. This capability increases the species potential to aggressively colonize disturbed areas. African rue is highly adapted to arid environments, which has facilitated its spread throughout the American Southwest. The current distribution of this species in North America includes New Mexico, Arizona, California, Idaho, Montana, Nevada, Texas, Oregon, and Washington (USDA 2015b).

African rue is toxic to livestock and can replace forage consequently reducing the productivity of pasture and rangelands. This plant has encroached into arid Southwest rangelands replacing native plants such as saltbrush and grasses. It has a competitive advantage as it germinates earlier in the spring than most native species. In addition, this plant contains chemicals that impede or prevent the growth of nearby vegetation (Whitson et al. 1996).

Management Recommendations

Mechanical/Manual Control: African rue reproduces vegetatively, as well as by seed; therefore, mechanical removal methods such as mowing or disking are not recommended. Tilling, blading, or any disturbance in infested areas can quickly spread the species by transporting taproots and seeds to different locations within the Project area.

Chemical Control

The most effective method to control African rue is herbicide, applied to the foliage of actively growing plants while in bud stage. Given the robust taproot of this of this species, several applications of herbicide may be required to ensure the species does not resprout. Herbicides selective for broad leaf weeds, such as 2,4-D and 2,4-DP are the BLM-recommended treatments for this species (BLM 2007).

Buffelgrass (Pennisetum ciliare)

Buffelgrass is a perennial, cool-season bunchgrass native to arid regions of Africa, Asia, and the Middle East. This species is fire adapted and resprouts immediately after a fire, which allows the species to outcompete native species for resources. The species also provides a continuous fuel load that increases fire frequency and intensity.

Management Recommendations

Mechanical/Manual Control: Most mechanical/hand control methods simulate grazing, a treatment to which buffelgrass is well adapted. A community group in southern Arizona has had much success with removal by digging the plants out by the root and removing them, being careful to bag and remove all of the seeds and flowers.

Chemical Control

Buffelgrass can be controlled using chemical applications when the plant is actively growing.
An herbicide selective for perennial bunchgrasses, such as glyphosate is the BLM recommended treatments for this species (BLM 2007).

Saltcedar (*Tamarix* sp.)

Saltcedar, also known as tamarisk, is a deciduous shrub or small tree that forms dense thickets that reach up to 15 feet in height. This species was introduced from Eurasia in the early 1800s as an ornamental and for erosion control. Saltcedar is a fire-adapted species. This species produces long tap roots that allow the interception of deep water tables and interfere with natural aquatic systems. They can also increase the risk of fire in riparian ecosystems through deposition of flammable fuels. In addition, saltcedar disrupts native plant communities and degrades native wildlife habitat by out-competing and replacing native plant species, monopolizing limited moisture, changing soil chemistry, and increasing the frequency and intensity of fires.

Management Recommendations

Mechanical/Manual Control: Mechanical techniques include hand-pulling, digging, root-cutting, use of weed-eaters, axes, machetes, and bulldozers. Removal by hand tools is generally recommended for small infestations of saplings under 1 inch in diameter. Root cutting and bulldozing may be effective but are costly, labor-intensive, and may cause extensive damage to soils and lead to resprouting, or invasion by other undesirable invasive species.

Chemical Control

For extensive infestations of saltcedar, chemical control has been shown to be the most effective method. Cautious use of herbicides aids in restoration of saltcedar-infested sites by allowing repopulation by native plant species. Systemic herbicides (e.g., those that kill the plant from the root up) are recommended for saltcedar management; application methods include foliar sprays, cut-stump treatments, basal bark treatments, and aerial sprays. Because saltcedar usually grows in or adjacent to streams, wetlands, and

other waterways, it is important to use products registered for aquatic application. The BLM recommends the use of Triclopyr to treatment for this species (BLM 2007).

Starthistle (*Centaurea* sp.)

Most starthistles are herbaceous winter annual species that were introduced to the southwestern United States from Europe as a seed contaminant. Due to sharp spines and a bitter taste, starthistles are rarely consumed by livestock and may be toxic to livestock. In addition, dense infestations of starthistle displace native plants and animals, thereby degrading the structure and function of natural ecosystems.

Management Recommendations

Mechanical/Manual Control: Mechanical methods, including pulling, grazing, mowing, burning, and cultivation, can be used over a period of several years to deplete seed banks and manage infestations.

Hand pulling is effective for small populations. Once plants have shed seed in a location, it must be revisited several times each year, for 7 to 10 years, to pull seedlings. Mowing, if done at the correct time of year, can be a part of the integrated weed management plan for starthistles. Access roadsides with dense infestations should be mowed at early flowering, in order to avoid scattering seeds during the fruiting stage. Mowing should be used carefully, as it is likely to spread the infestation and make it much worse if done during the time of year when seed heads are mature, or if proper procedures to prevent spread are not adhered to. These procedures include beginning mowing in uninfested areas and moving toward infested areas, and thoroughly washing equipment after running it through sites known to have starthistles.

Chemical Control

Herbicides selective for broadleaf weeds are desirable, since starthistles often grows in ROWs in close association with native perennial grasses. The Arizona Department of Transportation has used clopyralid and chlorsulfuron along Highway 188 to control starthistles. This has been very effective on the strip that was sprayed. The BLM recommends the use of Clopralid, Dicamba, or Dicloram to treat this species (BLM 2007).

Whitetop (*Cardaria draba*)

Whitetop is a creeping perennial forb that is native to western Asia and eastern Europe. This species is difficult to control due to an extensive and deep root system that facilitates the spread of the species. Whitetop quickly establishes in disturbed areas. Once established it readily displaces native plants. In addition, this species is capable of tainting the meat and milk of grazing animals and may be toxic to livestock.

Management Recommendations

Mechanical/Manual Control: Pulling and grubbing should be done within 10 days of plant emergence and before flowering and seed set. Soil tilling is an effective means to remove whitetop; however, repetition may be necessary to remove all the root systems. In addition, regular mowing can help to control infestations by reducing seed production in existing plants; however, this method used alone will not eradicate existing populations (BLM 2011).

Chemical Control

Successful chemical control of this species usually requires repeated applications with foliar herbicides. Whitetop may be effectively controlled using a variety of readily available herbicides. Metsulfuron can be

used on rosettes, but is not effective after the plants bloom. Mature plants may be controlled with a foliar application of 2,4-D (BLM 2007). Herbicides are most effective against this species when applied at the rosette stage or flowering stage when carbohydrates are moving from above to below ground and herbicides are more likely to be transported to the roots (BLM 2011).

B11.4.3.3 RECLAMATION ACTIONS

As specified in Appendix B15 – Reclamation, Vegetation, and Monitoring Framework Plan, areas where weed control measures have been implemented may require post-construction reclamation actions (i.e., seeding). The following specific stipulations and methods are applicable:

- If areas are not immediately seeded after construction, because of weather or scheduling constraints, all undesirable vegetation will be eradicated before seeding, preferably in the spring.
- If disking or tilling is an appropriate and feasible treatment method, it will only be permitted in bladed areas.
- Seed selection will be based on site-specific conditions, including desired vegetation and the type or degree of disturbance, and the appropriate seed mix will be identified for those conditions based on the presence and treatment of noxious weeds in the Project area. The CIC or weed specialist may recommend modified seeding application rates and timing of implementation to achieve site-specific weed management objectives.
- Additional weed and/or erosion control measures recommended during monitoring will follow the preventive and control measures outline in this plan. Continued cooperation with the current BLM/Western weed coordinator and local Weed Management Area groups is also encouraged.

B11.5 Monitoring

A weed management expert, contracted by Southline, will monitor the Project ROW and any other areas of disturbance associated with the Project, for a period not to exceed 5 years. Monitoring will be conducted biannually, typically during the spring and fall, but time of monitoring may be adjusted to ensure appropriate coverage for specific species identified within the Project area. Growing seasons will vary from year to year; therefore, the annual monitoring time frame will vary as well. This monitoring may coincide with the reclamation monitoring identified and outlined in Appendix B15 – Reclamation, Vegetation, and Monitoring Plan.

New noxious weed infestations observed within the Project area during the monitoring period will be reported to the BLM district (field) office, within whose jurisdiction the weeds occur when on BLM-managed lands or to the Western designated weed coordinator on other lands. The BLM/Western weed coordinator will determine during the monitoring and evaluation period whether continued treatment is necessary. If continued treatment is deemed necessary, the appropriate weed control procedures, including target species, timing of control, and method of control, will be determined in consultation with the BLM, based on the procedures outlined in this Noxious Weed Plan. Southline may be able to take advantage of any existing cooperative agreements between the BLM and the counties by providing the funds required for county personnel to implement the necessary weed control procedures. If not, Southline will be responsible for hiring a contractor to implement the weed control procedures with the qualifications, as described in section B11.4.1.1 of this plan.

B11.5.1 Reclamation Monitoring

Noxious weed observations will be documented following the above-noted field inspections and monitoring reports will be made available to the BLM, Western, and to counties, as required. Southline

will consult with the BLM/Western and counties should they have a concern pertaining to noxious weeds within their jurisdiction. The BLM also may contact Southline to report on the presence of noxious weeds. Areas where the spread of noxious weeds is noted, particularly in previously unaffected locations, will be further evaluated to determine whether these areas require remedial action and additional treatment. Southline will identify such areas to the agencies by state, county, and Project milepost (or nearest transmission structure number) and will record any additional noxious weed control treatments. A report summarizing ROW stability, revegetation progress, percentage of cover, and weed infestation will be provided to the BLM/Western, as described in Appendix B15 – Reclamation, Vegetation, and Monitoring Plan.

B11.5.2 Ongoing Monitoring

Southline will monitor and control noxious weeds at a level that does not exceed the density or extent of conditions identified during preconstruction surveys (see section B11.3 of this plan) for the full term of the ROW grant, and will eradicate any new infestation that is demonstrated to be the result of Project construction, operation, or maintenance. Southline will not be responsible for the following:

- Eradication of preexisting noxious weed infestations.
- New or recurring noxious weed infestations caused by the spread of noxious weeds from surrounding and/or adjacent lands unless it can be demonstrably shown to be the result of disturbance caused by the construction, operation, or maintenance of the Project.
- Noxious weeds outside the Project ROW or noxious weeds along existing access roads not improved by the Project.

Operations personnel will be trained in the identification of predominant noxious weed populations, and Southline will control the weeds on a case-by-case basis. If determined necessary, a report on actions taken will be provided in the form of Monitoring Reports to the BLM on a predetermined schedule.

B11.6 Herbicide Application, Handling, Spills, and Cleanup

The Final Programmatic Environmental Impact Statement (PEIS) on Vegetation Treatment on BLM Land in Seventeen Western States lists herbicides acceptable (see Attachment B11-2 – BLM-Approved Herbicides) for use on BLM lands (BLM 2007). Additional tiers of NEPA analysis may be required for local, site-specific decisions regarding herbicide application. Guidelines for use of chemical control of vegetation on BLM lands are presented in BLM Manual 9011 – Chemical Pest Control (BLM 1994). The guidelines outlined in the manual require submittal of an Herbicide Use Proposal, which will be prepared and submitted to the BLM for review and approval prior to initiation of construction activities. Once approved, any use of herbicides will require Herbicide Application Records (HARs) that detail the use and application.

B11.6.1 Herbicide Application and Handling

Prior to herbicide application on BLM lands, a list of herbicides proposed for use will be reviewed and approved by the BLM weed coordinator. Herbicide application will be based on information gathered from the Weed Districts and BLM. Herbicide varieties approved for use on BLM lands are listed in Attachment B11-2 – BLM-Approved Herbicides. All required permits from the local authorities will be obtained (the Weed Districts and BLM) prior to application; permits issued by these agencies may contain additional terms and conditions that go beyond the scope of this plan.

A licensed herbicide applicator, approved in the state of New Mexico or Arizona (as applicable), will perform the application using BLM selected and approved herbicides in accordance with applicable laws, regulations, and permit stipulations. All herbicide applications will be conducted in accordance with the U.S. Environmental Protection Agency (EPA) label instructions. Application of herbicides will cease under any of the following conditions:

- If wind velocity exceeds 10 miles per hour (mph) (6 miles per hour for aerial application) (BLM, 2007).
- If snow or ice covers the foliage of target species.
- If precipitation is occurring or is imminent.
- No herbicides will be applied within 200 feet of open or flowing water, wetlands, or other sensitive resources unless authorized by appropriate regulatory agencies.

Vehicle-mounted sprayers (e.g., handgun, boom, and injector) may be used in open areas that are readily accessible by vehicle. Hand-application methods (e.g., backpack spraying) that target individual plants will be used to treat small or scattered weed populations in rough terrain or in areas dominated by native vegetation. Calibration checks of equipment will be conducted at the beginning and periodically during spraying to ensure proper application rates are achieved. Calibration procedures are described in BLM Handbook 9011 (BLM, 1988). Herbicide preparation and transport will adhere to the following provisions:

- Mixing will be done offsite or over a drip-catching device at a distance greater than 200 feet from open or flowing water, wetlands, or other sensitive resources.
- Only the quantity estimated for a single day of work will be transported.
- Herbicides will be transported only in approved containers, in a manner that will prevent tipping or spilling, and in a location isolated from the vehicle's driving compartment, food, clothing, and safety equipment.
- All herbicide equipment and containers will be inspected for leaks daily.
- Disposal of used containers will be in accordance with the herbicide label or returned to the supplier for reuse.

B11.6.2 Herbicide Spills and Cleanup

All reasonable provisions will be made to avoid herbicide spills. In the event of a spill, cleanup will occur immediately. To facilitate a timely cleanup effort, contractors will keep spill kits in their vehicles and in herbicide storage areas. Items to be included in each spill kit include:

- Protective clothing and gloves
- Absorptive clay, or other approved commercial absorbents
- Plastic bags
- Bucket
- Shovel
- Fiber broom
- Dust pan
- Caution tape

- Highway flares for use on paved or unvegetated roads
- Detergent

The level of response required for each herbicide spill will vary with the size and location of the spill, but general procedures will include:

- Immediate notification to the Project CIC and to BLM and Western
- Traffic control, if necessary
- Proper utilization of protective clothing
- Containment of leaks
- Cleaning up and removing spilled herbicide, contaminated absorptive material, and soil
- Transporting spilled herbicide and contaminated material to an authorized disposal site

B11.6.3 Worker Safety and Spill Reporting

Herbicide contractors will be State-certified to apply herbicides and have readily available copies of the appropriate safety data sheets for the herbicides used. All herbicide spills will be reported in accordance with applicable laws and requirements. Additional information regarding the handling of hazardous materials may be found in Appendix B9 – Hazardous Materials Management Plan.

B11.7 Literature Cited

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B11.8 Attachments

Attachment B11-1 – Noxious Weed Risk Assessment Worksheet
Attachment B11-2 – Herbicides Approved For Use on Public Lands

Attachment B11-1

Noxious/Invasive Weeds Risk Assessment Form and Definition of Risk Factors

Project Name:

NEPA No:

Date Risk Assessment was completed: (*Insert date completed*)

Describe steps taken to complete Risk Assessment: (*Discuss*)

Project Description:

Project Location:

Risk Factor 1: Assesses the likelihood of noxious/invasive weed species spreading to the Project area. For this Project, the factor rates as (insert low, moderate, or high), (insert number) at the present time. This rating was based on the following findings:

Risk Factor 2: Assesses the consequences of noxious/invasive weed establishment in the Project area. Include a discussion of BLM Class A, B, and C species.

Risk Rating: (*insert number*), (*insert low to none, moderate, or high*) (Score and rating). (*The Risk Rating is obtained by multiplying Factor 1 by Factor 2.*)

Based on this risk rating, preventive management measures are/are not (circle one) needed for this Project. Preventive management measures developed for this Project are as follows: (list)

The following preventive measures will be implemented to prevent the spread of noxious weeds during the construction activities, as well as during restoration and reclamation efforts: (list)

RISK RATING FACTORS

Factor 1: Likelihood of Noxious Weed Species Spreading to Project Area

- None: Noxious weed species not located within or adjacent to the Project area. Project activity is not likely to result in the establishment of noxious weed species in the Project area.
- Low: Noxious weed species present in areas adjacent to but not within the Project area. Project activities can be implemented to prevent the spread of noxious weeds into the Project area.
- Moderate: Noxious weed species located immediately adjacent to or within the Project area. Project activities are likely to result in some areas becoming infested with noxious weed species even when preventive management actions are followed. Control measures are essential to prevent the spread of noxious weeds within the Project area.
- High: Heavy infestations of noxious weeds are located within or immediately adjacent to the Project area. Project activities, even with preventive management actions, are likely to result in the establishment and spread of noxious weeds on disturbed sites throughout much of the Project area.

Factor 2: Consequence of Noxious Weed Establishment in Project Area

- Low to None: No cumulative effects expected.
- Moderate: Possible adverse effects on site and possible expansion of infestation within Project area. Cumulative effects on native plant community are likely but limited.
- High: Obvious adverse effects within the Project area and probable expansion of noxious weed infestations to areas outside the Project area. Adverse cumulative effects on native plant community are probable.

RISK RATING SCALE

Step 1 – Identify level of likelihood and consequence of adverse effects for each risk factor and assign values according to the following:

- None – 0
- Low – 1
- Moderate – 5
- High – 10

Step 2 – Multiply level of likelihood by consequence.

Risk Factor 1 * Risk Factor 2 = Risk Rating

Step 3 – Use the value resulting from Step 2 to determine Risk Rating and Action from Table 1 below:

Table 1. Risk Rating and Action Categories

Value	Risk Rating	Action
0	None	Proceed as planned.
1–10	Low	Proceed as planned. Initiate control treatment on noxious weed populations that become established in the area.
25	Moderate	Develop preventive management measures for the Project to reduce the risk of introduction or spread of noxious weeds into the area. Preventive management measures should include modifying the Project, including seeding the area to occupy disturbed sites with desirable species. Monitor area for at least 3 consecutive years and provide for control of newly established populations of noxious weeds and follow-up treatment for previously treated infestations.
50–100	High	Project must be modified to reduce risk level through preventive management measures, including seeding with desirable species to occupy disturbed sites and controlling existing infestations of noxious weeds prior to Project activity. Project must provide at least 5 consecutive years of monitoring. Projects must also provide for control of newly established populations of noxious weeds and follow-up treatment for previously treated infestations.

Weed Risk Assessment completed by: (*type name[s]*)

Reviewed by/Date Reviewed: _____, signed copy on file
(Noxious Weed Coordinator)

Date: _____

Attachment 1 – Project Area Location Map

Attachment B11-2

Herbicides Approved For Use on Public Lands

Herbicides Formulations Approved for Use on Lands The BLM Administers in the 17 Western States

Update May 14, 2014

Restrictions associated with exisitng Environmental Inpact Statements and individual Environmental Assessments (EA), particurily in Oregon, at the present time, may restrict the use of individual herbicide active ingredients allowed for a particular project within that state. Refer to current EAs prior to selecting the active ingredient(s) and subsequent formulation(s).

Refer to the complete label prior to considering the use of any herbicide formulation. Just because it has a Federal registration, it may not be registered in a particular State, for example California. Label changes can also impact the intended use through, such things as, creation or elimination of Special Local Need (SLN) or 24 (C) registrations, changes in application sites, rates and timing of application, county restrictions, etc.

ACTIVE INGREDIENT	TRADE NAME	MANUFACTURER	EPA REG. NUMBER
Bromacil	Bromacil 80DF	Alligare, LLC	81927-4
	Bromacil 80WG	Alligare, LLC	81927-4
	Ceannard Bromacil 80DF	Ceannard, Inc.	58035-19
	Hyvar X	DuPont Crop Protection	352-287
	Hyvar XL	DuPont Crop Protection	352-346
Bromacil + Diuron	Bromacil/Diuron 40/40	Alligare, LLC	81927-3
	Ceannard Diuron/Bromacil 80DF	Ceannard, Inc.	58035-18
	Krovar I DF	DuPont Crop Protection	352-505
	Weed Blast Res. Weed Cont.	Loveland Products Inc.	34704-576
	DiBro 2+2	Nufarm Americas Inc.	228-227
	DiBro 4+4	Nufarm Americas Inc.	228-235
	DiBro 4+2	Nufarm Americas Inc.	228-386
	Weed Blast 4G	SSI Maxim	34913-19
Chlorsulfuron	Alligare Chlorsulfuron	Alligare, LLC	81927-43
	Chlorsulfuron 75	Alligare, LLC	81927-43
	Telar DF	DuPont Crop Protection	352-522
	Telar XP	DuPont Crop Protection	352-654
	Nufarm Chlorsulf SPC 75 WDG Herbicide	Nufarm Americas Inc.	228-672
	Chlorsulfuron E-Pro 75 WDG	Nufarm Americas Inc.	79676-72
Clopyralid	Spur	Albaugh, Inc.	42750-89
	Pyramid R&P	Albaugh, Inc.	42750-94
	Clopyralid 3	Alligare, LLC	42750-94-81927
	Clopyralid 3	Alligare, LLC	81927-14
	Cody Herbicide	Alligare, LLC	81927-28
	Reclaim	Dow AgroSciences	62719-83

ACTIVE INGREDIENT	TRADE NAME	MANUFACTURER	EPA REG. NUMBER
Clopyralid - cont.	Stinger	Dow AgroSciences	62719-73
	Transline	Dow AgroSciences	62719-259
	CleanSlate	Nufarm Americas Inc.	228-491
Clopyralid + 2,4-D	Commando	Albaugh, Inc.	42750-92
	Curtail	Dow AgroSciences	62719-48
	Cutback	Nufarm Americas Inc.	71368-72
2,4-D	Agrisolution 2,4-D LV6	Agriliance, L.L.C.	1381-101
	Agrisolution 2,4-D Amine 4	Agriliance, L.L.C.	1381-103
	Agrisolution 2,4-D LV4	Agriliance, L.L.C.	1381-102
	2,4-D Amine 4	Albaugh, Inc./Agri Star	42750-19
	2,4-D LV 4	Albaugh, Inc./Agri Star	42750-15
	Solve 2,4-D	Albaugh, Inc./Agri Star	42750-22
	2,4-D LV 6	Albaugh, Inc./Agri Star	42750-20
	Five Star	Albaugh, Inc./Agri Star	42750-49
	D-638	Albaugh, Inc./Agri Star	42750-36
	Alligare 2,4-D Amine	Alligare, LLC	81927-38
	Alligare 2,4-D LV 6	Alligare, LLC	81927-39
	2,4-D LV6	Helena Chemical Company	4275-20-5905
	2,4-D Amine	Helena Chemical Company	5905-72
	2,4-D Amine 4	Helena Chemical Company	42750-19-5905
	Opti-Amine	Helena Chemical Company	5905-501
	Barrage HF	Helena Chemical Company	5905-529
	HardBall	Helena Chemical Company	5905-549
	Unison	Helena Chemical Company	5905-542
	Clean Amine	Loveland Products Inc.	34704-120
	Low Vol 4 Ester Weed Killer	Loveland Products Inc.	34704-124
	Low Vol 6 Ester Weed Killer	Loveland Products Inc.	34704-125
	Saber	Loveland Products Inc.	34704-803
	Salvo	Loveland Products Inc.	34704-609
	Savage DS	Loveland Products Inc.	34704-606
	Aqua-Kleen	Nufarm Americas Inc.	71368-4
	Aqua-Kleen	Nufarm Americas Inc.	228-378
	Esteron 99C	Nufarm Americas Inc.	62719-9-71368
	Weedar 64	Nufarm Americas Inc.	71368-1
	Weedone LV-4	Nufarm Americas Inc.	228-139-71368
	Weedone LV-4 Solventless	Nufarm Americas Inc.	71368-14
	Weedone LV-6	Nufarm Americas Inc.	71368-11
	Formula 40	Nufarm Americas Inc.	228-357
	2,4-D LV 6 Ester	Nufarm Americas Inc.	228-95
	Platoon	Nufarm Americas Inc.	228-145

ACTIVE INGREDIENT	TRADE NAME	MANUFACTURER	EPA REG. NUMBER
2,4-D - cont.	WEEDstroy AM-40	Nufarm Americas Inc.	228-145
	Hi-Dep	PBI Gordon Corp.	2217-703
	2,4-D Amine	Setre (Helena)	5905-72
	Barrage LV Ester	Setre (Helena)	5905-504
	2,4-D LV4	Setre (Helena)	5905-90
	2,4-D LV6	Setre (Helena)	5905-93
	Clean Crop Amine 4	UAP-Platte Chem. Co.	34704-5 CA
	Clean Crop Low Vol 6 Ester	UAP-Platte Chem. Co.	34704-125
	Salvo LV Ester	UAP-Platte Chem. Co.	34704-609
	2,4-D 4# Amine Weed Killer	UAP-Platte Chem. Co.	34704-120
	Clean Crop LV-4 ES	UAP-Platte Chem. Co.	34704-124
	Savage DS	UAP-Platte Chem. Co.	34704-606
	Cornbelt 4 lb. Amine	Van Diest Supply Co.	11773-2
	Cornbelt 4# LoVol Ester	Van Diest Supply Co.	11773-3
	Cornbelt 6# LoVol Ester	Van Diest Supply Co.	11773-4
	Amine 4	Wilbur-Ellis Co.	2935-512
	Lo Vol-4	Wilbur-Ellis Co.	228-139-2935
	Lo Vol-6 Ester	Wilbur-Ellis Co.	228-95-2935
	Base Camp Amine 4	Wilbur-Ellis Co.	71368-1-2935
	Base Camp LV6	Wilbur-Ellis Co.	2935-553
	Broadrange 55	Wilbur-Ellis Co.	2217-813-2935
	Agrisolution 2,4-D LV6	Winflied Solutions, LLC	1381-101
	Agrisolution 2,4-D Amine 4	Winfield Solutions, LLC	1381-103
	Agrisolution 2,4-D LV4	Winfield Solutions, LLC	1381-102
	Phenoxy 088	Winfield Solutions, LLC	42750-36-9779
	Rugged	Winfield Solutions, LLC	1381-247
	Shredder E-99	Winfield Solutions, LLC	1381-195
Dicamba	Dicamba DMA	Albaugh, Inc./Agri Star	42750-40
	Vision	Albaugh, Inc.	42750-98
	Cruise Control	Alligare, LLC	42750-40-81927
	Banvel	Arysta LifeScience N.A. Corp.	66330-276
	Clarity	BASF Corporation	7969-137
	Vision	Helena Chemical Company	5905-576
	Rifle	Loveland Products Inc.	34704-861
	Banvel	Micro Flo Company	51036-289
	Diablo	Nufarm Americas Inc.	228-379
	Vanquish Herbicide	Nufarm Americas Inc.	228-397
	Vanquish	Syngenta	100-884
	Sterling Blue	Winfield Solutions, LLC	7969-137-1381

ACTIVE INGREDIENT	TRADE NAME	MANUFACTURER	EPA REG. NUMBER
Dicamba + 2,4-D	Range Star	Albaugh, Inc./Agri Star	42750-55
	Dicamba + 2,4-D DMA	Alligare, LLC	81927-42
	Weedmaster	BASF Ag. Products	7969-133
	Brush-Rhap	Helena Chemical Company	5905-568
	Latigo	Helena Chemical Company	5905-564
	Outlaw	Helena Chemical Company	5905-574
	Rifle-D	Loveland Products Inc.	34704-869
	KambaMaster	Nufarm Americas Inc.	71368-34
	Veteran 720	Nufarm Americas Inc.	228-295
	Weedmaster	Nufarm Americas Inc.	71368-34
	Brash	Winfield Solutions, LLC	1381-202
Dicamba + Diflufenzopyr	Distinct	BASF Corporation	7969-150
	Overdrive	BASF Corporation	7969-150
NOTE: In accordance with the Record of Decision for the *Vegetation Treatments Using Herbicides on Bureau of Land Management* Lands in 17 Western *States Programmatic Environmental Impact Statement (PEIS), the aerial application of this herbicide* is prohibited.			
Diquat	Alligare Diquat	Alligare, LLC	81927-35
	NuFarm Diquat SPC 2 L Herbicide	Nufarm Americas Inc.	228-675
	Diquat SPC 2 L Herbicide	Nufarm Americas Inc.	79676-75
	Diquat E-Ag 2L	Nufarm Americas Inc.	79676-75
	Reward	Syngena Professional Products	100-1091
Diuron	Diuron 80DF	Agriliance, L.L.C.	9779-318
	Diuron 80DF	Alligare, LLC	81927-12
	Ceannard Diuron 80DF	Ceannard, Inc.	58035-16
	Karmex DF	DuPont Crop Protection	352-692
	Karmex XP	DuPont Crop Protection	352-692
	Karmex IWC	DuPont Crop Protection	352-692
	Direx 4L	DuPont Crop Protection	352-678
	Direx 80DF	Griffin Company	1812-362
	Direx 4L	Griffin Company	1812-257
	Diuron 4L	Loveland Products Inc.	34704-854
	Diuron 80 WDG	Loveland Products Inc.	34704-648
	Diuron 4L	Makteshim Agan of N.A.	66222-54
	Diuron 80WDG	UAP-Platte Chem. Co.	34704-648
	Vegetation Man. Diuron 80 DF	Vegetation Man., LLC	66222-51-74477
	Diuron-DF	Wilbur-Ellis	00352-00-508-02935
	Diuron 80DF	Winfield Solutions, LLC	9779-318

ACTIVE INGREDIENT	TRADE NAME	MANUFACTURER	EPA REG. NUMBER
Fluridone	Avast!	SePRO	67690-30
	Sonar AS	SePRO	67690-4
	Sonar Precision Release	SePRO	67690-12
	Sonar Q	SePRO	67690-3
	Sonar SRP	SePRO	67690-3
Glyphosate	Aqua Star	Albaugh, Inc./Agri Star	42750-59
	Forest Star	Albaugh, Inc./Agri Star	42570-61
	GlyStar Gold	Albaugh, Inc./Agri Star	42750-61
	Gly Star Original	Albaugh, Inc./Agri Star	42750-60
	Gly Star Plus	Albaugh, Inc./Agri Star	42750-61
	Gly Star Pro	Albaugh, Inc./Agri Star	42750-61
	Glyphosate 4 PLUS	Alligare, LLC	81927-9
	Glyphosate 4 +	Alligare, LLC	81927-9
	Glyphosate 5.4	Alligare, LLC	81927-8
	Glyfos	Cheminova	4787-31
	Glyfos PRO	Cheminova	67760-57
	Glyfos Aquatic	Cheminova	4787-34
	ClearOut 41 Plus	Chem. Prod. Tech., LLC	70829-3
	Accord Concentrate	Dow AgroSciences	62719-324
	Accord SP	Dow AgroSciences	62719-322
	Accord XRT	Dow AgroSciences	62719-517
	Accord XRT II	Dow AgroSciences	62719-556
	Glypro	Dow AgroSciences	62719-324
	Glypro Plus	Dow AgroSciences	62719-322
	Rodeo	Dow AgroSciences	62719-324
	Showdown	Helena Chemical Company	71368-25-5905
	Mirage	Loveland Products Inc.	34704-889
	Mirage Plus	Loveland Products Inc.	34704-890
	Aquamaster	Monsanto	524-343
	Roundup Custom	Monsanto	524-343
	Roundup Original	Monsanto	524-445
	Roundup Original II	Monsanto	524-454
	Roundup Original II CA	Monsanto	524-475
	Honcho	Monsanto	524-445
	Honcho Plus	Monsanto	524-454
	Roundup PRO	Monsanto	524-475
	Roundup PRO Concentrate	Monsanto	524-529
	Roundup PRO Dry	Monsanto	524-505
	Roundup PROMAX	Monsanto	524-579
	Aqua Neat	Nufarm Americas Inc.	228-365
	Credit Xtreme	Nufarm Americas Inc.	71368-81

ACTIVE INGREDIENT	TRADE NAME	MANUFACTURER	EPA REG. NUMBER
Glyphosate - cont.	Foresters	Nufarm Americas Inc.	228-381
	Razor	Nufarm Americas Inc.	228-366
	Razor Pro	Nufarm Americas Inc.	228-366
	GlyphoMate 41	PBI/Gordon Corporation	2217-847
	AquaPro Aquatic Herbicide	SePRO Corporation	62719-324-67690
	Rattler	Setre (Helena)	524-445-5905
	Buccaneer	Tenkoz	55467-10
	Buccaneer Plus	Tenkoz	55467-9
	Mirage Herbicide	UAP-Platte Chem. Co.	524-445-34704
	Mirage Plus Herbicide	UAP-Platte Chem. Co.	524-454-34704
	Gly-4 Plus	Universal Crop Protection Alliance, LLC	72693-1
	Gly-4 Plus	Universal Crop Protection Alliance, LLC	42750-61-72693
	Gly-4	Universal Crop Protection Alliance, LLC	42750-60-72693
	Glyphosate 4	Vegetation Man., LLC	73220-6-74477
	Agrisolutions Cornerstone	Winfield Solutions, LLC	1381-191
	Agrisolutions Cornerstone Plus	Winfield Solutions, LLC	1381-192
	Agrisolutions Rascal	Winfield Solutions, LLC	1381-191
	Agrisolutions Rascal Plus	Winfield Solutions, LLC	1381-192
	Cornerstone 5 Plus	Winfield Solutions, LLC	1381-241
Glyphosate + 2,4-D	Landmaster BW	Albaugh, Inc./Agri Star	42570-62
	Campaign	Monsanto	524-351
	Landmaster BW	Monsanto	524-351
Hexazinone	Velpar ULW	DuPont Crop Protection	352-450
	Velpar L	DuPont Crop Protection	352-392
	Velpar DF	DuPont Crop Protection	352-581
	Velossa	Helena Chemical Company	5905-579
	Pronone MG	Pro-Serve	33560-21
	Pronone 10G	Pro-Serve	33560-21
	Pronone 25G	Pro-Serve	33560-45
Hexazinone +	Westar	DuPont Crop Protection	352-626
Sulfometuron methyl	Oustar	DuPont Crop Protection	352-603
NOTE: In accordance with the Record of Decision for the *Vegetation Treatments Using Herbicides on Bureau of Land Management* Lands in 17 Western *States Programmatic Environmental Impact Statement (PEIS), the aerial application of this herbicide* is prohibited.			

ACTIVE INGREDIENT	TRADE NAME	MANUFACTURER	EPA REG. NUMBER
Imazapic	Panoramic 2SL	Alligare, LLC	66222-141-81927
	Plateau	BASF	241-365
	Nufarm Imazapic 2SL	Nufarm Americas Inc.	71368-99
Imazapic + Glyphosate	Journey	BASF	241-417
Imazapyr	Imazapyr 2SL	Alligare, LLC	81927-23
	Imazapyr 4SL	Alligare, LLC	81927-24
	Ecomazapyr 2SL	Alligare, LLC	81927-22
	Rotary 2 SL	Alligare, LLC	81927-6
	Arsenal Railroad Herbicide	BASF	241-273
	Chopper	BASF	241-296
	Arsenal Applicators Conc.	BASF	241-299
	Arsenal	BASF	241-346
	Arsenal PowerLine	BASF	241-431
	Stalker	BASF	241-398
	Habitat	BASF	241-426
	Polaris	Nufarm Americas Inc.	228-534
	Polaris AC	Nufarm Americas Inc.	241-299-228
	Polaris AC	Nufarm Americas Inc.	228-480
	Polaris AC Complete	Nufarm Americas Inc.	228-570
	Polaris AQ	Nufarm Americas Inc.	241-426-228
	Polaris RR	Nufarm Americas Inc.	241-273-228
	Polaris SP	Nufarm Americas Inc.	228-536
	Polaris SP	Nufarm Americas Inc.	241-296-228
	Polaris Herbicide	Nufarm Americas Inc.	241-346-228
	Habitat Herbicide	SePRO	241-426-67690
	SSI Maxim Arsenal 0.5G	SSI Maxim Co., Inc.	34913-23
	SSI Maxim Arsenal 5.0G	SSI Maxim Co., Inc.	34913-24
	Ecomazapyr 2 SL	Vegetation Man., LLC	74477-6
	Imazapyr 2 SL	Vegetation Man., LLC	74477-4
	Imazapyr 4 SL	Vegetation Man., LLC	74477-5
Imazapyr + Diuron	Mojave 70 EG	Alligare, LLC	74477-9-81927
	Mojave 70 EG	Alligare, LLC	81927-25
	Sahara DG	BASF	241-372
	Imazuron E-Pro	Etigra, LLC	79676-54
	SSI Maxim Topsite 2.5G	SSI Maxim Co., Inc.	34913-22

ACTIVE INGREDIENT	TRADE NAME	MANUFACTURER	EPA REG. NUMBER
Imazapyr +	Lineage Clearstand	DuPont Crop Protection	352-766
Metsulfuron methyl			
Imazapyr +	Lineage HWC	DuPont Crop Protection	352-765
Sulfometuron methyl +	Lineage Prep	DuPont Crop Protection	352-767
Metsulfuron methyl			
NOTE: In accordance with the Record of Decision for the *Vegetation Treatments Using Herbicides on Bureau of Land Management* Lands in 17 Western *States Programmatic Environmental Impact Statement (PEIS), the aerial application of this herbicide* is prohibited.			
Metsulfuron methyl	MSM 60	Alligare, LLC	81927-7
	AmTide MSM 60DF Herbicide	AmTide, LLC	83851-3
	Escort DF	DuPont Crop Protection	352-439
	Escort XP	DuPont Crop Protection	352-439
	MSM E-Pro 60 EG Herbicide	Etigra, LLC	81959-14
	MSM E-AG 60 EG Herbicide	Etigra, LLC	81959-14
	Patriot	Nufarm Americas Inc.	228-391
	PureStand	Nufarm Americas Inc.	71368-38
	Metsulfuron Methyl DF	Vegetation Man., L.L.C.	74477-2
Metsulfuron methyl +	Cimarron X-tra	DuPont Crop Protection	352-669
Chlorsulfuron	Cimarron Plus	DuPont Crop Protection	352-670
Metsulfuron methyl +	Cimarron MAX	DuPont Crop Protection	352-615
Dicamba + 2,4-D			
Picloram	Triumph K	Albaugh, Inc.	42750-81
	Triumph 22K	Albaugh, Inc.	42750-79
	Picloram K	Alligare, LLC	81927-17
	Picloram 22K	Alligare, LLC	81927-18
	Grazon PC	Dow AgroSciences	62719-181
	OutPost 22K	Dow AgroSciences	62719-6
	Tordon K	Dow AgroSciences	62719-17
	Tordon 22K	Dow AgroSciences	62719-6
	Trooper 22K	Nufarm Americas Inc.	228-535

ACTIVE INGREDIENT	TRADE NAME	MANUFACTURER	EPA REG. NUMBER
Picloram + 2,4-D	GunSlinger	Albaugh, Inc.	42750-80
	Picloram + D	Alligare, LLC	81927-16
	Tordon 101M	Dow AgroSciences	62719-5
	Tordon 101 R Forestry	Dow AgroSciences	62719-31
	Tordon RTU	Dow AgroSciences	62719-31
	Grazon P+D	Dow AgroSciences	62719-182
	HiredHand P+D	Dow AgroSciences	62719-182
	Pathway	Dow AgroSciences	62719-31
	Trooper 101	Nufarm Americas Inc.	228-561
	Trooper P + D	Nufarm Americas Inc.	228-530
Picloram +	Trooper Extra	Nufarm Americas Inc.	228-586
2,4-D +			
Dicamba			
Sulfometuron methyl	SFM 75	Alligare, LLC	81927-26
	Oust DF	DuPont Crop Protection	352-401
	Oust XP	DuPont Crop Protection	352-601
	SFM E-Pro 75EG	Etigra, LLC	79676-16
	Spyder	Nufarm Americas Inc.	228-408
	SFM 75	Vegetation Man., L.L.C.	72167-11-74477
NOTE: In accordance with the Record of Decision for the *Vegetation Treatments Using Herbicides on Bureau of Land Management* Lands in 17 Western *States Programmatic Environmental Impact Statement (PEIS), the aerial application of this herbicide* is prohibited.			
Sulfometuron methyl +	Landmark XP	DuPont Crop Protection	352-645
Chlorsulfuron			
NOTE: In accordance with the Record of Decision for the *Vegetation Treatments Using Herbicides on Bureau of Land Management* Lands in 17 Western *States Programmatic Environmental Impact Statement (PEIS), the aerial application of this herbicide* is prohibited.			
Sulfometuron methyl +	Oust Extra	DuPont Crop Protection	352-622
Metsulfuron methyl	SFM Extra	Alligare, LLC	81927-5
NOTE: In accordance with the Record of Decision for the *Vegetation Treatments Using Herbicides on Bureau of Land Management* Lands in 17 Western *States Programmatic Environmental Impact Statement (PEIS), the aerial application of this herbicide* is prohibited.			

ACTIVE INGREDIENT	TRADE NAME	MANUFACTURER	EPA REG. NUMBER
Tebuthiuron	Alligare Tebuthiuron 80 WG	Alligare, LLC	81927-37
	Alligare Tebuthiuron 20 P	Alligare, LLC	81927-41
	Spike 20P	Dow AgroSciences	62719-121
	Spike 80DF	Dow AgroSciences	62719-107
	SpraKil S-5 Granules	SSI Maxim Co., Inc.	34913-10
Tebuthiuron +	SpraKil SK-13 Granular	SSI Maxim Co., Inc.	34913-15
Diuron	SpraKil SK-26 Granular	SSI Maxim Co., Inc.	34913-16
	Triclopyr 3	Alligare, LLC	81927-13
	Triclopry 4	Alligare, LLC	81927-11
	Triclopyr RTU	Alligare, LLC	81927-33
	Element 3A	Dow AgroSciences	62719-37
	Element 4	Dow AgroSciences	62719-40
	Forestry Garlon XRT	Dow AgroSciences	62719-553
	Garlon 3A	Dow AgroSciences	62719-37
	Garlon 4	Dow AgroSciences	62719-40
	Garlon 4 Ultra	Dow AgroSciences	62719-527
	Remedy	Dow AgroSciences	62719-70
	Remedy Ultra	Dow AgroSciences	62719-552
	Pathfinder II	Dow AgroSciences	62719-176
	Trycera	Helena Chemical Company	5905-580
	Relegate	Nufarm Americas Inc.	228-521
	Relegate RTU	Nufarm Americas Inc.	228-522
	Tahoe 3A	Nufarm Americas Inc.	228-384
	Tahoe 3A	Nufarm Americas Inc.	228-518
	Tahoe 3A	Nufarm Americas Inc.	228-520
	Tahoe 4E	Nufarm Americas Inc.	228-385
	Tahoe 4E Herbicide	Nufarm Americas Inc.	228-517
	Renovate 3	SePRO Corporation	62719-37-67690
	Renovate OTF	SePRO Corporation	67690-42
	Ecotriclopyr 3 SL	Vegetation Man., LLC	72167-49-74477
	Triclopyr 3 SL	Vegetation Man., LLC	72167-53-74477
Triclopyr +	Everett	Alligare, LLC	81927-29
2,4-D	Crossbow	Dow AgroSciences	62719-260
	Candor	Nufarm Americas Inc.	228-565
	Aquasweep	Nufarm Americas Inc.	228-316

ACTIVE INGREDIENT	TRADE NAME	MANUFACTURER	EPA REG. NUMBER
Triclopyr +	Prescott Herbicide	Alligare, LLC	81927-30
Clopyralid	Redeem R&P	Dow AgroSciences	62719-337
	Brazen	Nufarm Americas Inc.	228-564

APPENDIX B12
FIRE PROTECTION PLAN

B12.1 Introduction

This plan details measures that will be implemented to (1) reduce the risk of starting a fire and (2) suppress a fire in the event one does occur within the construction area during the Southline Transmission Line Project (Project) construction. The precautions and procedures identified in this plan are also applicable for operation and maintenance activities; however, responsibilities for management of all fires and fire prevention measures are predominantly assumed by the Bureau of Land Management (BLM), Western Area Power Administration (Western), and other Agency Fire Management Officers (FMOs) and the operation and maintenance crews of Southline Transmission LLC (Southline). As indicated in the Plan of Development (POD), this plan is applicable on Federal lands administered by the BLM as enforceable stipulations and measures of the BLM ROW grant. It pertains not only to the construction of the Project, but also to the operation and maintenance phase of the Project. Where Western is involved in the Project, they may adopt this plan, where appropriate.

B12.1.1 Purpose

The risk of fire danger during construction of a transmission line is related largely to the use of vehicles and other motorized equipment operating off roadways, the handling and use of explosive materials and flammable liquids, smoking, and welding. The purpose of this plan is to outline responsibilities, notification procedures, fire prevention measures and precautions, fire suppression equipment, initial response procedures, and post-fire rehabilitation strategies related to the Project. The goal is to minimize the risk of Project-related fires and, in case of fire, provide for immediate suppression within the construction area. Other plans containing information related to fire protection include: Appendix B6 – Blasting Plan, Appendix B9 – Hazardous Materials Management Plan, and Appendix B10 – Emergency Preparedness and Response Plan.

B12.1.2 Regulatory Compliance

The Project will be subject to State, County, and federally enforced laws, ordinances, rules, and regulations that pertain to fire prevention and suppression activities. Key regulatory agencies include the BLM and other agency and local fire protection agencies in Arizona and New Mexico.

B12.2 Responsibilities

B12.2.1 Bureau of Land Management

The BLM FMO or other agency FMO(s) will oversee all fire control activities within their prospective administrative units. The FMOs will discuss fire protection stipulations at the notice-to-proceed meeting, which will be attended by the BLM, Western, and other agency authorized officers or his/her designated representative; the compliance inspection contractor (CIC); Southline, the construction contractor(s); and their environmental inspectors.

B12.2.1.1 CONSTRUCTION CONTRACTOR(S)

It will be the responsibility of the construction contractor(s) to notify Southline, the BLM and/or Western when a Project-related fire occurs within or adjacent to the construction area. The construction

contractor(s) will be responsible for any fire started, in or out of the Project area, by its employees or operations during construction. The construction contractor(s) will be responsible for fire suppression and rehabilitation. The construction contractor(s) will take safe and immediate action to prevent and suppress fires on and adjacent to the Project area that are a result of contractor activities. The construction contractor(s) will use its workers and equipment on the Project for preventing the spread of fires started by contractor activities unless the fire exceeds immediate control, at which time all construction contractor employees will exit the area to predetermined locations safe from wildfire.

All Federal, State, and county laws, ordinances, rules, and regulations, which pertain to prevention, pre-suppression, and suppression of fires, will be strictly adhered to by the construction contractor(s). All personnel will be advised of their responsibilities under the applicable fire laws and regulations.

Construction Crew

The construction crew will be responsible for:

- Initial response on any construction caused fire that starts in the Project area and continued suppression activities until relieved by the appropriate fire authorities or until the fire exceeds immediate control or exceeds the capacity of crew members to manage safely given minimal training.
- Immediately notifying the designated Fire Marshall of a fire start;
  the Fire Marshall will be responsible for notifying the appropriate fire authorities.
- In the event of a fire report, all available trained crews will be alerted and will respond immediately to the fire using appropriate equipment.

Designated Fire Marshall

The final construction Plan of Development will detail the designation of a Project Fire Marshall who will have the following duties and responsibilities:

- In the event of a fire start, initial attack will be initiated and coordinated by the Fire Marshall and suppression will be implemented until the appropriate fire authorities respond or until the fire exceeds immediate control. The construction contractor(s) will dispatch to the fire all available fire-fighting equipment within 15 minutes of the fire report.
- Regularly inspect safety kits, first aid kits, tools, and fire-fighting equipment.
- Ensure compliance with applicable laws and regulations for the storage of flammable fuels and chemicals.
- Posting smoking rules and fire mitigation measures at visible and central locations.
- Coordinating initial response to fires within the Project area.
- Accompanying the CIC on fire prevention and preparedness inspections of the Project area.
- Educating all contractor crews on the content of the Fire Protection Plan and raising awareness of fire risk in periods of high fire danger.
- Monitoring all construction activities closely for potential ignitions.
- Reporting all wildfires to the CIC following notification procedures described below.
- Monitoring site conditions and fire danger and reporting heightened risk to the construction crews.

- Overseeing and advising construction activities and limiting or restricting those activities that may lead to fire during periods of high fire danger.

B12.2.1.2 COMPLIANCE INSPECTION CONTRACTOR

The CIC and the Fire Marshall will accompany the BLM FMO on all BLM fire inspections and if fire protection requirements are not in compliance, corrective actions should be taken. If certain construction activities pose a fire threat in the Project area, the CIC will inform the construction contractor(s) to implement safety measures or cease operations until threats are abated.

B12.2.1.3 NOTIFICATION

During construction or maintenance activities the contractor(s) crews will be responsible for the immediate notification of any fire starting in the Project area. The Fire Marshall will notify the CIC and Western, who will notify the BLM authorized officer and the BLM FMO. Fire notification numbers and emergency numbers for all employees will be on file and readily updated by the construction contractor and Southline.

Table B12-1. Fire Notification Numbers

Contact Person	Phone Number
CALL 911 FIRST	
Bureau of Land Management	Bureau of Land Management Fire Management Officer : Gila District – (928) 348-4508 Phoenix District – (623) 580-5578 Las Cruces – (575) 525-4305
Western Authorized Officer or Designated Representative	To be determined
Bureau of Indian Affairs	NM Southwestern Regional Office: 505-563-3103 BIA: AZ Western Regional Office: 602- 379- 6600
New Mexico State Forestry Division	Fire Program Managers: Socorro – (575) 835-9359 Capitan District Office – (575) 354-2231
Arizona State Forestry Division	Arizona Interagency Dispatch Center– 800-309-7081 Tucson – 520-628-5480
Southwest Coordination Center	Alamogordo Interagency Dispatch Center: 575-437-2286. Silver City Interagency Dispatch Center: 575-538-5371. Tucson Interagency Dispatch Center: 520-202-2710.
911 – Emergency	Dial 911

B12.3 Proponent Committed Environmental Measures

Southline has developed Proponent Committed Environmental Measures (PCEMs) to be incorporated as part of the Project, which are identified in the Environmental Impact Statement (EIS), and included in table 8 of the Plan of Development (POD). The goal of these PCEMs is to reduce or avoid potential environmental impacts resulting from Project-related activities. The construction contractor(s) will adhere to specific PCEM stipulations and design features of the Fire Protection Plan (FP) outlined below in order to provide for safety relating to potential fire starts within the construction site.

- HEA-1: The Health and Safety Plan (HASP) and FP prepared as part of the final POD will be developed and implemented to minimize and mitigate potential health and human safety impacts. Southline and its contractors will work with the appropriate surface-managing agencies to

incorporate any fire restrictions that are put into effect during construction, operation, and decommissioning of the Project.

- The HASP will address potential situations that workers could encounter during construction and maintenance. The purpose and goal of the worker safety and environmental training will be to communicate Project-related environmental and safety concerns and appropriate work practices to all field and construction personnel prior to the start of construction, including spill prevention, emergency response measures, accident prevention, use of protective equipment, medical care of injured employees, safety education, and fire protection. Training will encompass environmental training related to road designations and speed limits, promote "good neighbor" policies, and institute best management practices (BMPs) for construction. The training will emphasize site-specific physical conditions to improve hazard prevention in accordance with Occupational Safety and Health Administration (OSHA) requirements (29 CFR 1910 and/or 1926, as applicable).

B12.4 Other Specific Stipulations and Methods

Additionally, the construction contractor(s) will adhere to the following specific stipulations and design features (beyond the PCEMs identified in the EIS and POD) of the FP outlined below for fire prevention at all times during construction, operation, and maintenance.

- FP1: Construction crews will provide immediate initial attack on all fires (if safe to do so) that start on the construction site. Crews will only suppress fires within their training and equipment capabilities. If fire activity increases beyond the limits of their tools and personnel capability to safely suppress, all crew members will evacuate the area using pre-determined evacuation procedures.
- FP2: Construction crews will notify fire authorities immediately of any fire start that escapes initial attack containment and provide an accurate location and status of the fire.
- FP3: All vehicles and construction equipment will be equipped with fire extinguishers, shovels and water. Fire extinguishers will be rated ABC-10 pound minimum for equipment and ABC-2.5 pound minimum for vehicles.
- FP4: Prior to initiating any activity that may be a source of fire ignition, construction crews will carry out a thorough review of weather forecasts and assessment of potential fire conditions on the site, including an assessment of humidity and wind conditions. Certain activities may need to be delayed or rescheduled if potential for high fire danger is high and adequate protective measures cannot be effectively implemented.
- FP5: Spark arrestors will be used at all times on all internal and external combustion engines. Spark arrestors will be regularly maintained and meet Society of Automotive Engineers Recommended Practices J335 or J350.
- FP6: All vehicle use will be restricted to designated roads and contractor acquired access; parking areas will be located within areas with vegetation less than 8 inches. Undercarriages will be inspected daily to ensure against vegetation build up that could initiate a fire. Construction activities will be contained within predetermined boundaries.
- FP7: Vegetation should be cleared in all areas where welding, grinding or cutting activities will be used. Spark shields should be utilized and a spotter is required to watch for ignitions. Spotter will be equipped with a shovel, back-pack water pump and fire extinguisher. Areas should be wetted down to arrest sparks. Slash should be disposed of in accordance with requirements of the land owner.

- FP8: Smoking is prohibited while operating machinery or equipment and when operating or moving through areas of tall vegetation.
- FP9: Smoking is only allowed in designated areas with cleared vegetation. Tobacco products must be discarded of in approved containers.
- FP10: All fires (including open burning of construction trash) and barbeques are prohibited within the right of way and on construction sites.
- FP11: Any crew member assigned to the field will receive training in emergency response to fires in the event of a fire onsite.
- FP12: All flammable materials not needed on the work site or not in use will be removed from operation areas to a minimum of 10 feet to reduce incidence of fire starts.

B12.4.1 Activity-Related Precautions

B12.4.1.1 FIRE DANGER RATINGS

The National Fire Danger Rating scales will be used to ensure safe construction practices during high fire danger. These ratings are available at: http://www.wfas.net/index.php/fire-danger-rating-fire-potential--danger-32 .

The Fire Danger Rating is based on current and antecedent weather, fuel types, and live and dead fuel moistures. The following table B12-2 is the adjective class rating that normalizes rating classes across different fuel models, indexes, and station locations.

Table B12-2. Fire Danger Rating Scale

Fire Danger Rating and Color Code	Description
Low (dark green)	Fuels do not ignite readily from small firebrands, although a more intense heat source, such as lightning, may start fires in duff or punky wood. Fires in open cured grasslands may bum freely a few hours after rain, but woods fires spread slowly by creeping or smoldering, and burn in irregular fingers. There is little danger of spotting.
Moderate (light green or blue)	Fires can start from most accidental causes, but with the exception of lightning fires in some areas, the number of starts is generally low. Fires in open cured grasslands will burn briskly and spread rapidly on windy days. Timber fires spread slowly to moderately fast. The average fire is of moderate intensity, although heavy concentrations of fuel, especially draped fuel, may burn hot. Short-distance spotting may occur, but is not persistent. Fires are not likely to become serious and control is relatively easy.
High (yellow)	All fine dead fuels ignite readily and fires start easily from most causes. Unattended brush and campfires are likely to escape. Fires spread rapidly and short-distance spotting is common. High-intensity burning may develop on slopes or in concentrations of fine fuels. Fires may become serious and their control difficult unless they are attacked successfully while small.
Very High (orange)	Fires start easily from all causes and, immediately after ignition, spread rapidly and increase quickly in intensity. Spot fires are a constant danger. Fires burning in light fuels may quickly develop high intensity characteristics such as long-distance spotting and fire whirlwinds when they burn into heavier fuels.
Extreme (red)	Fires start quickly, spread furiously, and burn intensely. All fires are potentially serious. Development into high intensity burning will usually be faster and occur from smaller fires than in the very high fire danger class. Direct attack is rarely possible and may be dangerous except immediately after ignition. Fires that develop headway in heavy slash or in conifer stands may be unmanageable while the extreme burning condition lasts. Under these conditions the only effective and safe control action is on the flanks until the weather changes or the fuel supply lessens.

Source: Wildland Fire Assessment System (WFAS): http://www.wfas.net/index.php/fire-danger-rating-fire-potential--danger-32/class-rating-fire-potential-danger-51?task=view

B12.4.1.2 RED FLAG WARNINGS

In addition to observation of the Fire Danger Rating scales, the National Weather Service red flag warnings for low humidity and high winds will be observed. The Fire Precaution Levels in table B12-3 will be adhered to. The red flag warnings are posted on the National Weather Service's Western Region Fire Weather website at http://www.wrh.noaa.gov/firewx/main.php.

Table B12-3. Fire Precaution Levels

Fire Danger Rating	No Red Flag	Red Flag
Low	Normal fire precautions	Consider additional measures and resources
Moderate	Normal fire precautions	Consider additional measures and resources
High	One engine is require for blasting	One engine is required for blasting, welding, cutting, and grinding AND operations will shut down from noon until 8 p.m.
Very High	One engine is required for blasting, welding, cutting, and grinding.	Two engines required for blasting, welding, cutting, and grinding AND operations will shut down from 10 a.m. until 8 p.m. Power saws will be shut down from 10 a.m. until 8 p.m.
Extreme	Two engines required for blasting, welding, cutting, and grinding AND operations will shut down from 10a.m. until 8 p.m. Power saws will be shut down from 10 a.m. until 8 p.m.	Unless authorized by the land jurisdictional agency, ALL OPERATIONS SHUT DOWN EXCEPT on mineral soil involving watering or equipment maintenance.

B12.4.2 Burning (Not Allowed)

- FP 13: No burning activities (campfires, barbeques, open burning) will be allowed on the ROW, material yards/staging areas, substations, access roads, or other construction areas.

B12.4.3 Blasting

- FP 14: No blasting will be allowed without the notification of the CIC and Fire Marshall. All blasting operations will adhere to guidelines outlined in the Blasting Plan (appendix B6). The blasting contractor's vehicles will be equipped with appropriate fire suppression equipment and all crew members will be trained in emergency response.

B12.4.4 Welding, Cutting, Grinding, or Drilling

- FP15: The construction contractor(s) Construction Manager must approve all welding, cutting, grinding and drilling operations. Prior to construction activities that could generate sparks, vegetation should be cleared at a minimum of 10 feet from the area. All welding or cutting activities will cease one hour prior to personnel leaving the site to allow for observation of potential smoldering materials. A spotter will be assigned to each activity to watch for sparks that could initiate a fire. The spotter will remain onsite 1 hour after the completion of welding and cutting activities. All vehicles used for welding and cutting operations will be equipped with appropriate suppression equipment and all crew members will be trained in emergency response.

B12.4.5 Spark Arrestors

- FP16: The construction contractor(s) will inspect and approve all equipment used on the Project. All internal and external combustion engines will be equipped with spark arrestors that meet the following agency standards:
  - Light trucks and cars with factory installed (type) mufflers (in good condition) may be used on roads where the roadway is cleared of all vegetation.
  - On roads where vegetation exists, spark arrestors will be used.
  - Spark arrestors will be in good working order.
  - Vehicles equipped with catalytic converters may represent potential fire hazards and will be parked in areas cleared of vegetation.
  - If required, flues used in extra work areas will be equipped with spark arrestors in good working order and meet agency standards.

B12.4.6 Smoking

- FP17: The construction contractor(s) will post all smoking and fire rules on the Project bulletin board at the construction contractor(s) field office and at all entrance points to the construction site. The construction contractor(s) and designated supervisory staff are responsible for enforcement of all rules. Smoking is prohibited while operating construction vehicles and equipment and when operating in or moving through tall vegetation.

B12.4.7 Warning Devices

- FP18: The use of warning devices with open flames, such as torches, fuses, highway flares, are prohibited in the Project area. Only electric and battery powered warning devices are permitted for use in the Project area.

B12.4.8 Parking and Vehicle Storage Areas

- FP19: Parking and storage areas will be cleared of vegetation and other flammable materials as deemed necessary by the BLM authorized officer. Gas and oil storage areas will be cleared of all flammable materials up to 100 feet and sign posted with NO SMOKING signage. All harmful and flammable materials will be properly disposed of in approved containers at an approved disposal facility (as outlined in appendix B9). Glass jugs or bottles will be not permitted for the storage of gasoline or other flammable materials.

B12.4.9 Signage

- FP20: NO SMOKING signs will be posted at material yards/staging areas and all construction sites during fire season as determined by the BLM authorized officer.

B12.4.10 Power Saws

- FP21: All gasoline power saws will be equipped with functioning spark arrestors and maintained in good working order throughout their assignment on the project. Chain saws will comply with the following requirements:
  - Arrestors will be equipped with a 0.023-inch mesh stainless steel screen.
  - Chain-saw operators will be equipped with a round point, long-handled shovel and belt carrying fire extinguisher during operations.

- Re-fueling will occur only in areas cleared of vegetation. Gas will be carried in approved metal containers. Power saws will be moved at least 10 feet from fueling areas before starting.

B12.4.11 Equipment Refueling

- FP22: Fuel trucks will have at minimum a 35-pound fire extinguisher charged with necessary chemicals to control electrical and fuel fires. Helicopter fuel tanks will be grounded to the helicopter during refueling. Crews will follow guidelines provided in appendix B4 to prevent spills during refueling.

B12.4.12 Access

- FP23: The construction contractor(s) will ensure continuous access will be provided to emergency vehicles along all access roads. Access roads will be maintained in a manner that they may be used as fire breaks in the event of a fire start.

B12.5 Minimum Fire Prevention and Suppression Equipment Required

The construction contractor(s) will ensure that the following minimum equipment is available and maintained in proper working condition (per OSHA publication 3080) throughout the duration of the Project.

- FP24: All motorized vehicles and equipment in each active construction area will have:
  - One long-handled round point shovel.
  - One axe or Pulaski tool.
  - Fire extinguishers (rated ABC-10 pound minimum for equipment and ABC-2.5 pound minimum for vehicles). One 5-gallon water back-pack filled with water or other extinguishing solution.
  - Hard hat, work gloves, eye protection for all crew members.
- FP25: In addition construction work sites shall comply with the following:
  - All power saws shall come equipped with an approved and maintained spark arrestor and accompanied by one 5-pound ABC dry chemical fire extinguisher and one long-handled round point size 0 shovel.
  - Fuel trucks shall have at minimum a 35-pound fire extinguisher charged with necessary chemicals to control electrical and fuel fires.
  - Welding and cutting equipment shall be accompanied with at least 2 long-handled round point size 0 shovels and two 5-pound ABC dry chemical fire extinguisher.
  - All construction sites shall have at least one working radio and/or satellite phone for use in contacting the fire authorities, CIC, and Fire Marshall in the event of a fire.
  - All at-risk work sites shall have back-pack pumps filled with water or other extinguisher solution. All wood cutting sites should have 2 pumps, 1 at each welding site and 2 at construction sites.

- FP26: During high fire danger the following equipment shall be staged and available in the construction area to aid with fire suppression:
  - One fire suppression vehicle with a minimum 500-gallon capacity water tank, 250 feet of ¾-inch heavy-duty rubber hose, and a pump with a discharge capacity of at least 20 gallons per minute. The pump shall have fuel capacity to operate for at least 2 hours.
  - The fire suppression vehicle shall be outfitted with one tool cache for fire use only, containing at a minimum: 2 long-handled round-point shovels, 2 axes or Pulaski fire tools, and 1 chainsaw of 3.5 or more horsepower, with a cutting bar of at least 20 inches in length.

B12.6 In Case Of Fire – Initial Response and Emergency Contacts

In the event of a manageable fire start within the Project area, crews shall provide initial attack using appropriate rated fire extinguisher, or other available equipment (i.e. shovel to smother fire with dirt, back-pack pump). All crew members will be trained in emergency response procedures, proper notification and reporting protocols, suppression and control techniques, and measures to determine manageability. Crew will be trained to identify when a fire has exceeded suppression capabilities and the proper evacuation procedures to follow if a fire escapes initial attack containment.

In the event a fire becomes unmanageable, crews will immediately evacuate and call 911 and then the district dispatch (see table B12-1). Regardless of actions taken, all fires must be reported to the jurisdictional fire agency.

B12.7 Post-Fire Rehabilitation Strategies

In the event that a fire occurs as a result of project activities, the construction contractor(s) will implement rehabilitation measures as required by the BLM. The following measures will be taken:

- FP27: All burn areas will be re-vegetated in accordance with BLM standards. Native seed mixes will be used to revegetate small burn areas (as outlined in Appendix B15 – Reclamation, Revegetation, and Monitoring Plan). Larger burn areas may require specific reclamation plans that meet BLM requirements. Monitoring requirements will be developed in conjunction with any reclamation plan. Measures to abate erosion following a fire shall follow procedures outlined in the Erosion, Dust Control, and Air Quality Plan (appendix B8).
- FP28: In order to prevent the spread of noxious weeds in burned areas, a Noxious Weed Plan shall be developed (see appendix B11) in accordance with BLM requirements.

APPENDIX B13
STREAM, WETLAND, WELL, AND SPRING PROTECTION PLAN

B13.1 Introduction

The purpose of this Stream, Wetland, Well, and Spring Protection Plan is to provide measures to protect these resources from potential impacts during construction, operation, and maintenance activities for the Southline Transmission Line Project (Project). This plan incorporates Proponent Committed Environmental Measures (PCEMs) identified in the Environmental Impact Statement and also in table 8 in the Plan of Development (POD). As indicated in the POD, this plan is applicable on Federal lands administered by the Bureau of Land Management (BLM) as enforceable stipulations and measures of the BLM ROW grant. It pertains not only to the construction of the Project, but also to the operation and maintenance phase of the Project. Where Western Area Power Administration (Western) is involved in the Project, they may adopt this plan, where appropriate.

The goals of this plan are to:

- Control Project-related erosion and sedimentation into streams and wetlands and minimize disturbance and erosion of streambeds and banks.
- Protect springs and wells in the Project area from impacts due to blasting and hazardous materials contamination.

B13.2 Regulatory Overview

The construction, operation, and maintenance phases of the Project are subject to various regulations designed to protect environmental resources and the public. Regulations relevant to water resources are outlined below.

B13.2.1 Federal

General water quality is protected under the federal Clean Water Act (CWA), and a permit may be required if a project will result in the alteration of or discharges into jurisdictional watercourses (waters of the U.S. (WUS)) and wetlands. The U.S. Army Corps of Engineers (USACE) and U.S. Environmental Protection Agency (EPA) regulate the placement of fill into WUS under Section 404 of the CWA. WUS include lakes, rivers, streams and their tributaries, and wetlands. The Project will result in the alteration of or discharge into jurisdictional WUS. To qualify under Section 404 Nationwide Permit (NWP) 12 for Utility Line Activities, the Project will need to meet the criteria for and fall within the thresholds of this NWP. As part of meeting the conditions of NWP 12, wetland delineations will need to be prepared and a Preliminary Jurisdictional Determination obtained from the USACE for the Project. The Preliminary Jurisdictional Determination will establish where WUS may be located that may be affected by the Project. An NWP 12 is typically issued after a 30- to 45-day review of the Preliminary Jurisdictional and Wetland Delineation Report, unless the USACE requests a field review, which will extend the review period. From the date of issuance, the NWP 12 is valid for 12 months.

Requirements related to stormwater pollution under Section 402 of the CWA are handled in New Mexico by the EPA. Requirements under Section 402 are detailed in Appendix B3 – Stormwater Pollution Prevention Plan.

B13.2.2 State

Requirements related to stormwater pollution under Section 402 of the CWA are handled in Arizona by the Arizona Department of Environmental Quality under the Arizona Pollutant Discharge Elimination System (AZPDES). Requirements under AZPDES are detailed in Appendix B3 – Stormwater Pollution Prevention Plan.

In Pima County, certain riparian habitat is regulated and protected. As part of the floodplain use permit process, proposed developments are subject to review for impacts to mapped regulated riparian habitat RRH if more than 0.3 acre of a property's RRH is disturbed. In some instances where disturbed RRH is classified as Hydroriparian, Mesoriparian, and/or Important Riparian Area (IRA), a mitigation plan needs to be approved by the Pima County Board of Supervisors. However, for construction purposes, all clearance and appropriate mitigation will have been completed (see Appendix B7- Plant and Wildlife Species Conservation Measures Plan", and no further avoidance, monitoring, or management will need to be considered during construction.

B13.3 Overview of Streams, Wetlands, Wells, and Springs

B13.3.1 Streams and Drainages

Potentially jurisdictional WUS crossed by the Project will be delineated during preconstruction stream and wetland surveys and provided to the USACE to obtain a Preliminary Jurisdictional Determination. The locations of streams and drainages will be mapped and shown in the POD.

Most streams and drainages crossed by the Project are ephemeral washes that typically do not flow except in response to precipitation events. However, there are several streams identified as potentially requiring special consideration due to intermittent or perennial flow. These include the Mimbres River, the San Pedro River, and Cienega Creek, two of which are existing crossings in the Upgrade Section.

B13.3.2 Wetlands

Wetland delineations that follow the USACE Wetland Delineation Manual (1987) and Arid West Regional Supplement (2008) will be conducted prior to construction. The USACE Wetland Delineation Manual provides technical guidelines and methods for a three-parameter approach to determine the location and boundaries of potentially jurisdictional wetlands. This approach requires that an area support positive indicators of hydrophytic vegetation, hydric soils, and wetland hydrology to be considered a wetland. Surveyors will gather wetland determination information on data forms in the field and map wetland boundaries using geographical positioning system technology. Wetlands that meet all three parameters will be presented to the USACE for a Preliminary Jurisdictional Determination. The locations of wetlands will be mapped and shown in the POD.

B13.3.3 Wells and Springs

Water wells and springs are considered sensitive resources that will need to be identified and protected. Wells and springs have been considered and avoided in the routing process for the proposed Project. Wells and springs within 600 feet of the Project alignment will be identified, mapped, and shown in POD map sets. Wells and springs in known blasting zones will be identified prior to construction by the construction contractor(s).

B13.4 Proponent Committed Environmental Measures

As the Proponent, Southline Transmission, LLC (Southline), and its construction contractor(s) will adhere to the PCEMs and other specific stipulations and methods discussed in the following section. These measures were developed to minimize Project impacts on streams, wetlands, wells, and springs where they occur along the Project right-of-way, access roads, substations, and temporary staging areas.

There are three main concerns for impacts to streams and wetlands: (1) direct disturbance, (2) potential erosion and movement of sediment from upstream disturbed areas, and (3) potential contamination from spills and accidental releases. This plan provides the framework for addressing the direct disturbance of streams and wetlands. Three other plans provide additional guidance for minimizing impacts from erosion:

- Appendix B3 – Stormwater Pollution Prevention Plan
- Appendix B8 – Erosion, Dust, and Air Quality Control Plan
- Appendix B15 – Reclamation, Vegetation, and Monitoring Plan

Two additional plans provide guidance for minimizing impacts from spills and accidental releases:

- Appendix B4 – Spill Pollution Prevention, Control, and Countermeasures Plan
- Appendix B9 – Hazardous Materials Management Plan

The following are PCEMs that directly address protection of streams, wetlands, wells, and springs:

- Structures will be placed to avoid, and/or to allow conductors to span, sensitive features such as riparian areas, waterways, roads, trails, and cultural sites within limits of standard transmission line structure design. This will minimize the amount of sensitive features disturbed and/or reduce visual contrast.
- HAZ-8: Service and refueling procedures will not be conducted within 500 feet of a seep, wash, or other water body. Routine service of any vehicles or equipment will not be done within the right-of-way.
- Water facilities (e.g., tanks, developed springs, water lines, wells, etc.) will be repaired or replaced to their predisturbed condition if they are damaged or destroyed by construction, operation, or maintenance activities, as required by the landowner of land management agency. Temporary watering facilities will be provided for wildlife and livestock until permanent repair or replacement is complete.
- VEG-4: Removal of riparian scrubland vegetation will be avoided where possible. Natural regeneration of native plants will be supported by selectively cutting vegetation with hand tools, mowing, trimming, or using other removal methods that allow root systems to remain intact.
- WAT-1: A Project-specific construction Stormwater Pollution Prevention Plan (SWPPP) will be prepared prior to the start of construction of the transmission line and substations in compliance with CWA Section 402, if required. The SWPPP will use best management practices to address the storage and handling of hazardous materials and sediment runoff during construction activities to minimize the risk of an accidental release. As part of the SWPPP, soil disturbance at structure construction sites and access roads will be the minimum necessary for construction and will be designed to prevent long-term erosion, through activities such as restoration of disturbed soil, revegetation, and/or construction of permanent erosion control structures. A USACE permit will be obtained prior to the start of construction of the transmission line and substations for the discharge of dredged or fill material in compliance with CWA Section 404,

if required. Activities in and around streams and wetlands will be designed to avoid, minimize, and mitigate impacts to WUS.

- WAT-2: Construction equipment will be kept out of flowing stream channels, unless feasible alternatives are not available. Structures will be located to avoid active drainage channels, especially downstream of steep slope areas, to minimize the potential for damage by flash flooding and mud and debris flows.
- WAT-3: Flood-control devices will be located where required to protect structures from flooding or erosion. Appropriate design of structure foundations will be used to prevent scour or inundation by a 100-year flood and to avoid disturbed areas. The locations of transmission structures will be designed to avoid steep, disturbed, or otherwise unstable slopes. If drainages cannot be avoided by structure placement, Southline and its construction contractor(s) will design drainage crossings to accommodate estimated peak flows and ensure that natural volume capacity can be maintained throughout construction and upon post-construction restoration.
- Roads will be built as close as possible to right angles to the streams and washes. Culverts or temporary bridges will be installed where conditions warrant. All construction and operations activities shall be conducted in a manner that will minimize disturbance to vegetation, drainage channels, and intermittent or perennial stream banks.
- To the extent practicable, structures will be sited with a minimum distance of 200 feet from streams.
- WF-1: All non-emergency construction and maintenance in riparian woodlands at the San Pedro River, Cienega Creek, and the Santa Cruz River will take place between September 15 and March 1, to avoid disturbance of breeding or nesting southwestern willow flycatchers (*Empidonax traillii extimus*) or yellow-billed cuckoos (*Coccyzus americanus*).

B13.5 Other Specific Stipulations and Methods for Streams and Wetlands

Southline and its construction contractor(s) will adhere to the crossing methods identified below for any stream and wetland crossings.

B13.5.1 Stream Crossing Methods

Streams that Project vehicles and equipment will cross or potentially impact will be identified in the final POD. For the most part, vehicular crossings will be limited to ephemeral washes and dry playas.
All wetlands will be avoided if possible, but there may still be some isolated wetland crossings necessary. If a stream or wetland cannot be avoided during construction, the appropriate crossing strategy for vehicular access will be identified from the various types of crossing methods are discussed in detail below. When implemented, these crossing methods will help protect water quality by minimizing stream channel disturbance, erosion, and sedimentation due to Project activities. If the chosen crossing method is not adequately preventing and/or minimizing sedimentation and erosion, additional sediment controls may be required when circumstances warrant. Streams crossed by the Project will be monitored throughout construction for signs of bed and/or bank degradation. If disturbance resulting from installation of erosion control devices across any ephemeral drainages outweighs the benefits of having the devices in place, then there will be the option of not prescribing any temporary stream crossing or erosion control method.

B13.5.1.1 VEHICULAR STREAM CROSSINGS

- Equipment and vehicles will cross streams at existing bridges or established crossings whenever possible to avoid a new stream crossing location.
- The crossings of ephemeral washes or streams will be limited to vehicular crossings along spur roads or access roads as described in the POD.
- Neither grading nor blading will be used to facilitate a stream crossing carrying a discernible flow of water.
- All stream crossings will be made as close as possible to right angles to the streams and washes.
- Generally, streams that have vertical banks greater than 2 feet high or selected smaller crossings may require grading to accommodate vehicle passage. Graded crossings will be accomplished by excavating a ramp through both banks of a stream to allow vehicles to cross. Vehicle access ramps will be graded so soil is pushed away from the stream rather than toward it.
- Topsoil will be salvaged and kept separate from grade spoils. It will be placed a minimum of 20 feet from stream banks. As needed, straw bale barriers or silt fences will be used around the stockpiles and along the stream banks for erosion control, as determined by the SWPPP requirements.
- Flow of sediment into the stream from a cleared crossing will be prevented by installing water bars on the travel route at or near the top of bank (or other slope break) to redirect road runoff away from the stream. If necessary, downslope protection will be increased by extending silt fence from the downgradient end of the water bar.
- In cases where it is impractical and highly disruptive to the environment to construct temporary crossings, such as over very large watercourses or deep canyons, vehicles will not attempt to cross the watercourse. The conductor will be strung across these resources by hand or other method and construction equipment will be routed around.

B13.5.1.2 WETLAND CROSSING METHODS

Wetlands will be avoided if at all possible. If wetlands are not able to be avoided during construction, the crossing methods discussed below will be implemented to avoid, minimize, and mitigate Project-related erosion, sedimentation, and other impacts. These crossing methods have been developed based on numerous factors, including slope, hydrological regime, presence or absence of bank, and erodibility of substrate, soil surface disturbance, and disturbance of wetland plant communities.

- The crossings of wetlands will be limited to vehicular crossings along spur roads or access roads.
- Equipment and vehicles will avoid crossing wetlands to the greatest extent possible by driving around them or using an existing crossing if one exists nearby. If a wetland will be avoided, but a travel route will be bladed within 20 feet of the wetland edge, a silt fence will be installed along the travel route on the wetland side unless the wetland is upgradient.
- If the wetland cannot be avoided, vehicles and equipment will cross the wetlands while implementing the following specific stipulations and methods.
    - Wetland soil will be temporarily stored either within the wetland or in upland areas close to the wetland boundaries and will be used to restore the site to preconstruction contours.
    - A silt fence will be installed around tower sites where necessary to minimize the potential for sediment discharge from excavated spoil into adjacent, undisturbed wetlands.

      For wetlands with dry crossing conditions, vehicles and equipment will drive around the wetland to avoid it or will use existing crossing, if possible. If crossing is unavoidable, traffic

corridor will be restricted to 20 feet wide and traffic will be minimized to only the equipment necessary to do the work. Erosion control will be installed as required under the SWPPP.

- For wetlands with wet crossing conditions, and if crossing is unavoidable, vehicles and equipment will use prefabricated equipment pads over saturated areas, traffic corridor will be restricted to 20 feet wide, and minimized to only the equipment necessary to do the work. Erosion control will be installed as required under the SWPPP, or additional measures will be taken if warranted by crossing conditions.

B13.5.2 Spill Prevention

Two additional plans provide guidance for minimizing impacts from spills and accidental releases:

- Appendix B4 – Spill Pollution Prevention, Control, and Countermeasures Plan
- Appendix B9 – Hazardous Materials Management Plan

Special care is given in these plans to the protection of surface water sources, including restrictions on use and storage of hazardous materials and petroleum materials near surface waters or wetlands.

B13.5.3 Erosion and Sedimentation

Three other plans provide additional guidance for minimizing impacts from erosion:

- Appendix B3 – Stormwater Pollution Prevention Plan
- Appendix B8 – Erosion, Dust, and Air Quality Control Plan
- Appendix B15 – Reclamation, Vegetation, and Monitoring Plan

Additional erosion control practices should be considered as needed for any stream crossings or work within stream channels or wetlands.

B13.5.4 Reclamation and Revegetation of Stream Crossings

Reclamation and revegetation of all stream crossings will take place as described in Appendix B15 – Reclamation, Revegetation, and Monitoring Plan.

B13.5.5 Storage of Soil or Organic Debris near Streams

Any soil or other organic debris piled by bulldozers and grading equipment near the stream banks during construction will be stored a minimum of 200 feet from the banks and appropriately re-spread and/or stabilized, covered, etc. to prevent sedimentation during rainfall events. The construction contractor(s) will also adhere to any additional soil storage measures as required by applicable Project permits.

B13.5.6 Stream Obstruction and Flash Flood Hazard

For the most part, vehicular crossings will be limited to ephemeral washes and dry playas. Flow is not normally present in these stream channels. In the event that flow is present, protective measures will be taken as described above.

B13.5.7 Protection of Wells and Springs

All applicable laws and regulations will be followed in respect to the protection for drinking water sources. Wells and springs in known blasting zones will be identified prior to construction by the construction contractor(s).

No wells were identified that will be disturbed by Project construction. In the event a well is discovered, any wells directly impacted by Project disturbance may need to be replaced, in accordance with any well owner agreements. If required to be removed, all wells will be properly abandoned as per appropriate state regulations (in New Mexico, refer to the New Mexico Office of the State Engineer; in Arizona, refer to the Arizona Department of Water Resources).

No springs were identified that will be disturbed by Project construction. In the event a spring is discovered unexpectedly, appropriate measures will be taken to protect both the spring and underground source of waters. If impacts to the spring or underground source of waters are unavoidable, appropriate measures may be required to replace or compensate for the water source, in accordance with any property owner agreements.

B13.6 Literature Cited

U.S. Army Corps of Engineers (USACE). 2008. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region. Version 2.0.

———. 1987. Corps of Engineers Wetland Delineation Manual On-line Edition: Wetlands Research Program Technical Report Y-87-1. Vicksburg, MS: U.S. Army Corps of Engineers Waterways Experiment Station.

APPENDIX B14
SOIL MANAGEMENT PLAN

A Soil Management Plan will define procedures for managing soils that are excavated during construction, along with plans for their storage and later reuse. This plan is often an appendix to a Stormwater Pollution Prevention Plan (SWPPP). In addition to clean soil excavation, the plan will outline procedures for segregation of potentially contaminated soils, sampling and analysis of those soils, and disposal options if that becomes necessary. It also will define how topsoil will be segregated and stored, how stockpiles will be managed and protected, and used in site restoration. Use of topsoil for restoration activities will be described in Appendix B15 – Reclamation, Vegetation, and Monitoring Plan. Erosion and sediment controls for excavated soil will also be discussed.

As indicated in the Plan of Development (POD), this plan is applicable on Federal lands administered by the Bureau of Land Management (BLM) as enforceable stipulations and measures of the BLM right-of-way (ROW) grant. It pertains not only to the construction of the Project, but also to the operation and maintenance phase of the Project. Where Western Area Power Administration (Western) is involved in the Project, they may adopt this plan, where appropriate.

Content to be developed.

APPENDIX B15
RECLAMATION, VEGETATION, AND MONITORING PLAN

B15.1 Introduction

This Reclamation, Vegetation, and Monitoring Framework Plan has been developed based on the principles and procedures established by the Bureau of Land Management (BLM), and Western Area Power Administration (Western). This plan is applicable to the construction of Southline Transmission Line Project (Project) facilities, transmission structures, permanent and temporary access roads, staging areas, tension and pulling stages, and other work areas associated with the Project on lands managed by BLM. Western may use the plan on non-BLM managed lands as appropriate. Requirements for reclamation, revegetation, and monitoring on private and State lands will be negotiated between Western, Southline Transmission, LLC (Southline, or the Proponent), and the States of Arizona and New Mexico as well as affected landowners. The intent of this plan is to provide a framework for reclamation treatments to be applied to the Project on identification of construction-related disturbance, prevent unnecessary degradation of the environment during construction, rehabilitate temporary use areas, and reclaim disturbed areas such that these areas are ecologically functional and visually compatible with the surrounding environment to the greatest extent practicable.

B15.2 Regulatory Requirements and Authorities

Authority for the reclamation practices defined in this plan is provided under the following regulations, land use plans, initiatives, and general guidelines:

B15.2.1 Guide Documents

B15.2.1.1 BLM TERMS AND CONDITIONS OF RIGHT-OF-WAY GRANTS AND TEMPORARY USE PERMITS, 43 CFR 2881.2

"The authorized officer shall impose stipulations which shall include, but not be limited to requirements for reclamation, revegetation, and curtailment of erosion of the surface of the land [and] requirements designed to control or prevent damage to the environment (including damage to fish and wildlife habitat)."

B15.2.1.2 FEDERAL LAND POLICY AND MANAGEMENT ACT, SECTION 101 (A)(8)

This requires that "public lands be managed in a manner that will protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resources, and archeological values; that, where appropriate, will preserve and protect certain public lands in their natural condition."

B15.2.1.3 ENDANGERED SPECIES ACT OF 1973, AS AMENDED, SECTION 7(A)(2)

Requires that federal agencies ensure any authorized action "will not result in the adverse modification" of critical habitat.

B15.3 Purpose

The purpose of this plan is to describe and recommend construction and reclamation treatment actions that will meet BLM and other agency goals and objectives under the applicable land use plans, guidelines,

and initiatives described above for land health standards to recover habitat for sensitive plant species, and to provide protocols and/or requirements for implementing and monitoring required reclamation. Important actions in mitigating the effects associated with the Project include (1) minimizing to the greatest degree practicable, the effects associated with right-of-way (ROW) preparation and the construction of facilities, and (2) stabilizing temporarily disturbed construction areas to an acceptable condition to speed up natural recovery. The procedures outlined in this plan will assist in restoring plant communities to near-preconstruction conditions and associated wildlife habitat and range, preventing substantial increases in noxious weeds in the project area, minimizing Project-related soil erosion, and reducing visual impacts of sensitive areas caused by construction activities. To achieve these goals, this Plan outlines actions to be applied during the preconstruction and post-construction phases of the Project.

B15.3.1 Responsible Parties

Southline Transmission, LLC (Southline), will have the overall responsibility of directing and monitoring the reclamation efforts for the Project on BLM-managed lands in accordance with the stipulations in the Plan of Development (POD) and this plan. The ROW agreement holder (Western or Southline as appropriate) will have the responsibility of directing and monitoring reclamation efforts for the Project on other Federal lands or State and private lands and may use the POD as appropriate. Southline and/or its construction contractor(s) may retain the services of a subcontractor (subject to the approval of the BLM, Western, and other agencies) who specializes in reclamation to implement the protocols identified in this plan during and following construction. It is anticipated that post-construction reclamation monitoring would occur concurrent with the practices outlined in Appendix B11 – Noxious Weed Management Plan (as appropriate).

B15.4 Overview of Existing Environments

Reclamation activities shall be specific to the setting and vegetation communities of the Project area impacted during preconstruction, construction, and post-construction activities. In particular, seeding and alternative seeding actions require information to develop appropriate seed mixes that will incorporate the dominant plant species of the existing vegetation communities, where applicable. The classification of vegetation communities in the Project area was based on data obtained from Brown (1994). There are four biotic communities as described by Brown in the Project area. These include Semidesert grassland, Chihuahuan desertscrub, Arizona Upland Subdivision of Sonoran desertscrub, and the Lower Colorado River Subdivision of Sonoran desertscrub. These communities are described below.

Southline shall coordinate with the BLM resource specialists to develop site-specific restoration treatments for the specific settings and vegetation communities where disturbance occurs, select appropriate seed mixes, and delineate the geographic extent in which each seed mix will be distributed within the ROW and areas disturbed by construction.

B15.4.1 Semidesert Grassland

The Semidesert Grassland biotic community covers large areas of southeast Arizona, southwest New Mexico, West Texas, and northern parts of Sonora and Chihuahua, Mexico. This perennial, grass-shrub-dominated community is situated topographically above desert scrub communities and below evergreen woodland, chaparral, or plains grassland (Brown 1994). The upper and lower elevation limits of this community vary substantially over its distribution. The lower contact with desert scrub is generally between about 3,600 and 4,600 feet, while the upper contact with evergreen woodland or chaparral is generally between 4,920 and 5,580 feet. Average annual rainfall in this community ranges from 9.8 to 17.7 inches. This community is dominated by a variety of grasses and seasonally abundant forbs. Typical

grass species found in this biotic community in the project area may include grama species (*Bouteloua* spp.), three-awn (*Aristida* spp.), tobosa grass (*Pleuraphis* spp.), and lovegrass (*Eragrostis* spp.). Common shrub species include mesquites (*Prosopis* spp.), Mormon tea (*Ephedra* spp.), mimosas (*Mimosa* spp.), catclaw acacia (*Acacia greggii*), and ocotillo (*Fouquieria splendens*). Common leaf succulents include agaves (*Agave* spp.), yuccas (*Yucca* spp.), and sotols (*Dasylirion* spp.). This community is interspersed with Chihuahuan Desertscrub and begins just west of Las Cruces, New Mexico, and extends west until it contacts the Sonoran Desertscrub community southeast of Tucson, Arizona.

The Project will cross approximately 3.5 miles of the Madrean Evergreen Woodland Biotic Community (Brown 1994) southeast of Dragoon, Arizona. Because Semidesert Grassland is present to the east, the west, and the north where this small portion of the Project area crosses Madrean Evergreen Woodland, this biotic community was not identified as an individual Reclamation Zone (section B15.5.1 below). Instead, reclamation and reseeding methods for Madrean Evergreen Woodland will be similar to those utilized for Semidesert Grassland and will be adjusted as needed based on site-specific needs to be determined with the approval of BLM. All reclamation levels, actions, and monitoring will be the same as Semidesert Grassland

B15.4.2 Chihuahuan Desertscrub

The Chihuahuan Desertscrub biotic community covers large areas of southern New Mexico and West Texas, smaller areas of southeast Arizona, and a large part of the State of Chihuahua, Mexico. This community is centered in the highland plains and basins of northern Mexico, below the Semidesert Grassland community (Brown 1994). This biotic community is dominated by basin and range topography, and most of this community is underlain by limestone.

The lower elevation limit of Chihuahuan Desertscrub is around 1,300 feet, while its upper limit is generally between 4,600 and 5,250 feet. Average annual rainfall in this community ranges from 7.9 to 11.8 inches. Large areas of this desert are dominated by three shrubs: creosotebush (*Larrea tridentata*), tarbush (*Flourensia cernua*), and viscid acacia (*Vachellia neovernicosa*). Honey mesquite (*Prosopis glandulosa*) and saltbush (*Atriplex* spp.) are common in some areas. Common leaf succulents include agaves, yuccas, and sotols. This community is interspersed with Semidesert Grassland and extends between Las Cruces, New Mexico, and Benson, Arizona.

B15.4.3 Arizona Upland Subdivision of Sonoran Desertscrub

The Arizona Upland Subdivision covers large areas of the northern and eastern parts of the Sonoran Desertscrub biotic community in Arizona and Sonora, Mexico. This subdivision is a cactus-dominated community situated topographically above the Lower Colorado River Subdivision and below Semidesert Grassland (Brown 1994). As with other communities, the upper and lower elevation limits of this community vary substantially over its distribution. The lower edge of this subdivision is generally between about 1,000 and 2,100 feet, whereas the upper contact with Semidesert Grassland is generally between 2,950 and 3,300 feet. Average annual rainfall in this community ranges from 7.9 to 16.7 inches. This community is dominated by a high diversity of cactus, and most of the woody shrubs have thorns. Common cactus species include saguaro, chollas (*Cylindropuntia* spp.) and pricklypears (*Opuntia* spp.), barrel cactus (*Ferocactus* spp.), hedgehog cactus (*Echinocereus* spp.), and pincushion cactus (*Mammillaria* spp.). Some common small trees and shrubs include paloverde (*Parkinsonia* spp.), ironwood, velvet mesquite (*Prosopis velutina*), acacias (*Acacia* spp.), and creosotebush. In the Project area, this community is limited to the immediate vicinity of Tucson, Arizona.

B15.4.4 Lower Colorado River Subdivision of Sonoran Desertscrub

The Lower Colorado River Subdivision covers large areas of the southern and western parts of the Sonoran Desertscrub biotic community in Arizona, California, Baja California, and Sonora, Mexico. This subdivision is a shrub-dominated community situated topographically below the Arizona Upland Subdivision (Brown 1994). This community is the hottest and driest part of the Sonoran Desert, with average annual rainfall between 1.2 and 11.3 inches. Dominant shrub species include creosotebush, white bursage (*Ambrosia dumosa*), and saltbush. Other shrubs and small trees are present in xeroriparian zones along small drainages. In the Project area, this community is limited to a relatively small area northwest of Tucson, Arizona.

B15.5 Reclamation Plan Methodology

This section of the plan describes the process used to identify reclamation actions that will be required upon identification of construction-related disturbance for the Project. The following discussion focuses on two key components: (1) Identification of Reclamation Zones, and (2) Identification of Reclamation Levels that have been used to designate or prescribe the required preconstruction and post-construction actions for each Reclamation Zone. The implementation of the reclamation actions varies based on these two components, as well as the vegetation communities potentially affected.

B15.5.1 Identification of Reclamation Zones

This plan identifies four reclamation zones, which describe an appropriate range of reclamation actions that will be implemented during preconstruction, construction, and post-construction activities. These zones are based on the four biotic communities (Brown 1994) within the Project area as they relate to vegetation typically found in the communities and reclamation actions applicable to such vegetation. While species composition will vary within each reclamation zone, similar vegetation types will likely occur that will support similar reclamation actions.

- Reclamation Zone 1 occurs where the Project will cross semidesert grassland.
- Reclamation Zone 2 occurs where the Project will cross Chihuahuan desertscrub.
- Reclamation Zone 3 occurs where the Project will cross the Arizona Upland Subdivision of Sonoran desertscrub.
- Reclamation Zone 4 occurs where the Project will cross the Lower Colorado Subdivision of Sonoran desertscrub.

These reclamation zones are mapped in figures B15-1 and B15-2.

Figure B15-1. Reclamation Zones in the New Build Section.

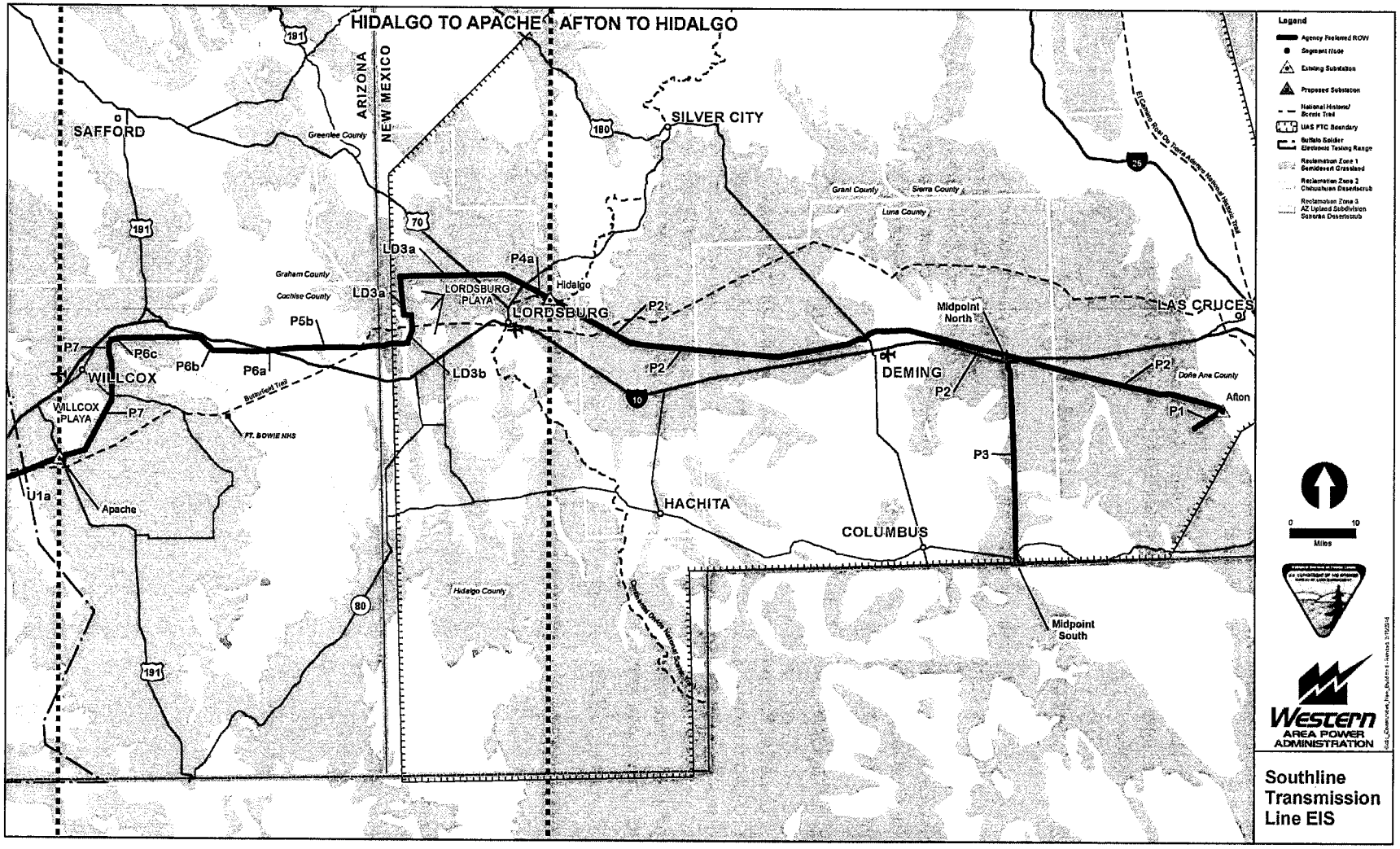
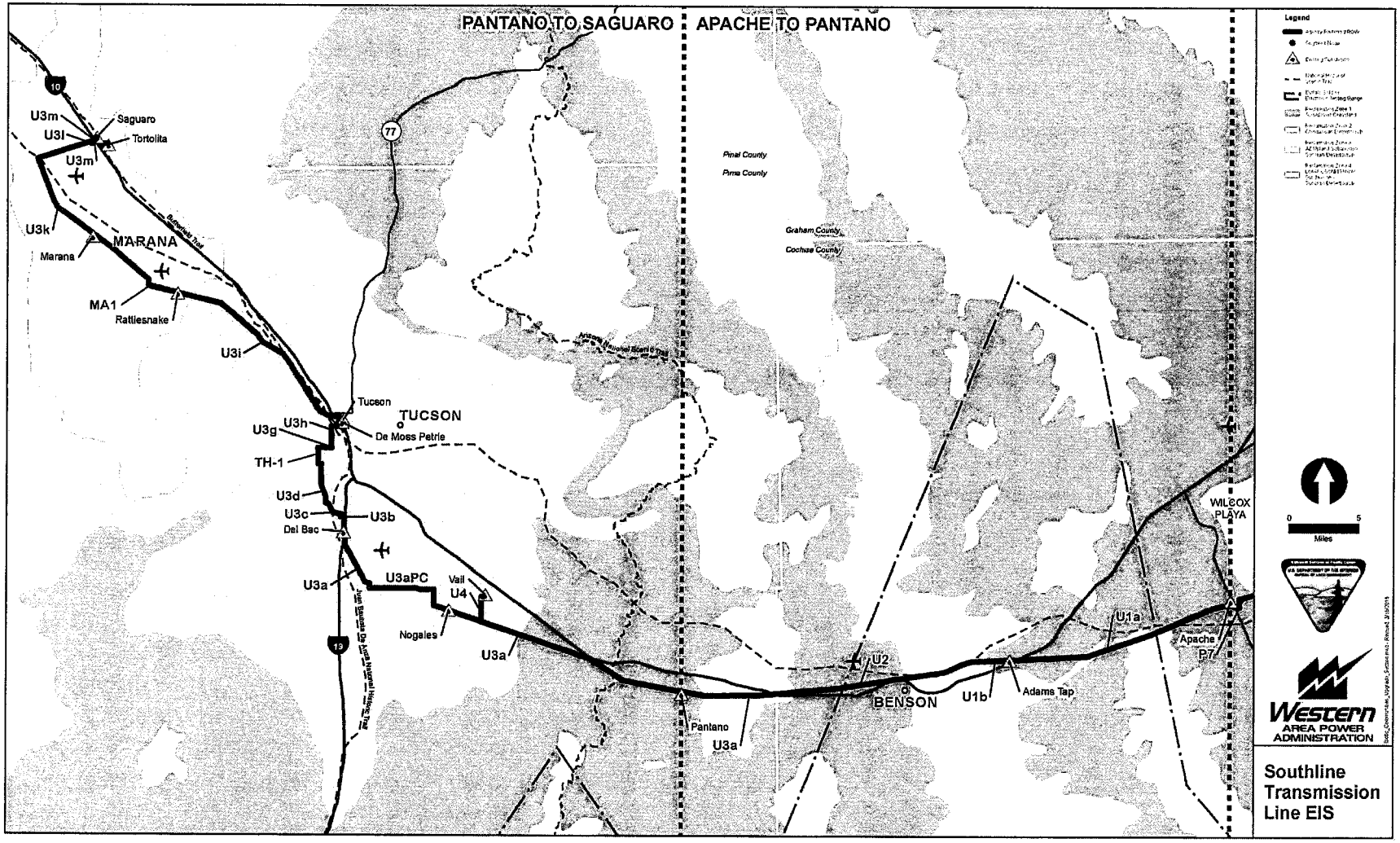


Figure B15-2. Reclamation Zones in the Upgrade Section.



B15.5.2 Identification of Reclamation Levels

Reclamation levels (RLs) that prescribe the types of required preconstruction and post-construction actions were determined based on (1) the type(s) of construction activity, facility features, and the area of associated disturbance, (2) the duration of disturbance (temporary or permanent) associated with these features, and (3) the type of disturbance associated with each activity, as described below.

B15.5.2.1 TYPES OF CONSTRUCTION ACTIVITIES AND FACILITY FEATURES

Activities associated with the construction of the major and ancillary facilities of the Project will include the following tasks:

- Surveying the transmission centerline, other Project features, and work areas;
- Staking and flagging of ROW and protected sensitive areas;
- Upgrading or constructing temporary and permanent access roads;
- Clearing and grading activities for the ROW, tower sites, staging areas, substations, regeneration sites, and batch plants;
- Excavating foundations;
- Installing foundations;
- Assembling and erecting towers with temporary and permanent pad sites;
- Stringing conductors and ground wires;
- Installing tower grounds where needed; and
- Conducting cleanup and reclamation of affected areas.

B15.5.2.2 DISTURBANCE DURATION

This plan defines two broad types of disturbance durations: temporary and permanent. Areas of temporary disturbance are those areas that would be used only during construction activities. Examples include work areas where heavy equipment is used to move and install towers, pulling and tensioning sites, overland access (and parking) across public land to reach the Project area, use of temporary access roads, and designated staging areas for equipment and materials.

Areas of permanent disturbance are those areas where use will be long term or for the life of the Project and the landscape will be altered through vegetation removal or management, site leveling, modifying natural drainages, fencing, and construction of towers, facilities, and other structures. Permanent disturbance also includes access roads constructed for regular maintenance of facilities and structures.

B15.5.2.3 DISTURBANCE TYPE

This plan defines four broad disturbance types based on activities associated with the construction of Project facilities considered in the identification of RLs and practices, as described below.

Disturbance Type 1 (D1) – No New Disturbance

These areas include existing access roads and predisturbed locations that do not require improvement (vegetation removal or grading) and that will remain permanent (in place) after Project construction is complete.

Disturbance Type 2 (D2) – Overland Drive-and-Crush

In these areas, disturbance is caused by access to a site or construction activities within a work area that does not significantly modify the landscape. Vegetation is crushed, but not cropped. Soil is compacted, but no surface soil is removed. Examples may include tensioning and pulling areas, tower pad sites, overland access to regeneration sites, spur roads to towers, and wetland areas requiring crane mats for access. Even though vegetation may be damaged and even destroyed, the surface soil and seed bank remains in place. Some crushed vegetation will likely resprout after disturbance ceases. These activities will result in minimal to moderate disturbance.

Disturbance Type 3 (D3) – Overland Clear-and-Cut

In these areas, disturbance is caused by access to the Project site or construction activities within a work area that requires the clearing of all vegetation to improve or provide suitable access for equipment and vehicles. Most woody shrub vegetation is removed and soils are compacted, but no surface soil is removed (i.e., no blading of topsoil). Examples include temporary access roads where overland access may be used in the construction of facilities, or in some areas where roads may be improved for access (selective tree and brush clearing). In general, clear-and-cut activities will result in moderate amounts of disturbance.

Disturbance Type 4 (D4) – Blading

Disturbance in these areas is caused by removing vegetation in the affected zone. The soils are compacted, and the surface soil is displaced (i.e., blading of topsoil). These activities result in heavier disturbance; examples include new access roads that require grading and filling, clearing and grading that may be associated with tower sites, and improvements to existing access.

B15.5.2.4 RECLAMATION LEVELS

Five levels of reclamation (RL1 to RL5) have been identified based on the potential type of disturbance and the duration of disturbance associated with the construction of the Project. These RLs are identified in table B15-1 and briefly described below.

Table B15-1. Reclamation Levels

	Disturbance Duration	
Disturbance Level	**Permanent**	**Temporary**
D1 – No New Disturbance	RL1	–
D2 – Overland: Drive and Crush	RL1	RL2
D3 – Overland: Clear and Cut	RL4	RL3
D4 – Blading	RL4	RL5

Reclamation Level 1 (RL 1) – Minimal Level of Disturbance, Minimal Actions (Permanent)

Construction in these areas does not result in new disturbance, requires minimal preconstruction treatment, and will normally require no post-construction actions (outside of routine maintenance). Pretreatment of existing weeds is one action that will be required in selected areas to protect from the infestation and spreading of noxious weeds.

Reclamation Level 2 (RL2) – Low Level of Disturbance, Few Actions (Temporary)

Construction and activities in these areas are temporary and will result in disturbance that is confined to overland construction, including vegetation crushing requiring limited reclamation actions. Reclamation actions will focus on noxious weed control, decompaction, and seeding of affected soils.

Reclamation Level 3 (RL3) – Moderate Level of Disturbance, Several Actions (Temporary)

Construction and activities in these areas will result in moderate temporary disturbance, limited to clearing and cutting of vegetation and several reclamation actions. In addition to the actions described under RL2, cleared vegetation will be used as vertical mulch; supplemental mulch such as straw may be used to protect cleared areas. Areas of reclamation will be flagged or signage provided for protection in areas as appropriate.

Reclamation Level 4 (RL4) – Moderate/High Level of Disturbance, Few Actions (Permanent)

Construction of Project facilities in these areas results in a high level of disturbance (e.g., clearing, cutting, and soil removal); however, few reclamation actions will be required because these areas are permanent. This applies most specifically to new access roads that will serve for long-term maintenance and operation of the transmission line. In these locations, seeding and alternative seeding will be applied where appropriate, and replacing of soils and vertical mulch will be limited.

Reclamation Level 5 (RL5) – High Level of Disturbance, Maximum Actions (Temporary)

These are the construction areas that will result in a high level of disturbance due to vegetation and soil removal, but are planned for long-term reclamation. In these areas actions pertaining to soil salvage and seeding will be necessary to reclaim the disturbed seedbank.

Table B15-2 identifies the various RLs to be specifically applied for each of the construction components and associated disturbance levels/durations. In general, the order of preference for disturbance levels, from greatest to least, is overland drive-and-crush, clear-and-cut, and blading.

Table B15-2. Construction Component – Reclamation Levels

Construction Component	Disturbance Level	Disturbance Duration		Reclamation Level
		Permanent	Temporary	
Structure work areas	D2 – Overland: Drive and Crush		X	RL2
	D3 – Overland: Clear and Cut		X	RL3
	D4 – Blading		X	RL5
Wire-pulling and tensioning sites, wire-splicing sites, wash stations, multi-use construction yards, staging areas, guard structures, and other ancillary facilities that result in temporary disturbance.	D2 – Overland: Drive and Crush		X	RL2
	D3 – Overland: Clear and Cut		X	RL3
	D4 – Blading		X	RL5
Helicopter landing/laydown areas, helicopter refueling sites	D2 – Overland: Drive and Crush		X	RL2
	D3 – Overland: Clear and Cut		X	RL3

Table B15-2. Construction Component – Reclamation Levels (Continued)

Construction Component	Disturbance Level	Disturbance Duration		Reclamation Level
		Permanent	Temporary	
Regeneration sites and other ancillary facilities that result in permanent (long-term) disturbance	D2 – Overland: Drive and Crush	X		RL1
	D3 – Overland: Clear and Cut	X		RL4
	D4 – Blading	X		RL4
Substation construction areas	D2 – Overland: Drive and Crush		X	RL2
	D3 – Overland: Clear and Cut		X	RL3
	D4 – Blading	X	X	RL4/RL5
Existing paved roads, access roads (no improvement)	D1 – No New Disturbance	X		RL1
Existing access road (with improvements)	D4 – Blading	X		RL4
New access road	D2 – Overland: Drive and Crush	X	X	RL1/RL2
New access road	D3 – Overland: Clear and Cut	X	X	RL3/RL4
New access road	D4 – Blading	X	X	RL4/RL5

B15.6 Reclamation Plan

The actions required specifically for each level of reclamation (RL1 to RL5) with respect to the four reclamation zones discussed above are presented in this section of the plan (table B15-3). As described below, preconstruction actions are those that occur before construction of the Project is initiated to preserve resources or features of interest, and include activities associated with ROW preparation for reclamation and preconstruction activities. Post-construction actions focus on activities that will occur after Project construction has terminated and generally include reclamation, maintenance, and monitoring activities. The parties responsible for both pre- and post-construction activities are as outlined in Section B15.3.1 Responsible Parties.

If these reclamation practices cannot be implemented immediately following construction, the appropriate interim erosion control measures discussed in the Stormwater Pollution Prevention Plan (SWPPP) (to be developed before construction begins; see Appendix B3 – Stormwater Pollution Prevention Plan) will be installed until revegetation and final stabilization can occur.

B15.6.1 Right-of-Way Preparation and Preconstruction Actions

ROW preparation includes general site preparation involving flagging of the ROW boundaries and construction areas (see appendix A1). It also includes identification of plants to preserve in place, weed-infested areas, and storage areas for windrowed plant and soil materials. Monitoring sites will also be established during preconstruction activities. Preconstruction actions focus on protection of sensitive areas and resources identified for preservation. Disturbance related to Project construction may begin after all ROW preparation and preconstruction actions have been completed for that segment.

B15.6.1.1 WEED PLAN IMPLEMENTATION

Refer to Appendix B11 – Noxious Weed Management Plan for specific mitigation measures to implement where noxious weeds have been identified, as well as preventive measures to be implemented to prevent the spread of noxious weeds during construction and minimize impacts on sensitive plants. When control measures have been implemented for the preconstruction phase, subsequent actions for ROW preparation may proceed.

Table B15-3. Reclamation Action Identification Table

Reclamation Level	Zone 1					Zone 2					Zone 3					Zone 4				
	RL1	RL2	RL3	RL4	RL5	RL1	RL2	RL3	RL4	RL5	RL1	RL2	RL3	RL4	RL5	RL1	RL2	RL3	RL4	RL5
Preconstruction Actions																				
Weed plan implementation	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Selective clearing/ feathering								X	X	X			X	X	X		X	X	X	X
Topsoil segregation					X					X					X					X
Windrow vertical mulch			X	X	X			X	X	X			X					X	X	X
Postconstruction Actions																				
Earthworks		X	X	X	X		X	X	X	X		X	X	X	X		X	X	X	X
Topsoil replacement					X					X					X					X
Seeding		X	X	X	X		X	X	X	X		X	X	X	X		X	X	X	X
Alternative seeding		X	X	X	X		X	X	X	X		X	X	X			X	X	X	X
Supplemental planting			X		X			X												
Vertical mulch replacement			X		X			X		X								X		X
Permeon™ (or approved equal)			X	X	X			X	X	X			X	X	X			X	X	X
Supplemental mulch			X		X			X		X			X		X			X		X
Off-highway-vehicle deterrent		X	X		X		X	X		X		X	X		X		X	X		X
Signage		X	X		X		X	X		X		X	X		X		X	X		X
Monitoring		X	X	X	X		X	X	X	X		X	X	X	X		X	X	X	X

B15.6.1.2 MONITORING TRANSECT SELECTION

Preliminary site monitoring locations will be established along the ROW in random locations but within each of the reclamation zones and vegetation communities traversed by the Project, as well as each disturbance area affecting sensitive plants. The number of sites on federally managed lands will be based on criteria needs and approved by the BLM. An average of five paired (treatment and control) monitoring sites per reclamation zone is recommended, based on the type of vegetation community and the size of its affected area.

Larger areas affected (relative to other vegetative communities) may require more than the recommended average of five paired monitoring sites, whereas smaller areas may require less. Once monitoring site locations are finalized, baseline photographs will be taken prior to any construction-related disturbance.

B15.6.1.3 SELECTIVE CLEARING/FEATHERING (WIRE ZONE-BORDER ZONE TECHNIQUE)

Vegetation clearing will be minimized to the extent practicable and selective clearing and feathering is the normal practice for mitigating impacts in areas where trees or brush of high densities have been cleared due to Project activities. If necessary and where practicable, selective clearing and feathering can be implemented inside the ROW to meet safety standards for conductor clearance for the Project. A representative of Southline's environmental compliance group (specifically vegetation management) will participate in the identification of trees or brush to be selectively cleared. Guiding principles used in the clearing of vegetation during construction are described below.

The construction contractor(s) will prune trees in preference to cutting trees, and will cut trees in preference to bulldozing them, in coordination with the compliance inspection contractor (CIC). Cut material may be placed in slash piles and/or used as vertical mulch as approved by the BLM. Pruning will comply with Western's Integrated Vegetation Management Guidance Manual (Western 2011). Pruning will be accomplished by use of pruning saws, power saws, nippers, bow saws, or cross-cuts.

Where necessary, tree removal will be accomplished by cutting as near to the surrounding grade wherever possible. Though not anticipated for this Project, if tree removal is necessary through dense stands, feathering of the edge may occur in selective areas to visually soften the edge between the cleared and remaining trees as approved by the BLM.

Where the ROW crosses sensitive roads and trails, such as National Trails, selective clearing shall allow natural vegetation to be left in the ROW on each side (as possible). Also, cutting or pruning of trees will occur so the fresh cut is oriented away from these areas where possible.

B15.6.1.4 TOPSOIL SEGREGATION

This activity includes the separation of topsoil from subsoils (if subsoils are disturbed), which contain organic material, including the seeds of plants growing on the site, to be set aside for post-construction replacement. The construction contractor(s) will conduct topsoil salvage and include all rocks and vegetation as vertical mulch. The depth of topsoil separation will be dependent on the soil type within which the reclamation activity will occur and will be identified by the construction contractor(s) and approved by the BLM Authorized Officer or his/her designated representative. This topsoil will be labeled as such and protected from erosion and inadvertent use as fill. Topsoil shall not be mixed with subsoil. When stockpiled, topsoil shall be tackified with water to a 2-inch wetting depth to minimize erosion. Overall handling should be kept to a minimum. Separation between salvaged topsoil and subsoils will always be maintained. Topsoil taken from areas of sensitive plant populations shall be stockpiled

separately from other topsoil and replaced in the same location from which it was taken as soon as practical.

B15.6.1.5 WINDROW VERTICAL MULCH

Materials, including dead plants, cut plants, and rocks, will be temporarily set aside during ROW preparation so they may be shredded or otherwise placed on the soil surface (post-construction) to increase fertility, provide microclimates for seeds to germinate, and stabilize soil. Large rocks and boulders shall also be removed to the side. Large rocks can be removed and stockpiled outside the disturbance areas (within the ROW). Vertical mulch temporary storage areas will be located within the ROW. At Project locations where there are sensitive viewers within line-of-sight to the ROW, temporally stored windrowed mulch should be located in a less visible area, where possible.

B15.6.2 Post-construction Actions

Post-construction actions occur after Project construction has terminated and primarily focus on stabilizing permanent use areas and restoring temporary areas to allow reoccupation of vegetation. Reclamation actions that may be used are defined below and are organized by their sequence of implementation. Southline and their construction contractor(s) shall describe and document the site-specific techniques as applicable for the reclamation actions identified below in a Project-specific post-construction treatment plan that will be reviewed and approved by the BLM or other agency representative before post-construction actions commence.

B15.6.2.1 EARTHWORKS

These activities may include (1) recontouring (2) soil decompaction, and (3) applying appropriate soil erosion measures in conformance with the SWPPP. Earthmoving equipment places the removed material as close to the preconstruction contour as practical to reclaim the visual quality and provide stability to the slope. Soil decompaction, if required, may include ripping or scarifying to allow permeation of water into the ground. Erosion control measures such as water bars may be installed as recommended by the construction contractor(s) or CIC and used in conformance with the SWPPP.

Recontouring includes burying subsurface soils (backfilling holes) excavated during construction activities so the natural terrain contours are maintained to the extent practicable and do not inhibit access for maintenance activities. Excess subsoil from excavated or graded areas (around transmission structure bases) will be evenly spread over disturbed areas and moistened and compacted to a relative average density comparable to undisturbed adjacent material before respreading topsoil. Subsoils will not be spread outside of these flagged construction areas and will be restricted to areas of permanent disturbance (i.e., access roads) unless approved by BLM or the appropriate private landowner.

Where any compaction or detrimental puddling exists, and based on the vegetation present in the area, the surface will be ripped or scarified to a depth of 6 inches as appropriate (e.g., not applicable to rock faces, severe slopes, or cliff areas), and will retain a 12-inch buffer from existing vegetation or plants designated as preserve in place. Depth and area of compaction and/or puddling relief will depend on site-specific conditions. Decompaction or ripping will be conducted as necessary. Cross-ripping is preferable and care should be taken to prevent inverting the soil layers and preserving any vegetation in place. Deep sandy soils do not need to be decompacted and will not be ripped.

Installation of erosion control measures will be coordinated with the construction contractor(s) in coordination with the CIC and adapted to site-specific conditions.

B15.6.2.2 TOPSOIL REPLACEMENT

Topsoil will be replaced without mixing with subsoil. The purpose of this practice is to prevent mixing fertile, shallow soils with deeper soils that may be less productive because of rock, gravel, sand, calcareous layers, salinity, or other chemical characteristics that would adversely affect desired vegetation. Salvaged topsoil shall be dispersed evenly across the disturbed site. Additional erosion control and soil stabilization may be required to minimize soil movement, especially for heavily sloped areas or for fine-textured soils, as determined by the CIC, in conformance with the SWPPP. Handling of surface soil will be minimized during windy conditions. Soil will be wet to a depth of 2 inches to prevent wind erosion. The site will be left adequately rough after surface soil placement to provide micro-sites for seed germination and to prevent significant movement of soil by seasonal weather events (wind or rain).

B15.6.2.3 SEEDING

Reseeding involves planting new seed of indigenous native species to establish desired vegetation within affected vegetation communities. Seeding should only be applied on areas of the Project that receive at least 7 inches of rainfall per year, alternatives for areas with less than 7 inches rainfall per year are described below in sections B15.6.2.6 and B15.6.2.7. Seeding shall be accomplished in a two-stage process. The first process is the tillage of the soil and applying soil amendments. The second process is the application of seed.

For the first phase, prior to seed application, the area to be seeded shall be tilled (ripping, discing, etc.) to a minimum depth of 8-inches. On sloped areas, tillage shall follow the contour lines so that rows are perpendicular to the slope creating minor ridges to facilitate rain water collection and to reduce erosion. If the slopes are too steep to be tilled by larger equipment, other methods of achieving tillage may be utilized upon approval by the BLM Authorized Officer or his/her designated representative. Soil of the area to be seeded shall be amended with proper fertilizers, compost, and other necessary soil amendment materials to create a viable and healthy seedbed. Fertilizer shall include chemicals such as one part sulfur-coated urea, one part monammonium phosphate, methylene urea, etc. The preferred fertilizer mixture is a 24-18-12 chemical blended fertilizer. Other mixtures may be approved by the BLM Authorized Officer or his/her designated representative. Application rate of the fertilizer shall be approximately 200 pounds per acre. Compost shall be comprised of composted organic vegetative materials. Compost shall be dark in color with an even mixture of fine, medium, and large particles and be a nutrient rich mixture. The contractor shall provide test results of compost to the BLM Authorized Officer or his/her designated representative prior to application.

For the second phase, examples of seed mixtures are given in attachment B15-1, and a BLM specialist (e.g., botanist, range management specialist, or soil scientist designated by the BLM Authorized Officer) will provide the final list of approved type and quantity of seed mixtures, seeding method, and seeding locations. In this regard, mixtures that discourage the establishment of invasive and noxious weeds will be considered as described under Alternative Seeding below. Seed mixtures will be based on vegetation communities described in this plan and should be developed close to the time of reclamation to ensure seed availability. Seeding shall be repeated if a satisfactory stand is not established as determined by the authorizing agency officer upon evaluation after the second growing season. Seeding will be determined satisfactory if the seeded areas have germinated and are demonstrating that they will, over time, achieve a diversity and distribution similar to preconstruction conditions. If after a second growing season the authorizing agency officer identifies problem areas (i.e. low seed germination, presence of noxious weed species) the area will be treated and reseeded. Treatment may include additional seedbed preparation, soil amendments, noxious weed treatment, and/or another appropriate seeding mix.

B15.6.2.4 ALTERNATIVE SEEDING

Alternative seeding is employed to establish ground cover in disturbed or weed infested areas by seeding of annual grasses and/or forbs. Annuals provide short-term soil cover, stabilization, and a source of organic litter until other vegetation can become established. Similar to regular seeding, alternative seeding mix compositions and seeding methods will be determined prior to construction through coordination with a BLM botanist, range management specialist, seed core officer, or soil scientist (as determined by the BLM Authorized Officer).

B15.6.2.5 SUPPLEMENTAL PLANTING

Supplemental planting will be employed for plant species used by the lesser long-nosed bat (*Leponycteris curasoae yerbabuenae*) and Mexican long-nosed bat (*Leptonycteris nivalis*). Agave and saguaro salvage will be augmented, as necessary within 3 years after completion of initial restoration activities. Augmentation will occur within the ROW in areas of higher value to bats (e.g., in the vicinity of active roosts, within areas of high concentration of agaves) to achieve a goal of no net loss of forage plants. Plant stocks from local sources or approved nursery-grown plants will be used. Plants salvaged from areas of permanent disturbance will be used to reclaim areas of temporary disturbance, or replanted outside disturbed areas if necessary.

B15.6.2.6 VERTICAL MULCH/SLASH

Vertical mulch/slash is brush and limbs less than 6 inches in diameter removed during tree/shrub removal operations. Vertical mulch/slash is not entirely in contact with the soil surface, rather, parts of the mulch rise above the surface. Removed and stored trees and shrubs are the sources of vertical mulch/slash. For cleared areas, vegetation windrowed to the outside of the disturbance boundary will be replaced back onto the site.

B15.6.2.7 SUPPLEMENTAL MULCH

Mulch usually consists of shredded plant material or straw, but also includes wood fiber, paper mulch, or biodegradable erosion mats. Straw mulch may be used as an alternative to vertical mulch when vertical mulch is not available or will not provide adequate coverage in areas that will not be seeded. Hydroseeding, wood fiber, tackifiers, or erosion blankets may be a less expensive alternative to straw mulch in areas that require seeding, as well. The quantity of mulch to be used shall be recommended by the construction contractor(s) and approved by BLM based on site conditions and will be installed according to the manufacturer's specifications. Straw mulch and other alternative mulches shall be weed-free as specified in the Noxious Weed Management Plan.

B15.6.2.8 OFF-HIGHWAY VEHICLE DETERRENTS

Operation of off-road vehicles can cause mechanical damage to stabilization structures and soils and mortality to plants. Access by such vehicles will be limited in areas of reclamation. Measures to control off-road vehicles and other unauthorized vehicle use of the ROW will be determined in consultation with the BLM and relevant landowner, if not BLM, at the appropriate time. Specific areas of potential access to the ROW by off-road vehicles will be identified, and measures to minimize or eliminate access will be developed, as appropriate. These measures may include the installation of signs, fences with latching/locking gates, selectively placed boulders, and/or vertical mulch of heavy woody material. Development of off-road-vehicle deterrents will be determined on a case-by-case basis based on BLM or other agency requirements and the construction contractor(s).

B15.6.2.9 SIGNAGE

Reclamation areas will require informational signs pertaining to reclamation efforts to prevent further disturbance by humans within these recovering areas (see Appendix A1 – Flagging, Fencing, and Signage Plan). All reclamation areas will have signs installed at locations where the ROW intersects permanent access roads to deter vehicular damage to the site.

The construction contractor(s) will provide the reclamation signs and T-posts. Sign locations will be provided by the construction contractor(s) to the BLM following completion of post-construction reclamation procedures and prior to the initiation of reclamation monitoring.

B15.6.2.10 RECLAMATION MONITORING

Monitoring will be conducted prior to construction and continue through post-construction phases of the Project.

B15.6.3 Modifications and Field Changes

The reclamation actions described in this Plan shall be implemented in coordination with Southline, their construction contractor(s), or assigned subcontractor and will be coordinated with the CIC. Adjustments to RLs or actions by the construction contractor(s) may be necessary if Project conditions change (e.g., disturbance levels change at a specific structure work site, access road disturbance type changes based on Project needs, etc.). However, any changes to these levels of reclamation and the associated actions will be reviewed and approved by the CIC. This plan is intended to provide flexibility with respect to construction and unknown constraints that may be encountered in the field. Changes to the original disturbance level or duration, previously described, will be documented by the construction contractor(s), and the reclamation level will be reassessed to ensure that appropriate reclamation actions will be implemented.

Additional linear facilities exist in the same area to be occupied by the Project. Where feasible, consolidation of access (i.e., using existing access from other facilities or retaining Project construction access for additional future facilities use, thereby reducing overall new road construction) may result in an overall reduction in access-related concerns and/or impacts to the environmental resources within and near the ROW.

B15.7 Reclamation Success Standards, Monitoring, and Maintenance

This plan requires post-construction reclamation monitoring to evaluate reclamation success of reclaimed areas associated with the construction of Project facilities, identify the need for adaptive management measures, and make a final determination regarding reclamation success to release Southline (and the construction contractor[s] by contractual obligation) from further monitoring and reclamation actions.

Reclamation success standards will be used by BLM/Western to determine whether the implemented reclamation actions have adequately achieved the goals and objectives outlined in the Reclamation Plan, with consideration for the local site conditions. The monitoring practices include standard techniques for monitoring sites, data collection, and quantitative (numerical) and qualitative (descriptive) measures to be used in monitoring reclamation success. Specific monitoring requirements, including the site-specific data analysis protocol, will be developed by the reclamation contractor in cooperation with BLM/Western prior to the start of preconstruction activities. This will allow the BLM to make more accurate

conclusions pertaining to reclamation success based on site-specific conditions, such as biotic community and climatic conditions, once construction has been completed.

The CIC will prepare and submit to Southline, the BLM/Western, and the construction contractor(s) a Reclamation Monitoring Report on an annual basis for up to 5 years following completion of construction. The purpose of the Reclamation Monitoring Report is to (1) present reclamation goals and success standards, (2) describe the monitoring practices to be implemented, and (3) discuss adaptive management and site release from monitoring. The foundation of the Reclamation Monitoring Report will describe, in detail, the monitoring practices used in developing the Reclamation Monitoring Report, and will, at a minimum, include:

- a description of the monitoring practices implemented,
- a presentation of the annual reclamation goals and successes, and
- a discussion of the adaptive management and proposed site release(s) from monitoring.

Adaptive management may be necessary to determine appropriate remedial actions, based on monitoring observations, for sites that have not demonstrated a trend toward reclamation success. If required, implementation of remedial actions will be determined by the BLM based on the monitoring data and annual report. After 5 years of post-construction monitoring, a final report will be submitted to the BLM and cooperating agencies summarizing monitoring data, observations, and the overall trend toward reclamation for each vegetation community. Areas with sensitive plant occurrences affected by Project activities will be monitored to determine whether the sensitive plants are recolonizing the site, whether soils are stable or erosion is occurring, and whether noxious weeds are present. If necessary, a post-construction site-specific treatment plan to encourage establishment of the sensitive plants and other desired vegetation, stabilize soils, and address noxious weeds in these areas will be provided by the construction contractor(s) or Reclamation Contractor for review and approval by the BLM. Southline will be released from further reclamation and monitoring after the report and annual monitoring data are submitted to the BLM documenting that reclamation success criteria have been met. However, reclamation in soils with low moisture may take longer than 5 years to reestablish satisfactory vegetative cover, and Southline would maintain responsibility for post-construction monitoring for these areas.

B15.7.1 Reclamation Goals and Success Standards

As stated above, the intent of this plan is to provide a framework for reclamation treatments to be applied to the Project upon identification of construction related disturbance, prevent unnecessary degradation of the environment during construction, rehabilitate temporary use areas, and reclaim disturbed areas such that these areas are functionally and visually compatible. Reclamation success, as presented in this plan, is defined by the progression of vegetation and soils toward reconstruction disturbance conditions.

Southline will be responsible for monitoring reclamation efforts for the Project (see section B15.3.1). Reclamation success will be evaluated by the BLM by comparing Project-affected treatment sites with control site conditions in terms of desirable species density and cover. Reclamation of treatment sites will be considered successful if each site is within a specified percentage of the mean native species density and cover of the control site and the specified percentage of sensitive plants, as determined by the authorizing agency officer, are reestablished within each area of disturbance affecting sensitive plants.

Control sites will be representative areas that exhibit the same target plant community located adjacent to, or near, the Project-affected treatment sites. The establishment of control sites within undisturbed communities will allow the monitor to compare the reclamation progress of the treatment site against the control site.

The specifications in this Plan detail reclamation zones and RLs that provide guidance for specific reclamation actions. This plan presents four reclamation zones, which have been identified based on vegetation characteristics aggregated by biomes. Particularly sensitive environmental features (e.g., sensitive plant areas, critical winter range habitat, noxious weeds, etc.) throughout the Project may require additional reclamation actions to mitigate disturbance issues associated with the Project and maximize the prospect for reclamation success.

Reclamation success is highly dependent on vegetation community type, environmental conditions (e.g., annual precipitation), avoidance of future disturbance, proper implementation of reclamation actions, and to a certain extent, reclamation zone. Recommended success standards will be monitored within each of the previously described reclamation zones specific to the setting of the Project, including topography and the vegetation communities as identified, and sensitive plant disturbance areas. If the final monitoring report concludes (with agency concurrence) that (1) typical environmental conditions, (2) proper implementation of reclamation actions, and (3) lack of disturbance or appropriate mitigation of disturbance effects is evident, reclamation success will be based on desirable vegetation cover and density for each community type and the number of sensitive plants that occupy each area of disturbance affecting sensitive plants. If these conditions are not evident by the final monitoring report (with agency concurrence), adaptive management and/or remedial actions may be required by the BLM. Percent cover (amount of vegetation canopy per unit) and density (number of plant species per unit) will be based on the quantitative data collected from the control plot for each monitoring site and approved by BLM/Western.

B15.7.2 Monitoring Practices (Methodology)

All monitoring sites will be delineated during preconstruction activities and will include the collection of baseline data for subsequent post-construction monitoring. Post-construction annual monitoring and collection of data will be conducted during the flowering season (typically April to August for all Reclamation Zones) after construction and reclamation actions are completed. An annual summary of monitoring information will be provided to BLM/Western for review and discussion of reclamation conditions. As currently anticipated, construction activities will result in varying disturbance levels that will require two types of monitoring:

1. **General route monitoring**. General field reconnaissance (windshield survey) and reporting of conditions in treated areas along the entire length of the transmission line ROW.
2. **Site monitoring.** Detailed field reconnaissance and reporting at designated reclamation monitoring sites and control areas along the transmission line ROW.

A description of the activities associated with these two monitoring methods (practices), and how these practices will be assigned to areas affected by construction of the transmission line and associated facilities, is presented below.

Southline and its construction contractor(s) responsible for performing reclamation monitoring will consult with BLM/Western to adapt these protocols, as needed, to meet localized conditions and concerns.

B15.7.2.1 ROUTE MONITORING

A general field review of the entire transmission line route, where accessible by vehicle, will be conducted in conjunction with annual site monitoring. The intent of this review is to document overall recovery conditions associated with the construction of the transmission line. Conditions to be observed may include areas of dead plants, establishment of noxious weed populations within the ROW or along access roads used for the Project, and/or significantly eroded soils. In lieu of establishing transects,

documentation may include establishing single photo points at agreed on locations with BLM/Western, estimating area or plant populations affected, and/or recording the apparent cause or remediation efforts required. Site locations may be documented by the transmission line tower number or global positioning system coordinates. Adaptive management actions may be implemented based on findings from the route monitoring as recommended by BLM/Western. Each annual visit will be used to assess designated route monitoring locations and document new locations where appropriate. Areas that will be considered through route monitoring are illustrated in table B15-4.

Table B15-4. Reclamation Monitoring Requirements

Construction Component (activity areas)	Disturbance Level	Disturbance Duration		Reclamation Level	Monitoring
		Permanent	Temporary		
Structure work area	D2 D3 D4		X X X	RL2 RL3 RL5	Route Route Route/Site
Wire-pulling and tensioning sites, wire-splicing sites, construction yards, and guard structures	D2 D3 D4		X X X	RL2 RL3 RL5	Route/Site Route/Site Route/Site
Helicopter landing/laydown areas, helicopter refueling sites	D2 D3		X X	RL2 RL3	Site Site
Structure base regeneration sites	D4	X		RL4	None
Substation construction Areas (outside the disturbed area of footprint)	D2 D3 D4	 X	X X X	RL2 RL3 RL4/RL5	Site Site Site
Existing paved roads, access roads (no improvement)	D1	X		RL1	None
Existing access roads (with improvements)	D4	X		RL4	None
New access roads overland access – drive and crush	D2		X	RL1/RL2	Route
New access road overland access – clear and cut	D3		X	RL3/RL4	Route
New access roads	D4	X	X	RL4/RL5	None/Route, Site

B15.7.2.2 SITE MONITORING

Preliminary site monitoring locations will be established along the ROW and temporary disturbance areas based on Project engineering data and preconstruction surveys, in accordance with the processes identified below. Sites will be selected for each of the reclamation zones and vegetation communities traversed by the Project illustrated in figures B15-1 and B15-2.

- Site selection will be prioritized to include sensitive plant areas and locations with high visual resource values.
- At least one pair of monitoring sites shall be located within each area of disturbance affecting sensitive plants.

- Where possible, site monitoring locations will meet more than one of these selection criteria, and the number of sites will be determined by BLM/Western.
- An average of five paired (treatment and control) monitoring sites per vegetation community is recommended based on the type of vegetation community and the size of its affected area, as well as one pair for each area of disturbance affecting sensitive plants.
- Vegetation communities with larger areas affected (relative to other vegetation communities in the Project area) may require more than the recommended average of five paired monitoring sites, whereas vegetation communities with smaller areas affected (relative to other vegetation communities in the Project area) may require less.

The level of temporary disturbance will be considered for monitoring site selection; sites will not include areas of permanent disturbance (e.g. access roads). Final determination of monitoring sites will be approved by BLM/Western prior to construction. Cooperation with the construction contractor(s) may be necessary immediately prior to construction if changes to construction work area(s) affect the location of the preliminary monitoring site. Once monitoring site locations are finalized, photographs will be taken (1) prior to any construction-related disturbance; (2) when initial reclamation efforts have been completed; and (3) during each yearly monitoring visit. For each monitoring site, paired vegetation transects will be installed and documented as treatment or control for quantitative monitoring. In general, the treatment transect will be placed within an affected area (normally within the immediate ROW), and the control transect will be placed immediately adjacent to the ROW, on undisturbed ground. Transect size and quantity will be determined based on the final footprint of disturbed areas, in cooperation with BLM/Western. Transect pairs should be sized and oriented in a similar manner, for consistency, if terrain or construction conditions require deviation. In addition, the location of transect sites should avoid areas susceptible to future human disturbance (off-highway vehicle, transmission line maintenance, planned future utilities), where possible, to preserve the integrity of each transect for the duration of the monitoring period.

Plots will be examined annually, and a variety of vegetation data will be collected including quantitative and descriptive information. Reclamation monitoring sites will also assess noxious and invasive weed establishment that may require remedial actions such as removal or treatment. However, it should be noted monitoring for known noxious weed locations may occur independently of reclamation monitoring, as outlined in Appendix B11 – Noxious Weed Management Plan. Reclamation monitoring will also include the consideration of erosion control as a key indicator to measure the trend toward reclamation success (where applicable), and remedial actions may be taken in conjunction with monitoring efforts to control erosion, as recommended by BLM/Western. These remedial actions will also follow requirements as stipulated in Appendix B8 – Erosion, Dust Control, and Air Quality Plan.

B15.7.2.3 MONITORING REQUIREMENTS

To address the various construction activities (components) associated with the transmission line, the disturbance types, and duration of disturbance associated with these construction activities, reclamation monitoring will occur according to the RLs (RLI to RL 5) and their associated construction components as described in B15.5.2.4 – Reclamation Levels. Categories RLI and RL4 (e.g., at structure bases, existing and long-term access) are permanent disturbance areas that will not require reclamation monitoring. However, all reclamation level areas will follow measures for noxious weed monitoring as specified in Appendix B11 – Noxious Weed Management Plan. RL2, RL3, and RL5 are temporary disturbance areas that will require reclamation actions and post-construction monitoring in selected locations to evaluate reclamation success. The highest disturbance level for construction activities is associated with RL5 areas, which occur in temporary structure work areas and are associated with new access roads (see table B15-4).

The specific location of monitoring sites associated with these different activities in key areas (e.g., critical habitat, sensitive plant areas, visually sensitive areas, and areas of sensitive soils) will be identified, reviewed, and approved by BLM/Western prior to initiation of preconstruction activities. Once monitoring sites have been approved, the construction contractor(s) will establish the sites in the field and baseline data (e.g., photographs, biometrics, and soil conditions) will be collected for subsequent monitoring up to 5 years following post-construction activities. For disturbed areas affecting sensitive plants, at minimum, photos from permanent photo plots, individual counts of sensitive plants within the affected areas, and noxious weed presence and treatment data will be collected and reported annually in the Reclamation Monitoring Report with an evaluation of whether recolonization is occurring.

B15.7.3 Data Collection

Reclamation monitoring will include both quantitative and qualitative data collection at the designated monitoring sites approved by BLM/Western. Quantitative monitoring will document the trend and degree of change at each site, and qualitative monitoring will detect the initiation of change and changes resulting from environmental conditions, such as precipitation, allowing for a record of change over time.

Reclamation monitoring for the Project will use vegetation as the main indicator of recovery, but observations on soil conditions will also be collected and considered when assessing progress toward functionality. Measurements and descriptions will be accompanied by photographs that will be used to help document the status of recovery at all monitoring sites. Sampling points will be located and mapped according to global positioning system coordinates. Photographic reference points will be the primary method of qualitative monitoring for the Project. A protocol for taking photographs and a standardized data recording form will be developed to ensure consistency of monitoring. Qualitative and quantitative information that will be gathered during general route monitoring and site monitoring is described in detail below.

B15.7.3.1 QUALITATIVE (DESCRIPTIVE) INFORMATION

Qualitative data collection will occur annually for both route and site monitoring. The goal of qualitative monitoring is to document site conditions and assess the need for remedial actions to ensure that sites are progressing toward the success standard established by BLM/Western. The Project area typically has unpredictable weather patterns that may affect reclamation success within the allotted 5-year post-construction monitoring time frame. Qualitative evaluations conducted at designated monitoring sites during monitoring will serve as representative indicators for similarly disturbed areas in the same vegetation community. These site evaluations will then serve as a baseline when conducting general overall route surveys for the remainder of the treated areas within that vegetation community.
Any outstanding or non-Project-related disturbances that could affect reclamation will also be described during the general route monitoring. Recovery from construction-disturbance activities, such as clearing and grading in the semi-arid and arid climactic zones, typically does not occur in a short amount of time, and it is for this reason the monitoring plan will assess the trend toward reclamation success standards.

Reclamation success may be assessed by the presence or condition of certain site characteristics that encourage recruitment of native vegetation. Reclamation actions of a given site, if implemented successfully, are anticipated to contribute to the stabilization of soils, seedling or seedbank recruitment, and avoidance of the establishment of noxious weeds. Lack of erosion at a site provides evidence soils have been adequately stabilized, while natural recruitment and/or reproduction indicates important functional processes are in place that initiate regeneration, such as pollination and seed dispersal. Noxious weeds could potentially compete with native perennial species, and relatively high abundances can have negative effects on site conditions. Evidence of animal use also is used as an indicator that habitat conditions have been reclaimed; however, grazing can negatively affect reclamation success if

unmanaged. Patterns of established vegetation help to determine whether large bare areas are indicative of site conditions or simply a result of the patchiness of surrounding vegetation. Each of these site characteristics will help determine trends that relate to reclamation success. Once recruitment conditions have been met, established vegetation is anticipated to contribute to the maintenance and functionality of the community to ensure continued success after monitoring has concluded.

B15.7.3.2 QUANTITATIVE (NUMERICAL) INFORMATION

Desirable vegetation cover will be numerically measured on those treatment sites, as identified with BLM/Western during the third and fifth growing seasons (or sooner if deemed appropriate) to determine if there is a trend toward reclamation success based on comparison of the control transect/area for each site. Quantitative assessment during the third year will provide enough time for vegetation establishment of the affected areas based on climatic trends for the area. Trends toward reclamation success, as well as remedial actions (if necessary), will be identified during the third year. Quantitative monitoring in year 5 will allow any remedial actions or climatic events to discernibly affect treated areas. Density monitoring records the number of plants per unit of area. This technique is sensitive to changes in the vegetation community caused by climatic conditions and resource uses, and provides useful information on seedling emergence, survival, and mortality. Not all plant species present will be monitored. Monitoring will focus on indicator perennial species as determined by control-site observations of the adjacent plant community. Species density will be evaluated by comparing the total number of indicator species in the treatment site with that of the control site. Other plant species will be inventoried, but densities will not be evaluated. Vegetation cover monitoring records the coverage of vegetation canopy per unit of area. Density and cover data, along with other biometrics (e.g., noxious weed composition, litter, erosion evident, etc.), will be recorded on standard field data sheets to be developed by the Reclamation Contractor and approved by the CIC.

B15.7.4 Adaptive Management and Site Release

The BLM requires an adaptive management approach, designed to allow frequent review and feedback on the progress of reclamation be implemented as a part of monitoring activities for the Project. Adaptive management greatly increases the potential for reclamation success by providing early detection of problems and the opportunity to implement remedial actions to address these problems. Effective monitoring is an essential element of adaptive management because it provides reliable feedback on the effects of reclamation actions. Adaptive management actions may be recommended on a case-by-case basis where feasible, and as determined by the BLM, during the 5-year monitoring timeframe.

If it has been determined that adaptive measures are necessary, monitoring data (both qualitative and quantitative) will provide information on reclamation components that are deficient, such as desirable vegetation cover, soil compaction, or lack of natural surface material. Based on this information, appropriate reclamation actions may include measures such as supplemental seeding, mulching, and additional weed control and/or erosion control measures. Recommendations could also include waiting to determine whether favorable germination/establishment conditions are expected. All adaptive management actions will be subject to the review and approval of the agencies. The contractor(s) will use all reasonable methods to help Southline ensure that reclamation is progressing toward the success standards identified in Section B15.7.1 – Reclamation Goals and Success Standards. It is possible some sites will be incapable of supporting adequate vegetation to progress towards the success standards due to conflicting land management, and environmental limitations not associated with the Project. For instance, reclamation may fail in areas with unmanaged off-highway-vehicle access, grazing of domestic livestock, natural disasters such as fire or flooding, and construction of other utility projects. If reclamation failure on federally managed lands is determined by the CIC to be caused by these conditions, neither Southline,

nor any of its construction/reclamation primary contractors or subcontractors, will be held responsible for continued reclamation and monitoring of these sites.

B15.8 Literature Cited

Brown, D.E. (ed.). 1994. Biotic Communities: Southwestern United States and Northwestern Mexico. Salt Lake City: University of Utah Press.

Western Area Power Administration (Western). 2011. Integrated Vegetation Management Guidance Manual.

B15.9 Attachment

Attachment B15-1: BLM Example Seed Mixes

Attachment B15-1

BLM Example Seed Mixes

Seed List Example from the Las Cruces District Office

SOUTHERN ROAD SEED MIXES

There are three seed mixes. As shown on Map 1 below, MIX A will be used on gravelly, gravelly loam and limestone hills ecological sites, MIX B will be used on bottomland, draw and loamy ecological sites, and MIX C will be used on gravelly sand, sandy/gravelly, and sandy sites.

PLS equals pure live seed. Seeding rate can be halved if planted with rangeland drill.

MIX A - gravelly, gravelly loam and limestone hills ecological sites

Species	LBS/PLS/Acre
Sideoats grama variety Niner or Vaugn (Bouteloua curtipendula)	3.0
Blue grama variety Hatchita (Bouteloua gracilis))	3.0
Purple three-awn (Aristida purperea)	1.0
Scarlet Globemallow (Sphaeralcea coccinia)	0.5

MIX B - bottomland, draw and loamy ecological sites

Species	LBS/AC PLS
Alkali Sacaton var. "Salado" (Sporobolus airoides)	3.0
Sideoats grama variety Niner or Vaugn (Bouteloua curtipendula)	3.0
Cane bluestem	1.0

(Bothriochloa barbinodis)

Fourwing Saltbush (Atriplex canescens)	5.0

MIX C - gravelly sand, sandy/gravelly, and sandy ecological sites

Species	LBS/AC PLS
Sand Dropseed (Sporobolus cryptandrus)	0.5
Mesa Dropseed Sporobolus flexuosus	1.0
Purple Three Awn (Aristida purpurea var purpurea)	3.0
Desert Marigold (Baileya multiradiata)	1.0

Seed List Example from the Safford Field Office

Grass & Wildflowers / Each Species 2% - 7% of mix; for BLM AZ. Safford Field Office; 50% Grasses & 50% Wildflowers

Grasses: sideoats grama (*Bouteloua curtipendula*), blue grama (*Bouteloua gracilis*), rothrock grama (*Bouteloua rothrockii*), green sprangletop (*Leptochloa dubia*), Wolftail (*Lycurus setosus*), Indian Wheat (*Plantago patagonica*), little bluestem (*Schizachyrium scoparium*), bristlegrass (*Setaria macrostachya or S. vulpiseta*), sand dropseed (*Sporobolus cryptandrus*), alkali sacaton (*Sporobolus airoides*), black grama (*Bouteloua eriopoda*).

Flowers: Arizona Poppy (*Kallstroemia grandiflora*), *Bahia absinthifolia*, desert marigold (*Baileya multiradiata*), *Zinnia acerosa* and/or *Z. grandiflora*, Dyssodia, Mexican gold poppy (*Eschscholzia californica*), Indian blanketflower (*Gaillardia pulchella*), Gordon's bladderpod (*lesquerella gordonii*), *Penstemon palmeri*, *P. eatonii*, Globemallow (*Sphaeralcea angustifolia*, *S. emoryi*, or *S. laxa*), *Yucca elata*.

APPENDIX B16
HEALTH AND SAFETY PLAN

A Health and Safety Plan (HASP) is not typically required by Federal law; however, section 18 of the Occupational Safety and Health Act of 1970 encourages States to develop and operate their own safety and health programs in the workplace. In New Mexico, the Occupational Health and Safety Bureau, part of the New Mexico Environment Department (NMED), has the responsibility of enforcing Occupational Health and Safety Regulations. In Arizona, the Arizona Division of Occupational Safety and Health is responsible for enforcement and voluntary compliance.

The purpose of a HASP will be to ensure the safety of the Project employees, construction personnel, and the public. The HASP will be tailored specifically for the Project, and will include a description of hazards that may be encountered during the life of the Project. The HASP will detail employee safety training procedures that will be used, structural and non-structural safety controls that will be put in place, personal protective equipment that will be required, emergency response procedures, protocols for Project-specific procedures such as confined space entry, and applicable standards, practices, and procedures specified by the Occupational Safe and Health Administration (OSHA) (29 CFR 1910).

Content to be developed.

APPENDIX B17
AVIAN PROTECTION PLAN

An Avian Protection Plan (APP) will be a Project-tailored plan designed to reduce avian electrocution and collision mortality that result from avian interactions with electric utility facilities. The overall goal of an APP is to reduce avian mortality. The 2005 Avian Power Line Interaction Committee (APLIC) and U.S. Fish and Wildlife (FWS) APP Guidelines (APLIC 2005) provide a framework, along with principles and examples of APPs.

The APP will be designed as a living document to be continually evaluated and refined over the life of the Project. The elements of the APP will include training, permit compliance, construction design and siting standards, nest management, a reporting system, risk assessment for evaluating the risks posed to migratory birds. The plan will also identify areas and issues of concern, mortality reduction measures, and avian enhancement options.

Examples of avian protection measures that *could* be included in the APP are:

- Marking wires (bird diverters) and/or using special structure design to increase visibility to birds;
- Applying special structural design to decrease the heights of ground wires and conductors;
- Monitoring to ensure that Proponent Committed Environmental Measures (PCEMs) are implemented; and/or
- Conducting additional avian studies, surveys, and/or monitoring to record the presence of birds and incidence of avian collisions, and provide data that could be useful to minimize the potential for collisions with the Project, as well as with existing and future power lines in other locations.

Southline Transmission, LLC (Southline), Bureau of Land Management (BLM), and Western Area Power Administration (Western) will collaborate with agencies such as the FWS, Arizona Game and Fish Department, and New Mexico Department of Game and Fish, and other cooperating agencies on development of the APP, the goal of which is mitigate the collision risk and loss of productivity for all birds.

Content to be developed.

APPENDIX B18
WASTE MANAGEMENT PLAN

A Project-specific Waste Management Plan will be developed to outline non-hazardous waste handling procedures that will be used during the construction, operation, and maintenance phases of the Project. Waste addressed in this plan will include all non-hazardous waste resulting from construction and land clearing, as well as material that is recycled, reused, salvaged, or disposed of as garbage.

Content to be developed.

B18.1 Waste Management Goals

B18.2 Responsibilities

B18.3 Waste Prevention, Packaging, and Recycling

B18.4 Communication and Education

B18.5 Expected Project Waste, Disposal, and Handling

Table B18-1.

Material	Quantity	Disposal Method	Handling Procedure

B18.6 Material Disposition/Waste Disposal Companies

B18.6.1 Wastes – Location of Disposal, Timing of Pickup

B18.6.2 Recycling – Location of Disposal, Timing of Pickup

B18.7 Housekeeping

B18.8 Documentation

APPENDIX B19
HELICOPTER FLIGHT PLAN/FLIGHT AND SAFETY PLAN

The Helicopter Flight and Safety Plan will describe the hours and estimated number of days that a helicopter will operate for construction of the Project, the type and number of helicopters that will be used, and the kind of work to be performed. Additional information presented in this plan will include the location, size, and number of staging areas for helicopter takeoffs and landings, and safety measures to be implemented during helicopter operations. This plan will be reviewed and approved by the Federal Aviation Administration (FAA) prior to the commencement of helicopter operations.

Content to be developed.

APPENDIX B20
DECOMMISSIONING PLAN

The Decommissioning Plan will detail how the structures and facilities of the Project would be removed after the useful life of the Project is reached, and how the affected properties would be reasonably restored in accordance with the Bureau of Land Management (BLM) right-of-way (ROW) grant. This plan will be a general outline of how the Project will be decommissioned and how land will be restored to its original condition. Decommissioning procedures described will include the removal of structures, disposal of waste, and identification of what, if anything, may remain on the land upon completion. Restoration will include the stabilization and revegetation of the disturbance area to minimize erosion and return the land to productive use.

As indicated in the Plan of Development (POD), this plan is applicable on Federal lands administered by the BLM as enforceable stipulations and measures of the BLM ROW grant. It pertains not only to the construction of the Project, but also to the operation and maintenance phase of the Project. Where Western Area Power Administration (Western) is involved in the Project, they may adopt this plan, where appropriate.

Content to be developed.

Appendix C

TRANSMISSION CONSTRUCTION AND VEGETATION MANAGEMENT STANDARDS

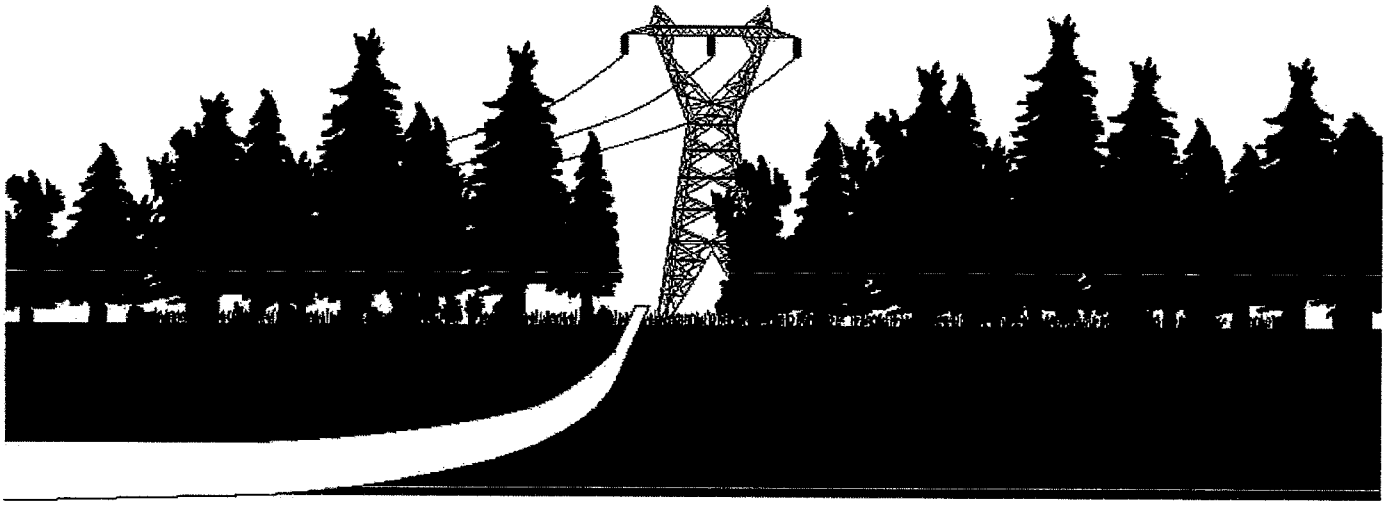
APPENDIX C1
TRANSMISSION CONSTRUCTION STANDARDS

Western
AREA POWER
ADMINISTRATION

CONSTRUCTION STANDARDS

STANDARD 13

ENVIRONMENTAL QUALITY PROTECTION



September 2013

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STANDARD 13 - ENVIRONMENTAL QUALITY PROTECTION

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STANDARD 13 - ENVIRONMENTAL QUALITY PROTECTION

SECTION 13.1—REQUIRED SUBMITTALS, REPORTS, AND PLANS

1. FINAL PAYMENT: For each section below, final payment may be withheld until the referenced submittal, report, or plan is received.

SECTION 13.2--CONTRACTOR FURNISHED DATA

1. RECYCLED MATERIALS QUANTITY REPORT: Submit quantities of recycled materials listed in Section 13.7, "Recycled Materials Quantities", to the COR prior to submittal of final invoice.

2. RECOVERED AND BIOBASED MATERIAL PRODUCTS REPORT: Provide the COR the following information for purchases of items listed in Section 13.8, "Use of Recovered and Biobased Material Products".

   (1) Quantity and cost of listed items <u>with</u> recovered or biobased material content and quantity and cost of listed items <u>without</u> recovered or biobased material content prior to submittal of final invoice.

   (2) Written justification of listed items if recovered material or biobased material products are not available: 1) competitively within a reasonable time frame; 2) meeting reasonable performance standards as defined in the Standards or Project Specifications; or 3) at a reasonable price.

3. RECLAIMED REFRIGERANT RECEIPT: A receipt from the reclaimer stating that the refrigerant was reclaimed, the amount and type of refrigerant, and the date shall be submitted to the COR prior to submittal of final invoice in accordance with Section 13.9.5, "Refrigerants and Receipts".

4. WASTE MATERIAL QUANTITY REPORT: Submit quantities of total project waste material disposal as listed below to the COR prior to submittal of final invoice in accordance with Section 13.9.8, "Waste Material Quantity Report".

   (1) Unregulated Wastes (i.e., trash): Volume in cubic yards or weight in pounds.

   (2) Hazardous or Universal Wastes: Weight in pounds.

   (3) PCB Wastes: Weight in pounds.

   (4) Other regulated wastes (e.g., lead-based paint or asbestos): Weight in pounds (specify type of waste in report).

5. SPILL PREVENTION NOTIFICATION AND CLEANUP PLAN (Plan): Submit the Plan as described in Section 13.11.2, "Spill Prevention Notification and Cleanup Plan", to the COR for review and comment 14 days prior to start of work. Review of the plan is for the purpose of determining compliance with the specifications only and shall not relieve the Contractor of the responsibility for compliance with all Federal, State, and Local regulations.

6. TANKER OIL SPILL PREVENTION AND RESPONSE PLAN: Submit the Plan as described in Section 13.11.3, "Tanker Oil Spill Prevention and Response Plan", to the COR for review and comment 14 days prior to start of work. Review of the plan is for the purpose of determining compliance with the specifications only and shall not relieve the Contractor of the responsibility for compliance with all Federal, State, and Local regulations.

7. PESTICIDE USE PLAN: Submit a plan as described in Section 13.12.3, "Pesticide Use Plan", to the COR for review and comment 14 days prior to the date of intended pesticide application. Review of

the plan is for the purpose of determining compliance with the specifications only and shall not relieve the Contractor of the responsibility for compliance with all Federal, State, and Local regulations. Within seven days after application, submit a written report in accordance with Standard 2 – Sitework, Section 2.1.1_5, "Soil-Applied Herbicide".

8. TREATED WOOD UTILITY POLES AND CROSSARMS RECYCLING - CONSUMER INFORMATION SHEET RECEIPT: Submit treated wood utility poles and crossarms - consumer information sheet receipts to the COR prior to submittal of final invoice (see 13.13, "Treated Wood Utility Poles and Crossarms Recycling or Disposal").

9. PREVENTION OF AIR POLLUTION: Submit a copy of permits, if required, as described in 13.14, "Prevention of Air Pollution" to the COR 14 days prior to the start of work.

10. ASBESTOS LICENSES OR CERTIFICATIONS: Submit a copy of licenses, certifications, Demolition and Renovation Notifications and Permits for asbestos work as described in 13.15, "Handling and Management of Asbestos Containing Material" to the COR 14 days prior to starting work. Submit copies of certificates of disposal and/or receipts for waste to the COR prior to submittal of final invoice.

11. LEAD PAINT NOTICES: Submit a copy of lead paint notices with contractor and recipient signatures as described in 13.16, "Material with Lead-based Paint" to the COR prior to submittal of final invoice. Submit copies of certificates of disposal and/or receipts for waste to the COR prior to submittal of final invoice.

12. WATER POLLUTION PERMITS: Submit copies of any water pollution permits as described in 13.17, "Prevention of Water Pollution" to the COR 14 days prior to start of work.

13. PCB TEST REPORT: Submit a PCB test report as described in 13.18, "Testing, Draining, Removal, and Disposal of Oil-filled Electrical Equipment", prior to draining, removal, or disposal of oil or oil-filled equipment that is designated for disposal.

14. OIL AND OIL-FILLED ELECTRICAL EQUIPMENT RECEIPT: Obtain and submit a receipt for oil and oil-filled equipment transported and disposed, recycled, or reprocessed as described in 13.19, "Testing, Draining, Removal, and Disposal of Oil-filled Electrical Equipment", to the COR prior to submittal of final invoice.

15. OSHA PCB TRAINING RECORDS: Submit employee training documentation records to the COR 14 days prior to the start of work as described in 13.19.1.

16. CLEANUP WORK MANAGEMENT PLAN: Submit a Cleanup Work Management Plan as described in 13.19, "Removal of Oil-contaminated Material" to the COR for review and comment 14 days prior to the start of work. Review of the plan is for the purpose of determining compliance with the specifications only and shall not relieve the Contractor of the responsibility for compliance with all Federal, State, and Local regulations.

17. POST CLEANUP REPORT: Submit a Post-Cleanup Report as described in 13.19, "Removal of Oil-contaminated Material" to the COR prior to submittal of final invoice.

SECTION 13.3--ENVIRONMENTAL REQUIREMENTS

Comply with Federal, State, and local environmental laws and regulations. The sections in this Standard further specify the requirements.

SECTION 13.4--LANDSCAPE PRESERVATION

1. GENERAL: Preserve landscape features in accordance with the contract clause titled "Protection of Existing Vegetation, Structures, Equipment, Utilities, and Improvements."

2. CONSTRUCTION ROADS: Location, alignment, and grade of construction roads shall be subject to the COR's approval. When no longer required, surfaces of construction roads shall be scarified to facilitate natural revegetation, provide for proper drainage, and prevent erosion. If re-vegetation is required, use seed mixtures as recommended by Natural Resources Conservation Service or other land managing agency as appropriate.

3. CONSTRUCTION FACILITIES: Shop, office, and yard areas shall be located and arranged in a manner to preserve trees and vegetation to the maximum practicable extent and prevent impact on sensitive riparian areas and flood plains. Storage and construction buildings, including concrete footings and slabs, shall be removed from the site prior to contract completion. The area shall be re-graded as required so that all surfaces drain naturally, blend with the natural terrain, and are left in a condition that will facilitate natural revegetation, provide for proper drainage, and prevent erosion or transport of sediment and pollutants. If re-vegetation is required, use seed mixtures as recommended by Natural Resources Conservation Service or other land managing agency as appropriate.

SECTION 13.5--PRESERVATION OF CULTURAL AND PALEONTOLOGICAL RESOURCES

1. GENERAL: Do not, at any time, remove, disturb, or otherwise alter cultural artifacts or paleontological resources (fossils). Cultural artifacts may be of scientific or cultural importance and includes, but are not limited to bones, pottery, projectile points (arrowheads), other stone or metal tools, surface features (stone circles, rock piles, etc.), glass, metal, ceramic, or other historic objects, structures and buildings (including ruins). Paleontological resources can be of scientific importance and include mineralized animals and plants or trace fossils such as footprints. Both cultural and paleontological resources are protected by Federal Regulations during Federal construction projects. Contractor shall restrict all ground disturbing activities to areas that have been investigated by Western for cultural or paleontological resources, or have been cleared in writing by the Regional Preservation Officer (RPO) and as specified in accordance with Standard 1 – General Requirements, Sections 1.3.1 Rights-of-way and 1.3.2 Access to the Work and Haul Routes.

2. KNOWN CULTURAL OR PALEONTOLOGICAL SITES: Following issuance of notice to proceed, Western will provide drawings or maps showing sensitive areas located on or immediately adjacent to the transmission line right-of-way and/or facility. These areas shall be considered avoidance areas. Prior to any construction activity, the avoidance areas shall be marked on the ground in a manner approved by the COR in conjunction with the RPO. Instruct employees and subcontractors that vehicular or equipment access to these areas is prohibited. If access is absolutely necessary, first obtain approval from the COR in conjunction with the RPO. Western will remove the markings during or following final cleanup. For some project work, Western will require an archaeological, paleontological or tribal monitor at or near cultural or paleontological site locations. The contractor, contractor's employees, and subcontractors shall work with the monitor to insure that sensitive areas are avoided. Where monitors are required, the monitor shall meet with the crew each morning to go over the day's work. The monitor will also conduct awareness training for all contractors prior to any work in the field. Untrained personnel shall not be allowed in the construction area. For sensitive areas requiring a monitor, the contractor may not access those areas without a monitor being present.

3. UNKNOWN CULTURAL OR PALEONTOLOGICAL SITES: On rare occasions cultural or paleontological sites may be discovered during excavation or other earth-moving or other construction activities.

   (1) Reporting: If evidence of a cultural or paleontological site is discovered, cease work in the area immediately and notify the COR of the location and nature of the findings. If a monitor is present, the monitor should also be notified. Stop all activities within a 200-foot radius of the discovery and do not proceed with work within that radius until directed to do so by the COR.

   (2) Care of Evidence: Protect the area. Do not remove, handle, alter, or damage artifacts or fossils uncovered during construction activities.

SECTION 13.6--NOXIOUS WEED CONTROL

Comply with Federal, State, and local noxious weed control regulations. Provide a "clean vehicle policy" while entering and leaving construction areas to prevent transport of noxious weed plants and/or seed. Transport only construction vehicles that are free of mud and vegetation debris to staging areas and the project right-of-way.

SECTION 13.7--RECYCLED MATERIALS QUANTITIES

1. GENERAL: All materials generated from the project that can be recycled, shall be recycled. Record quantities of material by category that is salvaged, recycled, reused, or reprocessed, including:

   (1) Transformers, Breakers: Weight without oil.

   (2) Aluminum Conductor – Steel Reinforced (ACSR): Weight in pounds or tons.

   (3) Steel: Weight in pounds or tons.

   (4) Aluminum: Weight in pounds or tons.

   (5) Copper: Weight in pounds or tons.

   (6) Other Metals: Weight in pounds or tons.

   (7) Oil: Gallons (separate by type - less than 2 ppm PCB, 2 to 50 ppm PCB, and 50 or greater ppm PCB).

   (8) Gravel, Asphalt, Or Concrete: Weight in pounds or tons.

   (9) Batteries: Weight in pounds.

   (10) Treated Wood Utility Poles and Crossarms: Weight in pounds.

   (11) Wood construction material: Weight in pounds.

   (12) Cardboard: Weight in pounds.

   (13) Porcelain Insulators: Weight in pounds.

2. RECYCLED MATERIAL QUANTITY REPORT: Submit quantities (pounds or metric tons) of all recycled material by category to the COR within 30 days of recycling and prior to submittal of final invoice.

STANDARD 13 - ENVIRONMENTAL QUALITY PROTECTION

SECTION 13.8--USE OF RECOVERED MATERIAL AND BIOBASED MATERIAL PRODUCTS

1. RECOVERED MATERIAL PRODUCTS: If the products listed below or other products listed at http://www.epa.gov/epawaste/conserve/tools/cpg/products/index.htm are obtained as part of this project, purchase the items with the highest recovered material content possible unless recovered material products are not available: 1) competitively within a reasonable time frame; 2) meeting reasonable performance standards as defined in the Standards or Project Specifications; or 3) at a reasonable price.

   Construction Products:

   - Building Insulation Products
   - Carpet
   - Carpet cushion
   - Cement and concrete containing coal fly ash, ground granulated blast furnace slag, cenospheres, or silica fume
   - Consolidated and reprocessed latex paint
   - Floor Tiles
   - Flowable fill
   - Laminated Paperboard
   - Modular threshold ramps
   - Nonpressure pipe
   - Patio Blocks
   - Railroad grade crossing surfaces
   - Roofing materials
   - Shower and restroom dividers/partitions
   - Signage
   - Structural Fiberboard

2. BIOBASED MATERIAL PRODUCTS: If the products listed at http://www.biobased.oce.usda.gov are obtained as part of this project, purchase the items with the highest biobased content possible and no less than the percent indicated for each product unless biobased material products are not available: 1) competitively within a reasonable time frame, 2) meeting reasonable performance standards as defined in the Standards or Project Specifications, or 3) at a reasonable price.
   NOTE: All station service and pole mounted transformers will be bio-based oil. Western exempts purchase of bio-based large transformers rated above 5 MVA until May 13, 2015. Large transformers will be evaluated on a best value basis using life cycle cost analysis.

3. RECOVERED MATERIAL AND BIOBASED MATERIAL PRODUCTS REPORT: Provide the COR the following information for purchases of those items listed above:

   Quantity and cost of listed items with recovered or biobased material content and quantity and cost of listed items without recovered or biobased material content prior to submittal of final invoice.

   Written justification of listed items if recovered material or biobased material products are not available: 1) competitively within a reasonable time frame; 2) meeting reasonable performance standards as defined in the Standards or Project Specifications; or 3) at a reasonable price.

SECTION 13.8--DISPOSAL OF WASTE MATERIAL

1. GENERAL: Dispose or recycle waste material in accordance with applicable Federal, State and local regulations and ordinances. In addition to the requirements of the Contract Clause "Cleaning

Up", remove all waste material from the construction site. No waste shall be left on Western property, right-of-way, or easement. Burning or burying of waste material is not permitted.

2. HAZARDOUS, UNIVERSAL, AND NON-HAZARDOUS WASTES: Manage hazardous, universal, and non-hazardous wastes in accordance with State and Federal regulations.

3. USED OIL: Used oil generated from the Contractor activities shall be managed in accordance with used oil regulations.

4. RECYCLABLE MATERIAL: Reduce wastes, including excess Western material, by recycling, reusing, or reprocessing. Examples of recycling, reusing, or reprocessing includes, but is not limited to, reprocessing of solvents; recycling cardboard; and salvaging scrap metals.

5. REFRIGERANTS AND RECEIPTS: Refrigerants from air conditioners, water coolers, refrigerators, ice machines and vehicles shall be reclaimed with certified equipment operated by certified technicians if the item is to be disposed. Refrigerants shall be reclaimed and not vented to the atmosphere. A receipt from the reclaimer stating that the refrigerant was reclaimed, the amount and type of refrigerant, and the date shall be submitted to the COR prior to submittal of final invoice.

6. HALONS: Equipment containing halons that must be tested, maintained, serviced, repaired, or disposed must be handled according to EPA requirements and by technicians trained according to those requirements.

7. SULFUR HEXAFLUORIDE (SF6): SF6 shall be reclaimed and shall not be vented to the atmosphere.

8. WASTE MATERIAL QUANTITY REPORT: Submit quantities of total project waste material disposal as listed below to the COR prior to submittal of final invoice.

   (1) Unregulated Wastes (i.e., trash): Volume in cubic yards or weight in pounds.

   (2) Hazardous or Universal Wastes: Weight in pounds.

   (3) PCB Wastes: Weight in pounds.

   (4) Other regulated wastes (e.g., lead-based paint or asbestos): Weight in pounds (specify type of waste in report).

SECTION 13.10--CONTRACTOR'S LIABILITY FOR REGULATED MATERIAL INCIDENTS

1. GENERAL: The Contractor is solely liable for all expenses related to spills, mishandling, or incidents of regulated material attributable to his actions or the actions of his subcontractors. This includes all response, investigation, cleanup, disposal, permitting, reporting, and requirements from applicable environmental regulation agencies.

2. SUPERVISION: The actions of the Contractor employees and subcontractors shall be properly managed at all times on Western property or while transporting Western's (or previously owned by Western) regulated material and equipment.

SECTION 13.11--POLLUTANT SPILL PREVENTION, NOTIFICATION, AND CLEANUP

1. GENERAL: Provide measures to prevent spills of pollutants and respond appropriately if a spill occurs. A pollutant includes any hazardous or non-hazardous substance that when spilled, will

contaminate soil, surface water, or ground water. This includes any solvent, fuel, oil, paint, pesticide, engine coolants, and similar substances.

2. SPILL PREVENTION NOTIFICATION AND CLEANUP PLAN (Plan): Provide the Plan to the COR for review and comment 14 days prior to start of work. Review of the plan is for the purpose of determining compliance with the specifications only and shall not relieve the Contractor of the responsibility for compliance with all Federal, State, and Local regulations. Include the following in the Plan:

   (1) Spill Prevention measures. Describe the work practices or precautions that will be used at the job site to prevent spills. These may include engineered or manufactured techniques such as installation of berms around fuel and oil tanks; Storage of fuels, paints, and other substances in spill proof containers; and management techniques such as requiring workers to handle material in certain ways.

   (2) Notification. Most States and the Environmental Protection Agency require by regulation, that anyone who spills certain types of pollutants in certain quantities notify them of the spill within a specific time period. Some of these agencies require written follow up reports and cleanup reports. Include in the Plan, the types of spills for which notification would be made, the agencies notified, the information the agency requires during the notification, and the telephone numbers for notification.

   (3) Employee Awareness Training. Describe employee awareness training procedures that will be implemented to ensure personnel are knowledgeable about the contents of the Plan and the need for notification.

   (4) Commitment of Manpower, Equipment and Material. Identify the arrangements made to respond to spills, including the commitment of manpower, equipment and material.

   (5) If applicable, address all requirements of 40CFR112 pertaining to Spill Prevention, Control and Countermeasures Plans.

3. TANKER OIL SPILL PREVENTION AND RESPONSE PLAN: Provide a Tanker Oil Spill Prevention and Response Plan as required by the Department of Transportation if oil tankers with volume of 3,500 gallons or more are used as part of the project. Submit the Tanker Oil Spill Prevention and Response Plan to the COR for review and comment 14 days prior to start of work. Review of the plan is for the purpose of determining compliance with the specifications only and shall not relieve the Contractor of the responsibility for compliance with all Federal, State, and Local regulations.

SECTION 13.12--PESTICIDES

1. GENERAL: The term "pesticide" includes herbicides, insecticides, rodenticides and fungicides. Pesticides shall only be used in accordance with their labeling and applied by appropriately certified applicators.

2. ENVIRONMENTAL PROTECTION AGENCY REGISTRATION: Use EPA registered pesticides that are approved for the intended use.

3. PESTICIDE USE PLAN: Provide a pesticide use plan that contains: 1) a description of the pesticide to be used, 2) where it is to be applied, 3) the application rate, 4) a copy of the label, and 5) a copy of required applicator certifications. Submit the pesticide use plan to the COR for review and comment 14 days prior to the date of intended application. Review of the plan is for the purpose of determining compliance with the specifications only and shall not relieve the Contractor of the responsibility for compliance with all Federal, State, and Local regulations. Within seven days after

application, submit a written final report to the COR, including the pesticide applicators report, in accordance with Standard 2 – Sitework, Section 2.1.1_5. "Soil-Applied Herbicide, (4) Final Report".

SECTION 13.13--TREATED WOOD UTILITY POLES AND CROSSARMS RECYCLING OR DISPOSAL

Whenever practicable, treated wood utility poles and crossarms removed during the project shall be recycled or transferred to the public for some uses. Treated wood utility poles and crossarms transferred to a recycler, landfill, or the public shall be accompanied by a written consumer information sheet for treated wood as provided by Western. Obtain a receipt, part of the consumer information sheet, from the recipient indicating that they have received, read, and understand the consumer information sheet. Treated wood products transferred to right-of-way landowners shall be moved off the right-of-way. Treated wood product scrap, poles, and crossarms that cannot be donated or reused shall be properly disposed in a landfill that accepts treated wood and has signed Western's consumer information sheet receipt. Submit treated wood utility poles and crossarms consumer information receipts to the COR prior to submittal of final invoice.

SECTION 13.14--PREVENTION OF AIR POLLUTION

1. GENERAL: Ensure that construction activities and the operation of equipment are undertaken to reduce the emission of air pollutants. Submit a copy of permits for construction activities, if required (e.g., "non-attainment" areas, state implementation plans, or Class I air-sheds), from Federal, State, or local agencies to the COR 14 days prior to the start of work.

2. MACHINERY AIR EMISSIONS: The Contractor and subcontractor machinery shall have, and shall use the air emissions control devices required by Federal, State or Local Regulation or ordinance.

3. DUST ABATEMENT: Dust shall be controlled. Oil shall not be used as a dust suppressant. Dust suppressants shall be approved by the COR prior to use.

4. SULFUR HEXAFLUORIDE EMISSIONS:

   1) General: The Contractor shall record quantities of SF6, including:

      Nameplate capacity in pounds of SF_6 containing equipment.

      Record pounds of SF_6 stored in containers, before transferring into energized equipment.

      Record pounds of SF_6 left in containers, after transferring into energized equipment.

      Pounds of SF_6 purchased from equipment manufacturers or distributors.

      Pounds of SF_6 returned to suppliers.

      Scales used to weigh cylinders must be accurate to within +/- 2 pounds and must have current calibration sticker.

   2) CONTRACTOR FIELD QUALITY TESTING AND SF_6 HANDLING:

      The Contractor shall test all functions to verify correct operation and conduct a leak test. No SF6 gas leakage shall be allowed from any equipment or storage containers.

      Atmospheric venting of SF_6 gas is not allowed.

      The Contractor shall remove all empty SF6 gas cylinders and return to supplier.

(3) CERTIFICATES OF DISPOSAL AND RECEIPTS:

1) The Contractor can use Western's Reporting Form for reporting quantities listed above.

2) The Contractor shall provide receipts of SF6 gas returned to supplier.

3) The Contractor shall submit SF6 gas Reporting Forms and copies of receipts to the COR prior to submittal of final invoice.

SECTION 13.15--HANDLING AND MANAGEMENT OF ASBESTOS CONTAINING MATERIAL

1. GENERAL: Obtain the appropriate Federal, State, Tribal or local licenses or certifications prior to disturbing any regulated asbestos-containing material. If a building or portion of a building will be demolished or renovated, obtain an Asbestos Notice of and Permit for Demolition and Renovation from the State or Tribal Department of Environmental Quality, Division of Air Quality (or equivalent). The building(s) shall be inspected by a State-Certified or Tribal accepted Asbestos Building Inspector. The inspector shall certify the presence and condition of asbestos, or non-presence of asbestos, on site as directed on the State or Tribal Demolition and Renovation Notice/Permit. The inspections shall be performed and notifications shall be submitted whether asbestos is present or not. Submit a copy of licenses, certifications, Demolition and Renovation Notifications and Permits for asbestos work to the COR 14 days prior to work. Ensure: 1) worker and public safety requirements are fully implemented and 2) proper handling, transportation, and disposal of asbestos containing material.

2. TRANSPORTATION OF ASBESTOS WASTE: Comply with Department of Transportation, Environmental Protection Agency, and State and Local requirements when transporting asbestos wastes.

3. CERTIFICATES OF DISPOSAL AND RECEIPTS: Obtain certificates of disposal for waste if the waste is a hazardous waste or receipts if the waste is a non-hazardous waste. Submit copies to the COR prior to submittal of final invoice.

SECTION 13.16--MATERIAL WITH LEAD-BASED PAINT

1. GENERAL: Comply with all applicable Federal, State and local regulations concerning work with lead-based paint, disposal of material painted with lead-based paint, and management of these materials. OSHA and General Industry Standards apply to worker safety and right-to-know issues. Federal EPA and State agencies regulate waste disposal and air quality issues.

2. TRANSFER OF PROPERTY: If lead-based paint containing equipment or material is to be given away or sold for reuse, scrap, or reclaiming, the contractor shall provide a written notice to the recipient of the material stating that the material contains lead-based paint and the Hazardous Waste regulations may apply to the waste or the paint in some circumstances. The new owner must also be notified that they may be responsible for compliance with OSHA requirements if the material is to be cut, sanded, abraded, or stripped of paint. Submit a copy of lead paint notices with contractor and recipient signatures to the COR prior to submittal of final invoice.

3. CERTIFICATES OF DISPOSAL AND RECEIPTS: Obtain certificates of disposal for waste if the waste is a hazardous waste or receipts if the waste is a non-hazardous waste. Submit copies to the COR prior to submittal of final invoice.

STANDARD 13 - ENVIRONMENTAL QUALITY PROTECTION

SECTION 13.17--PREVENTION OF WATER POLLUTION

1. GENERAL: Ensure that surface and ground water is protected from pollution caused by construction activities and comply with applicable regulations and requirements. Ensure that streams, waterways and other courses are not obstructed or impaired unless the appropriate Federal, State or local permits have been obtained.

2. PERMITS: Ensure that:

   (1) A National Pollutant Discharge Elimination System (NPDES) permit is obtained from the US Environmental Protection Agency or State as appropriate if the disturbed construction area equals 1 acre or more. Contractor is responsible for preparation and implementation of the associated Storm Water Pollution Prevention Plan (SWPPP). Disturbed areas include staging, parking, fueling, stockpiling, and any other construction related activities. Refer to www.epa.gov/npdes/stormwater for directions and forms.

   (2) A dewatering permit is obtained from the appropriate agency if required for construction dewatering activities.

   (3) Copies of permits and plans, approved by the appropriate regulating agencies, are submitted to the COR 14 days prior to start of work.

3. EXCAVATED MATERIAL AND OTHER CONTAMINANT SOURCES: Control runoff from excavated areas and piles of excavated material, construction material or wastes (to include truck washing and concrete wastes), and chemical products such as oil, grease, solvents, fuels, pesticides, and pole treatment compounds. Excavated material or other construction material shall not be stockpiled or deposited near or on streambanks, lake shorelines, ditches, irrigation canals, or other areas where run-off could impact the environment.

4. MANAGEMENT OF WASTE CONCRETE OR WASHING OF CONCRETE TRUCKS: Do not permit the washing of concrete trucks or disposal of excess concrete in any ditch, canal, stream, or other surface water. Concrete wastes shall be disposed in accordance with all Federal, State, and local regulations. Concrete wastes shall not be disposed of on any Western property, right-of-way, or easement; or on any streets, roads, or property without the owner's consent.

5. STREAM CROSSINGS: Crossing of any stream or other waterway shall be done in compliance with Federal, State, and local regulations. Crossing of some waterways may be prohibited by landowners, Federal or State agencies or require permits.

SECTION 13.18--TESTING, DRAINING, REMOVAL, AND DISPOSAL OF OIL-FILLED ELECTRICAL EQUIPMENT

1. SAMPLING AND TESTING OF INSULATING OIL FOR PCB CONTENT: Sample and analyze the oil of electrical equipment (which includes storage tanks) for PCB's. Use analytical methods approved by EPA and applicable State regulations. Decontaminate sampling equipment according to documented good laboratory practices (these can be contractor developed or EPA standards). Use only laboratories approved by Western. The COR will furnish a list of approved laboratories.

2. PCB TEST REPORT: Provide PCB test reports that contain the information below for disposing of oil-filled electrical equipment. Submit the PCB test report for COR approval prior to draining, removal, or disposal of oil or oil-filled equipment that is designated for disposal.

   - Name and address of the laboratory
   - Description of the electrical equipment (e.g. transformer, breaker)

- Serial number for the electrical equipment.
- Date sampled
- Date tested
- PCB contents in parts per million (ppm)
- Unique identification number of container into which the oil was drained (i.e., number of drum, tank, tanker, etc.)

3. OIL CONTAINING PCB: Comply with the Federal regulations pertaining to PCBs found at Title 40, Part 761 of the U.S. Code of Federal Regulations (40 CFR 761).

4. REMOVAL AND DISPOSAL OF INSULATING OIL AND OIL-FILLED ELECTRICAL EQUIPMENT: Once the PCB content of the oil has been identified from laboratory results, the oil shall be transported and disposed, recycled, or reprocessed according to 40 CFR 761 (if applicable), Resource Conservation and Recovery Act (RCRA) "used oil", and other applicable regulations. Used oil may be transported only by EPA-registered used oil transporters. The oil must be stored in containers that are labeled "Used Oil." Use only transporters and disposal sites approved by Western.

5. OIL AND OIL-FILLED ELECTRICAL EQUIPMENT RECEIPT: Obtain and submit a receipt for oil and oil-filled equipment transported and disposed, recycled, or reprocessed to the COR prior to submittal of final invoice.

SECTION 13.19--REMOVAL OF OIL-CONTAMINATED MATERIAL

1. GENERAL: Removing oil-contaminated material includes excavating, stockpiling, testing, transporting, cleaning, and disposing of these material. Personnel working with PCBs shall be trained in accordance with OSHA requirements. Submit employee training documentation records to the COR 14 days prior to the start of work.

2. CLEANUP WORK MANAGEMENT PLAN: Provide a Cleanup Work Management Plan that has been approved by applicable Federal, State, or Local environmental regulation agencies. Submit the plan to the COR for review and comment 14 days prior to the start of work. Review of the plan is for the purpose of determining compliance with the specifications only and shall not relieve the Contractor of the responsibility for compliance with all Federal, State, and Local regulations. The plan shall address on-site excavation of contaminated soil and debris and include the following:

   - Identification of contaminants and areas to be excavated
   - Method of excavation
   - Level of personnel/subcontractor training
   - Safety and health provisions
   - Sampling requirements including quality control, laboratory to be used
   - Management of excavated soils and debris
   - Disposal methods, including transportation to disposal

3. EXCAVATION AND CLEANUP: Comply with the requirements of Title 40, Part 761 of the U.S. Code of Federal Regulations (40 CFR 761).

4. TEMPORARY STOCKPILING: Excavated material, stockpiled on site during construction, shall be stored on heavy plastic and covered to prevent wind and rain erosion at a location designated by the COR.

5. SAMPLING AND TESTING: Sample contaminated debris and areas of excavation to ensure that contamination is removed. Use personnel with experience in sampling and, in particular, with

experience in PCB cleanup if PCBs are involved. Use analytical methods approved by EPA and applicable State regulations.

6. TRANSPORTATION AND DISPOSAL OF CONTAMINATED MATERIAL: The Contractor shall be responsible and liable for the proper loading, transportation, and disposal of contaminated material according to Federal, State, and local requirements. Use only transporters and disposal sites approved by Western.

7. POST CLEANUP REPORT: Provide a Post-Cleanup Report that describes the cleanup of contaminated soils and debris. Submit the report to the COR prior to submittal of final invoice. The report shall contain the following information:

   - Site map showing the areas cleaned
   - Description of the operations involved in excavating, storing, sampling, and testing, and disposal
   - Sampling and analysis results including 1) Name and address of the laboratory, 2) sample locations, 3) sample dates, 4) analysis dates, 5) contents of contaminant (e.g. PCB or total petroleum hydrocarbons) in parts per million (ppm)
   - Certification by the Contractor that the cleanup requirements were met
   - Copies of any manifests, bills of lading, and disposal certificates
   - Copies of correspondence with regulatory agencies that support completion of the cleanup

SECTION 13.20—CONSERVATION OF BIOLOGICAL RESOURCES

1. GENERAL: Federal law prohibits the "take" of endangered, threatened, proposed or candidate wildlife and plants, and destruction or adverse modification of designated Critical Habitat. Federal law also prohibits the "take" of birds protected by the Migratory Bird Treaty Act, and the Bald and Golden Eagle Protection Act. "Take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect or attempt to engage in any such conduct with a protected animal or plant or any part thereof, or attempt to do any of those things without a permit from U.S. Fish and Wildlife Service. The Contractor will take precautions to avoid harming other wildlife species. Contractor shall restrict all ground disturbing activities to areas that have been surveyed by Western for natural resources and as specified in accordance with Standard 1 – General Requirements, Sections 1.3.1 Rights-of-way and 1.3.2 Access to the Work and Haul Routes.

2. KNOWN OCCURRENCE OF PROTECTED SPECIES OR HABITAT: Following issuance of the notice to proceed, and prior to the start of construction, Western will provide training to all contractor and subcontractor personnel and others involved in the construction activity if there is a known occurrence of protected species or habitat in the construction area. Untrained personnel shall not be allowed in the construction area. Western will provide drawings or maps showing sensitive areas located on or immediately adjacent to the transmission line right-of-way and/or facility. These sensitive areas shall be considered avoidance areas. Prior to any construction activity, the avoidance areas shall be marked on the ground by Western. If access is absolutely necessary, the contractor shall first obtain written permission from the COR, noting that a Western and/or other Federal or state government or tribal agency biologist may be required to accompany personnel and equipment. Ground markings shall be maintained through the duration of the contract. Western will remove the markings during or following final inspection of the project.

3. UNKNOWN OCCURRENCE OF PROTECTED SPECIES OR HABITAT: If evidence of a protected species is found in the project area, the contractor shall immediately notify the COR and provide the location and nature of the findings. The contractor shall stop all activity within 200 feet of the protected species or habitat and not proceed until directed to do so by the COR.

APPENDIX C2
INTEGRATED VEGETATION MANAGEMENT STANDARDS

C2.1 Introduction

Southline Transmission, LLC (Southline or the Proponent), will manage vegetation within their rights-of-way (ROWs) and in access and service roads to minimize system reliability issues, to address safety issues, and to facilitate operation and maintenance activities. The vegetation management plan complies with the National Electric Safety Code, American National Standards Institute (ANSI) A300 Part 7: American Operations Integrated Vegetation Management (Bureau of Land Management (BLM) Integrated Vegetation Management Handbook – H 1740-02. March 25, 2008), Western Area Power Administration's (Western's) Integrated Vegetation Management Guidance Manual, and Electric Utility Rights-of-Way and the International Society of Arboriculture (ISA) Best Management Practices. The plan is based on the North American Electric Reliability Corporation (NERC) Reliability Standard FAC-003-1. If Western has an approved vegetation management plan for the area, that plan will govern vegetation management on State and private lands.

C2.2 Objectives

Objectives of Integrated Vegetation Management (IVM) on utility ROWs are to establish sustainable plant communities that are compatible with the electric facilities. The intent is to provide stable, low-growing plant ecotypes that reduce fire risk and maintain safe access to the line and associated facilities in order to ensure safe and reliable operation of the transmission line. Objectives include:

- Meeting requirements of the NERC Reliability Standards
- Prevent operation hazards (i.e., flashovers, trees growing into contact with conductors, danger trees)
- Provide access for maintenance and repair
- Protect facilities from fire
- Control spread of noxious weeds
- Protect public and worker safety
- Protect environmental quality
- Establish stable, low-growing plant communities on transmission line ROWs
- Adhere to principles of IVM

C2.3 Regulations

Because the regulatory environment is constantly changing, coordination with the regulatory agencies is essential to ensure compliance. Noxious weed regulation often falls to the county level, and therefore contact with the county regulatory agency should be made to check on additional or more stringent requirements.

C2.3.1 NERC Standards

On July 20, 2006, the Federal Energy Regulatory Commission (FERC) issued an order certifying NERC as the Electric Reliability Organization (ERO) for the United States. NERC substantially revised and strengthened its reliability standards and established a program to monitor and enforce compliance with their standards. The standards include Standard FAC-003-1-Transmission Vegetation Management Program, which requires that a transmission owner prepare and keep current a formal transmission vegetation management program that addresses the following: schedules and types of inspections; line clearances; qualifications and training of vegetation management personnel; Proponent Committed Environmental Measures (PCEMs) where line clearances cannot be attained; a process for immediate communication of vegetation conditions that present an imminent threat; annual planning for vegetation management work; and quarterly reporting of sustained transmission outages caused by vegetation. This standard (as well as those discussed below) applies to all transmission lines operated at 200 kilovolts and above and to any lower-voltage lines designated by the operator as critical to the reliability of the electric system in the region.

C2.3.2 Federal Requirements and Policies

- The National Environmental Policy Act (NEPA)
- The Federal Insecticide, Fungicide and Rodenticide Act (FIFRA)
- Users of restricted use (RU) pesticides should particularly note the following regulations:
    - Federal Land Management Agency Herbicide Restrictions
- The Comprehensive Environmental Response, Compensation and Liability Act (CERCLA):
- The Superfund Amendments and Reauthorization Act of 1986 (SARA Title III), also known as the Emergency Planning and Community Right-To-Know Act (EPCRA):
- The Federal Occupational Safety and Health Administration (OSHA):
- The U.S. Department of Transportation (DOT)
- The Federal Noxious Weed Act of 1974 (part of the Plant Protection Act of 2000) (7 CFR Part 360)
- Federal Land Management Agency Noxious Weeds and Federal Noxious Weed Lists
- The Endangered Species Act (50 CFR)
- Presidential Memorandum Dated April 26, 1994 for the Heads of Executive Departments and Agencies and Guidance for This Memorandum From the Office of the Federal Environmental Executive (August 10, 1995; 60 *Federal Register* 40837)
- Clean Water Act (40 CFR, Chapter I, Subchapter D)

Table C-1. Factors which Influence Decisions About which Specific Vegetation Control Method to Use

Safety
Line voltage (which determines conductor clearances; see Section 10.0)
Proximity to restricted or sensitive environmental areas (adjacent land use)
Treatment objective
Type and density of vegetation – target and non-target species
Expected growth rates

Table C-1. Factors which Influence Decisions About which Specific Vegetation Control Method to Use (Continued)

Size of treatment area
Anticipated costs and equipment limitations
Effectiveness of possible treatments
Landowner or land management agency
Contractual rights
Accessibility
Climate/meteorological conditions at time of treatment (e.g., rainfall)
Herbicide use regulations
Site conditions – soils, slope, drainage
Presence of sensitive species or sensitive cultural resources

Table C-2. Vegetation Control Methods: Advantages and Disadvantages

Method	Advantages	Disadvantages	Where use is most appropriate
Cultural			
1. Develop and maintain stable, low-growing vegetation cover	Long-term effectiveness Required for physical or chemical treatment decreases with time Environmental benefits, e.g., wildlife habitat	None	All ROWs
2. Prescribed fire	Creates conditions for low-growing cover Removes excessive biomass (pile burning)	Any fire hazards must be controlled Limited areas appropriate for safe use	Low-growing vegetation with no hazard to overhead lines Slash piles
Biological			
1. Introduce natural insect predators	Targets specific noxious plants Perpetual, inexpensive	Intense monitoring efforts Availability of insects Long-term control option	Specific noxious weeds that can be controlled with specific insects, e.g., musk thistle
2. Animal grazing	Effective control Cost-effective Provides nitrogen	Timely grazing management is needed Also affects valuable vegetation Soil compaction Degrades riparian areas Soil erosion on steep slopes	Where agreement exists with landowner who raises livestock – existing "rangeland"
Physical/Mechanical			
1. Manual clearing with chain saw, machete, axe, etc.	Very selective Low soil impact Minimal disturbance of riparian and other sensitive areas	Low production rates High cost; high labor requirement If done without herbicide application, plants may resprout quickly Safety concerns for workers - falls, cuts, exposure to poisonous plants, snakes, etc. Exposure to vapors, dust	In sensitive areas In areas with low to moderate stem density Where limited clearing is the only approved option
2. Mowing with "bush hog" mower; mowing grass/weeds with mower	High production rates Low cost	Not selective - removes non-target plants If done, without herbicide application, plants may resprout quickly Slope, topographic restrictions Some soil disturbance and compaction Creates slash High labor requirement for mowing	Nonsensitive visual/environmental areas High stem density of small, noncompatible brush Areas with restrictions on herbicide use Vegetation will not resprout rapidly Yard/grass areas at substations and other facilities
3. Blading/Scarification	Low cost Effective	High erosion potential due to soil disturbance Not selective High visual impact Creates slash	As "last resort" where cannot gain access due to density of brush (e.g., along access routes to reach danger trees) Non-sensitive visual/ environmental areas only

Table C-2. Vegetation Control Methods: Advantages and Disadvantages (Continued)

Method	Advantages	Disadvantages	Where use is most appropriate
4. Use of geotextile barriers	Low cost Effective, especially when placed during initial construction/landscaping	May not eliminate unwanted vegetation that remains beneath barrier (roots) Need to use during initial construction/landscaping Not always stable on slopes	Landscaped areas Level ground New construction
Chemical			
1. Nonselective Herbicides			
1A. Spray	No moisture needed to activate Relatively low cost	Spills harder to contain/clean Need to be mixed Higher drift hazard	For any non-selective situation – where "bare ground control" is needed; for certain noxious weeds if applied selectively
1B. Granules	No need for mixing Drift hazard low Simple application equipment	Often more expensive than liquid May need moisture to activate	Around substations, yards, wood poles; possibly spot-treatment of certain noxious weeds
1C. Bio-barriers	Combine effectiveness of geotextile barrier with herbicide Time-release control	Must install during initial construction to be cost effective	Initial substation/yard construction
2. Selective Herbicides			
2A. Stump treatment (spray or capsule injection)	Very selective Limited or no drift to non-target vegetation Capsule injection- no chemical mixing; exposure limited	Timing critical - must apply immediately after cutting to be effective Early spring treatments not as effective as later season Capsule injection may require training and is labor intensive	Initial clearing Maintenance clearing when trees are too tall for foliage spray Near areas sensitive to drift, runoff
2B. Selective basal bark treatment	Selective Limited drift to non-target vegetation No brownout if applied during dormant season	Need to use oil-base formulation for best penetration	Maintenance clearing if brush too tall for foliage spray or need more selectivity
2C. Selective (low-vol.) foliar application	Less costly than others because less labor intensive, no oil use	Higher potential for drift onto non-target vegetation and workers Not as effective during hot weather More potential for runoff "Brownout" causes visual impact	Maintenance treatment when brush is 12–15 feet high and mostly tall-growing species. Not near areas sensitive to drift or "brownout."
2D. Growth inhibitors (grass)	Less costly than mowing because less labor intensive Lengthens maintenance cycles	Potential for drift onto non-target vegetation	Maintenance treatment where it is not practical to mow, but ground cover is desired

Table C-2. Vegetation Control Methods: Advantages and Disadvantages (Continued)

Method	Advantages	Disadvantages	Where use is most appropriate
2E. Tree growth regulators	Control branch growth without need for frequent pruning/trimming Long-term maintenance cycles More aesthetic than directional pruning, hard pruning More cost effective than frequent trimming	Will require training or contracting for application May be less effective on smaller-diameter trees on certain species Requires some time before see results	In sensitive areas (especially visual sensitivity) Where directional pruning/trimming is not desirable but full removal is not permitted and cannot be negotiated with land management agency or landowner
All Herbicides:	Prevent resprouting of woody vegetation - lengthen maintenance cycles; reduce costs; promote stable low-growing cover; lower life-cycle cost	Environmental and safety concerns - drift to non-target organisms, water contamination, proper application	

Content to be Developed Prior to the Notice to Proceed

- State Pesticide Regulations and Requirements
- State Weed Control Regulations and Requirements
- State Fire Hazard Reduction Regulations
- ANSI Standards and Other Pruning Guidance
- Noxious Weed Management
- Revegetation/Reclamation

Attachments

Attachment A: Standard FAC-003-1 — Transmission Vegetation Management Program

Attachment B: Western Area Power Administration Order 430.1A Right-of-Way Management Guidance for Vegetation, Encroachments, and Access Routes

Attachment C: Western Area Power Administration Integrated Vegetation Management Guidance Manual

Attachment D: Excerpts from BLM Integrated Vegetation Management Handbook H-1740-2

A. Introduction

1. **Title:** **Transmission Vegetation Management Program**

2. **Number:** FAC-003-1

3. **Purpose:** To improve the reliability of the electric transmission systems by preventing outages from vegetation located on transmission rights-of-way (ROW) and minimizing outages from vegetation located adjacent to ROW, maintaining clearances between transmission lines and vegetation on and along transmission ROW, and reporting vegetation-related outages of the transmission systems to the respective Regional Reliability Organizations (RRO) and the North American Electric Reliability Council (NERC).

4. **Applicability:**

   4.1. Transmission Owner.

   4.2. Regional Reliability Organization.

   4.3. This standard shall apply to all transmission lines operated at 200 kV and above and to any lower voltage lines designated by the RRO as critical to the reliability of the electric system in the region.

5. **Effective Dates:**

   5.1. One calendar year from the date of adoption by the NERC Board of Trustees for Requirements 1 and 2.

   5.2. Sixty calendar days from the date of adoption by the NERC Board of Trustees for Requirements 3 and 4.

B. Requirements

R1. The Transmission Owner shall prepare, and keep current, a formal transmission vegetation management program (TVMP). The TVMP shall include the Transmission Owner's objectives, practices, approved procedures, and work specifications[1].

R1.1. The TVMP shall define a schedule for and the type (aerial, ground) of ROW vegetation inspections. This schedule should be flexible enough to adjust for changing conditions. The inspection schedule shall be based on the anticipated growth of vegetation and any other environmental or operational factors that could impact the relationship of vegetation to the Transmission Owner's transmission lines.

R1.2. The Transmission Owner, in the TVMP, shall identify and document clearances between vegetation and any overhead, ungrounded supply conductors, taking into consideration transmission line voltage, the effects of ambient temperature on conductor sag under maximum design loading, and the effects of wind velocities on conductor sway. Specifically, the Transmission Owner shall establish clearances to be achieved at the time of vegetation management work identified herein as Clearance 1, and shall also establish and maintain a set of clearances identified herein as Clearance 2 to prevent flashover between vegetation and overhead ungrounded supply conductors.

R1.2.1. Clearance 1 — The Transmission Owner shall determine and document appropriate clearance distances to be achieved at the time of transmission vegetation management work based upon local conditions and the expected time frame in which the Transmission Owner plans to return for future

[1] ANSI A300, Tree Care Operations – Tree, Shrub, and Other Woody Plant Maintenance – Standard Practices, while not a requirement of this standard, is considered to be an industry best practice.

vegetation management work. Local conditions may include, but are not limited to: operating voltage, appropriate vegetation management techniques, fire risk, reasonably anticipated tree and conductor movement, species types and growth rates, species failure characteristics, local climate and rainfall patterns, line terrain and elevation, location of the vegetation within the span, and worker approach distance requirements. Clearance 1 distances shall be greater than those defined by Clearance 2 below.

R1.2.2. Clearance 2 — The Transmission Owner shall determine and document specific radial clearances to be maintained between vegetation and conductors under all rated electrical operating conditions. These minimum clearance distances are necessary to prevent flashover between vegetation and conductors and will vary due to such factors as altitude and operating voltage. These Transmission Owner-specific minimum clearance distances shall be no less than those set forth in the Institute of Electrical and Electronics Engineers (IEEE) Standard 516-2003 (*Guide for Maintenance Methods on Energized Power Lines*) and as specified in its Section 4.2.2.3, Minimum Air Insulation Distances without Tools in the Air Gap.

R1.2.2.1 Where transmission system transient overvoltage factors are not known, clearances shall be derived from Table 5, IEEE 516-2003, phase-to-ground distances, with appropriate altitude correction factors applied.

R1.2.2.2 Where transmission system transient overvoltage factors are known, clearances shall be derived from Table 7, IEEE 516-2003, phase-to-phase voltages, with appropriate altitude correction factors applied.

R1.3. All personnel directly involved in the design and implementation of the TVMP shall hold appropriate qualifications and training, as defined by the Transmission Owner, to perform their duties.

R1.4. Each Transmission Owner shall develop mitigation measures to achieve sufficient clearances for the protection of the transmission facilities when it identifies locations on the ROW where the Transmission Owner is restricted from attaining the clearances specified in Requirement 1.2.1.

R1.5. Each Transmission Owner shall establish and document a process for the immediate communication of vegetation conditions that present an imminent threat of a transmission line outage. This is so that action (temporary reduction in line rating, switching line out of service, etc.) may be taken until the threat is relieved.

R2. The Transmission Owner shall create and implement an annual plan for vegetation management work to ensure the reliability of the system. The plan shall describe the methods used, such as manual clearing, mechanical clearing, herbicide treatment, or other actions. The plan should be flexible enough to adjust to changing conditions, taking into consideration anticipated growth of vegetation and all other environmental factors that may have an impact on the reliability of the transmission systems. Adjustments to the plan shall be documented as they occur. The plan should take into consideration the time required to obtain permissions or permits from landowners or regulatory authorities. Each Transmission Owner shall have systems and procedures for documenting and tracking the planned vegetation management work and ensuring that the vegetation management work was completed according to work specifications.

R3. The Transmission Owner shall report quarterly to its RRO, or the RRO's designee, sustained transmission line outages determined by the Transmission Owner to have been caused by vegetation.

R3.1. Multiple sustained outages on an individual line, if caused by the same vegetation, shall be reported as one outage regardless of the actual number of outages within a 24-hour period.

R3.2. The Transmission Owner is not required to report to the RRO, or the RRO's designee, certain sustained transmission line outages caused by vegetation: (1) Vegetation-related outages that result from vegetation falling into lines from outside the ROW that result from natural disasters shall not be considered reportable (examples of disasters that could create non-reportable outages include, but are not limited to, earthquakes, fires, tornados, hurricanes, landslides, wind shear, major storms as defined either by the Transmission Owner or an applicable regulatory body, ice storms, and floods), and (2) Vegetation-related outages due to human or animal activity shall not be considered reportable (examples of human or animal activity that could cause a non-reportable outage include, but are not limited to, logging, animal severing tree, vehicle contact with tree, arboricultural activities or horticultural or agricultural activities, or removal or digging of vegetation).

R3.3. The outage information provided by the Transmission Owner to the RRO, or the RRO's designee, shall include at a minimum: the name of the circuit(s) outaged, the date, time and duration of the outage; a description of the cause of the outage; other pertinent comments; and any countermeasures taken by the Transmission Owner.

R3.4. An outage shall be categorized as one of the following:

R3.4.1. Category 1 — Grow-ins: Outages caused by vegetation growing into lines from vegetation inside and/or outside of the ROW;

R3.4.2. Category 2 — Fall-ins: Outages caused by vegetation falling into lines from inside the ROW;

R3.4.3. Category 3 — Fall-ins: Outages caused by vegetation falling into lines from outside the ROW.

R4. The RRO shall report the outage information provided to it by Transmission Owner's, as required by Requirement 3, quarterly to NERC, as well as any actions taken by the RRO as a result of any of the reported outages.

C. Measures

M1. The Transmission Owner has a documented TVMP, as identified in Requirement 1.

M1.1. The Transmission Owner has documentation that the Transmission Owner performed the vegetation inspections as identified in Requirement 1.1.

M1.2. The Transmission Owner has documentation that describes the clearances identified in Requirement 1.2.

M1.3. The Transmission Owner has documentation that the personnel directly involved in the design and implementation of the Transmission Owner's TVMP hold the qualifications identified by the Transmission Owner as required in Requirement 1.3.

M1.4. The Transmission Owner has documentation that it has identified any areas not meeting the Transmission Owner's standard for vegetation management and any mitigating measures the Transmission Owner has taken to address these deficiencies as identified in Requirement 1.4.

M1.5. The Transmission Owner has a documented process for the immediate communication of imminent threats by vegetation as identified in Requirement 1.5.

M2. The Transmission Owner has documentation that the Transmission Owner implemented the work plan identified in Requirement 2.

M3. The Transmission Owner has documentation that it has supplied quarterly outage reports to the RRO, or the RRO's designee, as identified in Requirement 3.

M4. The RRO has documentation that it provided quarterly outage reports to NERC as identified in Requirement 4.

D. Compliance

1. Compliance Monitoring Process

1.1. Compliance Monitoring Responsibility

RRO

NERC

1.2. Compliance Monitoring Period and Reset

One calendar Year

1.3. Data Retention

Five Years

1.4. Additional Compliance Information

The Transmission Owner shall demonstrate compliance through self-certification submitted to the compliance monitor (RRO) annually that it meets the requirements of NERC Reliability Standard FAC-003-1. The compliance monitor shall conduct an on-site audit every five years or more frequently as deemed appropriate by the compliance monitor to review documentation related to Reliability Standard FAC-003-1. Field audits of ROW vegetation conditions may be conducted if determined to be necessary by the compliance monitor.

2. Levels of Non-Compliance

2.1. Level 1:

2.1.1. The TVMP was incomplete in one of the requirements specified in any subpart of Requirement 1, or;

2.1.2. Documentation of the annual work plan, as specified in Requirement 2, was incomplete when presented to the Compliance Monitor during an on-site audit, or;

2.1.3. The RRO provided an outage report to NERC that was incomplete and did not contain the information required in Requirement 4.

2.2. Level 2:

2.2.1. The TVMP was incomplete in two of the requirements specified in any subpart of Requirement 1, or;

2.2.2. The Transmission Owner was unable to certify during its annual self-certification that it fully implemented its annual work plan, or documented deviations from, as specified in Requirement 2.

2.2.3. The Transmission Owner reported one Category 2 transmission vegetation-related outage in a calendar year.

2.3. Level 3:

2.3.1. The Transmission Owner reported one Category 1 or multiple Category 2 transmission vegetation-related outages in a calendar year, or;

2.3.2. The Transmission Owner did not maintain a set of clearances (Clearance 2), as defined in Requirement 1.2.2, to prevent flashover between vegetation and overhead ungrounded supply conductors, or;

2.3.3. The TVMP was incomplete in three of the requirements specified in any subpart of Requirement 1.

2.4. Level 4:

2.4.1. The Transmission Owner reported more than one Category 1 transmission vegetation-related outage in a calendar year, or;

2.4.2. The TVMP was incomplete in four or more of the requirements specified in any subpart of Requirement 1.

E. Regional Differences

None Identified.

Version History

Version	Date	Action	Change Tracking
Version 1	TBA	1. Added "Standard Development Roadmap." 2. Changed "60" to "Sixty" in section A, 5.2. 3. Added "Proposed Effective Date: April 7, 2006" to footer. 4. Added "Draft 3: November 17, 2005" to footer.	01/20/06

U.S. Department of Energy

ORDER

WAPA O 430.1A

DATE: 03-18-08

Western
AREA POWER
ADMINISTRATION

SUBJECT: RIGHT-OF-WAY MANAGEMENT GUIDANCE FOR VEGETATION, ENCROACHMENTS, AND ACCESS ROUTES

1. PURPOSE. This Order delegates and clarifies responsibilities and establishes Right of Way (ROW) guidance and organizational support for the safe and reliable operation of the power system owned and/or maintained by the Western Area Power Administration (Western).

2. CANCELLATION. This Order cancels WAPA Order 430.1, Right-of-Way Management Guidance for Danger Trees, Encroachments, and Access Routes, dated 11-21-01.

3. SCOPE. The provisions of this Order apply to all organizational elements of Western.

4. DEFINITIONS.

   a. Danger Trees. Trees located within or adjacent to the easement or permit area that present a hazard to employees, the public, or power system facilities. Characteristics used in identifying a danger tree include but are not limited to the following:

      - encroachment within the safe distance to the conductor as a result of the tree bending, growing, swinging, or falling toward the conductor;
      - deterioration or physical damage to the root system, trunk, stem or limbs and/or the direction and lean of the tree;
      - vertical or horizontal conductor movement and increased sag as a result of thermal, wind, and ice loading;
      - exceeding facility design specifications;
      - fire risk;
      - other threats to the electric power system facilities or worker/public safety.

b. Emergency Situations. An emergency situation occurs when a danger tree or encroachment poses an immediate danger to Western's facility as well as the welfare of the public and Western's maintenance personnel. For these situations it is not necessary to notify a landowner or government entity prior to removing the danger tree or encroachment.

c. Encroachments. Encroachments are conditions or developments that occur within the transmission line ROW that impair Western's rights to operate and maintain the facilities or present a hazard to the safe operation of the power system. Examples of potential encroachments are houses, businesses, signs, light structures, outbuildings, landfills, roadways, vegetation, etc.

d. Maintenance Manager. The individual located in the Regional or Field Office who is accountable for managing maintenance and/or operations functions. For example, in the Rocky Mountain Region this would be the Maintenance Manager; in the Bismarck Office this would be the North Dakota Maintenance Manager.

e. Right-Of-Way (ROW). Western acquires easements across State and private lands, is issued grants, permits or easements across Federal lands, and assumed the Bureau of Reclamation (Reclamation) responsibilities set forth in various agreements historically negotiated between Reclamation and other Federal agencies, such as the Bureau of Land Management, Bureau of Indian Affairs, National Park Service and U.S. Forest Service. As applied to a specific situation, ROW refers to rights acquired by Western as set forth in the applicable granting document.

f. Western Authorized Representative. The Western field representative in the Region who has the authority to take a maintenance action (this will be the Regional Manager or his designee).

5. POLICY. Maintenance Managers have the authority and responsibility for implementing and overseeing the proper maintenance of Western's ROWs. This includes all activities within ROWs that ensure the safe and reliable operation of the power system, as well as protection of the environment, the public, and Western's maintenance personnel. These activities include routine maintenance of access routes; vegetation management; identification of potential encroachments; and development of positive landowner relations. Regional Realty Officers, Environmental Managers, and Safety Managers, and, when necessary, the Corporate Services Office (CSO) Office of General Counsel (OGC) and CSO Natural Resources Office (NRO), will provide support to Maintenance Managers.

6. BACKGROUND. Western acquires easements across State and private lands, is issued grants, permits or easements across Federal lands, and assumed the Bureau of Reclamation (Reclamation) responsibilities set forth in various agreements

historically negotiated between Reclamation and other Federal agencies, such as the Bureau of Land Management, Bureau of Indian Affairs, National Park Service and U.S. Forest Service. Western's rights to maintain vegetation, to challenge a use that is considered to impair or encroach upon Western's rights, and to access the power facilities are dictated by the language contained in these agreements.

a. State and Private Land. Generally, the easement agreement provides for the perpetual right to access, construct, operate, and maintain the power system facility in a manner that ensures safe operation and system integrity.

(1) Vegetation Management and Control. Responsibility for these functions is often Western's and may, based upon the terms of the easement contract, or other agreements, require compensation to the landowner for damages to crops or trees. Contracts are generally reviewed by the Regional Realty Officers to determine the extent of Western's right to maintain or clear vegetation.

(2) Landowner's Use of the Easement Area. Easement provisions specify Western's rights to operate and maintain the power facilities. Where landowners add uses or developments in the easement area, the Maintenance Managers must determine, through the review of the easement contract, whether the use or development must cease, or be removed or mitigated some other way to protect Western's rights.

(3) General Access Rights Language. Language defining Western's access rights is usually provided in the easement agreement. To ensure that open and safe access is available across private land, the easement agreement must be thoroughly researched and verified to identify access routes and any restrictions that regulate their use.

b. Federal Land. ROW agreements are sometimes limited to a specific term and specify stipulations or conditions associated with vegetation management, compatible land uses, and access rights.

(1) Vegetation Management and Control. Responsibility for these functions is Western's, but is affected by land and resource plans, resource management plans, or other planning instruments approved by the land management agency, and these dictate tree removal or trimming criteria within and adjacent to the ROW, as well as other uses allowed on the same lands traversed by the power facility.

(2) ROW Use and Development. Uses or developments within Western's ROWs are authorized by the government entity managing the land and are usually reviewed and concurred upon by a Western authorized representative prior to the use being authorized.

(3) Access Routes. Access routes can be authorized in the same ROW agreement or in a separate permit or agreement. These authorizations may contain specific terms and conditions that restrict the season of use and/or construction or road improvement activities allowed on the authorized access routes.

7. RESPONSIBILITIES.

a. Regional Managers. Provide oversight of the ROW maintenance program in their respective Regions.

b. Regional Maintenance Managers. Develop long-term strategies and programs, in coordination with Regional safety, environment, and realty personnel, to resolve vegetation, encroachment, and access problems in and along Western's transmission line ROWs.

c. Regional Safety Managers. Support the Maintenance Managers in providing guidance for resolution of safety concerns as well as ensuring the Regional ROW program meets Western's safety goals and objectives.

d. Regional Environmental Managers. Support the Maintenance Managers in ensuring that maintenance activities employed to resolve vegetation, encroachment, and access problems comply with environmental laws and regulations.

e. Regional Realty Officers. Support the Maintenance Managers in the identification and resolution of vegetation, encroachment, public relations, and access problems. The Regional Realty Officers also provide coordination in working with the landowners and have the responsibility of identifying land rights, including vegetation control rights.

f. Office of General Counsel (OGC). Provides legal advice, counsel, and representation.

g. CSO Natural Resources Office (NRO). Provides advice and support to the Regional Maintenance Managers, Realty Officers and Environmental Managers in order to resolve vegetation, encroachment, and access problems.

8. GENERAL GUIDANCE. As a component of each Regional Office's routine maintenance activities, Maintenance Managers will develop a ROW management program, including performance measures and will coordinate its development and implementation with Regional safety, environment, and realty personnel as well as CSO NRO and OGC, when necessary. This program will include a long-term strategy to inventory Western's rights as they pertain to vegetation management,

use restrictions, encroachments and access. The program will identify potential problem areas or situations to be resolved and the resolution process.

a. Vegetation Management. It shall be the responsibility of the Regional Realty Officers to inventory the vegetation management rights, including any compensation rights to landowners, for a power facility on an as needed basis. The following guidance is provided for vegetation management practices within and adjacent to the ROW. Prior to vegetation management activities, an effort will be made to notify landowners. Such notifications or attempts to notify landowners shall be documented.

(1) Easements on State and Private Lands.

(a) Where provided in the easement agreement, Maintenance Managers shall manage the vegetation within and adjacent to the easement in accordance with WAPA Order 450.3A (latest version).

(b) Where the easement agreement does not provide for the rights to manage vegetation in or adjacent to the easement area, or if the rights are limited, the following shall apply in accordance with each Region's Vegetation Management Plan:

1) Emergency Situations. If the vegetation is creating an emergency situation, the Maintenance Managers have the discretion to address emergency situations, including removing danger trees.

2) Non-Emergencies. If vegetation is not causing an emergency situation, Western will work with the landowner to conduct the required vegetation management activity. If necessary, Western will expand its land rights to manage the vegetation within or adjacent to the easement.

(c) CSO OGC and NRO will provide assistance and consultation to support the Maintenance Managers and support the future expansion of easement rights to include all required vegetation management activities.

(2) ROW Agreements on Federal Lands.

(a) Where provided in the ROW agreement, the Maintenance Managers shall manage vegetation within the ROW.

(b) Where land use plans or terms contained in the agreement with the Federal land management agency and Western dictate trees may only be trimmed (sides or on top) within the ROW, the NRO will assist the

Maintenance Manager and Realty Officer in obtaining modifications to the ROW agreement to allow for all required vegetation management activities.

(c) Where the ROW agreement does not provide for the removal of trees in or adjacent to the ROW, the Maintenance Managers have discretion in removing danger trees without notification to the Federal land managers. Western will contact the Federal agency following removal of danger trees. The CSO NRO will provide assistance to the Maintenance Managers to expand ROW rights to allow more extensive vegetation management activities consistent with current industry standards and requirements as provided for in Western's Transmission Vegetation Management Program.

(3) Tree Removal Criteria. Criteria that will be used to determine the need for tree removal activities include either of the following two conditions:

(a) Any tree classified as being a "Danger Tree" as defined in 4a above.

(b) Requirements established in WAPA Order 450.3A (latest version).

(4) Vegetation Management Clearances. The following table provides the minimum clearance distances (lateral and vertical) to be achieved at the time of transmission vegetation management work as required by the North American Electric Reliability Council (NERC) Standard FAC-003-1 ("Clearance 1" values). However, it is Western's policy to proactively manage to a desired condition of much lower growth and low vegetation density. The desired condition considers the reduction of fuel loading to reduce the risk and intensity of wildfire on and adjacent to the ROW. It is also Western's policy to encourage the land management agencies to manage lands adjacent to the ROWs in a manner which further reduces vegetation and wildfire hazards that are a threat to the safe and reliable operation of the power facility.[1]

[1] The minimum clearance is based on the OSHA 29 CFR § 1910.333 minimum approach distance for non-electrical workers (rounded up to the nearest foot) plus 5 feet to account for conductor and tree movement due to wind and ice loading or increased conductor sag as a result of thermal loading. In addition, another 5 feet is added to allow for an average tree growth of 12 inches per year and a re-treatment interval of not less than 5 years. In situations where more rapid tree growth can be expected because of species or better than average growing conditions, a distance (either horizontal or vertical) greater than 5 feet is required.

TRANSMISSION LINE ROW MINIMUM CLEARANCE[1] REQUIREMENTS FOR VEGETATION AFTER TREATMENT	
Line Voltage	Minimum Clearance[1] Between Conductor and Vegetation
69 kV	20 feet
115 kV	21 feet
138 kV	22 feet
161 kV	22 feet
230 kV	23 feet
345 kV	26 feet
500 kV	29 feet

(5) Customer Focus. It is Western's policy that landowners are our customers. Maintenance Managers have the responsibility to ensure early notification to the private landowner or government entity prior to the vegetation management or encroachment removal activities within or adjacent to the ROW. Where emergency removal of danger trees is necessary within or adjacent to the ROW and prior notice is not possible, the Maintenance Manager is responsible for initiating or coordinating notification after the fact. The Regional Realty Officers will provide support in mitigating such actions.

b. Encroachments.

(1) State and private land. The Maintenance Managers shall be accountable for identifying potential encroachments. The Regional Realty Officer is accountable for verification and resolution. Where encroachments are found to be compatible with Western's rights, a license will be issued by the Western authorized representative. Where the encroachment is found to be incompatible, the Realty Officer shall coordinate the removal or mitigate the use or development. The Regional Realty Officer may consult or ask assistance from the NRO and OGC in those cases involving complex legal issues and landowner investments.

(2) Federal land. For situations where uses or developments are located within ROWs on Federal lands that appear to impair Western's rights to operate and maintain its facilities, the Regional Realty Officer will be responsible for contacting the government entity and resolving the problem. If necessary, the Regional Realty Officer may consult with or ask assistance from the NRO and OGC.

c. Access Routes.

(1) To ensure safe, reliable access to Western's facilities for maintenance purposes, it shall be the responsibility of the Maintenance Managers to

identify and locate access routes in support of facility maintenance programs across private, State and Federal lands, where necessary. Maintenance Managers have the discretion to reopen blocked access routes where Western's right of access is being impeded. Regional Realty Officers will be responsible to respond to the Maintenance Managers when requested to coordinate the reopening of such routes with the landowners and/or land management agency and will be supported by the NRO and OGC, when necessary.

(2) Where new access is needed across State or private land, the Regional Realty Officer must consult with the Environmental Manager and the NRO to develop an acquisition plan to obtain access easements. Where access is needed across Federal lands, the Regional Realty Officer shall perform the same coordination as for State or private lands except that Western will obtain an amendment to its ROW authorization. In either case, Western will strive to obtain access routes with the fewest restrictions as to season of use or impacts to resources.

9. REFERENCES.

a. WAPA 450.1B, Environmental Considerations in the Planning, Design, Construction, and Maintenance of Power Facilities and Activities, latest version.

b. WAPA Engineering Manual (EM) 6460.3, Property Damage Investigation Appraisal and Settlement, latest version.

c. WAPA EM 6404, Construction Management Practices and Procedures, Chapter V, Real Estate, of 02-20-90, latest version.

d. Transmission Line Right-of-Way Handbook, latest version.

e. WAPA Order 450.3A, Transmission Vegetation Management Program, latest version.

f. www.arborday.org/treeguide

g. Code of Federal Regulations (CFR) 29 CFR § 1910.333.

h. Alcoa Conductor Accessories Sag 10, version 3.0 Software.

i. National Electric Safety Code (NESC).

10. CONTACT. Questions concerning this Order should be addressed to the CSO NRO at (720) 962-7272.

Timothy J. Meeks
Administrator

U.S. Department of Energy

ORDER

Western
AREA POWER
ADMINISTRATION

WAPA O 450.3A

DATE: 03-13-08
Page Change: 02-23-09

SUBJECT: TRANSMISSION VEGETATION MANAGEMENT PROGRAM

1. OBJECTIVES. The objective of this Order is to define the Transmission Vegetation Management Program (TVMP) for the Western Area Power Administration (Western); to ensure the safe and reliable operation of the electrical transmission system in an environmentally sensitive, cost effective, and socially responsible manner.

2. CANCELLATION. This Order cancels WAPA Order 450.3, Transmission Vegetation Management Program, dated 05-10-07.

3. BACKGROUND. This Order is in accordance with the requirements defined in the North American Electric Reliability Council (NERC) Standard FAC-003-1.

4. APPLICABILITY.

   a. Western Program Areas. This Order applies to all Western programs involved with vegetation management beneath and adjacent to transmission lines and associated facilities that make up the transmission system maintained by Western. At a minimum, this standard shall apply to all 200 kV and above transmission lines and to any lower voltage lines designated by the Regional Reliability Organization (RRO) as critical to the reliability of each Region's electric system.

   b. Contractors. Contractors in support of Western's TVMP are responsible for ensuring full compliance with the requirements set forth in applicable Contracts and are also responsible for any subcontractor's compliance.

5. POLICY. It is Western's policy to identify and perform maintenance management activities in support of obtaining a desired condition for transmission line rights-of-way (ROW) and associated facilities. Western will apply the concept of Integrated Vegetation Management (IVM) as a practice for creating and maintaining a desired condition. Western's IVM Guidance Manual (see paragraph 13 of this Order) provides guidance for these practices.

6. RESPONSIBILITIES.

   a. Chief Operating Officer. Ensures full compliance with NERC and RRO reliability standards

   b. CSO Engineering. Provides oversight in the development of Engineering and Maintenance policies and standards.

   c. CSO Natural Resources Office. Provides support to the Regions relative to environment and lands programs. Serves as a point of contact with DOE Headquarters offices for the purpose of policy development, reporting, regulatory review, Native American issues, and other requirements.

   d. Office of General Counsel. Provides legal advice, counsel, and representation.

   e. Regional Managers. Provide oversight of the maintenance and safety policy and programs in their respective regions.

   f. Regional Maintenance Managers. Develop long-term strategies and programs, in coordination with Regional safety, environmental, and realty personnel, to address vegetation issues in and along all Western maintained transmission lines and associated facilities.

   g. Regional Environmental Managers. Support the Maintenance Managers in ensuring that the maintenance activities employed to manage Western's TVMP are in compliance with environmental laws and regulations.

   h. Regional Safety Managers. Support the Maintenance Managers in advising supervisors and foremen on the applications of the Power System Safety Manual and applicable safety and health regulations.

   i. Regional Reality Officers. Support the Maintenance Managers in the resolution of vegetation management problems by working with landowners in identifying and enforcing vegetation control rights

7. DESIRED CONDITION. Western's desired condition beneath and adjacent to its transmission line facilities is characterized by stable, low growth plant communities free from noxious or invasive plants. These communities will typically be comprised of herbaceous plants and low growing shrubs which ideally are native to the local area. Vegetation on the bordering areas of transmission line easements/ROWs can be managed so that increased tree height is allowed in relation to an increasing distance from the transmission line. Accumulations of vegetation debris from intensive or repetitive vegetation treatments may require mitigation to reduce risks from wildfire and enhance the fire survivability of the transmission facility. The

density of the remaining vegetation will also be a consideration in assessing overall fire risk. Adequate access routes are required and must be maintained to provide for efficient, cost effective vegetation treatment activities.

a. Areas of Concern. The desired condition will allow Western to manage vegetation such that it does not threaten power system safety or reliability. Vegetation management activities will be undertaken to the maximum extent that is reasonable and practical within three main areas of concern:

(1) Vegetation within the defined boundary of a facility (ROW, fence line, etc.);
(2) Vegetation adjacent to the facility; and
(3) Prevention of wildfire on and off the facility.

b. Guidance. On-the-ground conditions can be extremely variable and specific for each transmission facility or unique section of a facility. In general, it is Western's practice to perform vegetation management activities in support of achieving the desired condition of low, stable growth plant communities. However, reasonable accommodations can be made in consideration of other critical resources or management issues. The principal purpose of the transmission facility is for the safe and reliable operation of the power system and all other resource and management issues are considered secondary. When constraints do not allow for the immediate removal of trees and other taller vegetation, the desired condition should identify the maximum tree height and density thresholds allowed. American National Standards, ANSI A300, part 7, *Tree, Shrub, and Other Woody Plant Maintenance - Standard Practices (Integrated Vegetation Management, a. Electrical Utility Rights-of-way),* may be used for additional guidance and reference.

c. Objective. Western's intent is to secure and maintain a manageable landscape that minimizes vegetative threats to transmission system reliability and safety, and ultimately does not require frequent re-treatments. Achieving a desired condition is a process that may take several iterations over an extended period of time. However, once defined, the desired condition will serve as the guide for future vegetation management decisions. All subsequent vegetation treatment activities should consistently move toward achieving and maintaining the desired condition. Once achieved, the desired condition will be proactively maintained by occasional re-treatments.

8. PRACTICES. Western's TVMP practices are guided by internal manuals, handbooks, guidelines, orders, and standards outlining objectives, practices, approved procedures, and work specifications set forth in paragraph 14. These various formal documents are kept current through internal working committees from the functional organizations where the document resides.

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9. REQUIREMENTS.

a. Maintenance Schedule. Aerial and ground patrol schedules for each transmission facility are developed and maintained by each regional maintenance organization. Maintenance schedules are based on requirements and procedures set forth in Western's maintenance program. Other conditions where additional inspections may be necessary are those where catastrophic results could occur. Aerial or ground patrols may be conducted after an outage occurrence.

b. Vegetation clearance levels for each transmission line. Clearance 1 distances required by NERC FAC-003-1 are provided in Western Order 430.1A, Right-of-Way Management Guidance for Vegetation, Encroachments, and Access Routes. Western's desired condition is a condition of low growth plant communities; these values represent the maximum but not preferred vegetation height thresholds allowed. NERC FAC-003-1, Clearance 2 distances are provided in Western's Power System Safety Manual (PSSM), Table A-1.

c. Qualifications and Training. Personnel involved in the design, implementation, and execution of the TVMP shall be qualified and trained as provided in individual position descriptions and contract language. The Western Transmission Vegetation Management Committee was established to design and provide oversight of the TVMP, and committee membership qualifications are outlined in the charter. Western staff involved in the preparation and implementation of annual plans discussed in paragraph 9 of this Order shall be included. PSMM Chapter 11 also addresses field crew training requirements for trimming and felling trees and brush near power lines. Contractors hired by Western must be fully qualified with respect to all certifications, licenses, training, and other skills and requirements as presented in the most recent version of Western's statement of work.

d. Mitigation Measures. WAPA Order 430.1A and the Regional Transmission Vegetation Management Program Statements provide mitigation measures and processes to achieve sufficient clearances for the protection of the transmission systems in identified locations where Western is restricted from attaining the clearances specified in paragraph 9b.

e. Inspections and Emergency Procedures. Transmission line maintenance personnel are responsible for inspection of Western's transmission facilities from vehicles, on foot or from aircraft. Routine inspections of vegetation are made during scheduled ground and aerial line patrols. Any encroachments, including vegetation, are documented and forwarded to the proper functional organization for assessment and resolution. Typical patrol reports will describe the

Vertical line denotes change

encroachment, clearance between the conductor and encroachment, and other pertinent information, such as when the reading was taken, and why there is a problem. If an imminent threat of a transmission line outage is identified and requires action (such as switching the line out of service), the threat shall immediately be reported verbally for resolution.

Western's craft personnel and IVM contractors are responsible for complying with prescribed clearance and safety rules and regulations, are qualified to recognize safety hazards and unsafe conditions, and are required to initiate action to alleviate or eliminate the hazards. Duties include the immediate reporting of safety hazards and unsafe conditions and initiating action to correct the safety hazard. Line crew members are required to report potential power system troubles to their Foreman. While on patrol, they are qualified to make on-the-spot decisions as to the urgency for immediate communication of vegetation conditions that present an imminent threat of a transmission system outage so that action may be taken.

10. ANNUAL PLANS FOR VEGETATION MANAGEMENT WORK. Each Regional Maintenance Organization shall create and implement an annual plan for vegetation management activities to ensure the reliability of the power system. The plan shall describe the methods used, such as manual clearing, mechanical clearing, herbicide treatment, or other actions. The plan should be flexible enough to adjust to changing conditions, taking into consideration anticipated growth of vegetation and all other environmental factors that may have an impact on the reliability of the transmission systems. Adjustments to the plan shall be documented as they occur. The plan should take into consideration the time required to obtain permissions or authorizations from landowners or regulatory authorities and also to conduct the appropriate environmental review. Each maintenance organization shall have systems and procedures for documenting and tracking the planned vegetation management work and ensuring that the vegetation management work is completed according to work specifications

11. REPORTING REQUIREMENTS. Each Region will report quarterly to their RRO, and upon request, will also report sustained transmission line outages determined to have been caused by vegetation. If there are no sustained transmission line outages for the quarter, the report shall be submitted indicating full compliance. Multiple sustained outages on an individual line, if caused by the same vegetation, shall be reported as one outage regardless of the actual number of outages within a 24-hour period.

    a. Western is not required to report to the RRO, or the RRO's designee, certain sustained transmission line outages caused by vegetation. These outages are: (1) vegetation-related outages that result from vegetation falling into lines from outside the ROW that result from natural disasters (examples of disasters that

could create non-reportable outages include, but are not limited to, earthquakes, fires, tornados, hurricanes, landslides, wind shear, major storms as defined either by Western or an applicable regulatory body, ice storms, and floods); and (2) vegetation-related outages due to human or animal activity (examples of human or animal activity that could cause a non-reportable outage include, but are not limited to, logging, animal severing tree, vehicle contact with tree, arboricultural, horticultural, agricultural activities, or removal or digging of vegetation).

b. The outage information provided by Western to the RRO, or the RRO's designee, shall include at a minimum: the name of the circuit(s) experiencing the outage, the date, time and duration of the outage; a description of the cause of the outage; other pertinent comments; and any countermeasures taken by Western.

c. An outage shall be categorized as one of the following:

- Category 1 — Grow-ins: Outages caused by vegetation growing into lines from vegetation inside and/or outside of the ROW;
- Category 2 — Fall-ins: Outages caused by vegetation falling into lines from inside the ROW;
- Category 3 — Fall-ins: Outages caused by vegetation falling into lines from outside the ROW.

12. DOCUMENTATION. All documentation required in this section shall be retained for a minimum period of 5 years.

a. Each Region shall document that they have performed the vegetation inspections identified in 8a above. This information shall be retained in Western's maintenance management databases (Maximo, TAMIS, SIMS, TLDB, etc.).

b. Western shall retain documentation that describes the clearances identified in 8b above. This information shall be retained in Western's PSSM, Table A1 (Clearance 2), and WAPA Order 430.1A (Clearance 1).

c. Western shall retain documentation that describes the qualifications of personnel directly involved in the design, implementation, and execution of the TVMP as required in 8c. This information shall be retained in the employee's position descriptions and training records maintained by Western and the Corporate Human Resource Information System (CHRIS).

d. Each Region shall document any areas identified as not meeting this Order for vegetation management and any mitigating measures taken to address these deficiencies as identified in 8d. This information shall be retained by each

Regional Lands Office and attached to the appropriate authorizing document (easement, permit, etc.). It should also be noted in the geographic information system (GIS) database so that it is available to the maintenance organization responsible for planning and completing vegetation management activities.

e. Western shall maintain a documented process for the immediate communication of imminent threats by vegetation as required in 8e above. This information shall be retained in the employee's position description and the Standard Operating Procedures.

f. Each Region shall document that the annual work plan identified in paragraph 9 has been implemented. This will be documented in the appropriate procurement records (for contract work) and in Western's maintenance management databases (Maximo, TAMIS, SIMS, TLDB, etc.).

g. Each Region shall retain copies of all quarterly reports and additional outage reports submitted to the RRO, or the RRO's designee, as identified in paragraph 10.

h. Each Region shall develop a Transmission Vegetation Management Program statement which identifies Regional specific practices.

13. CERTIFICATION. Each Region shall demonstrate compliance through self-certification submitted to the compliance monitor (RRO or RRO's designee) in accordance with the requirements of NERC FAC-003-1.

14. REFERENCES.

a. North American Electric Reliability Council (NERC) Reliability Standard FAC-003-1.

b. Western Area Power Administration Integrated Vegetation Management Guidance Manual, latest version.

c. American National Standards, ANSI A300 (part 7)-2006 IVM for Tree Care Operations – Tree, Shrub, and Other Woody Plant Maintenance – Standard Practices (Integrated Vegetation Management, a. Electrical Utility Rights-of-Way).

d. Chapter 13, Power System Maintenance Manual (PSMM), latest revision.

e. WAPA Order 430.1A, Right-of-Way Management Guidance for Vegetation, Encroachments, and Access Routes, latest revision.

f. Chapter 11, PSMM, Trimming and Felling of Trees and Brush Near Power Lines, latest revision.

g. Chapter 1, Power System Operations Manual (PSOM), Power System Switching Procedure, latest revision.

h. Chapter 4, PSOM, Power System Operating Guidelines, latest revision.

i. Power System Safety Manual (PSSM), latest revision.

j. Regional Transmission Vegetation Management Program Statements.

k. ANSI A300, (Part 1) – 2001 Pruning for Tree Care Operations – Tree, Shrub, and Other Woody Plant Maintenance.

l. ANSI Z133.1 – 2000, for Arboricultural Operations – Pruning, Repairing, Maintaining, and Removing Trees, and Cutting Brush – Safety Requirements.

m. Western Transmission Vegetation Management Committee (TVMC) Charter.

15. CONTACT. Questions concerning this Order should be addressed to the CSO Engineering Office at (720) 962-7296.

Timothy J. Meeks
Administrator

U.S. Department of Energy

Western
AREA POWER
ADMINISTRATION

PAGE CHANGE

WAPA O 450.3A

DATE: 03-13-08
Change 1: 02-23-09

SUBJECT: TRANSMISSION VEGETATION MANAGEMENT PROGRAM

1. PURPOSE. To transmit revised pages 3 and 4 to WAPA O 450.3A, Transmission Vegetation Management Program, dated 03-13-08.

2. EXPLANATION OF CHANGES. To correct the references to the paragraph numbers identified in paragraph 8 and paragraph 9d.

3. LOCATION OF CHANGES.

Page	Paragraph
3	8
4	9d

After filing the attached pages, this transmittal may be discarded.

Western
AREA POWER
ADMINISTRATION

Timothy J. Meeks
Administrator

Chapter 6 - Treatment Selection and Effectiveness Monitoring

I. Introduction

Where proactive manipulation of the vegetation is identified as an appropriate activity toward achieving the desired vegetative condition in a land use or activity plan, treatments should be selected that will best achieve this desired condition. An interdisciplinary (ID) team should be used to identify treatment options for achieving the objectives, and evaluate the strengths and weaknesses of potential methods within each option. The ID team members should be thoroughly familiar with treatment techniques commonly used to manipulate vegetation in the area(s) under consideration, or have ready access to experienced individuals or other resources where such information can be obtained.

Although vegetation management programs have been evolving since Plummer et al. (1968) first proposed ten principles to follow when planning and implementing vegetation management programs, the principles are still valid, and applicable to most sites in the western United States (Jordan, 1981; cited in Monsen et al., 2004). Most of the principles, which primarily address ecological considerations, have been incorporated in some fashion into existing BLM guidance elsewhere. However, no BLM reference presents all ten in a single source. Briefly, they are:

1. The proposed changes to the plant community must be necessary and ecologically sustainable.
2. The terrain and soil must support the desired changes.
3. Precipitation must be adequate to assure establishment and survival of indigenous planted species.
4. Competition must be controlled to ensure that planted species can establish and persist.
5. Plant and manage site-adapted species, subspecies, and varieties.
6. A multi-species seed mixture should be planted.
7. Sufficient seed of acceptable purity and viability should be planted.
8. Seed must be planted on a well-prepared seedbed and covered properly.
9. Plant during the season that provides the most favorable conditions for establishment.
10. Newly seeded areas must be managed properly.

In addition to ecological considerations, vegetation treatments and methods are also selected based on cost and implementation considerations. Cost considerations should address treatment type and relative effectiveness, the ability of treatments to achieve multi-program objectives, and site accessibility. Implementation considerations include equipment type and availability, staff availability, impacts to ongoing or other land uses and land users, impacts to other landowners in the vicinity, on-site and off-site impacts to flora and fauna, and post-treatment management capability and control. Evaluation of treatment options should address, but not necessarily be limited to, the following:

1. Site capability (soils, elevation, slope, aspect, precipitation): *Does the site have the capacity to produce the desired vegetation community?*
2. Site disturbance effects: *What soil disturbance will be created by a given treatment and what will the subsequent effects be?*
3. Seed availability: *Is a sufficient quantity of quality seed available to not only implement the treatment as planned, but, if necessary, to also meet re-treatment needs?*
4. Susceptibility to invasive species: *To what degree would a potential treatment method increase or reduce post-treatment susceptibility to invasive species?*
5. Project timing: *Can a potential treatment be implemented at a time that is ecologically optimal?*

6. Success of past treatments under similar conditions: *What types of treatments in the past have produced successful results? Was the success related to the type of treatments, or to other factors not related to the treatments?*
7. Treatment cost-effectiveness: *Given the probability of treatment-related success, what is the relative cost-effectiveness of potential treatment methods? Do some treatment methods present opportunities to prevent future undesirable situations more than other treatment methods?*
8. Land uses on or near the site(s) to be treated: *What would the effects be of potential treatment methods on land users or other landowners adjacent or proximate to treatment areas?*
9. Potential to impact humans, fish, wildlife or special status plants: *What would the effects be of potential treatment methods on fish, wildlife or special status plants either on-site or adjacent or proximate to treatment areas?*
10. Need for subsequent re-vegetation or re-treatment: *What is the relative probability of needing to re-treat, restore, or otherwise take unplanned post-treatment actions to ensure successful outcomes of treatments?*

II. Integrated Pest Management

Because of its legal and growing functional significance, the role of Integrated Pest Management (IPM) in achieving vegetation management objectives is an important early consideration in selecting treatments. The Department of Interior has adopted and endorses Integrated Pest Management as defined in the Food Quality Protection Act, 7USC§136r-1: "Integrated Pest Management is a sustainable approach to managing pests by combining biological, cultural, physical, and chemical tools in a way that minimizes economic, health, and environmental risks." (USDI, BLM, 2007).

IPM incorporates management goals, consensus building, pest biology, environmental factors, pest detection, monitoring, selection of the best available technology to prevent unacceptable levels of pest damage, and project evaluation. IPM opportunities and objectives are identified early in the planning process, and incorporated into integrated vegetation management objectives. Methods for pest management can include one or a combination of: no action, non-chemical, cultural, mechanical, physical, biological, and chemical management methods.

A. Sources of IPM Information

Although BLM has no specific IPM manuals or handbooks, the following Manual Sections and Handbook describe policy and guidance for programs or applications that are regularly employed in IPM:

Departmental Manual 517 DM 1 – Integrated Pest Management
Manual Section 9011 – Chemical Pest Control, Handbook H-9011 – Chemical Pest Control
Manual Section 9012 – Expenditure of Rangeland Insect Pest Control Funds
Manual Section 9014 – Use of Biological Control Agents of Pest Control on Public Land
Manual Section 9015 – Integrated Weed Management

Many sources of technical and other information outside of BLM for IPM exist at national, regional and state levels. Most are readily accessible through internet searches. Two examples are provided as a starting point from which to expand information searches.

The USDA National Site for USDA Regional IPM Centers Information System (http://www.ipmcenters.org) provides information about commodities, pests and pest management practices, people and issues in the U.S. It also provides links to sites for each of the four Regional IPM Centers (Western, Southern, Northeastern, North Central), which, in turn, also provide links to other important IPM resources, such as the Database of IPM Resources.

Integrated Pest Management: Guidance for Preparing and Implementing Integrated Pest Management Plans is a planning document produced by the U.S. Fish and Wildlife Service that has general applicability for IPM planning. It is posted on the internet (http://www.fws.gov/contaminants/Documents/GuidanceIPMPlan.pdf).

A. Pesticides in IPM

Pesticides, EPA labeled substances that control, destroy, repel, or attract pests, are often referred to according to the type of pest they control; insecticides, insect repellents, miticides, herbicides, fungicides, fumigants, nematicides, rodenticides, avicides, plant growth regulators, defoliants, desiccants, antimicrobials, and algicides. All pesticides must be used in accordance with the pesticide labeling, and at a rate shown in the EIS for the area of use, by personnel with appropriate training in pesticide application. The handling and use of all pesticides must be according to the pesticide label and by, or under the supervision of, a certified applicator (BLM Course 9000-1) [FIFRA Section II (e) (1)]. Additionally, it is BLM policy that all non-restricted pesticides shall be applied by a certified applicator.

B. Levels of Control

From a vegetation management perspective, IPM generally targets weeds or weedy/invasive species. Planning for IPM includes incorporating the degree of management desired for each pest species into overall objectives; prevention, containment, reduction, or eradication. Whatever strategy or combination of strategies is chosen, a monitoring program is needed.

Prevention is an option available for consideration in IVM. A discussion of Prevention of Weeds and Early Dection and Rapid Response is presented in the Final Vegetation Treatments EIS, (USDI, 2007b).

Containment, keeping an established population in check so that the size of the infested area does not increase, can be employed against newly invading weeds or well-established species. It is especially useful when time and money are in short supply and the when an infestation is very large.

Reduction is the reducing of either the spatial area covered by a weed, or reducing its dominance. Although reduction can be used for either small or large established weed infestations, it requires more resources and more time than containment.

Eradication is completely eliminating the target species from a management area and usually consumes the greatest amount of time and resources. Eradication is applicable mainly to newly invading weeds that are confined to a limited number of small areas.

C. Insect and Disease Management

Controlling insects and diseases that may alter vegetation diversity, resiliency and productivity must be an integral component of vegetation management activities on Public Lands. In addition, vegetation management activities that potentially injure trees and plants must include steps to limit insect outbreaks and the spread of disease.

Through an interagency MOU, the USDI, Forest Service provides technical advice and insect and disease identification mapping on BLM-administered lands. During planning, field offices should coordinate needs and activities with their local Forest Service Forest Health Protection office. Funding is also available through the Forest Service to suppress outbreaks and prevent future epidemics (see Funding Sources for Vegetation Management in Chapter 9). The BLM is also engaged in cooperative efforts with

the USDI, Animal and Plant Health Inspection Service Plant Protection and Quarantine for grasshopper and Mormon cricket control.

Guidelines for reducing the impact of bark beetles and other forest insects and diseases were issued by the Department of the Interior in 2003 (see Appendix 3). These guidelines should be followed to prevent unanticipated impacts from vegetation treatments in forests and woodlands.

D. IPM for Vegetation

No individual treatment method will control vegetation such as noxious weeds in a single treatment. Diligence and persistence are required over a number of years to manage such infestations. The success of different treatment methods depends on the type of weed and age of infestation to be controlled. It is important to think of treatment methods as they relate to specific vegetation, such as weed characteristics.

Chemical Controls: In IPM programs, herbicides are considered transition tools used in the process of replacing undesirable plants with desirable vegetation that is competitive with the undesirable plants. BLM Manual 9011 recommends selecting the least toxic, low-residual herbicide that is effective against the target vegetation and applied in a judicious manner.

Specific information on the chemical and physical properties of active ingredients in pesticides as well as recommendations and precautions for use, is available from the National Pesticide Information Center (NPIC) (http://npic.orst.edu). Pesticide Emergency Resources are:

911 for pesticide emergencies or the appropriate contacts below.
Human Poison Control Centers in the U.S.: 1-800-222-1222
Recognition and Management of Pesticide Poisonings, 5th ed.
ASPCA Animal Poison Control Center 1-888-426-4435 (credit card fee charged)
Small Pesticide Spills - Call the manufacturer or call NPIC at 1-800-858-7378
Large Pesticide Spills - Call Chemtrec as follows:
In the U.S.: 1-800-424-9300
Outside the U.S.: (703) 527-3887 **AND** call the National Response Center at 1-800-424-8802

III. Treatment Methods

The treatments used by BLM for manipulating or restoring vegetation include fire, mechanical, manual, biological, and chemical. In-depth discussion of the various methods and techniques within these categories, including advantages, limitations, effectiveness, and relative costs, is described in the Vegetation Treatments on BLM Lands EIS/PER (USDI, BLM, 2007b) and Monsen et al. (2004). These or other sources of such information relevant to treatment methods and techniques should be consulted during the treatment selection process.

For most vegetation treatment projects, pre-treatment surveys are conducted before selecting one or more treatment methods. These surveys involve consideration of all feasible treatments, including their potential effectiveness based on previous experience, local monitoring results and best available science, potential environmental impacts, and costs. Before vegetation treatment or ground disturbance would occur, BLM should consult specialists or databases for sensitive areas within the project area. Sites may require survey for listed or proposed federal threatened or endangered species, BLM sensitive species, and for evidence of cultural or historic sites. In some cases, areas may receive one or more treatments in combination, such as prescribed burning followed by an herbicide application. Some areas may be treated using one or more treatment methods

over several years. The following general characteristics of each treatment category are summarized from the Vegetation Treatments on BLM Lands EIS/PER (USDI, 2007).

A. Fire

Fire applications can include using prescribed fire, wildland fire use, or other pyrrhic methods to achieve resource benefits. Prescribed fire is the intentional application of fire to wildland fuels under specified conditions of fuels, weather, and other variables. In areas where there is no threat to human life or property, wildland fires are used for resource benefit to maintain ecosystems that are functioning within their normal fire regime. These fires must meet specific environmental prescriptions and they are utilized only in pre-planned areas and when there are adequate fire management personnel and equipment available to achieve defined resource objectives.

The Fire Management Plan (FMP) serves as the program strategy document for fuels treatments and prescribed fire activities. It identifies how fuels treatments, fire use, and other fire management strategies will be used to meet the overall land management goals identified in land-use plans. The FMP also identifies areas where the use of wildland fire for resource benefits is acceptable.

The Prescribed Fire Plan is a stand-alone, legal document that provides the prescribed fire burn boss all the information needed to implement the project. Prescribed fire projects must be implemented in compliance with the written plan.

A Wildland Fire Implementation Plan (WFIP) is prepared for all wildland fires that are managed for resource benefit. The WFIP is an operational plan for assessing, analyzing, and selecting strategies for wildland fire use. It is progressively developed, and documents appropriate management responses for any wildland fire managed for resource benefits.

Factors considered when designing a burn plan and implementing a prescribed burn include weather conditions, vegetation types and density, slope, fuel moisture content, time of year, risks to dwellings and property, alternative treatment methods, and potential impacts on air quality, land use, cultural resources, and threatened and endangered species.

Hand-held tools, such as drip torches, propane torches, diesel flame-throwers, and flares, may be used to start a prescribed fire. Mass ignition techniques include terra-torches and heli-torches, which release an ignited gelled fuel mixture onto the area to be treated. Helicopters may also be used to drop hollow polystyrene spheres containing potassium permanganate that are injected with ethylene glycol immediately before ignition. The sphere ignition method is best used for spot-firing programs.

Prescribed fire can be used in some situations where some other treatment methods are not feasible due to soil rockiness, slope steepness, or terrain irregularity, although prescribed fire is limited to situations where adequate fuel is available to carry the fire. It is also relatively inexpensive to treat vegetation using fire, ranging from $20 to $500 per acre, with higher costs associated with treating forest lands in California and Oregon.

The use of prescribed fire comes with a risk of the fire getting out of control and damaging property and endangering human life. Thus, chemical, biological, mechanical and manual methods, instead of fire, are often used to control vegetation near communities. In some situations, prescribed fire can encourage the germination and establishment of weeds if a treatment site is not treated with herbicides or re-vegetated after fire use.

B. Mechanical

Mechanical treatment involves the use of vehicles such as wheeled tractors, crawler-type tractors, or specially designed vehicles with attached implements designed to cut, uproot, or chop existing vegetation. The selection of a particular mechanical method is based upon characteristics of the vegetation, seedbed preparation and re-vegetation needs, topography and terrain, soil characteristics, climatic conditions, and an analysis of the improvement cost compared to the expected productivity (USDI, BLM, 1991a). Mechanical methods that may be used by BLM include chaining, root plowing, tilling and drill seeding, mowing, roller chopping and cutting, blading, grubbing, and feller-bunching. As new technologies or techniques are developed, they could be used if their impacts are similar or less than existing methods.

Chaining consists of pulling heavy chains (40 to 90 pounds per link) in a "U" or "J" shaped pattern behind two crawler-type tractors. A chain is usually 250 to 300 feet long, and may weigh as much as 32,000 pounds. The width of each swath varies from 75 feet to 120 feet. Chain link size, modifications to links, and operation of the crawler tractors determine the number and size of trees and shrubs that are removed and the effects on understory species. Chaining can be conducted during the appropriate season to benefit soil stability and plant seeding, and reduce the invasion of weeds (Monsen et al., 2004).

Chaining works best for crushing brittle brush and uprooting woody plants. Chaining can be done on irregular, moderately rocky terrain, with slopes of up to 20%. Chaining may cause soil disturbance, but the plant debris can be left in place to minimize runoff and erosion, shade the soil surface, and maintain soil moisture and nutrient recycling. Alternatively, the debris can be burned to facilitate seeding, improve scenic values, and eliminate potential rodent habitat. Chaining is a cost-effective means of incorporating seed into soil, especially in burned areas. Chaining provides a variety of seeding depths and microsites, as well as improves ground cover and forage production. Recent studies showed improved seedling establishment on chained sites resulted in less downy brome establishment three years after fire in sagebrush and pinyon-juniper habitats (Ott et al., 2003).

Tilling involves the use of angled disks (disk tilling) or pointed metal-toothed implements (chisel plowing) to uproot, chop, and mulch vegetation. This technique is best used in situations where thinning or complete removal of vegetation is desired, and in conjunction with seeding operations. Tilling leaves mulched vegetation near the soil surface, which encourages the growth of newly planted seeds. Tilling is usually done with a brushland plow, a single axle with an arrangement of angle disks that covers about 10-foot swaths. An offset disk plow, consisting of multiple rows of disks set at different angles to each other, is pulled by a crawler-type tractor or a large rubber tire tractor. This method is often used for removal of sagebrush and similar shrubs. It works best on areas with smooth terrain, and deep, rock-free soils. Chisel plowing can be used to break up soils such as hardpan.

Often, drill seeding is conducted along with tilling. Seed drills, which consist of a series of furrow openers, seed metering devices, seed hoppers, and seed covering devices, are either towed by or mounted on tractors. A seed drill opens a furrow in the seedbed, deposits a measured amount of seed into the furrow, and closes the furrow to cover the seed.

Mowing tools, such as rotary mowers or straight-edged cutter bar mowers, can be used to cut herbaceous and woody vegetation above the ground surface. Mowing is often done along highway rights-of-way (ROW) to reduce fire hazards, improve visibility, prevent snow buildup, or improve the appearance of the area. Mowing in sagebrush habitats can create mosaics of uneven-aged stands and enhance wildlife habitat. Mowing is most effective on annual and biennial plants (Rees et al. 1996). Weeds are rarely killed by mowing, and an area may have to be mowed repeatedly for the treatment to be effective. However,

the use of a "wet blade," in which an herbicide flows along the mower blade and is applied directly to the cut surface of clipped plants, has greatly improved the control of some species. In addition, chipping equipment can be used to cut and chip vegetation in one pass.

Roller-chopping tools are heavy-bladed drums that, through a rolling action, cut and crush vegetation up to five inches in diameter. The drums are pulled by crawler-type tractors, farm tractors, or a special type of self-propelled vehicle designed for forested areas or range improvement projects.

Blading entails using a crawler-type tractor blade to shear small brush at ground level. Topsoil could be scraped with the brush and piled into windrows during this operation. Blading use is limited to areas where degradation to the soil is acceptable, such as along ROW or in roadside ditches (USDI BLM 1991a).

Grubbing is done with a crawler-type tractor and a brush or root rake attachment. The rake attachment consists of a standard dozer blade adapted with a row of curved teeth projecting forward at the blade base. Brush is uprooted and roots are combed from the soil by placing the base of the blade below the soil surface. Grubbing greatly disturbs perennial grasses, so grubbed areas are usually reseeded to prevent extensive runoff and erosion (USDI BLM 1991a).

Feller-bunchers are machines that grab trees, cut them at the base, pick them up, and move them into a pile or onto the bed of a truck (BPA, 2000). Feller-bunchers are used in forest and woodland thinning to remove potential hazardous fuels. Large chippers, or "tub-grinders," are often used to chip the limbs, bark, and wood of trees to generate mulch or biomass, which can be used in power generation facilities.

Mechanical methods are effective for removing thick stands of vegetation. Some mechanical equipment can also mulch or lop and scatter vegetation debris, so debris disposal is taken care of while the vegetation is removed. Mechanical methods are appropriate where a high level of control over vegetation removal is needed, such as in sensitive wildlife habitats or near homesites, and are often used instead of prescribed fire or herbicide treatments for vegetation control in the WUI.

Unless used with follow-up herbicide treatments, mechanical treatments have limited use for noxious weed control, because the machinery tends to spread seeds and not kill roots. Mechanical vegetation control costs from $100 to $600 per acre for equipment and labor (BPA, 2000). Additionally, repeated mechanical treatments are often necessary due to residual weed seed in the seed bank.

C. Manual

Manual treatment involves the use of hand tools and hand-operated power tools to cut, clear, or prune herbaceous and woody species. Treatments include cutting undesired plants above the ground level; pulling, grubbing, or digging out root systems of undesired plants to prevent sprouting and regrowth; cutting at the ground level or removing competing plants around desired species; or placing mulch around desired vegetation to limit competitive growth (USDI, BLM, 1991a).

Hand tools used include the handsaw, axe, shovel, rake, machete, grubbing hoe, mattock (combination of cutting edge and grubbing hoe), pulaski (combination of axe and grubbing hoe), brush hook, and hand clippers. Power tools such as chain saws and power brush saws are also used, particularly for thick-stemmed plants.

Manual treatments, such as hand-pulling and hoeing, are most effective where weed infestation is limited and soil types allow for complete removal of the plant material (Rees et al., 1996). Additionally, pulling

works well for annual and biennial plants, shallow-rooted plant species that do not re-sprout from residual roots, and plants growing in sandy or gravelly soils. Repeated treatments are often necessary due to soil disturbance and residual weed seeds in the seed bank.

Manual techniques can be used in many areas and usually with minimal environmental impacts. Although they have limited value for weed control over a large area, manual techniques can be highly selective. Manual treatment can be used in sensitive habitats such as riparian areas, areas where burning or herbicide application would not be appropriate, and areas that are inaccessible to ground vehicles (USDI, BLM, 1991a).

Manual treatments are expensive and labor intensive, compared to other vegetation management methods such as prescribed burning and herbicide application. Typical manual vegetation control costs range from $70 to $700 per acre. Manual methods may also be more dangerous for the workers involved in implementation because of the use of sharp tools and the difficulties associated with working conditions, such as steep terrain with slippery ground cover. Also, some plants may contain potentially toxic or hazardous compounds. While manual techniques may not be highly efficient or cost effective over large acreages, they may be very useful, and necessary, for specific invasive species problems, and for educating public land users.

D. Biological Control

Biological control involves the intentional use of domestic animals, insects, nematodes, mites, or pathogens (agents such as bacteria or fungus that can cause diseases in plants) that weaken or destroy vegetation (USDI, BLM, 1991a, BPA, 2000). Biological control is used to reduce targeted weed populations to acceptable levels by stressing target plants and reducing competition with desired plant species.

Domestic animals, such as cattle, sheep, or goats, control the top-growth of certain invasive and noxious weeds, which can help to weaken the plants and reduce the reproduction potential. Using the weeds as a food source, some animal species can consume 50% or more of their daily diet as target weeds after a brief adjustment period (Tu et al., 2001). They can also reduce the amount of flammable vegetation or alter the vertical and horizontal of the vegetation to alter wildfire behavior and effects.

Cattle primarily eat grass, but also some shrubs and forbs. Sheep consume many forbs, as well as grasses and shrubs, but tend not to graze an area uniformly. Goats typically eat large quantities of woody vegetation as well as forbs, and tend to eat a greater variety of plants than sheep (USDI BLM 1991a; Tu et al. 2001). Goats and sheep are effective control agents for leafy spurge, Russian knapweed, toadflax, other weed species, and some types of shrubs.

A successful treatment program can enhance habitat for wildlife. For example, cattle and sheep feeding in the spring and early summer can thin understory forbs and grasses, reducing competition for light, nutrients, and water for desirable shrub species. The shrub species will increase their vegetative output for winter browsing by deer and other wildlife (USDI, BLM, 1991a).

In order for this treatment to be effective, the right combination of animals, stocking rates, timing, and rest must be used. Grazing by domestic animals should occur when the target species is palatable and when feeding on the plants can damage them or reduce viable seeds. Additionally, grazing should be restricted during critical growth stages of desirable competing species. When desirable species are present, there must be adequate rest following the treatment to allow desirable species to recover.

Whenever the use of livestock to control vegetation is being considered, the needs of the domestic animals as well as the other multiple-use objectives for the area must be considered. A herder, fencing, or mineral block may be required to keep livestock within the desired area. Many weed species are less palatable than desired vegetation, so livestock may overgraze desired vegetation rather than the target weeds. Additionally, some weeds may be toxic to certain livestock and not to others, which will influence the management option selected (Tu et al., 2001). Proper management of domestic animals is extremely important if this method of treatment is to be successful (Olson, 1999).

Caution should be used whenever grazing or any other vegetation control is prescribed near riparian areas, in steep topography, or in areas with highly erodible soils. Weed seeds may still be viable after passing through the digestive tract of animals, so the animals should not be moved to weed-free areas until ample time has passed for all seeds to pass through their systems. Seeds can also travel on the animals' fur (Tu et al., 2001). Plant-eating insects, nematodes, mites, or pathogens affect plants directly, by destroying vital plant tissues and functions, and indirectly, by increasing stress on plants, which may reduce their ability to compete with other plants (BPA, 2000). Several biological control agents can be used together to reduce undesired vegetation density to an acceptable level. Biological control agents currently used by BLM have been tested by the USDA Agricultural Research Service to ensure that they are host-specific and will feed only on the target plant and not on crops, native flora, or endangered or threatened plant species.

Once biological control agents become established, they can reproduce and increase in numbers and continue to affect target organisms. However, it may take as many as 15 to 20 years for agents to establish themselves and bring about the desired level of control. Biological control agents are most suitable for treating large sites where target plants are well established and very competitive with native species. Agents are also often fairly mobile and can seek out new host plants (Rees et al., 1996). It is unlikely that biological control agents will eradicate a pest plant, because as populations of the host plant decrease, populations of the agent will also decline.

Treatment of noxious weeds using domestic animals is relatively inexpensive, costing about $12 to $15 per acre. Biological control costs using insects, nematodes, mites, or other pathogens range from $80 to $150 per release for ground applications and $150 to $300 for aerial releases (BPA, 2000). The cost reflects the limited availability of appropriate control agents and expertise required in dealing with the agents and treating areas. Biological treatments are most effective when followed with other treatments.

E. Herbicides

Herbicides are chemicals that kill or injure plants, and all herbicides interfere with plant metabolism in a variety of ways (Bussan and Dyer, 1999). They can be categorized as selective or non-selective. Selective herbicides kill only a specific type of plant, such as broad-leaved plants. Some herbicides used for noxious weed control are selective for broad-leaved plants, so that they can be used to control weeds while maintaining grass species. Non-selective herbicides must be used carefully around desirable and non-target plants (Rees et al., 1996).

Only those herbicides approved for BLM use can be used (See the Final Vegetation Treatments EIS (USDI, BLM, 2007b) for additional information the approval process. Some new chemicals may be used for experimental trials on three plots of no more than five acres each.

Herbicide treatments must comply with USEPA label directions and follow BLM procedures outlined in BLM Handbook H-9011-1 (Chemical Pest Control), and manuals 1112 (Safety), 9011 (Chemical Pest Control), and 9015 (Integrated Weed Management), and meet or exceed states' label standards

(USDI, BLM, 1991a). Application methods depend upon treatment objective(s) (removal or reduction); the accessibility, topography, and size of the treatment area; characteristics of the target species and the desired vegetation; location of sensitive areas and potential environmental impacts in the immediate vicinity; anticipated costs and equipment limitations; and meteorological and vegetative conditions of treatment areas at the time of treatment.

A project file with NEPA documentaion and a ROD is developed for each herbicide project. A pesticide use proposal (PUP) is then completed by a person whose certification by BLM course 9000-1 is current and sent to the State weed coordinator for signatures. The NEPA documentation includes information on project specifications, key personnel responsibilities, communication procedures, safety, spill response, and emergency procedures. The plan should also specify wind speeds and temperature ranges, minimum buffer widths between treatment areas and water bodies for non-aquatic use herbicides that comply with BLM policy and label restrictions (BLM Handbook H-9011-1).

Herbicide application schedules are designed to maximize impacts to target species and minimize potential impacts to non-target plants and animals, while remaining consistent with the objective of the vegetation treatment program. Application rates depend upon the target species, the presence and condition of non-target vegetation, weather and site conditions, soil type, depth to the water table, presence of other water sources, the label requirements, approved BLM rates, and sensitivity of non-target species. A pesticide application report (PAR) must be filled out within 24 hours of application.

Herbicides are applied aerially with helicopters or fixed-wing aircraft, and on the ground with vehicles or manual application devices. Although using helicopters is more expensive than fixed-wing aircraft, helicopters are more maneuverable and more effective in areas with irregular terrain. Helicopters also are more effective for treating target vegetation in areas with multiple vegetation types.

Manual applications of herbicides are used only in small areas, in areas inaccessible by vehicle, and/ or to minimize potential impacts to non-target plants. Herbicides may be applied to green leaves with a backpack applicator or spray bottle, wick (wiped on), or wand (sprayed on). Herbicides can be applied to trees around the circumference of the trunk on the intact bark (basal bark), to cuts in the trunk or stem (frill, or "hack and squirt"), to cut stems and stumps (cut stump), or injected into the inner bark (Tu et al., 2001).

Herbicides can be used selectively to control specific types of vegetation, or nonselectively to clear all vegetation on a particular area. Herbicides can be applied over large areas and in remote locations using aircraft, or applied using spot applications in environmentally sensitive areas. The cost of herbicide application generally ranges from $20 to $250 per acre (BPA, 2000).

There are drawbacks and limitations to herbicide use. Herbicides can damage or kill non-target plants. Weeds may develop resistance to a particular herbicide over time.All herbicides must be applied by someone with the appropriate certification identified in state laws and BLM.

The Forest Service has prepared interactive spreadsheets for some herbicides that allow the determination of exposure concentrations for plants and animals under different application rates and exposure scenarios for these herbicides. The Ecological Rise Assessments (ERAs) are available at the Forest Service Pesticide Management and Coordination website http://www.fs.fed.us/foresthealth/pesticide/index.shtml.

Information contained in the ERAs was used by the BLM to characterize risks to non-target species from the specific chemicals and is incorporated by reference into the Vegetation Treatments PEIS. The BLM

has completed risk assessments for all approved chemicals and will not approve any new ones until a risk assessment for their use is completed. The relationship between risk assessments prepared by the Forest Service and those prepared and updated by BLM is discussed in the Vegetation Treatment EIS, Volume 1, Chapter 2 (USDI, BLM, 2007).

IV. Treatment Effectiveness Monitoring

Chapter 3 of this handbook defines monitoring as the regular collection of data over time to evaluate progress toward meeting a management objective or the effectiveness of our management actions. Monitoring is a key part of what has been termed "adaptive management," in which monitoring measures progress toward or success in achieving an objective and provides the evidence for management change or continuation (Holling, 1978; Ringold et.al.,1996 and Elzinga et.al., 1998).

Inherent in defining monitoring as part of the adaptive management cycle is the concept that monitoring is *driven by objectives*. What is measured, how well it is measured, and how often it is measured are design features that are defined by how an objective is articulated. In a land-use plan or activity plan the objective describes the desired condition. Management is designed to meet the objective and is implemented through a variety of activities and uses. Monitoring is designed to determine if the objective is met. When we implement a vegetative treatment, we monitor the post-treatment conditions to determine if our treatment has been effective at moving the vegetation closer to the overall desired condition. In many cases, multiple treatments and longer time periods may be necessary to actually achieve the desired condition described in a land-use plan. The effectiveness of an individual or a series of treatments is most often monitored within a shorter timeframe, such as one to five years after treatment, so that the cause and effect relationships are more clearly evident. Still, clear and measurable treatment objectives form the foundation of a treatment effectiveness monitoring effort (Elzinga et al.,1998).

The following guidance on planning and implementing treatment effectiveness monitoring has been summarized from numerous publications that go into much more depth than can be included in this handbook. Readers are encouraged to review the references provided in this section for more information on treatment effectiveness monitoring.

A. Monitoring Overview

BLM treatment effectiveness monitoring activities range from site evaluations to the BLM Legacy Program, which is an outgrowth of the need to provide current BLM field managers and specialists with an opportunity to learn about past management practices and land treatments, and to evaluate the results of those practices 25 or more years later.

To make monitoring data useful in building on successes and learning from past mistakes, monitoring must be designed to determine if the treatment was effective, and to ensure that treatment did not have unintended adverse impacts on other resources. Collaborative, multi-party monitoring is encouraged and in the case of treatments carried out under the authority of the Healthy Forests Restoration Act of 2003, is required. Multi-party monitoring can be an effective means of building trust and collaboration with local communities and diverse stakeholders, including interested citizens and tribes.

This handbook is not intended to provide a comprehensive listing of treatment effectiveness monitoring techniques. Other documents exist that provide the comprehensive information needed by field managers and staffs to develop effective treatment monitoring plans, including Measuring and Monitoring Plant Populations (Elzinga et.al., 1998) and Sampling Vegetation Attributes (Coulloudon et.al., 1996).

Rather, this section provides information on the importance of monitoring treatment effectiveness and adapting treatment design to better measure whether the desired outcomes are achieved. It also strongly encourages a multi-program approach toward monitoring to achieve multi-program objectives developed through the planning process, as well as interdisciplinary treatment design. By learning together about what works and what doesn't work, the vegetation management programs within the BLM will be better prepared to implement the integrated vegetation management approach outlined in this handbook.

B. The Benefits of Integrated Monitoring

Traditionally each resource program has conducted its own monitoring. Range specialists have collected vegetation data to estimate the forage resource for grazing. Wildlife biologists have visited the same ground to collect vegetation data that describes components of wildlife habitat. Fuels specialists have visited the same ground to estimate the volume of fuel the same vegetation provides. Foresters have visited the same piece of ground to measure the forest or woodland resource.

Today, BLM is faced with constrained budgets, limited personnel and increased work load. BLM must become more efficient in conducting business. Integrated monitoring across disciplines could increase efficiency particularly for the four programs that are engaged in monitoring the effectiveness of landscape treatments: range, wildlife, forestry, and fire/fuels.

Numerous benefits can be achieved from integrated monitoring in the realm of cost savings, connectivity to land-use plans, integration of resource management objectives across disciplines, and incorporation of stakeholder input.

1. Cost Savings

   As mentioned before, sending one team of specialists to the same piece of ground to conduct vegetation studies for four programs at one time is more cost effective than sending four teams to the same piece of ground four different times. This approach would also foster better understanding among resource specialists of the management objectives from the various programs of range, wildlife, forestry and fire.

2. Better Connectivity to Planning Documents

   Overarching management objectives for the field office and local management units are stated in various planning documents such as the field office or district office Resource Management Plan (RMP) and in various National Environmental Policy Act (NEPA) related documents, such as environmental assessments, environmental impact statements, and biological opinions. Integrated monitoring can develop one monitoring protocol to understand the effectiveness of treatments designed across the programs instead of addressing each program separately.

3. Landscape-Level Approach Facilitates Efficiency

   Integrated monitoring is best applied at the landscape level such as a watershed scale. This approach allows for maintenance of connectivity among resources that cover large or linear geographic units such as:

   - Wildlife corridors
   - Riparian corridors

- Fire management units
- Areas of interest for t&e species recovery plans
- Habitat management units
- Timber sales
- Wildlife habitat
- Ecological site descriptions

A landscape-level approach also facilitates synthesis of integrated management objectives. There are more opportunities to identify "added value" between/among program areas. One multi-disciplinary team can serve multiple programs with "one-stop shopping" or "one-stop monitoring." For example, one interdisciplinary team for range evaluations can also collect data to serve wildlife needs and at the same time assist in development of prescribed burn plans for a unit or watershed.

Focusing personnel on one planning unit will provide efficiency in coordinating calendar schedules, reduced access time to the field, reduced cost by reducing vehicle use and employee time.

4. Improved Stakeholder Involvement

When BLM personnel, issues and management objectives are focused within a planning unit, the stakeholders are apt to be more focused and involved. For example, working within a watershed unit allows the permittees to focus on management of the whole complex of allotments within the watershed. This reduces the number of agency personnel the permittee needs to communicate with and the number of issues the permittee needs to understand. It should enhance the permittees understanding of the overall management objectives and the relationship among the resource programs. It should facilitate opportunities for the permittee to contribute to the management objectives.

5. Focused Adaptive Management

Integrated monitoring across disciplines within a planning unit should reduce the potential for conflict among disciplines. Managers can look at the impact or affect a decision will have on the various resources within the whole planning unit, and select adjustments to management that will be constructive for all resources.

C. Mechanisms for Integrating Monitoring

BLM has much to gain from integrated monitoring. Interdisciplinary teams that examine resource values within a single program are already functioning well. However, providing integrated monitoring to serve multiple programs at the same time is a new concept. Implementing this program may require some adjustment, particularly at the field office and district levels (locally) and to some extent for broad planning units (regionally) such as at the sage grouse habitat region.

1. Organize Treatments and Programs by Watershed or Landscape Unit

By aggregating vegetation treatments in a watershed or other geographic unit, treatments can more effectively alter large vegetation communities, thus having a greater impact on how that vegetation functions as wildlife habitat and how ecological processes, such as watershed and fire, work. It can also have the effect of focusing monitoring on plant community condition rather than site-level effects.

In many field offices the vegetation monitoring program is driven by one program more than others. For example, the expiration dates of grazing permits may dictate which allotments are monitored and when. To facilitate integration of program treatment objectives and effectiveness monitoring, permit expiration dates should be adjusted so that grazing allotments within one watershed are monitored during the same time period.

Monitoring associated with T&E species should be streamlined to facilitate cooperation with US Fish and Wildlife Service. Vegetation treatments such as weed control, prescribed burns and timber harvest are also facilitated by management within a planning unit.

2. Consider Identifying a Visible Platform for Monitoring

BLM offices should consider consolidating monitoring activities in one central person or group within a field office. A monitoring group or person may provide the service of vegetation monitoring to range, wildlife, forestry and fire. In this way, duplication of monitoring activities could be reduced. Duties would include those of science advisor for sample design and monitoring implementation, as well as quality checking of data, data base management, analyses, interpretation, report writing and recommendations to adjust management. The monitoring specialist should have close coordination with the GIS specialist for the construction of maps and geo-referenced data.

The monitoring specialist or group should be positioned with the office to allow for close coordination with the various program specialists and Bureau needs.

C. Writing Measurable Treatment Objectives

Management objectives typically increase in specificity as they progress from national policies to land-management plan objectives to project objectives, to individual treatment objectives. For example, objectives to improve the overall condition or health of the vegetation, as prescribed in national policies, typically begin with broad statements concerning the diversity or productivity, such as those contained in the Fundamentals for Rangeland Health (USDI, BLM, 2001a) or the 10-Year Comprehensive Strategy Implementation Plan (USDI and USDA, FS, 2006).

As these broad objectives are refined in land-use plans and activity plans, additional specificity is added, including a description of the desired future conditions for particular plant communities, the attributes of a vegetation community that are desirable and the priority and timing for applying treatments to improve condition.

In the design of treatments, these objectives must be further refined, particularly to ascertain if the treatment was applied properly and was effective at accomplishing the objective and to adapt future treatments to better achieve the desired outcome. In particular, treatment objectives should be measurable, either quantitatively or qualitatively. And, because some vegetation attributes are difficult to measure directly, surrogates or indicators should be used as a proxy for the actual attribute of concern. For example, where the objective is to increase community resiliency to wildfire, the objective should be described such that one or more of the community attributes is modified to improve community resiliency. The following is an example of such an objective:

Mimic natural disturbance patterns in Douglas-fir habitat type group 1 by reducing the average conifer canopy coverage by 50-75% in patches, while retaining 80% of the existing Douglas-fir trees over 24 inches in diameter on 400 acres in west Gallagher Creek.

In this example, stand resiliency to disturbance by wildfire is represented by reducing canopy cover and retaining large diameter Douglas-fir trees.

Another example of an objective which uses vegetation attributes to measure a characteristic that is difficult to measure directly is:

> Improve big game winter foraging habitat by reducing the density of pinyon pine and juniper trees on 1,200 acres in lower Basin Creek and thereby increasing the vigor and/or productivity of cool season perennial grasses.

The most common vegetation attributes used to describe vegetation communities within BLM are (Sampling Vegetation Attribute. 1999. BLM Technical Reference 1734-4):

- Frequency
- Cover
- Density
- Production
- Structure
- Species Composition

Other desirable characteristics of treatment objectives that will facilitate treatment effectiveness monitoring are (Elzinga et.al., 1998):

- Contain the specific geographic location where the treatment is expected to have an effect.
- Use an action verb, e.g., increase, decrease or maintain.
- Quantify a measurable state or degree of change for the attribute.
- Identify the time frame when the action effects are anticipated to be discernable.

Examples of treatment objectives that can more easily be monitored for effectiveness include:

- Decrease the frequency of *Bromus tectorum* by 30% at the Iron Creek population of *Penstemon lemhiensis* between 1997 and 2005.
- Increase the frequency of occurrence of key perennial native grass species to a density of three per square meter in the Five Creeks watershed by the end of 2004.
- Improve the overall Fire Regime Condition Class rating, as determined by the FRCC Interagency Guide protocols, in the ponderosa pine habitat types in the East Fork Elk Creek drainage by decreasing the amount of mid-seral/closed stand structures by 20 percent over the next five years.

Of particular concern in the arid west, is the control of invasive grass and noxious weed species following restoration treatments and other ground-disturbing activities and events. It is BLM policy to prevent, control and contain the spread of noxious and invasive weeds on BLM land. In situations where invasive grasses or noxious weeds are likely to persist or expand into treated areas, treatment objectives should identify threshold values for these species for specified time periods following treatment. For example, if an invasive grass such as Lehman's lovegrass were to become 15% or more species composition two years following a vegetation treatment, the decision record could include management action to further control invasive species at that time. Threshold values are defined by the local vegetation experts with guidance from state and county agencies.

Chapter 7 - Best Management Practices

I. Introduction

Best Management Practices (BMPs) are defined by BLM Handbook H-1601-1 as a suite of techniques that guide or may be applied to management actions for achieving desired outcomes. The BMPs in this handbook are measures considered highly applicable to management actions related to integrated vegetation management that can be applied on a site-specific basis to reduce or avoid adverse environmental or social impacts. They should also be given consideration during the development of land use and activity plans.

The following list of programmatic BMPs is not intended to be all inclusive, and other sources of BMPs, such as Manual Section 6840 (Special Status Species), H-4120-1 (Grazing Management), and H-8550-1 (Management of Wilderness Study Areas) should also be consulted when designing vegetation treatments.

Many of the BMPs listed below are identified as Standard Operating Procedures (SOPs), Prevention Measures, or Mitigation Measures in the BLM Vegetation Treatments Using Herbicides Environmental Impact Statement Record of Decision (ROD) (USDI, BLM, 2007a) or as SOPs in the BLM Vegetation Treatments Programmatic Environmental Report (PER) (USDI, BLM, 2007b). These documents contain a much more extensive list relative to weed prevention and herbicide use. Those SOPs required by the ROD and included as BMPs in this section are identified with an asterisk. The ROD should be consulted for all required SOPs, Prevention Measures and Mitigation Measures when designing vegetation treatments. The associated Biological Assessment and Biological Opinion should also be consulted when designing vegetation treatments that use herbicides near federally listed species.

The BMPs listed in this handbook should not be considered as a "one-size-fits-all" approach and don't encompass all the effective BMPs currently required. They should be considered and applied where applicable to promote healthy, functioning native plant communities or to meet regulatory requirements. The appropriate BMPs for a particular site may vary to accommodate unique, site-specific conditions and local resource concerns. Specific BMPs should be evaluated by an interdisciplinary team to ensure they are not in conflict with resource goals and objectives. Regardless of the chosen practices, the final strategy used should ensure that the overarching goal of a healthy and functioning native plant community can be achieved by BLM vegetation management projects.

II. Best Management Practices

A. Invasive and Non-Native Species

The following BMPs focus on the prevention of further spread and/or establishment of invasive and non-native species:

- * Before ground-disturbing activities begin, inventory weed infestation and prioritize areas for treatment in project operating areas and along access routes.
- * 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 seed or propagules is least likely.
- * Pre-treat high risk sites for weed establishment and spread before implementing projects.
- Design vegetation treatments to retain native vegetation in and around project activity areas.
- Begin project operations in areas without non-native or noxious weed species.
- Clean vehicles and equipment (remove soil and plant parts) before entering public land.
- * Clean all equipment before leaving the project site if operating in areas infested with weeds. Utilize standard contract provisions to ensure that contractors adhere to this guideline.

- Locate and manage vehicle and equipment wash stations to limit weed and invasive species spread into native plant communities.
- * Inspect and treat weeds that become established at equipment cleaning sites.
- Inspect sand, gravel and fill materials 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 using pit material offsite.
- * Survey the area where material from treated weed-infested sources is used for at least three years after project completion to ensure that any weeds transported to the site are promptly detected and controlled.
- Use caution when transporting vegetative materials and wood products from project sites to minimize the spread of invasive and non-native pests.
- *Locate project staging areas for refueling, maintenance equipment, materials and operating supplies in weed-free areas.
- Dispose of noxious weed and non-native vegetation properly to prevent unwanted spread.
- * Use certified weed-free and/or weed-seed-free hay or straw where certified materials are required and/or are reasonably available.
- * Use weed-free feed for horses and pack animals.
- Schedule management activities (e.g. livestock grazing) when they may be most detrimental to populations of noxious weeds and non-native species without harming preferred species.
- Utilize domestic animals to contain the target species in the treatment areas prior to weed seed set. If seed set has occurred, do not move the domestic animals to uninfested areas for seven days.
- Use sterile or non-persistent exotic plants at low planting densities as nurse crops for local natives to preclude the migration of noxious weeds into adjacent natural areas.
- Schedule and coordinate roadside maintenance activities in consultation with weed specialists.
- * 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.

B. Soil Resource

The following BMPs relate to the protection of soil structure and integrity as well as prevent erosion and compaction:

- Identify soil or site conditions that may dictate specific timing, treatment methods, or equipment, or that may lead to weather-related or seasonal closure of the operation.
- Minimize rutting on primary trails, roads, staging areas, and landings and avoid rutting in the general project area.
- Inspect soil-stabilization practices throughout all stages of operations to ensure they are successful and remain functional.
- Use heavy equipment on dry and/or frozen ground to minimize soil compaction and rutting.
- Minimize damage and/or impacts to biological soil crusts by limiting the use of heavy machinery or excessive traffic in sensitive areas.
- * Minimize use of domestic animals if removal of vegetation may cause significant soil erosion or impact biological soil crusts.
- Minimize site-disturbance on slopes with high erosion potential. Implement erosion control measures where necessary.
- Minimize soil disturbance by limiting the piling and burning of treated fuels.
- Minimize the amount of time between soil disturbance and remediation.
- Conduct mechanical treatments along topographic contours to minimize runoff and erosion.
- Minimize use of heavy equipment on slopes greater than 20%.

C. Native Plant Conservation and Revegetation

The following BMPs apply to the conservation of native plant species and communities. They also relate to the re-vegetation/reestablishment of native plants on disturbed and/or treated sites:

- Reestablish native vegetation on sites if natural regeneration is unlikely. Use native vegetation that is genetically appropriate (e.g. from the same seed zone and of similar elevation) to the area treated when conducting revegetation activities.
- Manage for a mosaic of native plant communities and successional stages across the landscape.
- *When available, use native seed of known origin, as labeled by state seed certification programs that is free of noxious and invasive weeds, as determined and documented by a seed inspection test by a certified seed laboratory.
- Mitigate and limit impacts to habitats with existing and healthy native plant populations. Consider site characteristics, environmental conditions, and application equipment in order to retain native vegetation in and around project areas to the maximum extent possible consistent with project objectives.
- Conduct pre-treatment surveys for special-status plants within or adjacent to proposed treatment areas
- Consider seasonal impacts of management actions (e.g. growing vs. dormant season disturbance effects) when developing objectives and strategies.
- Maintain proper stocking rates and livestock distribution to protect native plant communities. Manage the intensity and duration of containment by domestic animals to minimize over utilization of desirable plant species.
- Where possible, provide interim revegetation in areas being actively disturbed.
- *Limit fertilizer applications that favor annual grass growth over forb growth in newly seeded areas where invasive annuals are becoming established.
- *Use native or sterile species for rehabilitation and stabilization projects to compete with invasive species until desired vegetation establishes.
- Exclude livestock from revegetated areas for a minimum of two growing seasons or until vegetation has become established. Additional time may be required for the arid regions. Consult local policies and decisions to determine the appropriate amount of time.
- Avoid attracting bark beetles to forest and woodland areas where vegetation is being manipulated by removing the treatment residue or by burning or chipping it on site and by minimizing bark damage to residual trees. Chipping should be conducted in the fall to allow the chips to dry over the winter and before the spring bark beetle flight.
- *To support local pollinators use native seed mixes that maximize blooming times when pollinators are most active and include native nectar and pollen-producing plants.

D. Using Pesticides and Biological Controls

The following BMPs relate to the use of pesticides and/or biological controls for the purposes of integrated vegetation management (See SOPs, Prevention Measures or Mitigation Measures in the BLM Vegetation Treatments Using Herbicides Environmental Impact Statement Record of Decision (ROD) (USDI, BLM, 2007a) for complete list of required SOPs when implementing vegetation treatments using herbicides):

- Use only biological control agents on species that have been tested and have approval.
- *Select pesticides that are the least toxic, which will provide the most desired results.
- * Develop plans to thoroughly evaluate the need for chemical treatments and their potential for impact on the environment.
- * Use herbicides after considering the effectiveness of all potential methods or in combination with other methods or controls.

- * Select herbicide that is least damaging to the environment while providing the desired results.
- * 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.
- * To protect special status species, implement all conservation measures for plants, aquatic animals and terrestrial animals presented in the *Vegetation Treatments on Bureau of Land Management Lands in 17 Western States Programmatic Biological Assessment.*
- Evaluate soil characteristics prior to pesticide application to prevent unwanted transport or leaching.
- * Consider effects of wind, humidity, temperature inversions, and heavy rainfall on herbicide effectiveness and risks.
- * Use appropriate buffer zones based on label and risk assessment guidance.
- Minimize use of pesticides near wetlands and riparian areas.
- * Maintain buffers between treatment areas and water bodies. Buffer widths should be developed based on herbicide- and site-specific criteria to minimize impacts to water bodies.
- *Minimize impacts of pesticides on pollinators by utilizing typical application rates, maintaining chemical free buffers around important pollen/nector sources and nesting habitats.
- Minimize damage to non-target plants by using non-broadcast treatments (e.g. spot treatments) and considering seasonality (e.g. treating during dormant periods) when possible.
- *Use chemicals only when they are the minimum method necessary to control weeds that are spreading within the wilderness or threaten lands outside the wilderness.
- * Use the "minimum tool" to treat noxious and invasive vegetation in wilderness, relying primarily on the use of ground-based tools, including backpack sprayers, hand sprayers, and pumps mounted on pack and saddle stock.
- Avoid using pesticides in areas actively grazed by livestock and/or wild horses and burros.
- Avoid using pesticides in areas of special wildlife consideration (see wildlife habitat section below).
- * Notify potentially affected parties of treatment activities that occur on public lands.
- *Post signs noting exclusion areas and the duration of exclusion, if necessary.
- * To minimize fears based on lack of information, provide public educational information on the need for vegetation treatments and the use of herbicides in an integrated pest management program for projects proposing local use of herbicides.

E. Air Quality

The following BMPs deal with the protection and maintenance of air quality. However, these BMPs are not tied directly to any air quality standards and thus, as explained earlier, are only suggestions to be considered when planning integrated vegetation management projects:

- Minimize dust impacts along roads to the extent possible.
- Manage treatments to prevent air quality violations and minimize impacts to smoke-sensitive areas.
- Consider weather-related factors such as wind when developing a smoke management plan for prescribed fire.
- Minimize burning pesticide treated vegetation for at least six months after application.

F. Wildlife Habitat

The following BMPs relate to the protection and maintenance of wildlife habitat. It is important to note that these BMPs were selected not because they minimized impacts directly to wildlife (e.g. direct take of wildlife species) but because they focused more on the habitat (i.e. the vegetation component of habitat). Therefore, any project that may directly impact wildlife should review programmatic BMPs and policies directly related to the take of individual animals:

- Follow standard procedures for compliance with Section 7 of the Endangered Species Act.
- Survey for species of concern when a project may impact sensitive or protected species (e.g. federally and state listed species) and/or their habitat.
- Consider all aspects of wildlife habitat needs (e.g. feeding, shelter, etc.) when developing management strategies. Use site-specific conservation measures from approved biological evaluations for listed species/species of special concern.
- Limit the size and intensity of disturbances within critical habitats or areas where protected/sensitive species are present that could be affected by disturbance. Limit activities which may result in long-term and/or cumulative impacts to sensitive species habitats (e.g., creation of trails or roads in or adjacent to important wildlife habitat).
- Minimize direct impacts to species of concern through appropriate mitigation measures (e.g. season of activity, etc.). Avoid treatments during critical periods for wildlife (e.g. breeding, nesting, foaling, etc.).
- Consider habitat needs of bird populations (both migratory and non-migratory). Avoid activities that may disrupt nesting and breeding of sensitive bird species.
- Provide appropriate amounts of dead woody material following treatments for wildlife habitat (e.g. snags, downed logs, etc.). Take into consideration fuels management and insect pest species.
- When aircraft are used, plan flight paths and schedules to minimize impacts on wildlife.
- Minimize treatments on important forage areas necessary to sustain local livestock and wildlife populations unless they are required to stimulate growth. Use mosaic strategies to treat large areas grazed by animals.
- Design projects so that important food sources for pollinators are treated in patches and vegetation treatments are timed to occur before these sources bloom. Projects should also consider when pollinators are most actively foraging.

G. Cultural and Historical Resources

The following BMPs are related to protection and preservation of cultural and historical resources:

- *Follow standard procedures for compliance with Section 106 of the National Historic Preservation Act.
- Initiate necessary consultations with appropriate cultural resource staff, State Historic Preservation Offices, and Native American Tribes to locate any areas of significance (cultural or historical) that may be impacted.
- Conduct archeological surveys and soils tests in culturally sensitive areas where ground disturbance is possible.
- *Consider impacts to culturally significant plants and work with the appropriate federal, tribal, and state resources to plan mitigation.

H. Water Quality and Wetlands

The following BMPs deal with protection of water resources, maintenance and preservation of riparian areas, and protection of wetlands.

- Minimize crossing of streams (intermittent and perennial) and wetlands with vehicles and heavy machinery.
- Locate residue piles (sawdust, field chipping residue, etc.) away from drainages where runoff may wash residue into water bodies or wetlands.
- *Maintain appropriate vegetative/riparian buffers between treatment areas and water bodies to protect water quality.

- Manage riparian areas to provide adequate shade, sediment control, bank stability, and recruitment of wood into stream channels.
- Locate project staging areas for refueling, maintenance equipment, materials and operating supplies in areas not designated as riparian and/or streambank management zones.

I. Recreation, Visual, and Wilderness Resources

The following BMPs pertain to values and resources related to recreation, aesthetics, and wilderness values and integrity:

- Use the least-intrusive methods possible to achieve objectives in wilderness areas.
- * Use chemicals only when they are the minimum method necessary to control weeds that are spreading within the wilderness or threaten lands outside the wilderness.
- * Use the "minimum tool" to treat noxious and invasive vegetation, relying primarily on the use of ground-based tools, including backpack sprayers, hand sprayers, and pumps mounted on pack and saddle stock.
- Avoid staging areas and large clearings within the view of travel routes or recreation areas.
- Design activities that mimic the form, line, color, and texture of the natural landscape.
- Upon completion of a project remove all trash and human waste from project areas.
- Minimize visual and audible impacts in high use recreation areas.
- Design vegetation treatments to repeat natural openings and mosaic on the landscape.
- Avoid straight line edges by scalloping or feathering edges and creating irregular openings.
- Retain a mix of native plant species and sizes to create a more natural appearance.
- * Notify the public of treatment methods, hazards, time and nearby alternative recreation areas.

III. Summary

As stated previously, the BMPs listed in this handbook are not "one-size-fits-all" and do not encompass all the effective BMPs currently required and/or available. However, several common themes related to the mitigation of environmental impacts were expressed throughout the previous sections. They include:

- The need for proper planning related to timing, spatial extent, and duration are critical to minimize environmental impacts.
- The value of consulting with a cross-section of natural resource specialists (e.g., biologists, ecologists, botanists, range conservationists, foresters, fuels specialists, etc.) to inform the decision making processes.
- The importance of considering multiple factors such as wildlife or water quality when developing and implementing management activities.
- The necessity of contingency revegetation plans in cases where natural reestablishment of native vegetation may not be feasible due to lack of seed source or impacts from competing non-native/invasive vegetation.
- The need to give special emphasis to the protection of sensitive resources (e.g. listed species habitats, cultural resources, etc.).
- The importance of developing inventory and monitoring strategies.

Regardless of the project proposed or outcomes desired, managers involved in integrated vegetation management should consider these six thematic best management practices as well as the protection of human health and safety throughout all stages of planning and implementation.

Chapter 8 - Using Native Plant Materials

I. Introduction

This chapter provides guidance on the use of native plants and seed in restoration and other revegetation projects and provides a brief overview of BLM's Native Plant Materials Development Program. As stated in Chapter 2 of this handbook; it is the policy of the Bureau of Land Management to manage for biologically diverse, resilient and productive native plant communities to sustain the health and productivity of the public lands. This policy recognizes that, for a variety of reasons, not every acre of public land will contain native plants and that, in certain circumstances to prevent further site degradation and improve functionality, non-native plants may be used as part of post fire stabilization and rehabilitation activities as well as in restoration to achieve short-term site stabilization objectives. However, where practical, uses and activities will be conducted to favor the health and persistence of native plant communities where they currently exist and rehabilitation or restoration actions will be undertaken to improve their diversity, resiliency and productivity. The policy in BLM Manual Supplement 1745 requires that native species shall be used except under limited circumstances. This handbook updates the 1745 policy and the procedures used in complying with it.

Healthy native plant communities are typically self-sustaining and rarely require management intervention to recover from natural disturbance. Natural recovery by native plant species is preferable to planting or seeding. However, the introduction of many non-native invasive plants into the United States, combined with disturbances that are often outside the range of natural variability, require BLM to analyze the potential for native plant community recovery and determine which types of treatment are warranted to assist in restoring their health. In some instances, it may be necessary to either reintroduce native species or augment native plant communities to aid in ensuring that more BLM-administered lands achieve Land Health Standards, particularly those focused on the Fundamentals of Land Health of: (1) upland and riparian watershed function; (2) ecological processes such as the nutrient cycle, energy flow, and the hydrologic cycle; (3) water quality; and (4) habitat quality for Threatened & Endangered and special status species.

Native plants are used in a wide range of programs within BLM including, burned area emergency stabilization and rehabilitation, hazardous fuels reduction, forest and rangeland health restoration, wildlife habitat improvement, threatened and endangered species recovery, noxious weed control, and others. It is essential that these programs work together in developing vegetation objectives and determining whether plant community and land health goals will require reintroduction or augmentation with native plants.

II. Establishing Priorities for Using Native Plants

Because native plant materials are in short supply, and many new native plant species are needed in the plant material toolbox for restoration and rehabilitation, combined with the length of time it takes to get new plant materials developed and released for use, the planning phase may be the most important part of any project.

Determining native plant materials needs should be part of the land-use planning process. While developing a LUP, field offices should determine priority areas for restoration and rehabilitation, the native plant species needed to restore those areas and the desired densities, frequencies or composition of those plants in the desired plant community or the potential natural community. Field offices should evaluate the suitability of the native plant material that is available for the sites, and begin collecting from local populations of those species that are not currently available using the protocol developed for the "Seeds of Success" project (see Appendix 4). Seed collected in this manner should be contributed to the native plant germplasm collections curated by the Agricultural Research Service (in Pullman, Washington and Fort Collins, Colorado facilities) for future plant

material development. It could also be taken to local growers for immediate seed increase or it could be used in a project requiring a small amount of seed.

When collecting seed for a project, generally use several (~ 50 or more) unrelated (spaced at least one-quarter mile apart for self pollinated species and within one-quarter mile for some cross-pollinated species) source plants within the collection area to maximize genetic diversity, would be collected in areas that match the ecological characteristics of the project area. Only use healthy source plants. It is best to collect seed when it is mature and still on the plant (if possible). For plants that disperse their seed quickly at maturity, spreading sheets beneath the parent plant is advised. Try to collect an equal number of seeds/cuttings from each source plant. These steps are outlined with more detail in Appendix 4.

Document the location of all source populations and as much as possible, track the plant materials taken from each population until they reach the field, and monitor the performance of each collection over time.

III. Treatment Design Considerations

The following criteria should be considered when designing treatments that reintroduce native plant species or augment existing native plant communities:

A. Seed collection from the site to be disturbed prior to disturbance actually taking place is an ideal means for acquiring locally adapted seed. Stockpiling should begin as early as possible. If nursery-grown seedlings are required, allow plenty of time for growing out. Early consideration should also be given to soil stockpiling, erosion control methods, and on-site planting and maintenance activities.

B. In the case of stabilizing and rehabilitating sites following wildfire, or other unplanned disturbance event, the use of a Programmatic Emergency Fire Stabilization and Rehabilitation Plan prepared in advance can help identify native plant material needs. Determining what native seed will be needed for stabilization and rehabilitation purposes in the event of an unplanned disturbance is recommended for areas prone to disturbance events.

C. Careful consideration must be given to selecting native plant species to be reintroduced or used in augmenting existing plant communities. A variety of sources are available for information on plant species native to a particular site. References including local floras and herbarium collections should be consulted as well as the sources mentioned in Chapter 4 to determine what species should be in the mix to increase the likelihood of success. Climatic information should be reviewed for information on timing of growing season, precipitation and annual precipitation patterns. The following are important sources of information for evaluating and planning vegetation treatments:

   1. The Ecological Site Descriptions for your local area can be obtained either from the NRCS state rangeland management specialist or on the web at: http://www.nrcs.usda.gov/technical/efotg/.
   2. The Fire Effects Information System (FEIS) at http://www.fs.fed.us/database/feis/ is one source of information on fire effects and recovery potential for many plants.
   3. The NRCS "VegSpec" website (http://www.plants.usda.gov and click on "VegSpec" icon) is an expert system that aids technical specialists or managers in making decisions on what to plant on specific sites. VegSpec integrates the Natural Resources Conservation Service (NRCS) soils, plants, and climate databases to select adapted plants including those native to the United States to seed in rehabilitation or restoration projects.

4. "Guidebook to the Seeds of Native and Non-Native Grasses, Forbs and Shrubs of the Great Basin," Scott Lambert 2005. Bureau of Land Management, Idaho Technical Bulletin No. 2005-04.
5. The Plant Conservation Alliance (http://nps.gov/plants) website has many useful links and sources of information for determining species that may be appropriate to use in restoration work.

F. Determine if appropriate commercially available native plant material exists, thereby decreasing costs considerably over locally collected and grown out native seed. If the plant material is not commercially available, determine the collection method (seeds or cuttings), the amount needed, and the planting method (seeding or transplanting), potential revegetation success, and costs in choosing what to collect or what to plant on the site. If nursery or seed collection and grow-out services are required, keep in mind that some nurseries and collectors require a year or more advance notification.

G. Determine techniques applicable to the life form you are collecting material from, transplanting, and/or seeding through literature review and personal contacts. Use the best method of seeding or planting as developed by knowledgeable plant researchers, such as the BLM Seed Warehouse, U.S. Forest Service Shrub Lab, National Resource Conservation Service Plant Materials Centers, and the U.S. Forest Service research stations.

H. When special-status plants are known or suspected in an area to be treated, avoid the use of any plant material that can interbreed with or out-compete the special-status species. Some taxa interbreed more easily than others. When choosing species for restoration and rehabilitation efforts where special status plants are present, consider the risk of genetic contamination to the genus level for special status plants and other declining plant species. For example, where listed or sensitive Penstemon species occur, choose only common Penstemon species that are native to the project site in a rehabilitation or restoration mix. Avoid the use of plant material releases that were developed to aggressively establish and out-compete other plant species in special status plant habitats. The use of locally rare plant species in vegetation treatments should be avoided except when special status plant species reintroduction/augmentation plans are written and approved. Federally listed or proposed species shall not be used for native plant reintroduction or augmentation efforts unless authorized in an approved recovery plan. Following the best management practices outlined in the previous chapter for native plant protection and revegetation will benefit special-status plant populations.

I. Develop plans for long-term maintenance and monitoring of planted or seeded areas.

J. The management of seeded or planted areas must be designed to maintain or enhance the native plant species that have been reintroduced or augmented.

K. Develop a contingency plan in case the plant materials become unavailable or fail to survive in the field. Seed availability may be a limiting factor for some species, so several different native species should be considered.

L. If possible, maintain an ongoing stock of seed or vegetative materials from frequently used local species, to aid in maintaining species composition on site during restoration projects. This is especially useful for species currently not available in the seed industry such as native annual grasses and important forb species. Meticulous records must be kept on the source of all materials. Use of a central collection facility such as ARS seed storage or an NRCS Plant Material Center may be more advantageous than developing field office storage.

M. Some plant species, such as oaks, have seeds that will not survive in storage. If possible, designate and manage areas of those species to maintain seed sources in the field when they are determined to be priority species needed for restoration in the land use planning process.

IV. Plant Material Sources

A. Natural Regeneration

If there is an ample seed source and suitable conditions, natural regeneration is preferred. However, to rely on natural regeneration, one must be confident there is not significant weed seed existing in the soil or on an adjacent site. Topsoil should be salvaged and re-spread if possible, as native seeds and microbiota can often be preserved (if storage length is limited). Care should be taken during the time it is stored to keep it free from invasive plants and their seeds.

B. Plant Salvage

If a project will take place where native plants will be lost in a location that will not be managed to meet land health standards such as developing a new open pit mine, plants can be salvaged from the site and used in nearby restoration and rehabilitation projects. Replant salvaged material as soon as possible to avoid loss of plants. Replant salvaged material in sites that match the original one to the extent possible to ensure adaptability.

C. Wildland Seed Collection

To the extent possible, seeds and plants used in restoration, erosion control, burned area stabilization and rehabilitation, forage enhancement, and other projects should originate from local sources. Local sources often possess genotypes that are adapted to the local environment, leading to higher short-term and long-term establishment and survival rates. "Local" refers to sources within or as close as possible to the project area and within the same ecological region. Collections should also be made within the same vegetation series and general soil type. Follow the recommendations outlined in native plant seed transfer zones as they become available.

If a plant population occurs on an unusual soil (e.g., serpentine), is found in an extreme environment or has distinct morphological characteristics that may be genetically based, then take seeds/cuttings from these local variants for use in projects where these occur. For example, a restoration effort on serpentine soil would use only seeds/cuttings collected on serpentine soil from within the same ecological site and elevation band. Ideally, riparian species should be collected from riparian areas immediately upstream or downstream, or within sub-watersheds within the same ecological site and at similar elevations. These guidelines can and should be tailored to individual species, sites and conditions. The use of common garden studies, out-plantings, and genetic analysis can be helpful in determining the presence and distribution of ecotypes, and should be done by personnel experienced with the various techniques.

When contracting seed collection, make sure the collector is experienced in seed collection, knowledgeable of the area and species and reputable; with a history of satisfactorily completing contracts. Determine payment based on pure live seed delivered. If collected seeds are grown out in a nursery, make sure that the contract states that the seeds are government property, and cannot be used for commercial purposes. For additional information on wild seed collection see Appendix 4 – "Seeds of Success Protocol."

D. Commercial Seed Sources

If local sources are unavailable, commercial sources of native plants and seeds may be used. There are two sources of commercially available native plant seed. Seed can come from germplasm releases made by USDA Plant Materials Centers that was grown out and multiplied by growers in the seed industry or it can be collected from wildland plants. Germplasm releases are often named cultivars. Wildland collected seed is typically from shrubs like sagebrush, or forb species that are requested by the seed industry, but to date have not been included in germplasm releases. Cultivars can be manipulated or they can be natural, without genetic manipulation. Many of the cultivars available today are grass species. Information on the location of seed used to make a cultivar or release, the type of manipulation, if any, and the intended uses of a cultivar or release are available on line at http:/nativeseednetwork.org or from the USDA Plant Material Center responsible for release. This information can be helpful in determining if the use of released germplasm is appropriate in a restoration or rehabilitation project.

Plant materials should be bred and/or grown under environmental conditions that are similar to the project area. Ideally, plant sources should be within the same eco-region as the project area. It is best to use commercial sources where the genetic origin is verified by source identification through seed certification. When possible, purchase nursery-produced native seed grown under conditions that did not allow hybridization with other species or non-adapted collections of the same species.

The Association of Official Seed Certifying Agencies (AOSCA) has a process for certified production of native seed. During seed procurement, communicate with the state AOSCA certification agency to get independent verification of the identification as to the subspecies, seed type, and seed source location, including elevation. When buying native seed, the best choice is Pre-Varietal, Germplasm Category Source Identified (Yellow Tag). If native seed comes from a common garden selection it will be Pre-Varietal, Germplasm Category Selected Class (Green Tag). More information on AOSCA is available at http://www.aosca.org.

1. Consolidated Seed Buys

   The national seed coordinator and the National Business Center contracting officer coordinate consolidated seed buys, which occur at least three times per year: spring (March-April), summer (July), and fall (October). The consolidated seed buys procure seed for Great Basin area BLM field offices and district offices, and for selected programs such as Burned Area Emergency Stabilization and Rehabilitation. The advantage of being part of the consolidated seed buy is that the seed coordinator and the contracting officer are familiar with the seed industry and knowledgeable about the current native seed market and help BLM offices get the best quality native seed for the best price.

2. Indefinite-Delivery, Indefinite-Quantity Contracts

   Indefinite-Delivery, Indefinite-Quantity (IDIQ) contracts may be useful for seed procurement and for grow-out or increase of local, herbaceous, native plant materials. An IDIQ contract estimates the quantities and species to be ordered by BLM over the entire life of the contract. These contracts can be developed using an interagency approach so that contracting officers from BLM, Bureau of Indian Affairs, Fish and Wildlife Service, National Park Service, and U.S. Forest Service are authorized to place delivery orders against an IDIQ contract.

3. Non-native Plant Materials

Although native plants should always be given first consideration, there are certain situations where non-natives may be desired. For example, on highly disturbed sites that have had their physical characteristics altered so that native vegetation can not reestablish or survive, it may be necessary to use non-natives to help restore site stability. Other examples include noxious weed containment and emergency situations where there is a risk of soil loss or threats to life and property. In cases where the use of non-native vegetation is desired, a justification, including the identification of any desired native species that is not available, should be submitted for approval by the state director or other delegated authority. As outlined in BLM Manual 1745 - Introduction, Transplant, Augmentation, and Reestablishment of Fish, Wildlife, and Plants, the use of non-native seeds as part of a seeding mixture is appropriate only if:

a. Suitable native species are not available,
b. The natural biological diversity of the proposed management area will not be diminished,
c. Exotic and naturalized species can be confined within the proposed management area,
d. Analysis of ecological site inventory information indicates that a site will not support reestablishment of a species that historically was part of the natural environment and,
e. Resource management objectives cannot be met with native species.

When suitable natives are not available, identify the native species (including subspecies or variety when applicable) that is not available. Identify plant species native to the project area that may be available as a first substitute. If natives are only partially available, or not available, identify a non-native species of the same functional group to use on that site. If analysis of ecological site inventory information indicates that a site will not support reestablishment of a species that historically was part of the natural environment, look for suitable native species replacements before choosing non-native plants.

In considering the natural biological diversity of the area, it is best to consider the whole community, its processes and the dynamics between species rather than maintenance of vascular plant diversity. For example, there can be unintended consequences of the use of non-natives if or when soil microbial communities or pollinating animals including insects are displaced because non-native plants are chosen.

All non-native vegetation used should be non-invasive and ideally be short-lived, have low reproductive capabilities, or be self-pollinating to prevent gene flow into the native community. One good example is sterile oats, which provide erosion control and will fade out in one year without cultivation (although they do release seed if disturbed). Non-native vegetation should not compete with the naturally occurring or returning native plant community or exchange genetic material with common native plant species. Non-native material must not invade plant communities outside the targeted management area. Non-natives listed on state and federal noxious weed species lists or non-natives listed in state weed seed lists must not be considered for use.

As stated in Chapter 2, diverse, healthy, and resilient native plant communities provide the greatest opportunity to be successful in meeting multiple use objectives within BLM. Set resource management objectives that can be met using native species for most situations. However, as a last resort, it may be necessary to introduce non-native, non-invasive plant materials to break unnatural disturbance cycles or to prevent further site degradation by noxious or invasive plants.

V. Seed Quality

All seeds/plants used for BLM projects will be tested for weeds, pests and diseases, and shall be processed, stored, and conditioned properly. All field offices are required to use seed on public land that contain no noxious weed seed and meets certified seed quality. All seed to be applied on public land must have a valid seed test, within one year of the acceptance date, from a seed analysis lab by a registered seed analyst (Association of Official Seed Analysts). The seed lab results shall show no more than 0.5 percent by weight of other weed seeds; and the seed lot shall contain no noxious, prohibited, or restricted weed seeds according to state seed laws in the respective state(s). The seed procured for use on public land will meet the Federal Seed Act criteria. Seed may contain up to 2.0 percent of 'other crop seed' by weight, which includes the seed of other agronomic crops and native plants; however, a lower percent of other crop seed is recommended. Purchase seed with less than 12% moisture content to avoid mold or rot of seed.

Copies of the seed lab test results, including purity and germination (viability) rate, must be forwarded to the appropriate BLM office prior to seed application. If the seed does not meet the BLM and state/federal standard for noxious weed seed content or other crop seed allowances, it shall not be applied to public land. All seed test results must be retained in the seeding project file. The BLM state contracts for seed may be more restrictive with "other weed seeds" of concern as deemed necessary.

VI. Seed Storage

The native seed BLM buys or collects should be stored in the most optimal conditions to ensure the longest shelf life. Ensure that the seed going on the ground has not lost its viability during seed storage. For example, sagebrush seed not stored under optimal cold storage conditions (36-38 degrees Fahrenheit and average 25 percent relative humidity) may last only a few weeks in hot localities and a few months in cooler localities.

Seed storage requirements are highly variable for each species. Generally, each 1% reduction in seed moisture and each 10 degree Fahrenheit reduction in seed temperature doubles the life of the seed. Dry the seeds to between 5-8% moisture content before tightly sealing in durable containers to store seeds for three to five years at ambient temperatures. For longer storage, dry to 2.5-5% moisture. As a minimum, properly label each container with information on species, location of source plant, environmental information, date of collection, and the collector. A central collection facility such as an ARS seed storage facility or an NRCS plant material center may be more advantageous than developing field office storage.

The BLM National Seed Warehouse in Boise, Idaho, provides most seed needed in the Great Basin states (ID, OR, NV, and UT) under a Memorandum of Understanding between the state directors and the seed warehouse. However, all other states can receive seed and/or assistance in procurement of seed. Because of space limitations, the National Seed Warehouse stores only the seed procured through consolidated seed buys and only until the seed can be delivered to the office requesting it.

BLM participates in the native seed collection that is stored and curated at the ARS seed storage facility in Pullman, Washington. Seed that has been collected from public land and is cleaned and ready for storage can be sent to this collection with the proper documentation.

VII. Seeding Rates

Determining and applying suitable seed rates is an essential aspect of developing successful, cost-effective plans and treatments. Consult the BLM national seed coordinator and other local plant material specialists or appropriate literature when developing seeding treatments to determine the most appropriate seeding rate.

The USDA recommendation for drilled seeding rate for large seeded species is 20 pure live seeds (PLS) per square foot. The recommended drill seeding rate for small seeded species (most BLM seed mixes) is 30 to 40 seeds per square foot.

Broadcast or aerial seedings are recommended at the rate of 60 to 80 seeds per square foot (about double the drilled rate).

Aerial or broadcast seeding rates should not be higher than has proven to be successful and cost effective. As an example, 0.2 lbs PLS of Wyoming big sagebrush seed (approx. 1.25 lbs bulk) per acre equals 11.5 sagebrush seeds per sq. ft. should not be exceeded, even in an aerial seeding.

If multiple seed applications are planned, the rate per treatment should be lowered so that the total seed rate, combining all application methods, does not exceed 80 seeds per square foot.

Because of limited knowledge of the techniques necessary to plant and establish many new native plant species, monitor and document the success of the application of native plant materials using quantitative, measurable methods.

VIII. Native Plant Materials Development Program Overview

The BLM Native Plant Materials Program began in 2001 with direction from Congress to develop a long-term program to manage and supply native plant materials for use in federal land management rehabilitation and restoration efforts. The native plant materials program recognizes that public lands are the primary source of new plant materials needed for restoration and rehabilitation work.

Congress specifically directed "the Secretaries of Interior and Agriculture to report jointly to Congress with specific plans and recommendations to supply native plant materials for emergency stabilization and longer-term rehabilitation and restoration efforts." The "Report to Congress" (Appendix 5) outlined the following five action items for the federal land managing agencies:

A. Undertake a comprehensive assessment of the short-term and long-term need for native plant materials including estimate of the amount of native plant materials needed and whether an adequate supply of these plant materials exists. Agencies also need the ability to identify and track this information.

B. Make a long-term commitment to native plant materials production, research and development, education and outreach, and technology transfer. On-going financial and organizational support will be required to increase the variety and quantity of native plant materials. The average time it takes to develop a typical native plant cultivar is between ten and twenty years.

C. Expand efforts to increase availability of numerous species of native plant materials. Both increases in commercial field production and wildland seed collection are needed to meet public land needs. Annual seed purchases by federal agencies, or as a result of federal programs, vary greatly creating an unpredictable market. Multi-year contracting and increased storage capacity could enhance market stability. Agencies can also facilitate a secondary, non-federal market.

D. Invest in partnerships with state and local agencies and the private sector. Identify restoration and rehabilitation efforts to conduct in partnership with other land managers and interested parties. Close cooperation and coordination with the private seed industry will ensure their interests and concerns are addressed.

E. Ensure that adequate science-based protocols for monitoring of restoration and rehabilitation efforts are established. To promote efficiency and economy, monitoring programs with consistent protocols for measuring success must be developed and implemented.

Attachment B:
Biological and Conference Opinion and Conference Report for the Southline Transmission Line Project

And

Reinitiation of Consultation on the Proposed Southline Transmission Project to Reflect an Update to the Agency Preferred Alternative for the Final Environmental Impact Statement

United States Department of the Interior
Fish and Wildlife Service
Arizona Ecological Services Office
2321 West Royal Palm Road, Suite 103
Phoenix, Arizona 85021-4951
Telephone: (602) 242-0210 Fax: (602) 242-2513

AESO/SE
02EAAZ00-2014-F-0140

December 30, 2014

Memorandum

To: District Manager, Bureau of Land Management, Las Cruces, New Mexico

From: Field Supervisor, Arizona Ecological Services Office

Subject: Biological and Conference Opinion and Conference Report on the Proposed Southline Transmission Project

Thank you for your request for formal consultation and conference with the U.S. Fish and Wildlife Service (FWS) pursuant to section 7 of the Endangered Species Act of 1973 (16 U.S.C. 1531-1544), as amended (Act). Your request was dated March 4, 2014, and received by us on March 4, 2014. At issue are the impacts that may result from the proposed Southline Transmission Project located in Doña Ana, Luna, Grant, and Hidalgo counties, New Mexico, and Greenlee, Graham, Cochise, Pima, and Pinal counties, Arizona. You determined that the proposed action may affect, and is likely to adversely affect, the endangered lesser long-nosed bat (*Leptonycteris curasoae yerbabuenae*), the endangered Mexican long-nosed bat (*Leptonycteris nivalis*), the endangered Pima pineapple cactus (*Coryphantha scheeri var. robustispina*), and the endangered southwestern willow flycatcher (*Empidonax traillii extimus*).

In your memorandum, you requested our concurrence that the proposed action may affect, but is not likely to adversely affect, the endangered Gila chub (*Gila intermedia*) and its critical habitat and the endangered Huachuca water umbel (*Lilaeopsis schaffneriana* var. *recurva*). We concur with your determinations and provide our rationale in Appendix A.

In addition, you requested conference for effects of the proposed action on proposed threatened northern Mexican gartersnake (*Thamnophis eques megalops*) and its proposed critical habitat, and on the proposed threatened yellow-billed cuckoo (*Coccyzus americanus*) western distinct population. On September 23, 2014, you changed your request for a formal conference to a request for a formal consultation regarding the effects of the proposed action on the northern Mexican gartersnake because it was listed as threatened since your March 4, 2014, request. On October 10, 2014, you changed your request for a formal conference to a request for a formal consultation regarding the effects of the proposed action on the yellow-billed cuckoo because it was listed as threatened since your March 4, 2014 request, and you also requested a formal

conference on yellow-billed cuckoo proposed critical habitat, which was proposed since your request of March 4, 2014. Therefore, we are also providing formal consultation for the northern Mexican gartersnake and the yellow-billed cuckoo, and formal conference for the proposed critical habitat for these species, all of which are presented in the main body of this biological and conference opinion.

You also requested conference for effects of the project on the non-essential population of northern aplomado falcon (*Falco femoralis septentrionalis*), which is provided through a conference report as Appendix B. You also requested technical assistance for effects of the project on candidate species Sonoran desert tortoise (*Gopherus morafkai*) and Sprague's pipit (*Anthus spragueii*) which is provided in Appendix C. You also requested technical assistance for the effects of the project on the Tucson shovel-nosed snake (*Chionactis occipitalis klauberi*). On September 23, 2014, we found that listing the Tucson shovel-nosed snake as an endangered or threatened species is not warranted and we removed this subspecies from our candidate list. Therefore, we are not providing technical assistance for this former candidate species.

This biological and conference opinion and conference report is based on information provided in the February 2014 "Biological Assessment for the Southline Transmission Project," the March 2014 "Proposed Southline Transmission Line Project Draft Environmental Impact Statement and Draft Resource Management Plan Amendment," telephone conversations, field investigations, and other sources of information. Literature cited in this biological and conference opinion is not a complete bibliography of all literature available on the species of concern, transmission line construction and its effects, or on other subjects considered in this opinion. A complete administrative record of this consultation is on file at this office.

Consultation History

- March 4, 2014. We received your request for formal consultation and conference.
- July 9, 2014. We sent you a request for an additional 60 days to complete formal consultation.
- August 4, 2014. We received your concurrence for an additional 60 days to complete formal consultation.
- September 23, 2014. We received your request to change from a conference opinion to biological opinion for the recently listed northern Mexican gartersnake
- October 10, 2014. We received your request to change from a conference opinion to a biological opinion for the recently listed yellow-billed cuckoo, and for a conference opinion regarding yellow-billed cuckoo proposed critical habitat.
- November 10, 2014. We sent you the draft biological and conference opinion for review and comment.
- December 17, 2014. We received your comments on the draft biological and conference opinion along with the amendment to the Biological Assessment.

BIOLOGICAL OPINION

DESCRIPTION OF THE PROPOSED ACTION

The proposed action is: for the BLM to issue a right-of-way grant to Southline Transmission, LLC (Southline) for the construction and operation of a 345 kV transmission line from the Afton Substation in New Mexico to the Apache Substation in Arizona (BO Figure1); for Western Area Power Administration (Western) to authorize and participate with Southline in the upgrade an existing Western transmission line and associated facilities from 115 kV to 230 kV from Apache Substation to Saguaro Substation in Arizona (BO Figure 1); for the U.S. Forest Service to authorize the upgrade of the Western line across Forest Service managed land in Cochise County, Arizona; and for the U.S. Bureau of Reclamation (Reclamation) to authorize the upgrade of the Western line across Reclamation managed lands in Pima and Pinal counties, Arizona. Because multiple Federal agencies have actions that are required by the project, this BCO evaluates all of these proposed actions and provides section 7 compliance for all of these agencies' actions. The BLM is acting as the lead action agency with regard to this consultation.

The Southline Transmission Line Project (project) is a proposed electrical transmission line project that would consist of two sections. The first section would entail construction of approximately 240 miles of new double-circuit 345-kilovolt (kV) transmission line in a 200-foot right-of-way (ROW) between the Afton Substation, south of Las Cruces in Doña Ana County, New Mexico, and Western's Apache Substation, south of Willcox in Cochise County, Arizona (New Build Section). The second section would entail the upgrade of approximately 120 miles of Western's existing Saguaro–Tucson and Tucson–Apache 115-kV transmission lines to a double-circuit 230-kV transmission line in a 100-foot existing ROW (Upgrade Section). The Upgrade Section would originate at the Apache Substation and terminate at the Saguaro Substation northwest of Tucson in Pinal County, Arizona (BO Figure 1). Both new permanent ROW and temporary construction ROW would be required in the New Build Section and in some portions of the Upgrade Section for the transmission line, substations, access roads, and other permanent and temporary project components; the anticipated ROW width for the Upgrade Section 230-kV transmission line would be 150 feet. The proposed project would also include installation of new communications equipment, and connect to 14 substations distributed throughout southern New Mexico and Arizona, including expanding/upgrading existing substations and potentially constructing a new substation in Luna County, New Mexico. The proposed project would also include installation of new communications equipment to facilitate operations. The proposed action includes proponent committed environmental measures, best management practices (BMPs), and additional proposed species-specific conservation measures (BA Table 3-7 included as Appendix D of this BO).

On December 17, 2014, you provided an amendment to your Biological Assessment with an updated project description (route changes) and an updated effects analysis for Leptonycteris bats. The route changes would occur in route group 2 and 4. You concluded that the route changes would not change the effects analysis or determinations for any listed species.

The proposed action includes maintenance activities, which includes inspecting portions of the line by air and ground, repair of structures and electrical equipment, access road maintenance,

clearing vegetation as necessary to minimize fire hazard or physical impedance of the transmission line, and noxious plant control. Maintenance of vegetation would be done using mechanical and manual equipment, such as weed trimmers, rakes, shovels, mowers, brush hooks, and, occasionally as need, chainsaws. Although unlikely to be necessary, species-dependent herbicide could be applied subsequent to vegetation clearing to prevent regrowth of that vegetation and/or noxious and invasive weeds. Emergency maintenance may be needed to repair downed wires during storms and correct unexpected outages, and repair or replace damaged equipment.

Action Area

The action area for this BO is defined as a 1-mile buffer on either side of the centerline of the Agency Preferred Alternative in the New Build Section and a 500-foot corridor (200 feet off of the existing 100-foot-wide ROW) (see BO Figure 1) in the Upgrade Section, as well as any identified substations, staging areas, or access roads outside those corridors.

Term of ROW (New Build Section)

The term of the BLM right-of-way grant to allow use of Federal land within the New Build Section of the proposed project would be limited to 50 years.

Conservation Measures

Lesser Long-nosed Bat and Mexican Long-nosed Bat

LNB-1: All paniculate agaves (*Agave palmeri*, *A. parryi*, and *A. chrysantha*) and saguaros would be inventoried within the proposed ROW, and the potential to avoid or salvage each plant would be assessed. The priority would be avoidance when feasible.

LNB-2: All suitable (e.g., healthy, undamaged, not flowering) paniculate agaves that could not be avoided would be salvaged using methods approved by the BLM/Western and FWS, but mature agaves would be given preference for avoidance when feasible. Plants salvaged from areas of permanent disturbance would be used to reclaim areas of temporary disturbance, or replanted outside disturbed areas if necessary.

LNB-3: Saguaros less than 15 feet in height would be salvaged, unless prevented by site-specific conditions or poor plant health. Plants salvaged from areas of permanent disturbance would be used to reclaim areas of temporary disturbance, or replanted outside of disturbed areas if necessary. Larger saguaros would be avoided whenever feasible, but would be topped or removed if necessary.

LNB-4: Agave and saguaro salvage would be augmented, as necessary, within three years after completion of initial restoration activities. Augmentation would occur within the ROW in areas of higher value to bats (e.g., in the vicinity of active roosts, within areas of high concentration of agaves) to achieve a goal of no net loss of forage plants. Plant stocks from local sources or approved nursery-grown plants would be used.

LNB-5: Salvaged plants would be monitored following reclamation for a period of 3 years, as described in the POD. Supplementary water would be provided, if monitoring indicates that

rainfall is insufficient to achieve the goal of no net loss of forage plants. Plant survival through the monitoring period would be reported annually to the BLM/Western and FWS.

Pima Pineapple Cactus

PPC-1: Any Pima pineapple cactus that are not within the area of permanent disturbance, but are present within the project vicinity, shall be flagged by a qualified biologist prior to the commencement of work to avoid accidental damage during construction. Flagging will be removed following construction.

PPC-2: Any Pima pineapple cactus that cannot be avoided would be conserved by relocating plants within the existing ROW, but outside of the area of any ongoing disturbance.

PPC-3: For Pima pineapple cactus that cannot be avoided. Southline will purchase credits in an FWS-approved conservation bank for Pima pineapple cactus, corresponding to the area of permanent disturbance to occupied Pima pineapple cactus habitat. Alternatively, Southline my purchase suitable mitigation lands within Pima County's Pima pineapple cactus priority conservation areas.

PPC-4: In compliance with Executive Order 13112 regarding invasive species, all disturbed soils that will not be landscaped or otherwise permanently stabilized by construction shall be seeded using species native to the project vicinity.

PPC-5: Also in compliance with Executive Order 13112 regarding invasive species, all earth-moving and hauling equipment shall be washed at the contractor's storage facility prior to arriving on site to prevent the introduction of invasive species.

PPC-4: To prevent invasive species propagules from leaving the site, the contractor shall inspect all construction equipment and remove all attached plant/vegetation and soil/mud debris prior to leaving the construction site.

Southwestern Willow Flycatcher

WF-1: All non-emergency construction and maintenance in riparian woodlands at the San Pedro River, Cienega Creek, and the Santa Cruz River would take place between September 15 and March 1, to avoid disturbance of breeding or nesting southwestern willow flycatchers.

WF-2: Line marking devices would be placed at the proposed crossings of the San Pedro River, Cienega Creek, and the Santa Cruz River to minimize the potential for avian collisions with transmission lines.

Northern Mexican Gartersnake

No specific conservation measures are proposed for the northern Mexican gartersnake because the proposed action minimizes ground and vegetation disturbance within the riparian habitat and proposed critical habitat at Cienega Creek and the San Pedro River (see Effects of the Action). However, some conservation benefit to the gartersnake is derived by shortened construction time frames proposed as conservation measures for the yellow-billed cuckoo and southwestern willow flycatcher.

Yellow-billed Cuckoo

YBC-1: All non-emergency construction and maintenance in riparian woodlands at the San Pedro River, Cienega Creek, and Santa Cruz River would take place between September 15 and March 1, to avoid disturbance of breeding or nesting yellow-billed cuckoos.

YBC-2: Line marking devices would be placed at the proposed crossings of the San Pedro River and Cienega Creek to minimize the potential for avian collisions with transmission lines.

STATUS OF THE SPECIES AND CRITICAL HABITAT

Lesser Long-Nosed Bat

The lesser long-nosed bat was listed (originally, as *Leptonycteris sanborni*; Sanborn's long-nosed bat) as endangered in 1988 (53 FR 38456). No critical habitat has been designated for this species. A recovery plan was completed in 1997 (U.S. Fish and Wildlife Service 1997). Loss of roost and foraging habitat, as well as direct taking of individual bats during animal control programs, particularly in Mexico, have contributed to the current endangered status of the species. Recovery actions include roost monitoring, protection of roosts and foraging resources, and reducing existing and new threats. The recovery plan states that the species will be considered for delisting when three major maternity roosts and two post-maternity roosts in the U.S., and three maternity roosts in Mexico have remained stable or increased in size for at least five years, following the approval of the recovery plan. A five-year review has been completed and recommends downlisting to threatened (U.S. Fish and Wildlife Service 2007b).

Species Description

The lesser long-nosed bat is a medium-sized, leaf-nosed bat. It has a long muzzle and a long tongue, and is capable of hover flight. These features are adaptations for feeding on nectar from the flowers of columnar cacti (e.g., saguaro [*Carnegiea gigantea*]; cardon [*Pachycereus pringlei*]; and organ pipe cactus [*Stenocereus thurberi*]; and from paniculate agaves (e.g., Palmer's agave [*Agave palmeri*]) (Hoffmeister 1986).

Distribution and Life History

The lesser long-nosed bat is migratory and found throughout its historical range, from southern Arizona and extreme southwestern New Mexico, through western Mexico, and south to El Salvador. It has been recorded in southern Arizona from the Picacho Mountains (Pinal County) southwest to the Agua Dulce Mountains (Pima County) and Copper Mountains (Yuma County), southeast to the Peloncillo Mountains (Cochise County), and south to the international boundary; and in the boot heel of New Mexico (Hidalgo County).

Within the U.S., habitat types occupied by the lesser long-nosed bat include Sonoran Desert scrub, semi-desert and plains grasslands, and oak and pine-oak woodlands. Farther south, the lesser long-nosed bat occurs at higher elevations. Maternity roosts, suitable day roosts, and concentrations of food plants are all critical resources for the lesser long-nosed bat. All of the factors that make roost sites suitable have not yet been identified, but maternity roosts tend to be

very warm and poorly ventilated (U.S. Fish and Wildlife Service 1997). Such roosts reduce the energetic requirements of adult females while they are raising their young (Arends *et al.* 1995).

Roosts in Arizona are occupied from late April to September (Cockrum and Petryszyn 1991) and on occasion, as late as November (Sidner 2000); the lesser long-nosed bat has only rarely been recorded outside of this time period in Arizona (U. S. Fish and Wildlife Service 1997, Hoffmeister 1986, Sidner and Houser 1990). In New Mexico, lesser long-nosed bats typically occupy roosts in late summer and fall. In spring, adult females, most of which are pregnant, arrive in Arizona and gather into maternity colonies in southwestern Arizona. These roosts are typically at low elevations near concentrations of flowering columnar cacti. After the young are weaned, these colonies mostly disband in July and August; some females and young move to higher elevations, primarily in the southeastern parts of Arizona near concentrations of blooming paniculate agaves. Adult males typically occupy separate roosts forming bachelor colonies. Males are known mostly from the Chiricahua Mountains and, recently, the Galiuro Mountains (personal communication with Tim Snow, Arizona Game and Fish Department, 1999), but also occur with adult females and young of the year at maternity sites (U. S. Fish and Wildlife Service 1997). Throughout the night between foraging bouts, both sexes will rest in temporary night roosts (Hoffmeister 1986).

Lesser long-nosed bats appear to be opportunistic foragers and extremely efficient fliers. They are known to fly long distances from roost sites to foraging sites. Night flights from maternity colonies to foraging areas have been documented in Arizona at up to 25 miles, and in Mexico, at 25 miles and 36 miles (one way) (Ober *et al.* 2000; Dalton *et al.* 1994, Ober and Steidl 2004, Lowery *et al.* 2009). Lowery *et al.* (2009) and Steidl (personal communication, 2001) found that typical one-way foraging distance for bats in southeastern Arizona is roughly 6 to 18 miles. A substantial portion of the lesser long-nosed bats at the Pinacate Cave in northwestern Sonora (a maternity colony) fly 25-31 miles each night to foraging areas in OPCNM (U.S. Fish and Wildlife Service 1997). Horner *et al.* (1990) found that lesser long-nosed bats commuted 30-36 miles round trip between an island maternity roost and the mainland in Sonora; the authors suggested these bats regularly flew at least 47 miles each night. Lesser long-nosed bats have been observed feeding at hummingbird feeders many miles from the closest known potential roost site (Lowery *et al.* 2009; personal communication with Yar Petryszyn, University of Arizona 1997).

Lesser long-nosed bats, which often forage in flocks, consume nectar and pollen of paniculate agave flowers; and pollen and fruit produced by a variety of columnar cacti. Nectar of these cacti and agaves is high energy food. Concentrations of some food resources appear to be patchily distributed on the landscape, and the nectar of each plant species used is only seasonally available. Cacti flowers and fruit are available during the spring and early summer; blooming agaves are available primarily from July through October. In Arizona, columnar cacti occur in lower elevational areas of the Sonoran Desert region, and paniculate agaves are found primarily in higher elevation desert scrub areas, semi-desert grasslands and shrublands, and into the oak and pine-oak woodlands (Gentry 1982). Lesser long-nosed bats are important pollinators for agave and cacti, and are important seed dispersers for some cacti.

The conservation and recovery of lesser long-nosed bats requires the presence of secure and appropriate roost sites throughout the landscape (including maternity roost sites, as well as transitional and migration roost sites) and adequate forage resources in appropriate juxtaposition to provide for life history needs including breeding, parturition, and migration.

Status and Threats

Recent information indicates that lesser long-nosed bat populations appear to be increasing or stable at most Arizona roost sites identified in the recovery plan (Arizona Game and Fish Department 2005, Tibbitts 2005, Wolf and Dalton 2005, U.S. Fish and Wildlife Service 2007b; electronic mail from Tim Tibbitts 2009). Lesser long-nosed bat populations additionally appear to be increasing or stable at other roost sites in Arizona and Mexico not included for monitoring in the recovery plan (Sidner 2005, Arizona Game and Fish Department 2009). Less is known about lesser long-nosed bat numbers and roosts in New Mexico. Though lesser long-nosed bat populations appear to be doing well, many threats to their stability and recovery still exist, including excess harvesting of agaves in Mexico; collection and destruction of cacti in the U.S.; conversion of habitat for agricultural and livestock uses, including the introduction of bufflegrass, a non-native, invasive grass species; wood-cutting; alternative energy development (wind and solar power); illegal border activities and required law enforcement activities; drought and climate change; fires; human disturbance at roost sites; and urban development.

Approximately 25 – 30 large lesser long-nosed bat roost sites, including maternity and late-summer roosts, have been documented in Arizona and New Mexico. Of these, 10 – 20 are monitored on an annual basis depending on available resources (U.S. Fish and Wildlife Service 2007b). Monitoring in Arizona in 2004 documented approximately 78,600 lesser long-nosed bats in late-summer roosts and approximately 34,600 in maternity roosts. More recently, in 2008, the numbers were 63,000 at late-summer roosts and 49,700 at maternity roosts (Arizona Game and Fish Department 2009). Ten to 20 lesser long-nosed bat roost sites in Mexico are also monitored annually. Over 100,000 lesser long-nosed bats are found at just one natural cave at the Pinacate Biosphere Reserve, Sonora, Mexico (Cockrum and Petryszyn 1991). The numbers above indicate that although a relatively large number of lesser long-nosed bats exist, the relative number of known large roosts is quite small.

The primary threat to lesser long-nosed bat is roost disturbance or loss. The colonial roosting behavior of this species, where high percentages of the population can congregate at a limited number of roost sites, increases the risk of significant declines or extinction due to impacts at roost sites. Lesser long-nosed bats remain vulnerable because they are so highly aggregated (Nabhan and Fleming 1993). Some of the most significant threats known to lesser long-nosed bat roost sites are impacts resulting from use and occupancy of these roost sites by individuals crossing the border illegally for a number of reasons. Mines and caves, which provide roosts for lesser long-nosed bats, also provide shade, protection, and sometimes water, for border crossers. The types of impacts that result from illegal border activities include disturbance from human occupancy, lighting fires, direct mortality, accumulation of trash and other harmful materials, alteration of temperature and humidity, destruction of the roost itself, and the inability to carry out conservation and research activities related to lesser long-nosed bats. These effects can lead to harm, harassment, or, ultimately, roost abandonment (U.S. Fish and Wildlife Service 2005).

For example, the illegal activity, presumably by individuals crossing the border, at the Bluebird maternity roost site, caused bats to abandon the site in 2002, 2003, and 2005. Other reasons for disturbance or loss of bat roosts include the use of caves and mines for recreation; the deliberate destruction, defacing or damage of caves or mines; roost deterioration (including both buildings or mines); short or long-term impacts from fire; and mine closures for safety purposes. The presence of alternate roost sites may be critical when this type of disturbance occurs.

Threats to lesser long-nosed bat forage habitat include excess harvesting of agaves in Mexico; collection and destruction of cacti in the U.S.; conversion of habitat for agricultural and livestock uses; the introduction of bufflegrass and other invasive species that can carry fire in Sonoran Desert scrub; wood-cutting; urban development; fires; and drought and climate change.

Large fires supported by invasive vegetation in 2005 affected some lesser long-nosed bat foraging habitat, though the extent is unknown. For example, the Goldwater, Aux, and Sand Tank Fire Complexes on BMGR-East burned through and around isolated patches of saguaros. Rogers (1985) showed that saguaros are not fire-adapted and suffer a high mortality rate as a result of fire. Therefore, fire can significantly affect forage resources for lesser long-nosed bats in the Sonoran desert. Monitoring of saguaro mortality rates should be done to assess the impacts on potential lesser long-nosed bat foraging habitat. More recently, the summer of 2011 saw huge wildfires burning across Arizona. The Wallow Fire (538,049 acres) set a new state record, burning a larger area than the 2002 Rodeo-Chediski Fire (468,638 acres). The Horseshoe 2 Fire (222,954 acres) burned approximately 70% of the Chiricahua Mountains and became the 4th largest fire in Arizona history. In addition to the Horseshoe 2 Fire, two other large wildfires (Murphy Complex and the Monument Fire) and numerous smaller fires burned a total of 366,679 acres in the Coronado National Forest. The Horseshoe 2, Monument, and Murphy fires affected lesser long-nosed bat forage and roost resources throughout those mountain ranges. Fire suppression activities associated with wildfires could also affect foraging habitat. For example, slurry drops can leave residue on saguaro flowers, which could impact lesser long-nosed bat feeding efficiency or result in minor contamination.

Drought may affect lesser long-nosed bat foraging habitat, though the effects of drought on bats are not well understood. The drought in 2004 resulted in near complete flower failure in saguaros throughout the range of lesser long-nosed bats. During that time however, in lieu of saguaro flowers, lesser long-nosed bats foraged heavily on desert agave (*Agave deserti*) flowers, an agave species used less consistently by lesser long-nosed bats (Tibbitts 2006). Similarly, there was a failure of the agave bloom in southeastern Arizona in 2006, probably related to the ongoing drought. As a result, lesser long-nosed bats left some roosts earlier than normal and increased use of hummingbird feeders by lesser long-nosed bats was observed in the Tucson area (personal communication with Scott Richardson, FWS, January 11, 2008). Climate change impacts to the lesser long-nosed bats in this portion of its range likely include loss of forage resources. Of particular concern is the prediction that saguaros, the primary lesser long-nosed bat forage resource in the Sonoran Desert, will decrease or even disappear within the current extent of the Sonoran Desert as climate change progresses (Weiss and Overpeck 2005, p. 2074). Monitoring bats and their forage during drought years is needed to better understand the effects of drought on this species.

The lesser long-nosed bat recovery plan (U.S. Fish and Wildlife Service 1997) identifies the need to protect roost habitats and foraging areas and food plants, such as columnar cacti and agaves. The lesser long-nosed bat recovery plan provides specific discussion and guidance for management and information needs regarding bat roosts and forage resources (U.S. Fish and Wildlife Service 1997). More information regarding the average size of foraging areas around roosts would be helpful to identify the minimum area around roosts that should be protected to maintain adequate forage resources.

We have produced numerous BOs on the lesser long-nosed bat since it was listed as endangered in 1988, some of which anticipated incidental take. Incidental take has been in the form of direct mortality and injury, harm, and harassment and has typically been only for a small number of individuals. Because incidental take of individual bats is difficult to detect, incidental take has often been quantified in terms of loss of forage resources, decreases in numbers of bats at roost sites, or increases in proposed action activities.

Examples of more recent BOs that anticipated incidental take for lesser long-nosed bats are summarized below. The 2013 BO for the Rosemont Copper Mine anticipated take of up to (1) 6,000 individuals harassed at three post-maternity roosts; (2) ten individuals harmed at known lesser long-nosed bat roosts subject to the implementation of protective measures; and (3) 5,401 acres of affected habitat lost containing Palmer's agave, a surrogate measure of take (via harm and harassment) of individuals. The 2010 BO related to the National Park Service's abandoned mine closure program, anticipated the direct take of up to 115 lesser long-nosed bats as a result of collisions with mine closure structures, and the abandonment of one roost site due to mine closure activities. The 2009 and 2008 BOs for implementation of the SBI*net* Ajo 1 and Tucson West Projects, including the installation, operation, and maintenance of communication and sensor towers and other associated infrastructure, each included incidental take in the form of 10 bats caused by collisions with towers and wind turbine blade-strike mortality for the life (presumed indefinite) of the proposed action. The 2007 BO for the installation of one 600 kilowatt wind turbine and one 50KW mass megawatts wind machine on Fort Huachuca included incidental take in the form of 10 bats caused by blade-strikes for the life (presumed indefinite) of the proposed action (U.S. Fish and Wildlife Service 2007c). The 2005 BO for implementation of the Coronado National Forest Land and Resource Management Plan (U.S. Forest Service) included incidental take in the form of harm or harassment. The amount of take for individual bats was not quantified; instead take was to be considered exceeded if simultaneous August counts (at transitory roosts in Arizona, New Mexico, and Sonora) drop below 66,923 lesser long-nosed bats (the lowest number from 2001 – 2004 counts) for a period of two consecutive years as a result of the action. The 2004 BO for the Bureau of Land Management Arizona Statewide Land Use Plan Amendment for Fire, Fuels, and Air Quality Management included incidental take in the form of harassment. The amount of incidental take was quantified in terms of loss of foraging resources, rather than loss of individual bats. The 2003 BO for MCAS–Yuma Activities on the BMGR included incidental take in the form of direct mortality or injury (five bats every 10 years). Because take could not be monitored directly, it was to be considered exceeded if nocturnal low-level helicopter flights in certain areas on the BMGR increased significantly or if the numbers of bats in the Agua Dulce or Bluebird Mine roosts decreased significantly and MCAS-Yuma activities were an important cause of the decline. The 2007 BO for Department of the Army Activities at and near Fort Huachuca (Fort), Arizona anticipated incidental take in the form of

direct mortality or injury (six bats over the life of the project), harassment (20 bats per year), and harm (10 bats over the life of the project) (U.S. Fish and Wildlife Service 2007a).

The lesser long-nosed bat recovery plan (U.S. Fish and Wildlife Service 1997), listing document (53 FR 38456), and the 5-year review summary and evaluation for the lesser long-nosed bat (U.S. Fish and Wildlife Service 2007b), all discuss the status of the species, and threats, and are incorporated by reference.

Mexican Long-nosed Bat

The Mexican long-nosed bat was listed as endangered under the ESA on September 30, 1988 (53 FR 38456). A Recovery Plan was completed in September 1994 (USFWS 1994), and notice of a pending 5-year review was given by the USFWS in February of 2009 (USFWS 2009). There is no designated critical habitat for the species.

Distribution

The Mexican long-nosed bat is primarily a Mexican species, ranging as far south as central Guatemala, but occurs in the United States during the summer months in mountains of the Trans-Pecos area of Texas along the Rio Grande (Barbour and Davis 1969; Schmidly 1991), and in southern Hidalgo County, New Mexico. The first confirmed day-roost site in the United States was a maternity roost in Big Bend National Park (BBNP) (Easterla 1972). Mexican long-nosed bats were also captured in mist nets in southern Hidalgo County, leading to the discovery of two roost sites shared with lesser long-nosed bats (Bogan *et al.* 2006; Cryan 2007). Both sites are caves in the Animas and Big Hatchet mountains. There are additional netting records from the Chinati Mountains of Presidio County, Texas, and Guadalupe Canyon in the southern Peloncillo Mountains of New Mexico (Hoyt *et al.* 1994; Arita and Humphrey 1988).

A single Mexican long-nosed bat was captured in a mist net along the Gila River near the Grant-Hidalgo county line in New Mexico, well outside the previously known range of the species (M. Ramsey, personal communication). Juvenile Mexican long-nosed bats have been documented to make wide-ranging, apparently exploratory flights outside of their normal foraging range (England 2012). However, no additional information is available to indicate whether this record represents juvenile dispersal, a vagrant adult, or a roost site that may be previously unknown, intermittently used, or recently colonized. Known lesser long-nosed bat roosts are present in the Peloncillo Mountains, approximately 30 to 40 miles from this capture record, indicating the possible presence of a Mexican long-nosed bat roost because these species are known to roost together in New Mexico.

Habitat and Life History

The Mexican long-nosed bat is a colonial, cave-roosting species. These bats appear to prefer montane habitats, mostly at or above the transition from lowland forests to pine-oak (Barbour and Davis 1969; Schmidly 1991). Mexican long-nosed bats broadly overlap with the range of the lesser long-nosed bat, but Mexican long-nosed bats prefer higher and cooler elevations (Arita 1991). They feed on nectar and pollen, generally using species of *Agave* as their primary food

source while in the United States (Barbour and Davis 1969; Schmidly 1991). Palmer's century plant is the primary food source for the species in New Mexico, and Havard's century plant (*A. havardiana*) is the primary food source in Texas (England 2012).
Estimates of the numbers of bats at the BBNP cave site have varied from more than 13,000 to complete absence in some years. The roost sites in New Mexico have not been entered for censuses, although exit counts combining both species have exceeded 7,000 individuals. Lesser long-nosed bats appear to outnumber Mexican long-nosed bats in New Mexico roosts, based on mist-netting results, although behavioral differences may have influenced relative capture success for both species (Bogan *et al.* 2006).

The presence of this species in the United States at the northern edge of its range may reflect fluctuation of the core population in Mexico from year to year, or dispersal due to a lack of food resources within the core range (Schmidly 1991). While the bats typically roost at higher elevations, they may visit lower elevations while foraging, as evidenced by a netting record along the Rio Grande (Barbour and Davis 1969).

Threats to the Survival of the Mexican long-nosed bat

A primary threat to the species is disturbance or killing of bats in roosts (USFWS 1994). Loss of food resources from conversion of land for agriculture or agave harvesting in Mexico could adversely affect the species (Moreno-Valdez *et al.* 2004).

Previous consultations for the Mexican long-nosed bat include the October 24, 2002 consultation AESO/SE 2-21-98-F-399-R1, Reinitiation of Biological Opinion 2-21-98-F-399; Continuation of Livestock Grazing on the Coronado National Forest (Arizona), the May 14, 2008 consultation 22410-2008-F-0053 reinitiating consultation on several allotment on the Douglas Ranger District, Coronado National Forest, and the November 13, 2013 consultation 02EAAZ00-2013-F-0168 for the SunZia Southwest Transmission Line Project.

Pima Pineapple Cactus

The Pima Pineapple cactus was listed as an endangered species without critical habitat on September 23, 1993 (58 FR 49875). Factors that contributed to the listing include habitat loss and degradation, habitat modification and fragmentation, limited geographical distribution and species rareness, illegal collection, and difficulties in protecting areas large enough to maintain functioning populations. In 2005, a 5-year review was initiated for the Pima Pineapple cactus (70 FR 5460). This review was completed in 2007 and recommended no change to the cactus's classification as an endangered species (U.S. Fish and Wildlife Service 2007).

Recent investigations of taxonomy and geographical distribution focused, in part, on assessing the validity of the taxon (see Baker 2004, Baker 2005, and Schmalzel *et al.* 2004). Although there is evidence for a general pattern of clinal variation across the range of the species (Schmalzel *et al.* 2004), this does not preclude the recognition of taxonomic varieties within *C. sheeri* (= *C. robustispina*). Baker (2005) found that there are distinct geographical gaps between the distribution of this subspecies and the other subspecies, which occur in eastern Arizona, New Mexico, and Texas, and that the subspecies are morphologically coherent within

their respective taxa (Baker 2004). His geographical and morphological work supports the idea that the sub-specific groups within *C. robustispina* are indeed discrete, and merit separate taxonomic status as subspecies (U.S. Fish and Wildlife Service 2007).

We have determined that Pima Pineapple cactus that are too isolated from each other may not be effectively pollinated. For example, the major pollinator of Pima Pineapple cactus is thought to be *Diadasia rinconis*, a ground-nesting, solitary, native bee. McDonald (2005) found that Pima Pineapple cactus plants need to be within approximately 600 m (1,969 ft) of each other in order to facilitate effective pollination. Based on this information and other information related to similar cacti and pollinators, we have determined that Pima Pineapple cactus plants that are located at distances greater than 900 meters from one another become isolated with regard to meeting their life history requirements. The species is an obligate outcrosser (not self-pollinating), so it is important for plants to be within a certain distance to exchange pollen with each other. Also, the study found that pollination was more effective when other species of native cacti are near areas that support Pima Pineapple cactus. The native bees pollinate a variety of cacti species and the sole presence of Pima Pineapple cactus may not be enough to attract pollinators.

The Pima Pineapple cactus occurs south of Tucson, in Pima and Santa Cruz counties, Arizona, as well as in adjacent northern Sonora, Mexico. In Arizona, it is distributed at very low densities throughout both the Altar and Santa Cruz valleys, and in low-lying areas connecting the two valleys. This cactus generally grows on slopes of less than 10 percent and along the tops (upland areas) of alluvial bajadas. The plant is found at elevations between 2,360 feet (ft) and 4,700 ft (Phillips *et al.* 1981, Benson 1982, Ecosphere Environmental Services Inc. 1992), in vegetation characterized as either or a combination of Arizona upland of the Sonoran desertscrub community and semi-desert grasslands (Brown 1982, Johnson 2004). Paredes-Aguilar *et al.* (2000) reports the subspecies from oak woodlands in Sonora. Several attempts have been made to delineate habitat within the range of Pima Pineapple cactus (McPherson 2002, RECON Environmental Inc. 2006, U.S. Fish and Wildlife Service unpublished analysis) with limited success. As such, we are still unable to determine exact ecological characters to help us predict locations of Pima Pineapple cactus or precisely delineate Pima Pineapple cactus habitat (U.S. Fish and Wildlife Service 2007), except perhaps in localized areas (U.S. Fish and Wildlife Service 2005).

As a consequence of its general habitat requirements, considerable habitat for this species appears to exist in Pima and Santa Cruz counties, much of which is unoccupied. Pima Pineapple cactus occurs at low densities, widely scattered, sometimes in clumps, across the valley bottoms and bajadas. The species can be difficult to detect, especially in dense grass cover. For this reason, systematic surveys are expensive and have not been conducted extensively throughout the range of the Pima Pineapple cactus. As a result, location information has been gathered opportunistically, either through small systematic surveys, usually associated with specific development projects, or larger surveys that are typically only conducted in areas that seem highly suited for the species. Furthermore, our knowledge of the distribution and status of this species is gathered primarily through the section 7 process; and we only see projects that require a Federal permit or have Federal funding. There are many projects that occur within the range of Pima Pineapple cactus that do not undergo section 7 consultation, and we have no information

regarding the status or loss of plants or habitat associated with those projects. For these reasons, it is difficult to address abundance and population trends for this species.

The AGFD maintains the Heritage Data Management System (HDMS), a database identifying elements of concern in Arizona and consolidating information about their distribution and status throughout the state. This database has 5,553 Pima Pineapple cactus records, with 5,449 Pima Pineapple cactus that have coordinates. Some of the records are quite old, and we have not confirmed whether the plants are still alive. We also cannot determine which plants may be the result of multiple surveys in a given area. Of the known individuals (5,553), approximately 1,340 Pima Pineapple cactus plants are documented in the database as extirpated as of 2003. There have been additional losses since 2003, but that information is still being compiled in the database. The database is dynamic, based on periodic entry of new information, as time and staffing allows. As such, the numbers used from one biological opinion to the next may vary and should be viewed as a snapshot in time at any given moment. We have not tracked loss of habitat because a limited number of biological assessments actually quantify habitat for Pima Pineapple cactus.

We do know the number and fate of PPC that have been detected during surveys for projects that have undergone section 7 consultation. Through 2014, section 7 consultations on development projects (e.g., residential and commercial development, mining, infrastructure improvement) considered 2,939 PPC plants found on approximately 15,771 acres within the range of the PPC. Of the total number of plants, 2,170 PPC (74 percent) were destroyed, removed, or transplanted as a result of development, mining, and infrastructure projects. In terms of PPC habitat, some of the 15,771 acres likely did not provide PPC habitat, but that amount is difficult to quantify because PPC habitat was not consistently delineated in every consultation. Of the 15,771 acres, however, we are aware that 15,106 acres (96 percent) have been either permanently or temporarily impacted. Some of these acres may still provide natural open space, but we have not been informed of any measures (e.g., conservation easements) that have been completed to ensure these areas will remain open. Through section 7 consultation on non-development-related projects (e.g., fire management plans, grazing, buffelgrass control), we are aware of an additional 781 plants within an unknown number of acres; we do not know the number of acres because these types of projects are often surveyed for PPC inconsistently, if at all. Across the entire PPC range, it is difficult to quantify the total number of PPC lost and the rate and amount of habitat loss for three reasons: 1) we review only a small portion of projects within the range of PPC (only those that have Federal involvement and are subject to section 7 consultation), 2) development that takes place without any jurisdictional oversight is not tracked within Pima and Santa Cruz counties, and 3) many areas within the range of the PPC have not been surveyed; therefore, we do not know how many plants exist or how much habitat is presently available.

Some additional information related to the survival of Pima Pineapple cactus comes from six demographic plots that were established in 2002 in the Altar Valley. The results from the first year (2002-2003) indicate that the populations were stable; out of a total of over 300 Pima Pineapple cactus measured, only 10 died, and two Pima Pineapple cactus seedlings were found (Routson *et al.* 2004). The plots were not monitored in 2004, but were visited again starting in May 2005. In the two years between September 2003 and September 2005, 35 individuals, or 13.4 percent, of the original population had died and no new seedlings were found (Baker

2006a). Baker (2006a) suggests that recruitment likely occurs in punctuated events in response to quality and timing of precipitation, and possibly temperature, but there is little evidence until such events occur. He goes on to say that further observations need to be made to determine the rate at which the population is declining, because, based on an overall rate of die-off of 13.4 percent every two years, few individuals will be alive at this site after 15 years. As this monitoring program continues, critical questions regarding the life cycle of this species will be answered.

Threats to Pima Pineapple cactus continue to include habitat loss and fragmentation, competition with non-native species, and inadequate regulatory mechanisms to protect this species. We believe residential and commercial development, and its infrastructure, is by far the greatest threat to Pima Pineapple cactus and its habitat. However, we have only a limited ability to track the cumulative amount of development within the range of Pima Pineapple cactus. What is known with certainty is that development pressure continues in Pima and Santa Cruz counties.

Invasive grass species may be a threat to the habitat of Pima Pineapple cactus. Habitat in the southern portion of the Altar Valley is now dominated by Lehmann lovegrass (*Eragrostis lehmanniana*). According to Gori and Enquist (2003), Boer lovegrass (*Eragrostis chloromelas*) and Lehmann lovegrass are now common and dominant on 1,470,000 acres in southeastern Arizona. They believe that these two grass species will continue to invade native grasslands to the north and east, as well as south into Mexico. These grasses have a completely different fire regime than the native grasses, tending to form dense stands that promote higher intensity fires more frequently. Disturbance (like fire) tends to promote the spread of these non-natives (Ruyle *et al.* 1988, Anable *et al.* 1992). Roller and Halvorson (1997) hypothesized that fire-induced mortality of Pima Pineapple cactus increases with Lehmann lovegrass density. Buffelgrass (*Pennisetum ciliare*) has become locally dominant in vacant areas in the City of Tucson and along roadsides, notably in the rights-of-way along Interstate 10 and State Route 86. Some portions of Pima Pineapple cactus habitat along these major roadways are already being converted to dense stands of buffelgrass, which can lead to recurring grassland fires and the destruction of native desert vegetation (Buffelgrass Working Group 2007).

The effects of climate change (i.e., decreased precipitation and water resources) are a threat to the long-term survival and distribution of native plant species, including the Pima Pineapple cactus. For example, temperatures rose in the twentieth century and warming is predicted to continue over the twenty-first century. Although climate models are less certain about predicted trends in precipitation, the southwestern United States is expected to become warmer and drier. In addition, precipitation is expected to decrease in the southwestern United States, and many semi-arid regions will suffer a decrease in water resources from climate change as a result of less annual mean precipitation and reduced length of snow season and snow depth. Approximately half of the precipitation within the range of the Pima Pineapple cactus typically falls in the summer months; however, the impacts of climate change on summer precipitation are not well understood. Drought conditions in the southwestern United States have increased over time and may have contributed to loss of Pima Pineapple cactus populations through heat stress, drought stress, and related insect attack, as well as a reduction in germination and seedling success since the species was originally listed in 1993, and possibly historically. Climate change trends are

likely to continue, and the impacts on species will likely be complicated by interactions with other factors (e.g., interactions with non-native species and other habitat-disturbing activities).

The Arizona Native Plant Law can delay vegetation clearing on private property for the salvage of specific plant species within a 30-day period. Although the Arizona Native Plant Law prohibits the taking of this species on State and private lands without a permit for educational or research purposes, it does not provide for protection of plants *in situ* through restrictions on development activities. Even if Pima Pineapple cactus are salvaged from a site, transplanted individuals only contribute to a population if they survive and are close enough (within 900 m [(2,970 ft]) to other Pima Pineapple cactus to be part of a breeding population from the perspective of pollinator travel distances and the likelihood of effective pollination. Transplanted Pima Pineapple cactus have variable survival rates, with moderate to low levels of survival documented. Past efforts to transplant individual Pima Pineapple cactus to other locations have had limited success. For example, on two separate projects in Green Valley, the mortality rate for transplanted Pima Pineapple cactus after two years was 24 percent and 66 percent, respectively (SWCA, Inc. 2001, WestLand Resources, Inc. 2004). One project southwest of Corona de Tucson involved transplanting Pima Pineapple cactus into areas containing *in situ* plants. Over the course of three years, 48 percent of the transplanted individuals and 24 percent of the *in situ* individuals died (WestLand Resources, Inc. 2008). There is also the unquantifiable loss of the existing Pima Pineapple cactus seed bank associated with the loss of suitable habitat. Furthermore, once individuals are transplanted from a site, Pima Pineapple cactus is considered to be extirpated from that site, as those individuals functioning in that habitat are moved elsewhere. There are currently two ongoing research projects related to the relocation of Pima Pineapple cacti which should give us additional information related to the effectiveness of this potential conservation strategy.

Pima County regulates the loss of native plant material associated with ground-disturbing activities through their Native Plant Protection Ordinance (NPPO) (Pima County 1998). The NPPO requires inventory of the site and protection and mitigation of certain plant species slated for destruction by the following method: the designation of a minimum of 30 percent of on-site, permanently protected open space with preservation in place or transplanting of certain native plant species from the site. There are various tables that determine the mitigation ratio for different native plant species (e.g. saguaros, ironwood trees, Pima Pineapple cactus) with the result that mitigation may occur at a 1:1 or 2:1 replacement ratio. Mitigation requirements are met through the development of preservation plans. The inadvertent consequence of this ordinance is that it has created a "market" for Pima Pineapple cactus. Any developer who cannot avoid this species or move it to another protected area must replace it. Most local nurseries do not grow Pima Pineapple cactus (and cannot grow them legally unless seed was collected before the listing). As a result, environmental consultants are collecting Pima Pineapple cactus seed from existing sites (which can be done with a permit from the Arizona Department of Agriculture and the permission of the private landowner), germinating seed, and placing Pima Pineapple cactus plants grown from seed back on these sites. There have been no long-term studies of transplant projects, thus the conservation benefit of these actions is unknown. Moreover, growing and planting Pima Pineapple cactus does not address the loss of Pima Pineapple cactus habitat that necessitated the action of transplanting cacti in the first place.

Other specific threats that have been previously documented (58 FR 49875), such as overgrazing, illegal collection, prescribed fire, and mining, have not yet been analyzed to determine the extent of effects to this species. However, partial information exists. Overgrazing by livestock, illegal collection, and fire-related interactions involving exotic Lehmann lovegrass and buffelgrass may negatively affect Pima Pineapple cactus populations. Mining has resulted in the loss of hundreds, if not thousands, of acres of potential habitat throughout the range of the plant.

The protection of Pima Pineapple cactus habitat and individuals is complicated by the varying land ownership within the range of this species in Arizona. An estimated 10 percent of the potential habitat for Pima Pineapple cactus is held in Federal ownership. The remaining 90 percent is on Tribal, State, and private lands. Most of the federally-owned land is either at the edge of the plant's range or in scattered parcels. The largest contiguous parcel of federally-owned habitat is the Buenos Aires National Wildlife Refuge, located at the southwestern edge of the plant's range at higher elevations and with lower plant densities. No significant populations of Pima Pineapple cactus are known from Sonora or elsewhere in Mexico (Baker 2005).

There have been some notable conservation developments for this species. As of 2010, there are two conservation banks for Pima Pineapple cactus, one on a private ranch in the Altar Valley (Palo Alto Ranch Conservation Bank) and another owned by Pima County that includes areas in both the Altar Valley and south of Green Valley. In the Palo Alto Ranch Conservation Bank, 131.6 acres have been conserved to date. In Pima County's Bank, a total of 530 acres are under a conservation easement at this time (the County offsets its own projects within this bank). Additionally, three large blocks of land totaling another 1,078 acres have been set aside or are under conservation easements through previous section 7 consultations (see consultations 02-21-99-F-273, 02-21-01-F-101, and 02-21-03-F-0406). While not formal conservation banks, these areas, currently totaling 1,739.6 acres, are set aside and managed specifically for Pima Pineapple cactus as large blocks of land, and likely contribute to recovery of the taxon for this reason; therefore, we consider these acres conserved. Another 647 acres of land have been set aside as natural open space within the developments reviewed through section 7 consultation between 1995 and 2010. However, these are often small areas within residential backyards (not in a common area) that are difficult to manage and usually isolated within the larger development, and often include areas that do not provide Pima Pineapple cactus habitat (e.g., washes). Some conservation may occur onsite because of these open space designations, but long-term data on conservation within developed areas are lacking; the value of these areas to Pima Pineapple cactus recovery over the long-term is likely not great.

In summary, Pima Pineapple cactus conservation efforts are currently hampered by a lack of information on the species. Specifically, we have not been able to determine exact ecological characters to help us predict locations of Pima Pineapple cactus or precisely delineate its habitat, and considerable area within the Pima Pineapple cactus range has not been surveyed. Further, there are still significant gaps in our knowledge of the life history of Pima Pineapple cactus; for instance, we have yet to observe a good year for seed germination. From researcher observations and motion sensing cameras, we have learned that ants, Harris' antelope squirrels, and jackrabbits act as seed dispersal agents. Demographic plots have been only recently established,

and information is just now beginning to be reported with regard to describing population dynamics for Pima Pineapple cactus in the Altar Valley.

Development and associated loss of habitat remain important and continuing threats to this taxon. However, the expanding threat of non-native grasses and resulting altered fire regimes are a serious concern for the long-term viability of the species, as is ongoing drought. The full impact of drought and climate change on Pima Pineapple cactus has yet to be studied, but it is likely that, if recruitment occurs in punctuated events based on precipitation and temperature (Baker 2006a), Pima Pineapple cactus will be negatively affected by these forces. Already we have seen a nearly 25% loss of individuals across six study sites in the Altar Valley between 2010 and 2011; these deaths were attributed largely to drought and associated predation by native insects and rodents (Baker 2011). Conservation efforts that focus on habitat acquisition and protection, like those proposed by Pima County and the City of Tucson, are important steps in securing the long-term viability of this taxon. Regulatory mechanisms, such as the native plant protection ordinances, provide conservation direction for Pima Pineapple cactus habitat protection within subdivisions, and may serve to reduce Pima Pineapple cactus habitat fragmentation within areas of projected urban growth.

Southwestern Willow Flycatcher

The flycatcher was listed as endangered, without critical habitat on February 27, 1995 (60 FR 10694). Final designated critical habitat was published on January 3, 2013 ((78 FR 344). The southwestern willow flycatcher recovery plan (U.S. Fish and Wildlife Service 2002) (RP) describes reasons for endangerment, flycatcher status, addresses recovery actions, includes detailed issue papers, and provides recovery goals. Recovery is based on reaching numerical and habitat related goals for each specific Management Unit (MU) established throughout the subspecies' range and establishing long-term conservation plans.

Description

The southwestern willow flycatcher is a small grayish-green passerine bird (Family Tyrannidae) measuring approximately 5.75 inches. The song is a sneezy "fitz-bew" or a "fit-a-bew", the call is a repeated "whit." It is one of four currently recognized willow flycatcher subspecies (Phillips 1948, Unitt 1987, Browning 1993). It is a neotropical migrant that breeds in the southwestern U.S. and migrates to Mexico, Central America, and possibly northern South America during the non-breeding season (Phillips 1948, Stiles and Skutch 1989, Peterson 1990, Ridgely and Tudor 1994, Howell and Webb 1995). The historical breeding range of the southwestern willow flycatcher included southern California, Arizona, New Mexico, western Texas, southwestern Colorado, southern Utah, extreme southern Nevada, and extreme northwestern Mexico (Sonora and Baja) (Unitt 1987).

Habitat

The southwestern willow flycatcher breeds in dense riparian habitats from sea level in California to approximately 8,500 feet in Arizona and southwestern Colorado. Historical egg/nest collections and species' descriptions throughout its range describe the southwestern willow

flycatcher's widespread use of willow (*Salix* spp.) for nesting (Phillips 1948, Phillips *et al.* 1964, Hubbard 1987, Unitt 1987). Currently, southwestern willow flycatchers primarily use Geyer willow (*S. geyeriana*), coyote willow (*S. exigua*), Goodding's willow (*S. gooddingii*), boxelder (*Acer negundo*), saltcedar (*Tamarix* sp.), Russian olive (*Elaeagnus angustifolio*), and live oak (*Quercus agrifolia*) for nesting. Other plant species less commonly used for nesting include: buttonbush (*Cephalanthus* sp.), black twinberry (*Lonicera involucrata*), cottonwood (*Populus* spp.), white alder (*Alnus rhombifolia*), blackberry (*Rubus ursinus*), and stinging nettle (*Urtica* spp.). Based on the diversity of plant species composition and complexity of habitat structure, four basic habitat types can be described for the southwestern willow flycatcher: monotypic willow, monotypic exotic, native broadleaf dominated, and mixed native/exotic (Sogge *et al.* 1997). The southwestern willow flycatcher is an insectivore, foraging in dense shrub and tree vegetation along rivers, streams, and other wetlands.

The flycatcher's habitat is dynamic and can change rapidly: nesting habitat can grow out of suitability; saltcedar habitat can develop from seeds to suitability in about four to five years; heavy runoff can remove/reduce habitat suitability in a day; or river channels, floodplain width, location, and vegetation density may change over time. The flycatcher's use of habitat in different successional stages may also be dynamic. For example, over-mature or young habitat not suitable for nest placement can be occupied and used for foraging and shelter by migrating, breeding, dispersing, or non-territorial southwestern willow flycatchers (McLeod *et al.* 2005, Cardinal and Paxton 2005). Flycatcher habitat can quickly change and vary in suitability, location, use, and occupancy over time (Finch and Stoleson 2000).

Tamarisk is an important component of the flycatcher's nesting and foraging habitat in the central part of the flycatcher's breeding range in Arizona, southern Nevada and Utah, and western New Mexico. In 2001 in Arizona, 323 of the 404 (80 percent) known flycatcher nests (in 346 territories) were built in a tamarisk tree (Smith *et al.* 2002). Tamarisk had been believed by some to be a habitat type of lesser quality for the southwestern willow flycatcher, however comparisons of reproductive performance (U. S. Fish and Wildlife Service 2002), prey populations (Durst 2004) and physiological conditions (Owen and Sogge 2002) of flycatchers breeding in native and exotic vegetation has revealed no difference (Sogge *et al.* 2005).
The introduced tamarisk leaf beetle was first detected affecting tamarisk within the range of the southwestern willow flycatcher in 2008 along the Virgin River in St. George, Utah. Initially, this insect was not believed to be able to move into or survive within the southwestern United States in the breeding range of the flycatcher. Along this Virgin River site in 2009, 13 of 15 flycatcher nests failed following vegetation defoliation (Paxton *et al.* 2010). As of 2012, the beetle has been found in southern Nevada/Utah and northern Arizona/New Mexico within the flycatcher's breeding range. Because tamarisk is a component of about 50 percent of all known flycatcher territories (Durst *et al.* 2008), continued spread of the beetle has the potential to significantly alter the distribution, abundance, and quality of flycatcher nesting habitat and impact breeding attempts.

Arizona Distribution and Abundance

While numbers have significantly increased in Arizona (145 to 459 territories from 1996 to 2007) (English *et al.* 2006, Durst *et al.* 2008), overall distribution of flycatchers throughout the state has not changed much. Currently, population stability in Arizona is believed to be largely dependent on the presence of two large populations (Roosevelt Lake and San Pedro/Gila River confluence). Therefore, the result of catastrophic events or losses of significant populations either in size or location could greatly change the status and survival of the bird. Conversely, expansion into new habitats or discovery of other populations would improve the known stability and status of the flycatcher.

Factors Affecting the Species

The evidence suggests that fire was not a primary disturbance factor in southwestern riparian areas near larger streams (U. S. Fish and Wildlife Service 2002). Yet, in recent time, fire size and frequency has increased on the lower Colorado, Gila, Bill Williams, and Rio Grande rivers. The increase has been attributed to increasing dry, fine fuels as a result of the cessation of flood flows and human caused ignition sources. The spread of the highly flammable plant, tamarisk, and drying of river areas due to river flow regulation, water diversion, lowering of groundwater tables, and other land practices is largely responsible for these fuels. A fire in June 1996 destroyed approximately a half mile of occupied tamarisk flycatcher nesting habitat on the San Pedro River in Pinal County. That fire resulted in the forced dispersal or loss of up to eight pairs of flycatchers (Paxton *et al.* 1996). Smaller fires have occurred along the upper most portion of the San Pedro River closer to the Mexico Border and another large fire occurred on the lower San Pedro River at the Nature Conservancy's San Pedro Preserve between Winkelman and Dudleyville in 2004. Recreationists cause over 95 percent of the fires on the lower Colorado River (U. S. Fish and Wildlife Service 2002).

There are no extensive records for the actual causes of adult southwestern willow flycatcher mortality. Incidents associated with nest failures, human disturbance, and nestlings are typically the most often recorded due to the static location of nestlings, eggs, and nests. As a result, nestling predation and brood parasitism are the most commonly recorded causes of southwestern willow flycatcher mortality. Also, human destruction of nesting habitat through bulldozing, groundwater pumping, and aerial defoliants has been recorded in Arizona (T. McCarthey, AGFD, pers. comm.). Human collision with nests and spilling the eggs or young onto the ground have been documented near high use recreational areas (U. S. Fish and Wildlife Service 2002). A southwestern willow flycatcher from the Greer Town site along the Little Colorado River in eastern Arizona was found dead after being hit by a vehicle along SR 373. This route is adjacent to the breeding site (T. McCarthey, AGFD, pers. comm.).

Since listing in 1995, approximately 210 Federal agency actions have undergone (or are currently under) formal section 7 consultation throughout the flycatcher's range. This list of consultations can be found in the administrative record for this consultation. Since flycatcher critical habitat was finalized in 2005, at least 33 formal opinions have been completed in Arizona (within and outside designated critical habitat). While many opinions were issued for the

previous critical habitat designation, the stream reaches and constituent elements have changed under the more recent designation.

Activities continue to adversely affect the distribution and extent of all stages of flycatcher habitat throughout its range (development, urbanization, grazing, recreation, native and non-native habitat removal, dam operations, river crossings, ground and surface water extraction, etc.). Introduced tamarisk eating leaf beetles were not anticipated to persist within the range of the southwestern willow flycatcher. However, they were detected within the breeding habitat (and designated critical habitat) of the flycatcher in 2008 along the Virgin River near the Town of St. George, Utah. In 2009, beetles were also known to have been detected defoliating habitat within the range of flycatcher habitat in southern Nevada, and along the Colorado River in the Grand Canyon and near Shiprock in Arizona. Stochastic events also continue to change the distribution, quality, and extent of flycatcher habitat.

Conservation measures associated with some consultations and Habitat Conservation Plans have helped to acquire lands specifically for flycatchers on the San Pedro, Verde, and Gila rivers in Arizona and the Kern River in California. Additionally, along the lower Colorado River, the U.S. Bureau of Reclamation is currently attempting to establish riparian vegetation to expand and improve the distribution and abundance of nesting flycatchers. A variety of Tribal Management Plans in California, Arizona, and New Mexico have been established to guide conservation of the flycatchers. Additionally, during the development of the critical habitat rule, management plans were developed for some private lands along the Owens River in California and Gila River in New Mexico. These are a portion of the conservation actions that have been established across the subspecies' range.

Critical Habitat

Critical habitat has been designated along approximately 1,975 stream kilometers (1,227 stream miles). The designation includes the stream segments, with the lateral extent including the riparian areas and streams that occur within the 100-year floodplain or flood-prone areas encompassing a total area of approximately 84,569 hectares (208,973 acres). Critical habitat units have been designated in areas within California, Arizona, and New Mexico. Within these areas, the primary constituent elements of the physical and biological features essential to the conservation of the southwestern willow flycatcher are:

1. *Riparian vegetation.* Riparian habitat along a dynamic river or lakeside, in a natural or manmade successional environment (for nesting, foraging, migration, dispersal, and shelter) that is comprised of trees and shrubs (that can include Gooddings willow, coyote willow, Geyer's willow, arroyo willow, red willow, yewleaf willow, pacific willow, boxelder, tamarisk, Russian olive, buttonbush, cottonwood, stinging nettle, alder, velvet ash, poison hemlock, blackberry, seep willow, oak, rose, sycamore, false indigo, Pacific poison ivy, grape, Virginia creeper, Siberian elm, and walnut) and some combination of:
    a. Dense riparian vegetation with thickets of trees and shrubs that can range in height from about 2 meters (m) to 30 m (about 6 feet (ft) to 98 ft). Lower stature thickets (2 to 4 m or 6 to 13 ft tall) are found at higher elevation riparian forests, and tall-stature thickets are found at middle- and lower elevation riparian forests;

b. Areas of dense riparian foliage at least from the ground level up to approximately 4 m (13 ft) above ground or dense foliage only at the shrub or tree level as a low, dense canopy;

c. Sites for nesting that contain a dense (about 50 percent to 100 percent) tree or shrub (or both) canopy (the amount of cover provided by tree and shrub branches measured from the ground);

d. Dense patches of riparian forests that are interspersed with small openings of open water or marsh or areas with shorter and sparser vegetation that creates a variety of habitat that is not uniformly dense. Patch size may be as small as 0.1 hectare (ha) (0.25 acre (ac)) or as large as 70 ha (175 ac).

2. *Insect prey populations.* A variety of insect prey populations found within or adjacent to riparian floodplains or moist environments, which can include: flying ants, wasps, and bees (Hymenoptera); dragonflies (Odonata); flies (Diptera); true bugs (Hemiptera); beetles (Coleoptera); butterflies, moths, and caterpillars (Lepidoptera); and spittlebugs (Homoptera).

A complete description of the biology of the southwestern willow flycatcher (*Empidonax traillii extimus*) is contained in the *Southwestern Willow Flycatcher Recovery Plan* U. S. Fish and Wildlife Service 2002).

Northern Mexican Gartersnake

The northern Mexican gartersnake was listed as threatened under the Act on July 8, 2014 (79 FR 38678). Critical habitat was proposed on July 10, 2013 (78 FR 41550), with a final determination in preparation. Refer to these two rules for more in-depth information on the ecology and threats to the species, including references. The proposed rules are incorporated here by reference.

Description

The northern Mexican gartersnake ranges in color from olive to olive-brown or olive-gray with three lighter-colored stripes that run the length of the body, the middle of which darkens towards the tail. It may occur with other native gartersnake species and can be difficult for people without specific expertise to identify. The snake may reach a maximum length of 44 in (112 cm). The pale yellow to light-tan lateral stripes distinguish the northern Mexican gartersnake from sympatric gartersnake species because a portion of the lateral stripe is found on the fourth scale row, while it is confined to lower scale rows for other species. Paired black spots extend along the olive dorsolateral fields (region adjacent to the top of the snake's back) and the olive-gray ventrolateral fields. The scales are keeled.

Habitat and Natural History

Throughout its rangewide distribution, the northern Mexican gartersnake occurs at elevations from 130 to 8,497 feet (40 to 2,590 meters) (Rossman *et al.* 1996) and is considered a "terrestrial-aquatic generalist" by Drummond and Marcías-García (1983). The northern Mexican gartersnake is a riparian obligate (generally found near water when not dispersing) and occurs chiefly in the following habitat types: 1) Source-area wetlands (e.g., cienegas [mid-elevation wetlands with highly organic, reducing {basic or alkaline} soils], or stock tanks); 2) large-river

riparian woodlands and forests; and 3) streamside gallery forests (as defined by well-developed broadleaf deciduous riparian forests with limited, if any, herbaceous ground cover or dense grass) (Hendrickson and Minckley 1984, Rosen and Schwalbe 1988). When surveying in the upper Verde River region, Emmons and Nowak (2013) found this subspecies most commonly in protected backwaters, braided side channels and beaver ponds, isolated pools near the river mainstem, and edges of dense emergent vegetation that offered cover and foraging opportunities.

The northern Mexican gartersnake is surface active at ambient (air) temperatures ranging from 71 degrees Fahrenheit (°F) to 91 °F (22 degrees Celsius (°C) to 33 °C) and forages along the banks of waterbodies (Rosen 1991, p. 305, Table 2). While conducting visual surveys, Rosen (1991, pp. 308–309) found that northern Mexican gartersnakes spent up to 60 percent of their time moving, 13 percent of their time basking on vegetation, 18 percent of their time basking on the ground, and 9 percent of their time under surface cover. However, preliminary telemetry data from a population of northern Mexican gartersnakes at the Bubbling Ponds State Fish Hatchery show individuals were surface active during 16 percent of telemetry observations, not surface active during 64 percent of telemetry observations, and surface activity was undetermined for 20 percent of the telemetry observations (Boyarsky 2013, pers. comm.); at Tavasci Marsh along the upper Verde River, they were inactive 60 percent of the time (Emmons 2013b, pers. comm.). In the northern-most part of its range, the northern Mexican gartersnake appears to be most active during July and August, followed by June and September (Emmons and Nowak 2013, p. 14). Northern Mexican gartersnakes may use different sites as hibernacula during a single cold-season and will bask occasionally (Emmons 2014, pers. comm.).

The northern Mexican gartersnake is an active predator and is believed to heavily depend upon a native prey base (Rosen and Schwalbe 1988). Northern Mexican gartersnakes forage along vegetated banklines, searching for prey in water and on land, using different strategies (Alfaro 2002). Generally, its diet consists of amphibians and fishes, such as adult and larval (tadpoles) native leopard frogs (e.g., lowland leopard frog [*Lithobates yavapaiensis*] and Chiricahua leopard frog), as well as juvenile and adult native fish species (e.g., Gila topminnow, desert pupfish, and roundtail chub [*G. robusta*]) (Rosen and Schwalbe 1988). Drummond and Marcías-García (1983) found that as a subspecies, Mexican gartersnakes fed primarily on frogs. Auxiliary prey items may also include young Woodhouse's toads (*Anaxyrus woodhousei*), treefrogs (Family Hylidae), earthworms, deermice (*Peromyscus* spp.), lizards of the genera Aspidoscelis and Sceloporus, larval tiger salamanders (*Ambystoma tigrinum*), and leeches (Gregory *et al.* 1980, Holm and Lowe 1995, Degenhardt *et al.* 1996, Rossman *et al.* 1996, Manjarrez 1998). In situations where native prey species are rare or absent, this snake's diet may include nonnative species, including larval and juvenile bullfrogs (*Lithobates catesbeianus*), western mosquitofish (*Gambusia affinis*) (Holycross *et al.* 2006, Emmons and Nowak 2013), or other soft-rayed fishes. Venegas-Barrera and Manjarrez (2001) reported the first observation of a snake in the natural diet of any species of Thamnophis after documenting the consumption by a Mexican gartersnake (subspecies not provided) of a Mexican alpine blotched gartersnake (*T. scalaris*).

Historical Distribution

Within the United States, the northern Mexican gartersnake historically occurred predominantly in Arizona at elevations ranging from 130 to 6,150 ft (40-1,875 m). It was generally found where water was relatively permanent and supported suitable habitat. The northern Mexican gartersnake historically occurred in every county and nearly every subbasin within Arizona, from several perennial or intermittent creeks, streams, and rivers as well as lentic (still, non-flowing water) wetlands such as cienegas, ponds, or stock tanks. Northern Mexican gartersnake records exist within the following subbasins in Arizona: Colorado River, Bill Williams River, Agua Fria River, Salt River, Tonto Creek, Verde River, Santa Cruz River, Cienega Creek, San Pedro River, Babocomari River, and the Rio San Bernardino (Black Draw) (Woodin 1950, Nickerson and Mays 1970, Bradley 1986, Brennan and Holycross 2006, Cotton *et al.* 2013).

Historically, the northern Mexican gartersnake had a limited distribution in New Mexico that consisted of scattered locations throughout the Upper Gila River watershed in Grant and western Hidalgo Counties, including the Upper Gila River, Mule Creek in the San Francisco River subbasin, and the Mimbres River (Price 1980, Fitzgerald 1986, Degenhardt *et al.* 1996, Holycross *et al.* 2006).

Current Distribution and Population Status

The only viable northern Mexican gartersnake populations in the United States where the subspecies remains reliably detected are all in Arizona: 1) The Page Springs and Bubbling Ponds State Fish Hatcheries along Oak Creek, 2) lower Tonto Creek, 3) the upper Santa Cruz River in the San Rafael Valley, 4) the Bill Williams River, and 5) the upper/middle Verde River. In New Mexico, the northern Mexican gartersnake may occur in extremely low population densities within its historical distribution; limited survey effort is inconclusive with respect to determining extirpation. The status of the northern Mexican gartersnake on tribal lands, such as those owned by the White Mountain or San Carlos Apache Tribes, is poorly known due to historically limited survey access and access to any survey data. As stated previously, less is known specifically about the current distribution of the northern Mexican gartersnake in Mexico due to limited surveys and limited access to information on survey efforts and field data from Mexico. All proposed critical habitat units (see critical habitat section below) are considered occupied (78 FR 41558).

Threats to the Northern Mexican Gartersnake

Riparian and aquatic communities in both the United States and Mexico have been significantly impacted by a shift in species' composition, from one of primarily native fauna, to one being increasingly dominated by an expanding assemblage of nonnative animal species. These nonnative species have been intentionally or accidentally introduced, including crayfish, bullfrogs, and nonnative, spiny-rayed fish. Harmful nonnative species have been introduced or have spread into new areas through a variety of mechanisms, by sport stocking, aquaculture, aquarium releases, and bait-bucket release. The overall effect of these harmful nonnative species on gartersnake populations is two-fold. Harmful nonnative species contribute to starvation of gartersnake populations through competitive mechanisms, and reduce or eliminate

recruitment of young gartersnakes through predation. The threat from harmful nonnative species is the most severe and geographically pervasive of all threats affecting the northern Mexican gartersnake.

The occurrence of harmful nonnative species, such as the bullfrog, the northern (virile) crayfish (*Orconectes virilis*), red swamp crayfish (*Procambarus clarkii*), and numerous species of nonnative, spiny-rayed fish (often referred to as "warm water sportfish"), has contributed to rangewide declines in the northern Mexican gartersnake, and continues to be the most significant threat to the species and to its prey base, as a result of direct predation, competition, and modification of habitat as evidenced in a broad body of literature, the most recent of which extends from 1985 to the present (Papoulias *et al.* 1989, Inman *et al.* 1998, Knapp 2005, Luja and Rodríguez-Estrella 2008, Emmons and Nowak 2013). Tail injuries are also a concern for gartersnake populations that occur with harmful nonnative species (Willis *et al.* 1982, Rosen and Schwalbe1988, Mushinsky and Miller 1993, Fitch 2003) and can affect the majority of individuals within a population (Rosen and Schwalbe1988).

The scientific literature confirms that harmful nonnative species are the most significant and widespread factor that continues to drive further declines in and extirpations of northern Mexican gartersnake populations. Additional threats to their habitat can also contribute to population declines, but should be evaluated in the context of the presence or absence of harmful nonnative species. Researchers agree that the period from 1850 to 1940 marked the greatest loss and degradation of riparian and aquatic communities in Arizona, many of which were caused by anthropogenic (human-caused) land uses and the primary and secondary effects of those uses (Davis 1982, Stromberg *et al.* 1996, Webb and Leake 2005). Degradation of habitats is a well-recognized factor in establishment of nonnative species (Courtenay and Stauffer 1984, Arthington *et al.* 1990, Soule 1990, Aquatic Nuisance Species Task Force 1994).

The presence of water is critical for northern Mexican gartersnakes, as well as their prey base. Of all the activities that may threaten their physical habitat, none are more serious than those that reduce flows or dewater habitat over large reaches or locally. Structures or activities that can cause these effects include dams, diversions, flood-control projects, and groundwater pumping and are widespread in Arizona, largely in response to human population growth. For example, municipal water use in central Arizona increased by 39 percent from 1998 to 2006 (American Rivers 2006), and at least 35 percent of Arizona's perennial rivers have been dewatered, assisted by about 95 dams that are in operation in Arizona today (Turner and List 2007).

Flow regimes within streams are a primary factor that shape fish communities. The timing, duration, intensity, and frequency of flood events has been altered to varying degrees by the presence of dams, which effects fish communities. Specifically, Haney *et al.* (2008) suggested that flood pulses may help to reduce populations of nonnative species (Minckley and Meffe 1987) and efforts to increase baseflows may assist in sustaining native prey species for northern Mexican gartersnakes. However, the investigators in this study also suggest that, because the northern Mexican gartersnake preys on both fish and frogs, it may be less affected by reductions in baseflow of streams (Haney *et al.* 2008). Unregulated flows with elevated discharge events favor native species, and regulated flows, absent significant discharge events, favor nonnative species (Rinne and Miller 2006, Propst *et al.* 2008).

The ecology and natural history of northern Mexican gartersnakes is linked to water. As discussed above, the northern Mexican gartersnake is an aquatic species and relies largely upon other aquatic species, such as ranid frogs and native and nonnative, soft-rayed fish as prey. Therefore, these factors are likely to make northern Mexican gartersnakes vulnerable to effects of climate change and drought.

Many other factors have contributed to the decline of the northern Mexican gartersnake, and in some cases, continue to present a significant threat to low-density populations through synergistic mechanisms. These factors, and their effects to northern Mexican gartersnake populations, were discussed in detail in our 2014 rule to list the subspecies (79 FR 38678) and in the 2013 rule proposing critical habitat (78 FR 41500) which is incorporated by reference here. For more information on these additional threats, please review our rules and references cited.

Proposed Critical Habitat

Critical habitat has been proposed in portions of Arizona and New Mexico totaling 421,423 acres. Within these areas, the primary constituent elements of the physical and biological features essential to the conservation of the northern Mexican gartersnake are:

1. Aquatic or riparian habitat that includes:
   a. Perennial or spatially intermittent streams of low to moderate gradient that possess appropriate amounts of in-channel pools, off-channel pools, or backwater habitat, and that possess a natural, unregulated flow regime that allows for periodic flooding or, if flows are modified or regulated, a flow regime that allows for adequate river functions, such as flows capable of processing sediment loads; or
   b. Lentic wetlands such as livestock tanks, springs, and cienegas; and
   c. Shoreline habitat with adequate organic and inorganic structural complexity to allow for thermoregulation, gestation, shelter, protection from predators, and foraging opportunities (e.g., boulders, rocks, organic debris such as downed trees or logs, debris jams, small mammal burrows, or leaf litter); and
   d. Aquatic habitat with characteristics that support a native amphibian prey base, such as salinities less than 5 parts per thousand, pH greater than or equal to 5.6, and pollutants absent or minimally present at levels that do not affect survival of any age class of the northern Mexican gartersnake or the maintenance of prey populations.
2. Adequate terrestrial space (600 ft [182.9 m] lateral extent to either side of bankfull stage) adjacent to designated stream systems with sufficient structural characteristics to support life-history functions such as gestation, immigration, emigration, and brumation.
3. A prey base consisting of viable populations of native amphibian and native fish species.
4. An absence of nonnative fish species of the families Centrarchidae and Ictaluridae, bullfrogs, and/or crayfish (*O. virilis, P. clarki*, etc.), or occurrence of these nonnative species at low enough levels such that recruitment of northern Mexican gartersnakes and maintenance of viable native fish or soft-rayed, nonnative fish populations (prey) is still occurring.

Yellow-billed Cuckoo, Western Distinct Population Segment

The Western Distinct Population Segment (DPS) of the yellow-billed cuckoo was listed as a threatened species on October 2, 2014 (79 FR 59992). Critical habitat was proposed on August 15, 2014 (79 FR 48548), with a final determination expected sometime in 2015.

Physical Characteristics

Adult yellow-billed cuckoos have moderate to heavy bills, somewhat elongated bodies and a narrow yellow ring of colored bare skin around the eye. The plumage is grayish-brown above and white below, with reddish primary flight feathers. The tail feathers are boldly patterned with black and white below. They are a medium-sized bird about 12 in (30cm) in length, and about 2 oz (60 g) in weight. Males and females differ slightly; the males have a slightly smaller body size, smaller bill, and the white portions of the tail tend to form distinct oval spots. In females the white spots are less distinct and tend to be connected (Hughes 1999, 79 FR 59992).

Morphologically, the yellow-billed cuckoos throughout the western continental United States and Mexico are generally larger than individuals in the eastern United States, with significantly longer wings, longer tails, and longer and deeper bills (Franzreb and Laymon 1993). Birds with these characteristics occupy the Western DPS and are we refer to them as the "western yellow-billed cuckoo." Only the Western DPS has been proposed for listing as a threatened species (78 FR 61622). Yellow-billed cuckoos in the west arrive on the breeding grounds 4 to 8 weeks later than eastern yellow-billed cuckoos at similar latitude (Franzreb and Laymon 1993, Hughes 1999). Some information exists suggesting that the western population segment described in the scientific literature as the western yellow-billed cuckoo (Coccyzus americanus occidentalis) is distinguishable at the subspecific level; however, there is enough literature to conclude that recognition of the subspecies is not justified at this time (79 FR 59992).

Distribution

The yellow-billed cuckoo is a member of the avian family Cuculidae and is a Neotropical migrant bird that winters in South America and breeds in North America. The breeding range of the entire species formerly included most of North America from southeastern and western Canada (southern Ontario and Quebec and southwestern British Colombia) to the Greater Antilles and northern Mexico (American Ornithologists Union 1957, 1983, 1998).

Based on historical accounts, the western yellow-billed cuckoo was formerly widespread and locally common in California and Arizona, more narrowly distributed but locally common in New Mexico, Oregon, and Washington and uncommon along the western front of the Rocky Mountains north to British Columbia (American Ornithologists Union 1998, Hughes 1999). The species may be extirpated from British Colombia, Washington, and Oregon (Hughes 1999). The western yellow-billed cuckoo is now very rare in scattered drainages in western Colorado, Idaho, Nevada, and Utah, with single, nonbreeding birds most likely to occur (66 FR 38611). The largest remaining breeding areas are in southern and central California, Arizona, along the Rio Grande in New Mexico, and in northwestern Mexico U.S. Fish and Wildlife Service 2013).

The current breeding population is low, with estimates of approximately 350 to 495 pairs north of the Mexican border and another 330 to 530 pairs in Mexico for a total of 680 to 1,025 breeding pairs (U.S. Fish and Wildlife Service 2013).

Yellow-billed cuckoos spend the winter in South America, east of the Andes, primarily south of the Amazon Basin in southern Brazil, Paraguay, Uruguay, eastern Bolivia, and northern Argentina (Ehrlich *et al.* 1992, American Ornithologists Union 1998, Johnson *et al.* 2008b). The species as a whole winters in woody vegetation bordering fresh water in the lowlands to 1,500 m (4,921 ft), including dense scrub, deciduous broadleaf forest, gallery forest, secondary forest, subhumid and scrub forest, and arid and semiarid forest edges (Hughes 1999). Wintering habitat of the western yellow-billed cuckoo is poorly known.

Migration

Little is known about migratory habitat for the western yellow-billed cuckoo. Yellow-billed cuckoos may be found in a variety of vegetation types during migration, including coastal scrub, secondary growth woodland, hedgerows, humid lowland forests, and forest edges from sea level to 8,125 ft (2,500 m)(Hughes 1999). Additionally, during migration they may be found in smaller riparian patches than those in which they typically nest. This variety of vegetation types suggests that the habitat needs of the yellow-billed cuckoo during migration are not as restricted as their habitat needs when nesting and tending young.

Habitat and Life History

Yellow-billed cuckoos forage primarily by gleaning insects from vegetation, but they may also capture flying insects or small vertebrates such as tree frogs and lizards (Hughes 1999). They specialize on relatively large invertebrate prey, including caterpillars (Lepidoptera sp.), katydids (Tettigoniidae sp.), cicadas (Cicadidae sp.), and grasshoppers (Caelifera sp.) (Laymon *et al.* 1997). Minor prey include beetles (Coleoptera sp.), dragonflies (Odonata sp.), praying mantis (Mantidae sp.), flies (Diptera sp.), spiders (Araneae sp.), butterflies (Lepidoptera sp.), caddis flies (Trichoptera sp.), crickets (Gryllidae sp.), wild berries, and bird eggs and young (Laymon *et al.* 1997, Hughes 1999). Prey species composition varies geographically. Their breeding season may be timed to coincide with outbreaks of insect species, particularly tent caterpillars (Hughes 1999, 66 FR 38611) or cicadas (Johnson *et al.* 2007, Halterman 2009). In Arizona, fledging occurred at the peak emergence of cicadas (Rosenberg *et al.* 1982).

In the arid West, these conditions are usually found in cottonwood-willow riparian associations along water courses. The arrival of birds and the timing of nesting are geared to take advantage of any short-term abundance of prey. In years of high insect abundance, western yellow-billed cuckoos lay larger clutches (3-5 eggs rather than two), a larger percentage of eggs produce fledged young, and they breed multiple times (2-3 nesting attempts rather than one)(Laymon *et al.* 1997). Western yellow-billed cuckoo food availability is largely influenced by the health, density, and species of vegetation. Desiccated riparian sites produce fewer suitable insects than healthy moist sites.

Western populations of yellow-billed cuckoos breed in dense riparian woodlands, primarily of cottonwood (Populus fremontii), willow (Salix spp.), and mesquite (Prosopis spp.), along

riparian corridors in otherwise arid areas (Laymon and Halterman 1989, Hughes 1999). Dense undergrowth may be an important factor in selection of nest sites. Occupied habitat in Arizona may also contain box elder (*Acer negundo*), Arizona alder (*Alnus oblongifolia*), Arizona walnut (*Juglans major*), Arizona sycamore (*Platanus wrightii*), oak (*Quercus* spp.), netleaf hackberry (*Celtis reticulata*), velvet ash (*Fraxinus velutina*), Mexican elderberry (*Sambuccus mexicanus*), tamarisk (*Tamarix* spp.; also called salt cedar), and seepwillow (*Baccharis glutinosa*) (Corman and Magill 2000). Surveys conducted by the Arizona Breeding Bird Atlas (Corman and Wise-Gervais 2005) reported 68 percent of the yellow-billed cuckoo observations were in lowland riparian woodlands, often containing a variable combination of Fremont cottonwood, willow, velvet ash, Arizona walnut, mesquite, and tamarisk (Corman and Wise-Gervais 2005). Narrow bands of riparian woodland can contribute to the overall extent of suitable habitat. Adjacent habitat on terraces or in the upland (such as mesquite) can enhance the value of these narrow bands of riparian woodland.

Throughout the western yellow-billed cuckoo range, a large majority of nests are placed in willow trees, but alder (*Alnus* spp.), cottonwood, mesquite, walnut (*Juglans* spp.), box elder, sycamore, netleaf hackberry (*Celtis laevigata* var. *reticulata*), soapberry (*Sapindus saponaria*), and tamarisk are also used (Laymon 1980, Hughes 1999, Corman and Magill 2000 , Corman and Wise-Gervais 2005, Holmes *et al.* 2008). Tamarisk is also a riparian species that may be associated with breeding under limited conditions; western yellow-billed cuckoo will sometimes build their nests and forage in tamarisk, but there is usually a native riparian tree component within the occupied habitat (Gaines and Laymon 1984, Johnson *et al.* 2008a).

Western yellow-billed cuckoos reach their breeding range later than most other migratory breeders, often in June (Rosenberg *et al.* 1982). They construct an unkempt stick nest on a horizontal limb in a tree or large shrub. Nest height ranges from 4 ft to (rarely) 100 ft, but most are typically below 30 ft (Hughes 1999). The incubation period for the western yellow-billed cuckoo is 9 to 11 days, and young leave the nest at 7 to 9 days old. Although other species of cuckoos are often or always brood parasites of other birds, yellow-billed cuckoos do so only infrequently, possibly in response to high food resources that allow rapid egg production (Fleischer *et al.* 1985). Nesting usually occurs between late June and late July, but can begin as early as late May and continue until late September (Hughes 1999). In a study on the lower Colorado River, three nests were estimated to have first fledged young during August 25 to 28 had they not failed. If these nests had successfully fledged young, the birds may still have been present at their respective breeding sites at least until September 15 to 18 (previously discussed in McNeil *et al.* 2012).

The western yellow-billed cuckoo primarily breeds in riparian habitat along low-gradient (surface slope less than 3%) rivers and streams, and in open riverine valleys that provide wide floodplain conditions (greater than 325 ft [100 m]). In the southwest, it can also breed in narrower reaches of riparian habitat. Within the boundaries of the distinct population segment (DPS)(see Figure 2 at 78 FR 61631,) these riparian areas are located from southern British Columbia, Canada, to southern Sinaloa, Mexico, and may occur from sea level to 7,000 ft (2,154 m)(or slightly higher in western Colorado, Utah, and Wyoming) in elevation. The moist conditions that support riparian plant communities that provide western yellow-billed cuckoo habitat typically exist in lower elevation, broad floodplains, as well as where rivers and streams

enter impoundments. In southeastern Arizona, however, cuckoos were often found nesting along intermittent drainages with dense stands of velvet mesquite and netleaf hackberry (Corman and Wise-Gervais 2005, Arizona Game and Fish Department 2011). Yellow-billed cuckoos are infrequently encountered along higher mountain drainages where Arizona sycamore or Arizona alder are the dominant riparian species. Dense understory foliage appears to be an important factor in nest site selection, while cottonwood trees are an important foraging habitat in areas where the species has been studied in California U.S. Fish and Wildlife Service 2001). In the extreme southern portion of their summer range in the States of Sonora (southern quarter) and Sinaloa, Mexico, western yellow-billed cuckoos also nest in upland thorn scrub and dry deciduous habitats away from the riparian zone (Russell and Monson 1998), though their densities are lower in these habitats than they are in adjacent riparian areas.
At the landscape level, the available information suggests the western yellow-billed cuckoo requires large tracts of willow-cottonwood or mesquite forest or woodland for their nesting season habitat. Habitat can be relatively dense, contiguous stands, irregularly shaped mosaics of dense vegetation with open areas, or narrow and linear.

Canopy cover directly above the nest is generally dense and averages 89 percent and is denser at the South Fork Kern River (93 percent) and Bill Williams River (94 percent) than at the San Pedro River (82 percent). Canopy closure in a plot around the nest averages 71 percent and was higher at the Bill Williams River (80 percent) than at the South Fork Kern River (74 percent) or San Pedro River (64 percent) (Laymon *et al.* 1997, Halterman 2003, Halterman 2004, Halterman 2005, Halterman 2006).

The optimal size of habitat patches for the species are generally greater than 200 ac (81 ha) and have dense canopy closure and high foliage volume of willows and cottonwoods (Laymon and Halterman 1989) and thus provide adequate space for foraging and nesting. Tamarisk, a nonnative tree species, may be a component of the habitat, especially in Arizona and New Mexico. Sites with a monoculture of tamarisk are unsuitable habitat for the species. The association of breeding with large tracts of suitable riparian habitat is likely related to home range size. Individual home ranges during the breeding season average over 100 ac (40 ha), and home ranges up to 500 ac (202 ha) have been recorded (Laymon and Halterman 1987, Halterman 2009, Sechrist *et al.* 2009, McNeil *et al.* 2011, McNeil *et al.* 2012).

In addition to the dense nesting grove, western yellow-billed cuckoos need adequate foraging areas near the nest. Foraging areas can be less dense or patchy with lower levels of canopy cover and often have a high proportion of cottonwoods in the canopy. Optimal breeding habitat contains groves with dense canopy closure and well-foliaged branches for nest building with nearby foraging areas consisting of a mixture of cottonwoods, willows, or mesquite with a high volume of healthy foliage (U.S. Fish and Wildlife Service 2013).

Riparian habitat is dynamic, and species may move from one area to another over time. Western yellow-billed cuckoos may nest at more than one location in a year. Some individuals also roam widely (several hundred miles); apparently assessing food resources before selecting a nest site (Sechrist *et al.* 2012).

During movements between nesting attempts western yellow-billed cuckoos are found at riparian sites with small groves or strips of trees, sometimes less than 10 ac (4 ha) in extent (Laymon and Halterman 1989). These stopover and foraging sites can be similar to breeding sites, but are smaller, narrower, and lack understory vegetation when compared to nesting sites.

Habitat for the western yellow-billed cuckoo is largely associated with perennial rivers and streams that support the expanse of vegetation characteristics needed by breeding western yellow-billed cuckoos. The range and variation of stream flow frequency, magnitude, duration, and timing that will establish and maintain western yellow-billed cuckoo habitat can occur in different types of regulated and unregulated flows depending on the interaction of the water and the physical characteristics of the landscape (Poff *et al.* 1997; U. S. Fish and Wildlife Service 2002, 78 FR 61622).

Hydrologic conditions at western yellow-billed cuckoo breeding sites can vary widely between years. At some locations during low rainfall years, water or saturated soil is not available. At other locations, particularly at reservoir inlets, riparian vegetation can be inundated for extended periods in some years and be totally dry in other years. This is particularly true of reservoirs like Lake Isabella in California, Roosevelt and Horseshoe Reservoirs in Arizona, and Elephant Butte Reservoir in New Mexico, all of which have relatively large western yellow-billed cuckoo populations. This year-to-year change in hydrology can affect food availability and habitat suitability for western yellow-billed cuckoos. In some areas, managed hydrologic cycles above or below dams can create temporary western yellow-billed cuckoo habitat, but may not be able to support it for an extended time, or may support varying amounts of habitat at different points of the cycle and in different years. Water management operations create varied situations that allow different plant species to thrive when water is released below a dam, held in a reservoir, or removed from a lakebed, and consequently, varying amounts of western yellow-billed cuckoo habitat are available from month to month and year to year as a result of dam operations. During wet years, habitat within a lake and below a dam can be flooded for extended periods and stressed or killed. During dry years, habitat can be desiccated and stressed or killed because of lack of water (Poff *et al.* 1997, Greco 1999, National Academy of Sciences 2002; U. S. Fish and Wildlife Service 2002, 78 FR 61622).

Humid conditions created by surface and subsurface moisture appear to be important habitat parameters for western yellow-billed cuckoo. The species has been observed as being restricted to nesting in moist riparian habitat in the arid West because of humidity requirements for successful hatching and rearing of young (Hamilton and Hamilton 1965, Gaines and Laymon 1984, Rosenberg *et al.* 1991). Western yellow-billed cuckoos have evolved larger eggs and thicker eggshells, which would help them cope with potentially higher egg water loss in the hotter, dryer conditions (Hamilton and Hamilton 1965, Ar *et al.* 1974, Rahn and Ar 1974). A study on the South Fork Kern River showed that lower temperatures and higher humidity were found at nest sites when compared to areas along the riparian forest edge or outside the forest (Launer *et al.* 1990). Recent research on the lower Colorado River has confirmed that western yellow-billed cuckoo nest sites had significantly higher daytime relative humidity (6–13% higher) and significantly lower daytime temperatures (2–4o F [1–2o C] lower) than average forested sites (McNeil *et al.* 2011, McNeil *et al.* 2012).

Subsurface hydrologic conditions are equally important to surface water conditions in determining riparian vegetation patterns. Depth to groundwater plays an important part in the distribution of riparian vegetation and western yellow-billed cuckoo habitat. Where groundwater levels are elevated so riparian forest trees can access the water, habitat for nesting, foraging, and migrating western yellow-billed cuckoos can develop and thrive. Goodding's willows (*Salix gooddingii*) and Fremont cottonwoods do not regenerate if the groundwater levels fall below 6 ft (2 m)(Shafroth *et al.* 2000). Goodding's willows cannot survive if groundwater levels drop below 10 ft (3 m), and Fremont cottonwoods cannot survive if groundwater drops below 16 ft (5 m)(Stromberg *et al.* 1996). Abundant and healthy riparian vegetation decreases and habitat becomes stressed and less productive when groundwater levels are lowered (Stromberg *et al.* 1996).

The abundance and distribution of fine sediment deposited on floodplains is critical for the development, abundance, distribution, maintenance, and germination of trees in the riparian zone that become western yellow-billed cuckoo habitat. These sediments become seedbeds for germination and growth of the riparian vegetation upon which western yellow-billed cuckoos depend. These sediments must be accompanied by sufficient surface moisture for seed germination and sufficient ground water levels for survival of seedlings and saplings (Stromberg 2001). The lack of hydrologic processes, which deposit such sediments, may lead riparian forested areas to senesce and become degraded and unable to support the varied vegetative structure required for western yellow-billed cuckoo nesting and foraging.

Arizona

At present, it appears that the State's population could be as low as 170 pairs of yellow-billed cuckoos, and probably does not exceed 250 pairs. The population of the western yellow-billed cuckoo in Arizona is the largest in the United States (U.S. Fish and Wildlife Service 2013).

The yellow-billed cuckoo was historically widespread and locally common in Arizona (Phillips *et al.* 1964, Groschupf 1987). Although Arizona probably contains the largest remaining western yellow-billed cuckoo population among states west of the Rocky Mountains, the population has reportedly declined significantly in distribution and abundance over the past 80 years (Corman and Wise-Gervais 2005). During Arizona Breeding Bird Atlas surveys, nesting birds were found to be concentrated in western, central, and southeastern Arizona. According to Corman and Wise-Gervais (2005), western yellow-billed cuckoos were found along most of the 25 drainages where they were reported historically, but they are now much more local in distribution. It is believed that the San Pedro River likely sustains the largest single remaining population of yellow-billed cuckoos (Brand *et al.* 2009).

A 1976 study based on existing habitat and known yellow-billed cuckoo population densities estimated 846 pairs were present on the lower Colorado River and its five major tributaries in Arizona (Groschupf 1987). In a statewide survey in 1999 that covered 265 mi (426 km) of river and creek bottoms, 172 yellow-billed cuckoo pairs and 81 single birds were located in Arizona (Corman and Magill 2000). Yellow-billed cuckoo populations greater than 10 pairs are found at 12 locations in Arizona: Bill Williams River, Colorado River, Gila River, Upper Cienega Creek, Hassayampa River, San Pedro River, Santa Maria River, Verde River, Sonoita Creek, Santa Cruz

River, Altar Valley, and Agua Fria River. Sites with smaller populations are found at the Roosevelt Lake complex, Upper Tonto Creek, Pinto Creek, Sycamore Creek in Pajarito Mountains, Oak Creek, Lower Cienega Creek, Babocomari River, Pinal Creek, Bonita Creek, San Bernardino National Wildlife Refuge (NWR), Hooker Hot Springs, Big Sandy River, and many smaller drainages. However, many drainages have not been thoroughly surveyed and it is likely that some additional yellow-billed cuckoo locations will be discovered. These include, but are not limited to the mountain ranges of southeastern Arizona, Eagle Creek, and along the Gila, San Francisco, and Blue Rivers. Yellow-billed cuckoo sightings reported by birders between 15 June and 31 August, 1998 to 2012, in more than one year in southeastern Arizona mountain ranges include Walker, Madera, and Montosa canyons in the Santa Rita Mountains; Carr Canyon, Ash Canyon, Garden Canyon, Ramsey Canyon, and Miller Canyon in the Huachuca Mountains; Scotia Canyon and Sycamore Canyon in the Atascosa/Pajarito Mountains; French Joe Canyon in the Whetstone Mountains; Kitt Peak on Baboquivari Mountain; Harshaw Canyon and Paymaster Spring in the Patagonia Mountains; and a few locations in the Chiricahua Mountains (Cornell Laboratory of Ornithology 2012). Yellow-billed cuckoos are breeding in at least some of these locations, with nesting confirmed at Sycamore Canyon (AGFD, unpublished data).

Threats

The western yellow-billed cuckoo is threatened by two of the five threat factors evaluated (A and E).

Factor A. The Present or Threatened Destruction, Modification, or Curtailment of Its Habitat or Range

Within the three States with the highest historical number of yellow-billed cuckoo pairs, past riparian habitat losses are estimated to be about 90 to 95 percent in Arizona, 90 percent in New Mexico, and 90 to 99 percent in California (Ohmart 1994, U.S. Department of Interior 1994, Noss *et al.* 1995, Greco 2008).

The primary threat to the western yellow-billed cuckoo is loss or fragmentation of high-quality riparian habitat suitable for nesting (Corman and Wise-Gervais 2005). Habitat loss and degradation from several interrelated factors include alteration of flows in rivers and streams, encroachment into the floodplain from agricultural and other development activities, stream channelization and stabilization, diversion of surface and ground water for agricultural and municipal purposes, livestock grazing, wildfire, establishment of nonnative vegetation, drought, and prey scarcity due to pesticides (Ehrlich *et al.* 1992, Wiggins 2005, 78 FR 61622). Drought and prey scarcity (especially the loss of sphinx moth caterpillars to pesticides in the West) appear to play a role in yellow-billed cuckoo declines even where suitable nesting habitat remains (Ehrlich *et al.* 1992). These factors also contribute to fragmentation and promote conversion to nonnative plant species and increased incidence of wildfire (Krueper 1993; U. S. Fish and Wildlife Service 2001, 78 FR 61622). A potential factor contributing to declines across the species' range in North America is the loss of forested habitat on its wintering grounds in South America where little is known of its ecology or distribution (Ehrlich *et al.* 1992). The threats affecting western yellow-billed cuckoo habitat are ongoing. Such a loss of riparian habitat leads

not only to a direct reduction in yellow-billed cuckoo numbers but also leaves a highly fragmented landscape, which can reduce breeding success through increased predation rates and barriers to dispersal by juvenile and adult yellow-billed cuckoos U.S. Fish and Wildlife Service 2013).

Factor E. Other Natural or Manmade Factors Affecting Its Continued Existence

Factor E threats, including habitat rarity and small, isolated populations of the western yellow-billed cuckoo, cause the remaining populations in western North America to be increasingly susceptible to further declines through lack of immigration, chance weather events, fluctuating availability of prey populations, pesticides, collisions with tall vertical structures during migration, spread of the introduced tamarisk leaf beetle (*Diorhabda* spp.) as a biocontrol agent in the Southwest, and climate change. The ongoing threat of small overall population size leads to an increased chance of local extirpations through random events (Thompson 1961, McGill 1975, Wilcove *et al.* 1986).

Habitat for the western yellow-billed cuckoo has been modified and curtailed, resulting in only remnants of formerly large tracts of native riparian forests, many of which are no longer occupied by western yellow-billed cuckoos. Despite recent efforts to protect existing, and restore additional, riparian habitat in the Sacramento, Kern, and Colorado Rivers, and other rivers in the range of the western yellow-billed cuckoo, these efforts offset only a small fraction of historical habitat that has been lost. Therefore, we expect the threat resulting from the combined effects associated with small and widely separated habitat patches to continue to affect a large portion of the range of the western yellow-billed cuckoo. This threat is particularly persistent where small habitat patches are in proximity to human-altered landscapes, such as near agricultural fields that dominate the landscape in many areas where the western yellow-billed cuckoo occurs. As a result, the potential exists for pesticides to directly affect (poisoning individual cuckoos) and indirectly affect (reducing the prey base) a large portion of the species. These effects could ultimately result in lower population abundance and curtailment of its occupied range. Mortality from collisions with tall structures is also an ongoing, but largely unquantified effect. We recognize that climate change is a critical issue with potentially severe wide-ranging effects on the species and its habitat. The available scientific literature suggests that the effects of climate change will likely exacerbate multiple existing threats to the western yellow-billed cuckoo and its habitat.

Proposed Critical Habitat

Critical habitat units have been proposed in Arizona, California, Colorado, Idaho, New Mexico, Nevada, Texas, Utah, Wyoming totaling 242,859 acres. Within these areas, the primary constituent elements of the physical or biological features essential to the conservation of western yellow-billed cuckoo consist of three components:

1. *Riparian woodlands.* Riparian woodlands with mixed willow cottonwood vegetation, mesquite-thorn forest vegetation, or a combination of these that contain habitat for nesting and foraging in contiguous or nearly contiguous patches that are greater than 325 feet (100 meters) in width and 200 acres (81 hectares) or more in extent. These habitat patches contain one or more nesting groves, which are generally willow-dominated, have above average

canopy closure (greater than 70 percent), and have a cooler, more humid environment than the surrounding riparian and upland habitats.

2. *Adequate prey base.* Presence of a prey base consisting of large insect fauna (for example, cicadas, caterpillars, katydids, grasshoppers, large beetles, dragonflies) and tree frogs for adults and young in breeding areas during the nesting season and in post-breeding dispersal areas.

3. *Dynamic riverine processes.* River systems that are dynamic and provide hydrologic processes that encourage sediment movement and deposits that allow seedling germination and promote plant growth, maintenance, health, and vigor (e.g. lower gradient streams and broad floodplains, elevated subsurface groundwater table, and perennial rivers and streams). This allows habitat to regenerate at regular intervals, leading to riparian vegetation with variously aged patches from young to old. These dynamic riverine processes are considered essential for developing and maintaining the primary constituent elements as described above for Riparian Woodlands and Adequate Prey Base.

ENVIRONMENTAL BASELINE

The environmental baseline includes past and present impacts of all Federal, State, or private actions in the action area, the anticipated impacts of all proposed Federal actions in the action area that have undergone formal or early section 7 consultation, and the impact of State and private actions which are contemporaneous with the consultation process. The environmental baseline defines the current status of the species and its habitat in the action area to provide a platform to assess the effects of the action now under consultation.

Description of the Action Area

The action area for this BO is defined as a one-mile buffer on either side of the centerline of the Agency Preferred Alternative in the New Build Section and a 500-foot corridor (200 feet off of the existing 100-foot-wide ROW) (see BO Figure 1) in the Upgrade Section, as well as any identified substations, staging areas, or access roads outside those corridors.

The New Build Section of the proposed project would be located within the Mexican Highland Subprovince of the Basin and Range Physiographic Province. This area is characterized by numerous elongated, subparallel mountain ranges and intervening broad alluvial basins that formed during Late Cenozoic extension. The Upgrade Section of the proposed project would be located in the eastern edge of the Sonoran Desert Subprovince of the Basin and Range Physiographic Province. This area is dominated by basins filled with sediments separated by uplifted mountain blocks. Major basins include the Avra Valley, Tucson Basin, San Pedro Valley, and Willcox Playa (Trapp and Reynolds 1995). The San Pedro River drains the San Pedro Basin. Mountain ranges include the Tucson Mountains, west of Tucson; the Tortolita Mountains, northwest of Tucson; the Santa Catalina Mountains, northeast of Tucson; and the Rincon Mountains, east of Tucson.

The proposed project would cross six biotic communities of the Southwest (Brown and Lowe 1980), including Semidesert Grassland, Chihuahuan Desertscrub, Playa, Arizona Upland

Subdivision of Sonoran Desertscrub, Lower Colorado River Subdivision of Sonoran Desertscrub, and Madrean Evergreen Woodland.

Status and Factors Affecting the Species and Critical Habitat Within the Action Area

Lesser Long-Nosed Bat

Within the action area there are no known lesser long-nosed bat roost locations. Most records for this species in the United States are from mine or cave roosts (Findley *et al.* 1975, Hoffmeister 1986) and there are multiple roost locations within 40 miles of the action area in Hidalgo, Cochise, Pima, and Pinal counties in route groups 2, 3, and 4 (BO Figure 1). As lesser long-nosed bats are capable of foraging up to 40 miles one way from roost locations each night, it is assumed that the species could be present anywhere along the proposed project in route groups 2–4 where suitable foraging plants are present, and in urban areas where landscape plantings and hummingbird feeders provide a food source for the species. Individuals have been detected in Grant County, New Mexico, north of the project area (M. Ramsey, personal communication), and additional unknown roosts may be present within or near the action area.

Foraging Habitat in the Action Area

Forage plants utilized by lesser long-nosed bats are not uniformly distributed across the landscape in the action area. Saguaro (*Carnegiea gigantea*), *Agave palmeri*, and *Agave chrysantha* are common forage plants in the action area. *Agave parryi* may be found at higher elevations (Kearney and Peebles (1960) describe *Agave parryi* as occurring in Cochise and Pima counties at 4,500 to 8,000 feet). The distribution of saguaro includes the western portion of the action area from the San Pedro Valley extending west to the beginning of developed agricultural lands north of the Tucson Mountains (Shreve and Wiggins 1964). Slauson (2000) mapped the distribution of the lesser long-nosed bat relative to the distribution of *Agave palmeri* and *Agave chrysantha*, indicating the distribution of *A. chrysantha* in the western portion of action area, including the Winchester, Galiuro, Little Rincon, Rincon, and the north side of the Catalina Mountains. Slauson (2000) also indicates the distribution of *Agave palmeri* in the project area from approximately the Arizona-New Mexico state line west to the south end of the Rincon Mountains. Gentry (1982) indicates the distribution of *Agave palmeri* to include Hidalgo and Grant counties south of the Gila River and extreme western Luna County in Southwestern New Mexico in addition to southern Arizona, including portions of the action area. Shreve and Wiggins (1964) describe the saguaro as occurring on gravelly slopes, rocky ridges and outwash fans, the *Agave palmeri* as occurring on rocky hillsides and mesas, and *Agave chrysantha* occurring on arid foothills and mountain slopes. As described by Howell and Roth (1981), and others, *Agave palmeri* is patchily distributed. Ober *et al.* (2005) report variability between years in abundance of agave inflorescences and variation in calculated home ranges of radio telemetered lesser long-nosed bats as food resources varied. Ober *et al.* (2005) found that lesser long-nosed bats would change foraging areas upon cessation of agave nectar production and would vary activity patterns by increasing time spent foraging in periods of reduced forage availability, noting a change from a mean of 2.3 hours per night spent foraging in a relatively good year to 5.1 hours per night the following year when *Agave* inflorescences were less abundant. Since *Agave* plants die after flowering there is likely to be inter-annual variability of

availability of *Agave* nectar, which is further confounded by variability in precipitation affecting *Agave* reproduction and growth. Lesser long-nosed bats forage over large areas in response to food availability both between and within years.

Forage plants for the species include columnar cacti and paniculate agaves, which could be removed or trimmed during construction activities and as needed during maintenance. Lesser long-nosed bat foraging habitat is found predominately in the rebuild section of the project. The existing Saguaro-Tucson and Tucson-Apache 115 kV transmission lines that would be upgraded have been in place since the 1950s on a 100-foot ROW and vegetation within the ROW has been maintained to comply with conductor to vegetation clearance standards on an as needed basis. From the Saguaro Substation to the Tucson Substation saguaros are generally found in foothill and mountainous areas although individual plants can occur on the valley floor. More specifically, saguaros occur as individuals or in groups of 2-3 from Twin Peaks Road to Silverbell Road and west of Silverbell Road in undeveloped areas. From the Tucson Substation eastward Saguaros occur as scattered individuals from Silverbell Road to Anklam Road, across the Tumamoc Hill property to Starr Pass Boulevard, and in open areas to Ajo Way. From Ajo Way to Mission Road the existing line to be replaced is a very high span from Ajo Way to the top of a ridge in Tucson Mountain Park then down again as a high span, with clumps of saguaro occurring west of Mission Road. From Swan Road to Wentworth Road saguaros occur as scattered individuals. Because of the scattered nature of saguaro distribution impacts to foraging habitat will be localized. Paniculate agaves are localized in hilly terrain east of Highway 83 to Apache Substation. Impacts to saguaros and paniculate agaves may occur from offsetting the ROW for the rebuild section to allow construction while maintaining service on the existing lines and from vegetation maintenance along the rebuilt transmission line.

In the new build section of the project, impacts to lesser long-nosed bat paniculate agave based foraging habitat are most likely where the route crosses mountainous terrain, particularly crossing the Peloncillo Mountains, east to the Hidalgo Substation.

Mexican Long-nosed Bat

Within the action area there are no known Mexican long-nosed bat roost locations. However, there are multiple roost locations in the boot heel of New Mexico that the species utilizes along with the lesser long-nosed bat within 40 miles of the project area. The nearest known roost location is approximately 10 miles south of the proposed project area along segment LD4. Because Mexican long-nosed bats are capable of foraging up to 40 miles one way from day roost locations each night, it is assumed that the species could be present anywhere along the preferred alternative in route groups 1 and 2 (BO Figure 1) where suitable forage plants (agaves) are present, and in urban areas where landscape plantings and hummingbird feeders provide a food source for the species. Individuals have been detected in Grant County, New Mexico, north of the project area (M. Ramsey, personal communication), and additional unknown roosts may be present within or near the action area. See discussion of agave foraging habitat in the action area under lesser long-nosed bat.

Pima Pineapple Cactus

The portions of the action area that could support the Pima pineapple cactus are, generally, from the area of the Pantano Substation, between Cienega Creek and Davidson Canyon and the area of Del Bac Substation, near Interstate 19 and Valencia Road. Roller (1996) mapped the known distribution of Pima pineapple cacti, locating the species in the vicinity of Vail north and south of Interstate 10 and east and west of State Route 83 and west of Interstate 19 south of Tucson. Baker (2006b) surveyed lands along a portion of the proposed project route and modelled predicted habitat based on sightings of Pima pineapple cacti. Based on Baker (2006b) polygons within 500 meters of known individual Pima pineapple cacti and of predicted habitat overlay the proposed project route. Pima pineapple cacti have been found in the vicinity of the Nogales Substation within the area of the proposed project (Johnida Dockens, Pers. Comm.).

Southwestern Willow Flycatcher

Within the action area at the proposed crossings of the San Pedro River and Cienega Creek, there is no southwestern willow flycatcher nesting habitat. These areas lack a permanent or semi-permanent water source and water is likely only present in the area as a result of precipitation events. A review of Google Earth images of the proposed crossing of the San Pedro River for November 14, 1992, May 31, 1996, October 5, 2002, September 20, 2003, December 22, 2005, October 1, 2006, June 20, 2007, May 23, 2009, September 9, 2010, April 29, 2011, and June 11, 2011 showed water in the river channel only on October 1, 2006. A review of Google Earth images of the proposed crossing of Cienega Creek for November 14, 1992, May 31, 1996, September 20, 2003, May 30, 2005, June 15, 2006, June 20, 2007, September 9, 2010, and June 11, 2011 showed no water in the creek channel.

No southwestern willow flycatcher designated critical habitat is present in the action area. Critical habitat is found along the San Pedro River approximately 10 airline miles north (downstream) of the proposed project area and along Cienega Creek approximately 4.9 airline miles south (upstream) of the proposed project area.

The proposed crossing of the San Pedro River floodplain is approximately 850 feet wide, including an open, active, channel approximately 100 feet wide. A stand of salt cedar (*Tamarix ramossisma*) occurs on the west-side floodplain. There is a density gradient within the stand with the densest areas of salt cedar occurring on the western edge of the floodplain on a point bar, extending approximately 400 feet to the east. The eastern bank of the San Pedro River channel is a high cut bank with little streambank vegetation. Velvet mesquite (*Prosopis velutina*)–dominated shrublands occur east of the eastern bank. The proposed crossing lacks a permanent or semi-permanent source of water or saturated soils that are typically found in areas utilized by southwestern willow flycatcher for breeding, but the area provides migratory and foraging habitat for southwestern willow flycatcher.

At the proposed crossing of Cienega Creek, the active, open, channel of the creek is approximately 215 feet wide with a band of velvet mesquite trees on the west bank approximately 40-45 feet wide. The proposed crossing lacks a permanent or semi-permanent source of water or saturated soils that are typically found in areas utilized by southwestern

willow flycatcher for breeding but the area provides migratory and foraging habitat for southwestern willow flycatcher.

The proposed crossings of the Santa Cruz River occur within urban habitats and are generally in areas of limited to no riparian vegetation that are not habitat for the species. In areas where riparian vegetation is present within the project area, habitat may be suitable for migrating southwestern willow flycatchers. In the Saguaro Substation-Tucson Substation segment within the action area, the proposed project route parallels riparian habitat, supported by sewage effluent, including a total of approximately 2.5 linear miles of project length, between El Camino del Cerro and Ina Road, east of Silverbell Road. However, there are no records of the species from the Santa Cruz River in the action area.

No southwestern willow flycatcher populations are known in the action area in New Mexico.

Northern Mexican Gartersnake

Northern Mexican gartersnakes were historically found in most permanent rivers and streams in southern and central Arizona, including Cienega Creek and the San Pedro River. Vegetation and habitat conditions at the proposed crossings of the San Pedro River and Cienega Creek are described under southwestern willow flycatcher above. Habitat at the proposed crossings of the San Pedro River and Cienega Creek does not include perennial or semi-permanent aquatic habitat (see discussion of water in the stream under southwestern willow flycatcher above). The project area is considered occupied because the project area crosses proposed critical habitat (78 FR 41558). We anticipate that individuals occur intermittently in the project area when dispersing to areas with perennial water or when prey are conspicuously present in the project area. Most use by individuals would be in the riparian area, but some use may occur outside the riparian area within the dryer terrestrial habitat. Within the San Pedro River and Cienega Creek, northern Mexican gartersnakes are more likely to occur in those areas with appropriate prey species (native fish) and less likely to occur in areas with non-native predators/competitors (bullfrogs, spiny-rayed fish).

The FWS is proposing critical habitat for this species along both Cienega Creek and the San Pedro River (78 FR 41549) in areas that would be crossed by the proposed project. The proposed project would cross proposed critical habitat in the Cienega Creek Subbasin Critical Habitat Unit and the San Pedro River Subbasin Critical Habitat Unit.

Yellow-billed Cuckoo

No species-specific surveys have been conducted for yellow-billed cuckoo for the purposes of this proposed project. However, the yellow-billed cuckoo is known from the San Pedro River to the south and north of the action area (79 FR 48565). The San Pedro River at the proposed crossing location is approximately 850 feet wide with a thick stand of saltcedar (*Tamarix* sp.) trees in the channel and velvet mesquite (*Prosopis velutina*)–dominated shrublands on the eastern bank. This area lacks a permanent or semi-permanent water source and water is likely only present in the area as a result of precipitation events. The riparian vegetation in this area lacks the multiple layers of canopy and subcanopy and well developed understory preferred as

breeding habitat by the yellow-billed cuckoo. Also lacking are the native tree species that are important components to breeding habitat. Foraging and migratory habitat in the form of sparse riparian deciduous and upland mesquite vegetation is present at the proposed crossing of the San Pedro River and Cienega Creek. Large blocks of riparian vegetation utilized by the species for breeding are not present in the project area, but the area along Cienega Creek downstream are consistently used for breeding (79 FR 48565).

The proposed crossings of the Santa Cruz River occur within urban habitats and are generally in areas of limited to no riparian vegetation that are not habitat for the species. In areas where riparian vegetation is present within the project area, habitat may be suitable for migrating yellow-billed cuckoo. There are records of the species from the Santa Cruz River near the study area, but no records of breeding.

No yellow-billed cuckoo populations are known in the study area in New Mexico, but the species could occur where the Gila River watershed overlaps with the study area. Thus some individual birds could follow drainages within the study area during migration.
The San Pedro River is not a regulated river but flows are subject to depletion through groundwater pumping. Entrenchment of the upper San Pedro and deposition of alluvium downstream has altered the river from the pre-settlement period, apparently due to historic heavy livestock use and flooding (Hereford 1993). These factors constrain development of physical and biological features of habitat for yellow-billed cuckoo. The San Pedro River from San Manuel upstream to St. David has not been well surveyed for yellow-billed cuckoo and much of it is private land. However, suitable habitat exists in this reach. Yellow-billed cuckoos are documented at the Three Links conservation property approximately 12 miles north of the proposed project crossing. Although the number of breeding territories at the Three Links site is unknown, repeated yellow-billed cuckoo detections a) during at least 2 of 3 southwestern willow flycatcher survey periods in 2004, 2005, 2006, 2008, 2009, 2010, 2011, and 2013 and b) during yellow-billed cuckoo breeding season playback surveys in 2012 and 2013 indicate a breeding population exists (Tucson Audubon, unpublished data; USBR, unpublished data). The area beginning approximately nine miles south of the proposed project crossing and extending southward is one of the largest remaining breeding groups of the western yellow-billed cuckoo and is consistently occupied by a large number of pairs (79 FR 48563).

Proposed critical habitat occurs in lower Cienega Creek in Unit 38. There is very little habitat for cuckoos within this area, but portions of Unit 38 downstream of the project area are consistently occupied by cuckoos during the breeding season (79 FR 48565).

EFFECTS OF THE ACTION

Effects of the action refer to the direct and indirect effects of an action on the species or critical habitat, together with the effects of other activities that are interrelated and interdependent with that action, which will be added to the environmental baseline. Interrelated actions are those that are part of a larger action and depend on the larger action for their justification. Interdependent actions are those that have no independent utility apart from the action under consideration. Indirect effects are those that are caused by the proposed action and are later in time, but are still reasonably certain to occur.

Emergency maintenance may be needed during the life of the permit in order continue transmission of power. This may include repair of transmission lines or repair or replace damaged equipment. Effects to habitat will be the same as the installation and regular maintenance of the transmission line. Emergency actions may occur during breeding seasons, which may affect migrating or foraging individuals, which are addressed for each species.

While changes to vegetation and water availability may occur during the 50-year life of the permit, we do not expect these changes to be substantial so the condition of the action area will not change substantially for the species addressed, e.g., breeding habitat for riparian species will not develop where there is no breeding habitat now. Climate change will continue to limit increases in water flow, riparian vegetation development, and, possibly, upland vegetation development, and maintenance activities will continue to limit development of large trees along the line.

Lesser Long-Nosed Bat

There are no known mines, caves, or lesser long-nosed bat roost sites within the action area. The nearest known lesser long-nosed bat roost site is approximately 10 miles from the proposed project. As such, no impacts on known roost sites or individual bats at roost sites from the proposed project are anticipated. Recent ongoing research has detected additional roosts in southern Arizona and New Mexico, and other roosts may be present and undetected thus far.

Potential impacts on the lesser long-nosed bat from the proposed project would include the loss or alteration of suitable foraging habitat. Forage plants for the species, including columnar cacti and paniculate agaves, would be removed or trimmed during construction activities and as needed during maintenance. Approximately 1,084 acres of disturbance would occur to vegetation communities where suitable forage plants for the lesser long-nosed bat would be present in route groups 2–4 (BO Figure 1). This would be approximately 25 percent of the 4,270 acres of available habitat within the proposed ROW and less than 2 percent of the approximately 68,856 acres of available habitat within the action area (500-foot -wide corridor on rebuild and 2-mile-wide corridor on new build).

As forage plants are not present throughout the entire area to be disturbed, the total area of lesser long-nosed bat foraging habitat impacted would be less than the area of disturbance. Within the area to be disturbed, areas with saguaros (*Carnegiea gigantea*) and paniculate agaves would be avoided where possible. Where removal of these plants would be required they would be transplanted outside of the area of ground disturbance and would be used in reclamation activities. Agave and saguaros would be augmented as necessary to achieve a goal of no net loss of mature flowering plants. Mortality of some plants would be expected during transplanting operations and, despite mitigation, a temporary loss of foraging plants would occur during the establishment of salvaged and additional agaves and saguaros used to achieve no net loss of mature flowering plants. Foraging by lesser long-nosed bats would continue in the general area at current levels because of the relatively small area of forage that will be affected.

Mexican Long-nosed Bat

There are no known mines, caves, or Mexican long-nosed bat roost sites within the ROW for the proposed project. The nearest known Mexican long-nosed bat roost site is approximately 10 miles from the proposed project. As such, no impacts on known roost sites or individual bats from the proposed project are anticipated. Recent ongoing research has detected additional roosts in southern Arizona and New Mexico, and other roosts may be present and undetected thus far.

Potential impacts on the Mexican long-nosed bat from the proposed project would include the loss or alteration of suitable foraging habitat and potential noise and vibration impacts. Forage plants for the species, including columnar cacti and paniculate agaves, would be removed or trimmed during construction activities and as needed during maintenance. Approximately 509 acres of disturbance would occur in vegetation communities where suitable forage plants for the Mexican long-nosed bat are present in route groups 1 and 2. This would be approximately 23 percent of the 2,215 acres of available habitat within the proposed ROW. As foraging plants are not present throughout the entire area to be disturbed, the total area of Mexican long-nosed bat foraging habitat impacted would be less than the area of disturbance. Within the area to be disturbed, areas with paniculate agaves would be avoided where possible. Where removal of these plants would be required, they would be transplanted outside of the area of ground disturbance and used in reclamation activities. Agave and saguaros would be augmented as necessary to achieve a goal of no net loss of mature flowering plants. Mortality of some plants would be expected during transplanting operations and, despite mitigation, a temporary loss of foraging plants would occur while salvaged and additional agaves and saguaros used to achieve no net loss of mature flowering plants become established. Foraging by Mexican long-nosed bats would continue in the general area at current levels because of the relatively small area of forage that will be affected.

Pima Pineapple Cactus

Potential impacts on the Pima pineapple cactus from the proposed project include direct loss of individual plants and changes to habitat from the establishment and spread of invasive plants. Ground disturbance to Pima pineapple cactus habitat would occur during the construction phase of the proposed project from the construction of new access roads, pulling and tensioning sites, and structure work areas. Ground disturbance may directly affect the Pima pineapple cactus through direct loss of individual plants and may indirectly affect the species by facilitating the establishment and spread of invasive plant species. Ground disturbance would occur on approximately155 acres of Pima pineapple cactus habitat within the project ROW. This would be approximately 28 percent of the 554 acres of habitat within the 150-foot-wide ROW and 8 percent of the approximately 1,845 acres of habitat in the 500-foot-wide action area. Ground-disturbing activities could lead to increased establishment and spread of invasive plant species, which can compete with the Pima pineapple cactus for space and resources and could modify fire regimes in habitat that could lead to increased mortality for the species and degradation of habitat. Measures to minimize the establishment and spread of invasive plant species would minimize the potential for indirect effects on the Pima pineapple cactus from the proposed project. Effects to individuals will be minimized through implementation of conservation

measures, including purchasing credits in a FWS-approved conservation bank for Pima pineapple cactus, corresponding to the area of disturbance to Pima pineapple cactus habitat; flagging individuals prior to the commencement of work to avoid accidental damage during construction; and relocating any Pima pineapple cactus that cannot be avoided, if possible.

Southwestern Willow Flycatcher

Nesting habitat for the southwestern willow flycatcher is not currently present at the proposed crossings of the San Pedro River, Santa Cruz River, or Cienega Creek. Surface water at the proposed crossings is present ephemerally and only in response to precipitation events. We do not expect that the conditions at these crossings will change during the life of the permit. Thus, no impacts from the proposed project on nesting southwestern willow flycatchers are anticipated.

Habitat at the proposed crossings of the San Pedro River, Cienega Creek, and the Santa Cruz River is suitable for foraging and migrating southwestern willow flycatchers. Construction activities would avoid ground disturbance and would not place structures or access roads in riparian woodlands. The areas with riparian woodland vegetation would be spanned by the proposed transmission line. All non-emergency construction and maintenance in riparian woodlands at the San Pedro River, Cienega Creek, and the Santa Cruz River would take place between September 15 and March 1, to avoid disturbance of southwestern willow flycatchers.

Vegetation within the ROW would be managed to maintain clearance between vegetation and transmission lines. This could include removing vegetation or topping of trees in the ROW. This maintenance would occur as needed, likely every three to five years. To avoid impacts on or disturbance to southwestern willow flycatcher, any vegetation management at the crossings of the San Pedro River and Cienega Creek would occur outside of the breeding season with the exception of emergency situations, and would be limited to the minimum vegetation removal required to maintain clearance between vegetation and the transmission lines. Emergency maintenance may occur during the breeding season, which may result in migrating or foraging southwestern willow flycatchers to be displaced temporarily. This displacement will not affect their survival, and individuals will likely resume normal behavior after the emergency maintenance is complete. We anticipate that vegetation conditions will remain that provide foraging and migrating habitat.

The presence of a larger set of cables (from 3 conductors and 2 shield wires on the existing transmission line to 6 conductors and 2 shield wires on the rebuilt line) replacing the existing line across the San Pedro River, Cienega Creek, and the Santa Cruz River could increase the potential for southwestern willow flycatcher collisions with the transmission lines. However, the likelihood of collisions increasing would be small due to the size and maneuverability of the species. In order to minimize the potential risk for bird collisions with transmission lines, the lines and structures would be designed in accordance with "Reducing Avian Collision with Power Lines" (APLIC 2012) and line marking devices would be placed at the proposed crossings of the San Pedro River, Cienega Creek, and the Santa Cruz River.

No designated critical habitat for the southwestern willow flycatcher is present in the action area. The nearest designated critical habitat is approximately 9 miles north of the action area

(downstream) on the San Pedro River and approximately 12 miles north (upstream) of the action area along the Gila River in New Mexico. As no designated critical habitat is present in the proposed project area and there would be no impacts downstream, no effects from the proposed project on southwestern willow flycatcher designated critical habitat are anticipated.

Northern Mexican Gartersnake

Potential direct effects to individuals would include being harmed or killed by vehicles and other equipment used during installation and maintenance activities outside the riparian area. Considering that individuals would occur intermittently and that ground actions would occur outside the riparian area in the drier terrestrial areas, we are reasonably certain that the likelihood of individuals being directly affected would be small. We do not expect changes to the habitat in the area to occur that would change use by the northern Mexican gartersnakes to be other than intermittent in the future.

No ground disturbance would occur in riparian areas at the proposed crossings of Cienega Creek and the San Pedro River. Habitat upslope of riparian areas may be affected within the right-of-way to maintain clearance between vegetation and transmission lines. This maintenance would occur as needed, likely every three to five years. To minimize impacts on northern Mexican gartersnake habitat and proposed critical habitat, any vegetation management at the crossings of the San Pedro River and Cienega Creek would be limited to the minimum vegetation removal required to maintain clearance between vegetation and the transmission lines, maintaining some habitat characteristics for northern Mexican gartersnakes.

The proposed action would not affect any of the proposed critical habitat PCEs for aquatic or riparian habitat that would preclude development for gartersnakes, but may affect the PCE of adequate terrestrial space by removing some vegetation. None of these actions are expected to preclude development of habitat in the general area if water availability changes.

Yellow-billed Cuckoo

Yellow-billed cuckoo nesting habitat is not present within the project area, but is present downstream of the project area at Cienega Creek. No impacts from the proposed project on nesting yellow-billed cuckoos are anticipated because nesting habitat will not be affected and we do not anticipate that nesting habitat will develop within the project area during the life of the permit.

Habitat at the proposed crossings of the San Pedro River, Cienega Creek, and the Santa Cruz River is likely suitable as foraging and/or migratory habitat for the species. Siting of the proposed transmission line would be done in a way that no ground disturbance, structures, or access roads would occur within riparian woodlands. Vegetation would be managed within the ROW to maintain vertical clearance between vegetation and transmission lines. This could include removing vegetation in the ROW. This maintenance would occur as needed, likely every three to five years. To avoid impacts on yellow-billed cuckoo any vegetation management at the crossings of the San Pedro River, Cienega Creek, and Santa Cruz River would occur outside of the breeding season with the exception of emergency situations, and would be limited to the minimum vegetation removal required to maintain clearance between vegetation and the

transmission lines. Emergency maintenance may occur during the breeding season, which may result in migrating or foraging yellow-billed cuckoos to be displaced temporarily. This displacement will not affect their survival, and individuals will likely resume normal behavior after the emergency maintenance is complete.

The presence of a larger set of cables (from 3 conductors and 2 shield wires on the existing transmission line to 6 conductors and 2 shield wires on the rebuilt line) replacing the existing line across the San Pedro River, Cienega Creek, and the Santa Cruz River could increase the potential for southwestern willow flycatcher collisions with the transmission lines. In order to minimize the potential risk for bird collisions with transmission lines the lines and structures would be designed in accordance with "Reducing Avian Collision with Power Lines" (APLIC 2012) and line marking devices would be placed at the proposed crossings of the San Pedro River, Cienega Creek, and the Santa Cruz River.

Proposed critical habitat

Maintenance of the line may affect riparian woodlands along the line within the project area because vegetation, including trees, will be managed to maintain clearance between the lines and vegetation. This may involve the trimming or removal of trees, which will limit canopy cover. The action area outside the project area will not be affected, so that the size of riparian woodlands, in general, will continue to increase and decrease under current processes which will not be affected by the proposed action.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, local or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act.

Lesser Long-Nosed Bat and Mexican Long-nosed Bat

Livestock grazing on private property and on lands managed by the ASLD and New Mexico State Land Office may affect foraging habitat for the long-nosed bats. Other unregulated activities including trespass livestock, inappropriate off-highway vehicle (OHV) use, and cross-border activities could impact lesser long-nosed bat habitat.

Pima Pineapple Cactus

Habitat for the Pima pineapple cactus includes areas of private lands and lands managed by the ASLD where livestock grazing could occur. Livestock grazing activities could lead to direct mortality of Pima pineapple cactus and modification of habitat through the establishment and spread of invasive plant species. Other, unregulated, activities, including trespass livestock, inappropriate OHV use, and cross-border activities, could impact Pima pineapple cactus habitat.

Southwestern Willow Flycatcher

The proposed crossing of the San Pedro River is located on private land and cattle grazing on these lands could impact habitat for the species. Upstream water use and groundwater pumping in the area limit opportunities for development of quality habitat for southwestern willow flycatcher in the vicinity of the proposed crossing. The proposed crossing of Cienega Creek is on Arizona State Trust Land and cattle grazing could impact habitat for the species. Inappropriate off-high-vehicle (OHV) use could impact southwestern willow flycatcher habitat.

Northern Mexican Gartersnake

The proposed crossing of the San Pedro River is located on private land and cattle grazing on these lands could directly impact or impact habitat for the species. Upstream water use and groundwater pumping in the area limit opportunities for development of quality habitat for northern Mexican gartersnake in the vicinity of the proposed crossing. The proposed crossing of Cienega Creek is on Arizona State Trust Land and cattle grazing could directly or indirectly impact habitat for the species. Inappropriate off-high-vehicle (OHV) use could impact northern Mexican gartersnake habitat.

Yellow-billed Cuckoo

Cumulative impacts to habitat at the San Pedro River and Cienega Creek crossing are similar to the southwestern willow flycatcher.

CONCLUSION

The conclusions of this biological opinion are based on full implementation of the project as described in the Description of the Proposed Action section of this document, including any Conservation Measures that were incorporated into the project design.

This biological opinion does not rely on the regulatory definition of "destruction or adverse modification" of critical habitat at 50 CFR 402.02. Instead, we have relied upon the statutory provisions of the Act to complete the following analysis with respect to critical habitat.

Lesser Long-nosed Bat

After reviewing the current status of the lesser long-nosed bat, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is the FWS's biological opinion that the proposed action is not likely to jeopardize the continued existence of the lesser long-nosed bat. No critical habitat has been designated for the lesser long-nosed bat, therefore, none will be affected. We base these conclusions on the following reasons:

1. No lesser long-nosed bat roosts would be affected.
2. Forage plants will not be affected to the extent that would preclude bat foraging within the action area because of the relatively small area of forage that will be affected.

3. Forage plants will be avoided where possible, and some plants will be transplanted and used in reclamation activities to achieve a goal of no net loss of mature flowering bat forage plants.

Mexican long-nosed bat

After reviewing the current status of Mexican long-nosed bat, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is the FWS's biological opinion that the proposed action is not likely to jeopardize the continued existence of the Mexican long-nosed bat. No critical habitat has been designated for the lesser long-nosed bat, therefore, none will be affected. We base these conclusions on the following reasons:

1. No known Mexican long-nosed bat roosts would be affected.
2. Forage plants will not be affected to the extent that would preclude bat foraging within the action area because of the relatively small area of forage that will be affected.
3. Forage plants will be avoided where possible, and some plants will be transplanted and used in reclamation activities to achieve a goal of no net loss of mature flowering bat forage plants.

Pima pineapple cactus

After reviewing the current status of Pima pineapple cactus, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is the FWS's biological opinion that the proposed action is not likely to jeopardize the continued existence of the Pima pineapple cactus. No critical habitat has been designated for the lesser long-nosed bat, therefore, none will be affected. We base these conclusions on the following reasons:

1. Individual plants will be avoided when possible. If avoidance is not possible, individual plants will be relocated.
2. Credits will be purchased in a FWS-approved conservation bank, corresponding to the area of disturbance to Pima pineapple cactus habitat resulting from the proposed action.

Southwestern willow flycatcher and critical habitat

After reviewing the current status of southwestern willow flycatcher, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is the FWS's biological opinion that the proposed action is neither likely to jeopardize the continued existence of the southwestern willow flycatcher, nor likely to destroy or adversely modify designated critical habitat for southwestern willow flycatcher. We base these conclusions on the following reasons:

1. Breeding will not be affected because there is no breeding habitat within the project area, and breeding habitat is not expected to develop during the term of the permit.
2. Most migrating and foraging individuals will not be affected during development or regular maintenance because proposed actions will occur at the crossings of the San Pedro River and

Cienega Creek only outside of the breeding season. Emergency maintenance may affect migrating or foraging individuals, but this will not affect their survival, and individuals will resume their normal activities after the emergency maintenance.

3. Habitat within riparian areas would only be affected by maintenance actions which would require the removal of vegetation to maintain line clearance. This would affect trees within the project area, but would not affect trees within the remainder of the action area.
4. Critical habitat would not be affected because none occurs within the action area.

Northern Mexican gartersnake and proposed critical habitat

After reviewing the current status of the northern Mexican gartersnake, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is the FWS's biological opinion that the proposed action is not likely to jeopardize the continued existence of the northern Mexican gartersnake, and it is our conference opinion that the proposed action is not likely to destroy or adversely modify proposed critical habitat for the northern Mexican gartersnake. We base these conclusions on the following reasons:

1. The likelihood of individuals being directly affected would be small, considering that significant populations of known prey species are not known within the proposed action's footprint, individuals would occur intermittently in the project area (likely only during dispersal or flooding events), ground-disturbing actions would occur outside the riparian area in the dryer terrestrial areas, and no changes to the habitat in the action area are expected to occur that would change use by the northern Mexican gartersnakes to be other than intermittent in the future.
2. No ground disturbance would occur in riparian habitat at the proposed crossings of the San Pedro River and Cienega Creek. Maintaining clearance between vegetation and transmission lines may affect some habitat characteristics, but this would be limited to only what is necessary, maintaining some habitat characteristics.
3. Proposed critical habitat PCEs of aquatic or riparian habitat will not be affected. Some characteristics of adequate terrestrial space may be affected by removing vegetation, but none of these actions are expected to preclude development or maintenance of habitat in the general area.

Yellow-billed cuckoo western distinct population segment and proposed critical habitat

After reviewing the current status of yellow-billed cuckoo, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is the FWS's biological opinion that the proposed action is not likely to jeopardize the continued existence of the yellow-billed cuckoo, and it is our conference opinion that the proposed action is not likely to destroy or adversely modify proposed critical habitat for yellow-billed cuckoo. We base these conclusions on the following reasons:

1. Breeding will not be affected because there is no breeding habitat within the project area, and breeding habitat is not expected to develop during the term of the permit.
2. Most migrating and foraging individuals will not be affected during installation or regular maintenance because proposed actions will occur at the crossings of the San Pedro River and Cienega Creek only outside of the breeding season. Emergency maintenance may affect migrating or foraging individuals, but this will not affect their survival, and individuals will resume their normal activities after the emergency maintenance.
3. Habitat within riparian areas would only be affected by maintenance actions which would require the removal of vegetation to maintain line clearance. This would affect trees within the project area, but would not affect trees within the remainder of the action area.
4. While maintenance of the line may affect the riparian woodlands PCE of proposed critical habitat within the project area, the action area outside of the project area will not be affected, so that the size of riparian woodlands, in general, will continue to increase and decrease under current processes, which will not be affected by the proposed action.

The conclusions of this biological opinion are based on full implementation of the project as described in the Description of the Proposed Action section of this document, including any Conservation Measures that were incorporated into the project design.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulations pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. "Take" is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. "Harm," is defined (50 CFR 17.3) and means an act which actually kills or injures wildlife. Such act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering. "Harass" is defined (50 CFR 17.3) and means an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering. "Incidental take" is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

The measures described below are non-discretionary, and must be undertaken by the Federal action agencies so that they become binding conditions of any grant or permit issued to Southline Transmission, LLC, as appropriate, for the exemption in section 7(o)(2) to apply. The Federal action agencies have a continuing duty to regulate the activity covered by this incidental take statement. If the Federal action agencies (1) fails to assume and implement the terms and conditions or (2) fails to require Southline Transmission, LLC to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, the protective coverage of section 7(o)(2) may lapse. In order to monitor the

impact of incidental take, the Federal action agencies or Southline Transmission, LLC must report the progress of the action and its impact on the species to the FWS as specified in the incidental take statement. [50 CFR § 402.14(i)(3)].

Sections 7(b)(4) and 7(o)(2) of the Act generally do not apply to listed plant species. However, limited protection of listed plants from take is provided to the extent that the Act prohibits the removal and reduction to possession of federally-listed endangered plants from areas under Federal jurisdiction, or for any act that would remove, cut, dig up, or damage or destroy any such species on any other area in knowing violation of any regulation of any State or in the course of any violation of a State criminal trespass law.

AMOUNT AND EXTENT OF TAKE

Lesser long-nosed bat and Mexican long-nosed bat

We do not anticipate that implementation of the proposed action is reasonably certain to result in the incidental take of any lesser long-nosed bat or Mexican long-nosed bat because:

1. No known bat roost would be affected, and
2. Forage plants will not be affected sufficient to preclude bat foraging from the action area because of the relatively small area of forage that will be affected.

Southwestern willow flycatcher and proposed yellow-billed cuckoo

We do not anticipate that implementation of the proposed action is reasonably certain to result in incidental take of any southwester willow flycatcher or yellow-billed cuckoo because:

1. Breeding will not be affected because there is no breeding habitat within the project area, and breeding habitat is not expected to develop during the term of the permit.
2. Most migrating and foraging individuals will not be affected during installation or regular maintenance because proposed actions will occur at the crossings of the San Pedro River and Cienega Creek only outside of the breeding season. Emergency maintenance may affect migrating or foraging individuals, but this will not affect their survival, and individuals will resume their normal activities after the emergency maintenance.

Northern Mexican gartersnake

We do not anticipate that implementation of the proposed action is reasonably certain to result in incidental take of any northern Mexican gartersnake because 1) significant populations of known prey species are not known within the proposed actions' footprint; 2) individuals would occur intermittently in the project area (likely only during dispersal or flooding events); 3) ground-disturbing actions would occur outside the riparian area in the dryer terrestrial areas; and 4) no changes to the habitat in the area are expected to occur that would change use by the northern Mexican gartersnakes to be other than intermittent in the future.

The Fish and Wildlife Service will not refer the incidental take of any migratory bird or bald eagle for prosecution under the Migratory Bird Treaty Act of 1918, as amended (16 U.S.C. §§ 703-712), or the Bald and Golden Eagle Protection Act of 1940, as amended (16 U.S.C. §§ 668-

668d), if such take is in compliance with the terms and conditions (including amount and/or number) specified herein.

Upon locating a dead, injured, or sick listed species initial notification must be made to the FWS's Law Enforcement Office, 4901 Paseo del Norte NE, Suite D, Albuquerque, New Mexico, 87113, telephone (505) 248-7889, within three working days of its finding. Written notification must be made within five calendar days and include the date, time, and location of the animal, a photograph if possible, and any other pertinent information. The notification shall be sent to the Law Enforcement Office with a copy to this office. Care must be taken in handling sick or injured animals to ensure effective treatment and care, and in handling dead specimens to preserve the biological material in the best possible state.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

Lesser Long-nosed Bat

- We recommend that the Federal action agencies work with us, Arizona Game and Fish Department (AGFD), and New Mexico Department of Game and Fish (NMDGF) to implement recovery actions for lesser long-nosed bat.

Mexican long-nosed bat

- We recommend that the Federal action agencies work with us, AGFD, and NMDGF to implement recovery actions for Mexican long-nosed bat.

Southwestern willow flycatcher

- We recommend that the Federal action agencies work with us, AGFD, and NMDGF to implement recovery actions for Southwestern willow flycatcher.

Northern Mexican Gartersnake

- We recommend that the Federal action agencies work with us, AGFD, and NMDGF to participate in recovery planning and implementation of conservation actions for northern Mexican gartersnake, particularly on efforts to remove harmful nonnative species from occupied northern Mexican gartersnake habitat.
- We recommend that Federal action agencies and Southline refrain from using erosion control products, such as wattles, that contain a mesh size of 0.5" (or 1.27 cm) within proposed critical habitat for the northern Mexican gartersnake. This mesh size has been documented in the literature as being associated with direct mortality, via entanglement, in numerous species of snakes, including those in the gartersnakes genus *Thamnophis*. Alternatively, please

consider using the smallest mesh size possible (<0.5") or preferably, products that do not contain any mesh- or net-like attributes near occupied northern Mexican gartersnake habitat.

Yellow-billed cuckoo

- We recommend that the Federal action agencies work with us, AGFD, and NMDGF to participate in recovery planning and implementation of conservation actions for yellow-billed cuckoo.

Pima Pineapple Cactus

- We recommend that the Federal action agencies coordinate with the Arizona-Sonoran Desert Museum in salvaging for their collection some individual cacti that cannot be relocated for some reason.

In order for the FWS to be kept informed of actions minimizing or avoiding adverse effects or benefiting listed species or their habitats, the FWS requests notification of the implementation of any conservation recommendations.

REINITIATION NOTICE

This concludes the conference for the Southline Transmission Project. You may ask the FWS to confirm the conference opinion as a biological opinion issued through formal consultation if the proposed species is listed or critical habitat is designated. The request must be in writing. If the FWS reviews the proposed action and finds there have been no significant changes in the action as planned or in the information used during the conference, the FWS will confirm the conference opinion as the biological opinion for the project and no further section 7 consultation will be necessary.

After listing as threatened or endangered and any subsequent adoption of this conference opinion, the Federal agency shall request reinitiation of consultation if: 1) the amount or extent of incidental take is exceeded; 2) new information reveals effects of the agency action that may affect the species in a manner or to an extent not considered in the conference opinion; 3) the agency action is subsequently modified in a manner that causes an effect to the species that was not considered in this opinion; or 4) a new species is listed or critical habitat designated that may be affected by the action.

This concludes formal consultation on the actions outlined in the request. As provided in 50 CFR '402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances

where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

The FWS appreciates the Federal action agencies' and Western's efforts to identify and minimize effects to listed species from this project. For further information please contact Scott Richardson (x242). Please refer to consultation number 02EAAZ00-2014-F-0140 in future correspondence concerning this project.

Steven L. Spangle

cc: Field Supervisor, Fish & Wildlife Service, Phoenix, AZ (2 copies)
Jean Calhoun, Assistant Field Supervisor, Fish & Wildlife Service, Tucson, AZ
New Mexico Ecological Services Office, Albuquerque, NM (Attn: Patricia Zenone)
Tim Shannon, District Manager, Gila District, Bureau of Land Management, Tucson, AZ

Alexa Sandoval, Director, New Mexico Department of Game and Fish, Santa Fe, NM
Larry Voyles, Director, Arizona Game and Fish Department, Phoenix, AZ

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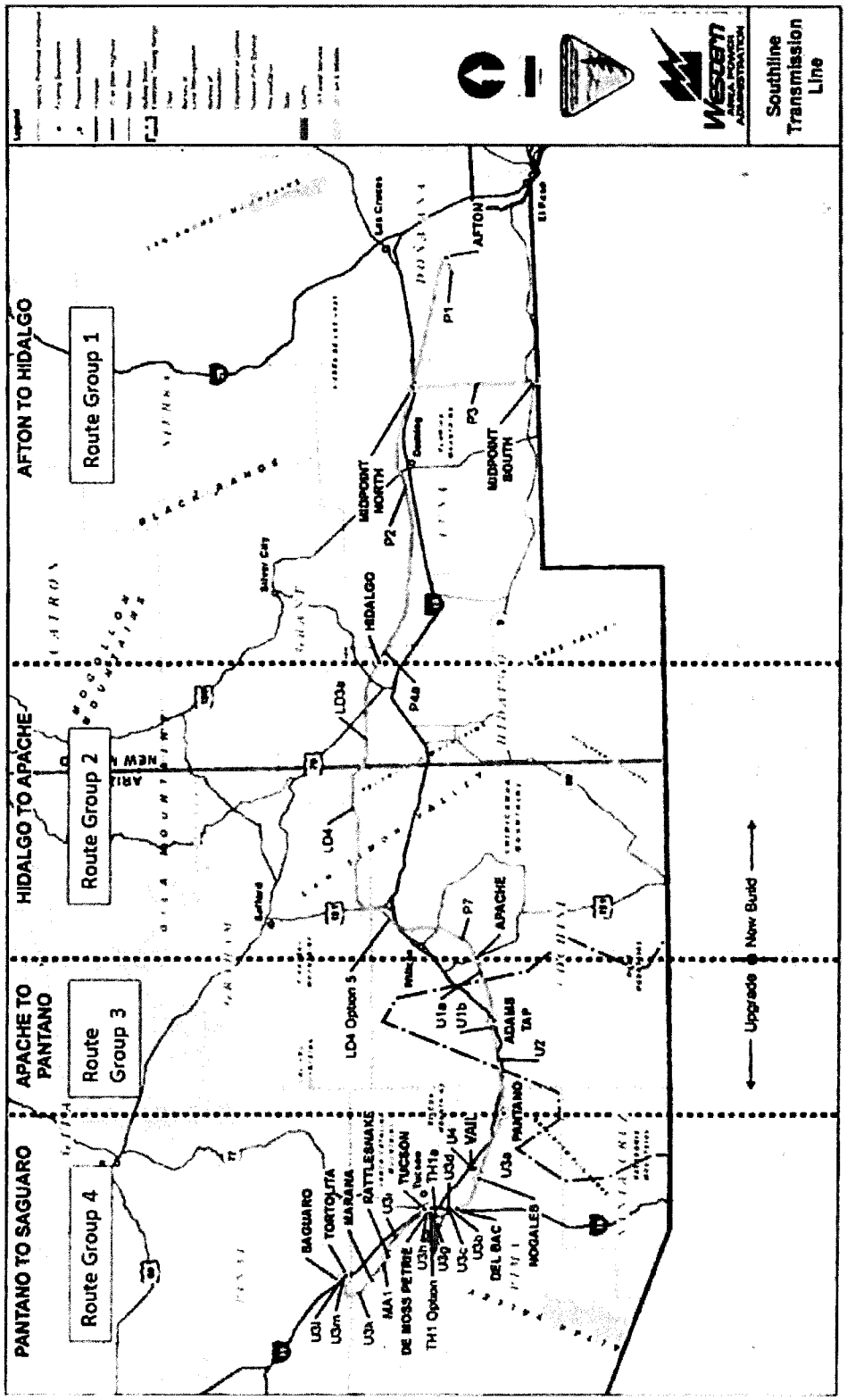
Figure 1. Action Area



Appendix A: Concurrences

Gila chub

We listed the Gila chub as endangered with critical habitat on November 2, 2005 (70 FR 66664). Historically, Gila chub were recorded from rivers, streams, and spring-fed tributaries throughout the Gila River basin in southwestern New Mexico, central and southeastern Arizona, and northern Sonora, Mexico. Today the Gila chub is restricted to small, isolated populations scattered throughout its historical range. Critical habitat includes approximately 160 miles of stream reaches in Arizona and New Mexico, organized into seven river units. Decline of the Gila chub is due to habitat loss from past and current dewatering of rivers, springs, and cienegas (e.g. from diversions, impoundments, and groundwater pumping), poor land management practices (e.g. excessive livestock grazing) resulting in erosion and arroyo formation, and the concomitant introduction of predacious and competing non-indigenous fish species. Life history information can be found in the final rule and references cited therein.

No species-specific surveys have been conducted for the Gila chub for the purposes of this proposed project. The Gila chub does not occur within the project area where it would cross the San Pedro River and Cienega Creek. Both the San Pedro River and Cienega Creek lack a permanent or semi-permanent water source at the proposed crossings and water is likely only present in response to precipitation events. Designated critical habitat for the Gila chub occurs approximately 2.5 miles downstream (north) of where the proposed Project would cross Cienega Creek.

No impacts on Gila chub individuals are anticipated because no individuals are present in the proposed project area. No ground disturbance would occur within Gila chub designated critical habitat because none occurs in the project or study areas. However, ground-disturbing activities as a result of construction and maintenance would occur on the banks, and possibly within 300 feet, of the Cienega Creek stream channel approximately 2.5 miles upstream of designated critical habitat. These ground-disturbing activities may result in an increase in erosion and sedimentation, indirectly impacting some of the PCEs of Gila chub designated critical habitat. These impacts would be temporary and minimal, and we expect that the quality and quantity of PCEs will return to pre-disturbance conditions and be maintained in the long-term.

CONCLUSION

We concur with your determination that the proposed action may affect, but is not likely to adversely affect, the Gila chub or its critical habitat. Our concurrence is based on the following:

1. There will no effect to individuals because none occur in the project area, and habitat does not occur in the project area.
2. Critical habitat downstream of the project area may be affected indirectly through actions in the project area, but these effects will be insignificant, and the quality and quantity of PCEs will return to pre-disturbance conditions.

Huachuca water-umbel

The Huachuca water-umbel was listed as an Endangered species in 1997 (62 FR 3),with critical habitat designated in 1999 (64 FR 37441). A total of 51.7 miles of critical habitat was designated at seven locations along streams and rivers in Cochise and Santa Cruz counties in Arizona. The nearest designated critical habitat for the species is approximately 12 miles south of the proposed project along the San Pedro River in Cochise County.

No species-specific surveys have been conducted for Huachuca water-umbel for the purposes of this proposed project. However, the only locations in the study area that could support the Huachuca water-umbel are at the proposed crossings over the San Pedro River and Cienega Creek (segments U2 and U3a). These proposed crossings lack a permanent or semi-permanent source of water and water is likely only present in response to precipitation events. The proposed crossings lack the perennial surface water required by the species. The nearest designated critical habitat for the species is approximately 12 miles south (upstream) of the proposed project along the San Pedro River in Cochise County.

The proposed project would not disturb habitat for the Huachuca water-umbel because none occurs in the project area. The proposed project would not occur in or near designated critical habitat; therefore, the proposed project would have no effect on designated critical habitat for the species.

CONCLUSION

We concur with your determination that the proposed action may affect, but is not likely to adversely affect, the Huachuca water umbel or its critical habitat. Our concurrence is based on the following:

1. Effects to individuals or habitat are discountable because none occurs in or near the project area.
2. Effects to critical habitat are discountable because the nearest critical habitat is approximately twelve mile upstream of the project area.

Appendix B - Conference Report - Northern Aplomado Falcon

Consultation History

- March 4, 2014 Biological assessment and request for conference received by Service from the BLM

Description of the Proposed Action

The proposed action is: for the BLM to issue a right-of-way grant to Southline Transmission, LLC (Southline) for the construction and operation of a 345 kV transmission line from the Afton Substation in New Mexico to the Apache Substation in Arizona (Figure1); for Western Area Power Administration (Western) to authorize and participate with Southline in the upgrade an existing Western transmission line and associated facilities from 115 kV to 230 kV from Apache Substation to Saguaro Substation in Arizona (BO Figure 1); for the U.S. Forest Service to authorize the upgrade of the Western line across Forest Service managed land in Cochise County, Arizona; and for the U.S. Bureau of Reclamation (Reclamation) to authorize the upgrade of the Western line across Reclamation managed lands in Pima and Pinal counties, Arizona. Because multiple Federal agencies have actions that are required by the project, this Conference Report evaluates all of these proposed actions and provides section 7 compliance for all of these agencies' actions. The BLM is acting as the lead action agency with regard to this conference.

The Southline Transmission Line Project (project) is a proposed electrical transmission line project that would consist of two sections. The first section would entail construction of approximately 240 miles of new double-circuit 345-kilovolt (kV) transmission line in a 200-foot right-of-way (ROW) between the Afton Substation, south of Las Cruces in Doña Ana County, New Mexico, and Western's Apache Substation, south of Willcox in Cochise County, Arizona (New Build Section). The second section would entail the upgrade of approximately 120 miles of Western's existing Saguaro–Tucson and Tucson–Apache 115-kV transmission lines to a double-circuit 230-kV transmission line in a 100-foot existing ROW (Upgrade Section). The Upgrade Section would originate at the Apache Substation and terminate at the Saguaro Substation northwest of Tucson in Pinal County, Arizona (BO Figure 1). Both new permanent ROW and temporary construction ROW would be required in the New Build Section and in some portions of the Upgrade Section for the transmission line, substations, access roads, and other permanent and temporary project components; the anticipated ROW width for the Upgrade Section 230-kV transmission line would be 150 feet. The proposed project would also include installation of new communications equipment, and connect to 14 substations distributed throughout southern New Mexico and Arizona, including expanding/upgrading existing substations and potentially constructing a new substation in Luna County, New Mexico. The proposed project would also include installation of new communications equipment to facilitate operations. The proposed action includes proponent committed environmental measures, best management practices (BMPs), and additional proposed species-specific conservation measures (BA Table 3-7, included herein by reference).

Conservation measures

AF-1: Preconstruction surveys would take place in habitat classified as moderate or high suitability for the northern aplomado falcon within the proposed ROW and a 1-mile buffer. Surveys should be conducted several times from January 15 to June 30 in order to detect breeding activity.

AF-2: All existing raptor nests or other large nests found during preconstruction surveys would be preserved in place, if possible, or relocated if necessary. No relocation of active nests would occur, and no nests would be relocated until after consultation with the Federal action agencies and FWS.

AF-3: Construction would not take place within 1 mile of occupied northern aplomado falcon nests between January 15 and September 1. Aplomado falcons are frequently observed on their breeding territories in southern New Mexico in January. Therefore, January 15 is the start date for seasonal restrictions.

Status of the Species in the Action Area

Aplomado falcons in Arizona and New Mexico are part of a non-essential population (NEP) established in 2006 (71 FR 42298), and as such are subject to advisory conference with the USFWS under Section 7(a)(4) of the ESA rather than consultation under Section 7(a)(2), when outside of the National Park Service and NWR systems. No portion of the project would cross National Park or NWR lands; thus, conference rather than consultation is required for the aplomado falcon. Critical habitat is not designated for NEPs.

A broad area of northern aplomado falcon habitat occurs within the action area. For the purposes of analysis, all of the grassland vegetation types within the study area in route groups 1–3 (see Figure 1 in BO) were considered habitat for the northern aplomado falcon. No northern aplomado falcons have been seen in Arizona since an observation in Cochise County in 1977 (AGFD 2001a). Future recovery of the species may allow for dispersal into habitat in Arizona. In southern New Mexico, there are numerous sightings each year in a variety of locations, and breeding pairs were observed in 2013 and 2014.

Effects of the Action

The proposed project would result in temporary and permanent northern aplomado falcon habitat loss and degradation. The proposed project would disturb approximately 624 acres of habitat for the species. This would be approximately 23 percent of the 2,713 acres of habitat within the ROW and 0.5 percent of the approximately 114,089 acres of habitat within the study area. Areas of temporary disturbance would be restored; however, restoration in arid environments is difficult and slow and may require 50 to 100 or more years. As such, impacts from ground disturbance on northern aplomado falcon would be long-term. Habitat loss could reduce overall prey abundance; however, the species utilizes large home ranges which would reduce the potential effects of habitat loss and degradation on northern aplomado falcon prey species.

Conclusion

After reviewing the proposed action, with included conservation measures, we conclude the project is not likely to jeopardize the continued existence of the 10(j) non-essential, experimental population of northern aplomado falcon. Because of the northern aplomado falcon's status as a non-essential experimental population in New Mexico and Arizona, they are treated as proposed for listing for section 7 consultation purposes. By definition, a nonessential experimental population is not essential to the continued existence of the species. Thus, no proposed action impacting a population so designated could lead to a jeopardy determination for the entire species. With full implementation of the proposed conservation measures, the presence of large areas of available unoccupied habitat, and the naturally low densities of aplomado falcons, there should be only insignificant effects resulting from the proportionately small areas of habitat loss.

Literature Cited

Arizona Game and Fish Department (AGFD). 2001a. *Falco femoralis septentrionalis*. Unpublished abstract compiled and edited by the Heritage Data Management System, Arizona Game and Fish Department, Phoenix.

Appendix C: Technical Guidance

Sonoran Desert Tortoise

Conservation measures for the Sonoran desert tortoise would include proponent proposed measures (see Appendix D Mitigation and Avoidance Measures) and:

DT-1: Pre-construction desert tortoise surveys would be conducted in suitable habitat. A worker education program including information on desert tortoises would be implemented. Any desert tortoises encountered during preconstruction surveys or during construction activities would be handled in accordance with the AGFD "Guidelines for Handling Sonoran Desert Tortoises Encountered on Development Projects" (AGFD 2007).

In addition, we recommend that BLM and Western coordinate with the FWS prior to initiation of biological field work for the latest recommendations for Sonoran desert tortoise surveys and monitoring protocols.

Sprague's Pipit

Project-wide Mitigation and Avoidance Measures described in the BA would minimize ground disturbance and the potential for the establishment and spread of non-native grass and other invasive plant species within habitat for Sprague's pipit. We also recommend that Federal action agencies and the applicant minimize disturbance in all potential Sprague's pipit wintering habitat through use of existing access roads, avoid vegetation clearing, and avoid locating pull sites in potential habitat. Implementation of the Avian Protection Plan (APP) will further protect individual birds.

Literature Cited

Arizona Game and Fish Department (AGFD). 2007. *Guidelines for Handling Sonoran Desert Tortoises Encountered on Development Projects.* Accessed online at http://www.azgfd.gov/hgis/pdfs/Tortoisehandlingguidelines.pdf on January 23, 2014.

Appendix D: Mitigation and Avoidance Measures

Table 3-7. Mitigation and Avoidance Measures for Environmental Protection by Resource

Measures by Resource	Preconstruction	Construction	Operation and Maintenance	Decommissioning
Standard Mitigation				
The boundaries of construction activities would be predetermined and staked or flagged prior to any construction activity. No paint or permanent markings would be applied to rocks or vegetation.	X			
Prior to construction, all construction personnel would be instructed on the protection of cultural and ecological resources.	X			
All vehicle movement would be restricted to designated access, contracted acquired access, or public roads.	X	X	X	X
To limit disturbance, existing access roads would be used to the extent practicable, providing that doing so does not additionally impact resource values. Widening and grading of roads would be kept to the minimum required for access by Project construction equipment.	X	X	X	X
Structures and/or ground wire would be marked with high-visibility devices such as vibration dampers, where required by government agencies such as the FAA.	X	X	X	
Transmission line materials would be designed and tested to minimize audible noise, radio interference, electromagnetic interference (EMI), and television interference due to corona.	X	X	X	
No widening or upgrading of existing roads would be undertaken in the area of construction and operations, where soils and vegetation are sensitive to disturbance, in areas of critical habitat for vegetation or wildlife, in areas of habitat for BLM special status species, or where archaeological sites are present.		X	X	
During operation of the transmission lines, the ROW would be maintained free of non-biodegradable debris. Desert vegetation would be crushed in place to promote seeding and revegetation, and reduce erosion potential.			X	
BLM and Western road construction specifications would be followed where unimproved spur roads cannot be employed.		X	X	
Unimproved spur roads would be used to the extent practicable in areas where no grading would be warranted to access work areas, within the approved ROW. Unimproved spur roads would be used to access a site without specifically blading a road or significantly modifying the landscape. All vehicle movement would be restricted to designated access, even if that is unimproved access. Vegetation would be crushed, not cut. For all access types, soil would be compacted, but not removed.		X	X	X
Structures would be placed to avoid, and/or to allow conductors to span, sensitive features such as riparian areas, waterways, roads, trails, and cultural sites within limits of standard transmission line structure design. This would minimize the amount of sensitive features disturbed and/or reduce visual contrast.	X	X	X	

Table 3-7. Mitigation and Avoidance Measures for Environmental Protection by Resource (Continued)

Measures by Resource	Preconstruction	Construction	Operation and Maintenance	Decommissioning
Clearing of trees in and adjacent to the ROW would be minimized to the extent practicable to satisfy conductor-clearance requirements (NESC and up to 10 years' timber growth). Trees and other vegetation would be selectively removed to blend the edge of the ROW into adjacent vegetation patterns, as appropriate.		X	X	
Separation between transmission lines and existing utilities, roads, and railroads would be minimized to the extent practicable. Opportunities to share portions of adjacent ROWs would also be explored.	X			
All construction vehicle movement would be restricted to predesignated access, contractor-acquired access, and public roads.		X		
The width of construction and new temporary access roads would be sited to keep to the minimum needed to avoid sensitive areas and to limit ground disturbance.		X		
Surface elevations would be returned to approximate pre-Project conditions, as practicable.		X		X
A WEAP would be prepared. All construction crews and contractors would be required to participate in WEAP training prior to starting work on the Project. The WEAP training would include a review of the special status species; WUS; riparian habitat; cultural, paleontological, and other sensitive resources that could exist in the project area; the locations of sensitive biological resources and their legal status and protections; and measures to be implemented for avoidance of these sensitive resources. A record of all trained personnel would be maintained during the construction period.	X	X		
The process by which the BLM, Western, and Southline and its construction contractor would conduct environmental monitoring, compliance, and reporting activities during construction would be described in a project compliance plan that would be prepared by the compliance inspection contractor (CIC) after they have been selected. After issuance of the notice to proceed, a CIC, designated by the BLM and Western, would provide environmental oversight and compliance monitoring during Project construction to ensure compliance with all design features and mitigation measures.	X	X		
Reclamation				
A Reclamation, Vegetation, and Monitoring Plan would be developed and implemented.		X	X	X
Reclamation would be accomplished with native species, unless otherwise approved.		X	X	X
Seeding would occur between November and March to ensure a greater chance of success. This would be tied to replacement of conserved topsoil with its natural seed stock.		X	X	X
Air Quality and Climate Change				
Project activities would be in compliance with all applicable Federal, State, and local laws and regulations concerning prevention and control of air pollution during construction and operation.		X	X	

Table 3-7. Mitigation and Avoidance Measures for Environmental Protection by Resource (Continued)

Measures by Resource	Preconstruction	Construction	Operation and Maintenance	Decommissioning
An Erosion, Dust Control, and Air Quality Plan would prepared as part of the final POD. The plan would be developed and implemented to minimize and mitigate potential air quality and climate change impacts.	X	X	X	X
All necessary air quality permits would be obtained prior to construction or operating equipment that would result in regulated atmospheric or fugitive dust emissions.	X			
Dust control measures consistent with all applicable State or local standards, as outlined in the Erosion, Dust Control, and Air Quality Plan, would be implemented; these include the following reasonable precautions: 1) frequent watering (trucked in, no new water sources) or stabilization of excavations, spoils, access roads, storage piles, and other sources of fugitive dust (parking areas, staging areas, other) if construction activity causes visible emissions of fugitive dust beyond the work area; 2) reduction in the amount of disturbed area where possible; 3) planting of vegetative ground cover, as appropriate, in disturbed areas after construction activities have ended, and treatment of actively disturbed areas with BLM-approved dust palliatives.		X		
Trackout control devices such as grizzly bars, wheel washers, and gravel pads would be located at all entrances and exits.		X		
Haul-truck cargo beds would be covered with tarps and travel speeds would be limited to no more than 15 miles per hour on unpaved roads.		X		
Combustion emissions from mobile sources would be minimized by proper maintenance and tune-up of equipment.		X	X	
To reduce the potential for greenhouse gas emissions, only properly trained Project personnel would handle sulfur hexafluoride, and a sulfur hexafluoride recovery and recycling program would be implemented.		X	X	X
Cultural Resources				
Cultural resources would continue to be considered during post-EIS phases of work. Specific cultural resource inventory, protection, and mitigation measures to be employed would be outlined in the Project-specific Programmatic Agreement, in accordance with Section 106 of the NHPA. The final POD would include the signed Programmatic Agreement.	X	X	X	X
The area of potential effects will be defined, consisting of the approved alternative corridor and all areas and ancillary features that sustain ground disturbance (access roads, construction yards, etc.) will be subject of 100% pedestrian cultural resources survey in order to identify all cultural resources that may be adversely impacted by the Project. Survey and reporting requirements would follow BLM Handbook 8110 and 8111 requirements for a Class III Intensive Field Survey (BLM 2004).	X			

Table 3-7. Mitigation and Avoidance Measures for Environmental Protection by Resource (Continued)

Measures by Resource	Preconstruction	Construction	Operation and Maintenance	Decommissioning
An HPTP would be developed and implemented to avoid, minimize, and mitigate the adverse effects of the Project on known cultural resources. Mitigation measures may range from avoidance and preservation in place to data recovery excavations conducted before the destruction of a site if avoidance is not a feasible option. The HPTP would include a monitoring and discovery plan detailing procedures to be followed in the inadvertent discovery of a potentially significant archaeological site or human remains.	X	X	X	
To the extent practical, all ground-disturbing activities and other Project components would be micro-sited to avoid or minimize impacts on cultural resources listed as or potentially eligible for listing as, unique archaeological sites, historical resources, or historic properties.	X	X		
Before construction, and as described in the WEAP, Southline and its construction contractor would provide cultural resources sensitivity training to all construction personnel so that Project personnel understand the procedures in the monitoring and discovery portion of the HPTP.	X			
Hazardous Materials and Waste				
Several framework plans prepared as part of the final POD would be developed and implemented to minimize and mitigate potential hazardous materials and waste; plans include SWPPP, SPCC, Soil Management, and Hazardous Materials Management. These plans would include requirements by the EPA, OSHA, Arizona Department of Environmental Quality, and the New Mexico and Arizona Departments of Transportation.	X	X	X	X
The SWPPP would include BMPs to address the storage and handling of hazardous materials and sediment runoff during construction activities to minimize the risk of an accidental release. The SWPPP is required by, and enforced by, the EPA in New Mexico, and the Arizona Department of Environmental Quality in Arizona.	X	X	X	
All construction, operation, and maintenance crew members would be properly trained to deal with a spill, and appropriate spill containment material would be on hand at every work site. Careful handling and designation of specific equipment repair and fuel storage areas, as outlined in the SPCC Plan, would reduce the potential for oil and fuel spills. In the event that there is an oil or fuel spill, immediate measures would be taken to control the spill, and the BLM, National Response Center, and/or Arizona Department of Environmental Quality or New Mexico Environment Department would be notified immediately as defined in the SPCC Plan.	X	X	X	X
The Soil Management Plan would provide guidance for the proper handling, on-site management, and disposal of contaminated soil, if encountered during construction, operation, and maintenance activities. Appropriately trained personnel would be on-site during preparation, grading, and related earthwork activities to monitor the soil conditions encountered.	X	X	X	X

Table 3-7. Mitigation and Avoidance Measures for Environmental Protection by Resource (Continued)

Measures by Resource	Preconstruction	Construction	Operation and Maintenance	Decommissioning
The Project-specific Hazardous Materials Management Plan and program would outline proper hazardous materials use, storage, and transport requirements and applicable handling procedures. EPA procedures for handling and storage of hazardous materials, OSHA requirements for proper storage and labeling on the job site, and New Mexico and Arizona Department of Transportation requirements for transportation of hazardous materials would be followed.	X	X	X	X
Personnel, contractors, and transporters involved with hazardous materials management would be required to comply with Federal and State regulations established for the transportation, storage, handling, and disposal of hazardous substances, materials, and wastes. "Hazardous material" means any substance, pollutant, or contaminant that is listed as hazardous under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended.		X	X	X
New or expanded substation locations that involve the purchase or long-term leasing of land, purchased transmission line ROWs, and any other property to be acquired would be screened for environmental liabilities. The degree and level of screening would be based on knowledge or information available on the property to determine the probability of contaminants of concern or other environmental impairment. A Phase I Environmental Site Assessment would be conducted if preliminary screening indicates a reasonable risk that such environmental conditions may exist on the property and the property continues to be targeted for acquisition by the Project, consistent with American Society for Testing and Materials Standard E1527-05.	X			
In the event of a spill, workers in the immediate area would cease work, begin spill cleanup operations, and notify appropriate agencies as required by law and specified in the SPCC Plan. Southline and its construction contractor is responsible for cleanup and assumes liability for any and all releases of hazardous substances disposed on public land, in accordance with State, Federal, and local laws and regulations. Southline would immediately notify the BLM authorized officer of any and all releases of hazardous substances on public land.		X	X	X
If backfill material to be used is derived from a site that could possibly have contamination, it would be sampled and determined to be free of regulated contaminants before it is used to fill excavations. The results of any tested soils should be shared with the appropriate surface managing agency. No contaminated soils would be used as fill material for the Project.		X		
All construction and demolition waste, including trash and litter, garbage, and other solid waste, would be removed and transported to an appropriately permitted recycling or disposal facility. Southline and its construction contractor would prepare a construction waste disposal plan for all nonhazardous wastes generated during construction of the Project. The plan would contain a description of all nonhazardous solid and liquid construction wastes, recycling plans, and waste management methods to be used for each type of waste.		X		X
Southline or the applicable contractors would maintain all vehicles in good working order. Equipment would be properly tuned and maintained to avoid leaks of fluids.		X	X	X

Table 3-7. Mitigation and Avoidance Measures for Environmental Protection by Resource (Continued)

Measures by Resource	Preconstruction	Construction	Operation and Maintenance	Decommissioning
Service and refueling procedures would not be conducted within 500 feet of a seep, wash, or other water body. Routine service of any vehicles or equipment would not be done within the ROW.		X	X	X
Health and Human Safety				
The HASP and Fire Protection Plan prepared as part of the final POD would be developed and implemented to minimize and mitigate potential health and human safety impacts. Southline and its contractors would work with the appropriate surface managing agencies to incorporate any fire restrictions that are put into effect during construction, operation, and decommissioning of the project.	X	X	X	X
The HASP would address potential situations that workers could encounter during construction and maintenance. The purpose and goal of the worker safety and environmental training would be to communicate Project-related environmental and safety concerns and appropriate work practices to all field and construction personnel prior to the start of construction, including spill prevention, emergency response measures, accident prevention, use of protective equipment, medical care of injured employees, safety education, and fire protection. Training would encompass environmental training related to road designations and speed limits, promote "good neighbor" policies, and institute BMPs for construction. The training would emphasize site-specific physical conditions to improve hazard prevention in accordance with OSHA requirements (29 CFR 1910).	X	X	X	
Southline and its construction contractor would locate overhead and underground utilities that may reasonably be expected to be encountered during construction. If a utility service interruption is known to be unavoidable, Southline and its construction contractor would coordinate with the service provider to notify members of the public, the jurisdiction, and the service providers affected by the interruption via letters and newspapers notices published no later than 7 days prior to the first interruption. Copies of the notices would be provided to the BLM and Western following notification.	X	X		
All permanent metallic objects within the Project's transmission line ROWs would be grounded in accordance with industry standards.	X	X	X	
Farmlands and Grazing				
Fences and gates would be repaired or replaced to their original, predisturbed condition (or better), as required by the landowner, BLM authorized officer, or other land managing entity if they are damaged or destroyed by construction activities. New temporary and/or permanent gates would be installed only with the permission of the landowner or the BLM. Temporary gates not required for postconstruction access control would be removed following construction completion and in accordance with the POD.		X		X

Table 3-7. Mitigation and Avoidance Measures for Environmental Protection by Resource (Continued)

Measures by Resource	Preconstruction	Construction	Operation and Maintenance	Decommissioning
Water facilities (e.g., tanks, developed springs, water lines, wells, etc.) would be repaired or replaced to their predisturbed condition if they are damaged or destroyed by construction, operation, or maintenance activities, as required by the landowner of land management agency. Temporary watering facilities would be provided for wildlife and livestock until permanent repair or replacement is complete.		X	X	X
On agricultural land, ROWs would be aligned, in so far as practicable, to reduce the impact to farm operations and agricultural production. This would typically be done in conjunction with negotiating ROW agreements with landowners.	X	X		
Military Operations				
The transmission line operator would work with Buffalo Soldier Electronic Testing Range (BSETR) to coordinate, and possibly limit, interconnections to the proposed Project to the extent allowed by the Federal Energy Regulatory Commission.	X			
Southline and Western would work with BSETR to identify micro-siting opportunities during Project design.	X			
The transmission line operator would coordinate with BSETR during the design phase of the proposed Project to limit EMI. The proposed Project would be constructed using the best available construction techniques and technology (i.e., use of grounding, selective conductor type and arrangement, and conductor surface gradients), to the extent feasible and reasonably economical, in order to minimize EMI.	X			
The transmission line operator would coordinate with BSETR to allow for an updated measure of the "floor value" of the proposed Project, once the proposed line is energized. Such cooperation could include provision of real-time operating and load information to BSETR to help calibrate the floor value of EMI.	X	X	X	
The transmission line operator would coordinate with BSETR to develop reporting standards, for potential inclusion in the transmission line maintenance and inspection program, to the extent allowable by the Federal Energy Regulatory Commission. While normal inspection maintenance would take care of typical EMI issues, specific incidents such as storm damage or vandalism would need to be responded to outside of the normal maintenance cycle. If not detectable through transmission line monitoring, the operator would need to hear from someone experiencing interference in order to respond.	X	X	X	
The transmission line operator would coordinate planned outages (curtailment of power line operations for BSETR to implement testing) with BSETR to the extent feasible in order to meet necessary contractual commitments, utility mandates, laws and regulations, and power system requirements. The operator is very limited in the timing and duration of potential outages; outages stress the rest of the system, which can cause system failures.	X		X	

Table 3-7. Mitigation and Avoidance Measures for Environmental Protection by Resource (Continued)

Measures by Resource	Preconstruction	Construction	Operation and Maintenance	Decommissioning
Noise				
Construction would comply with local noise ordinances. There may be a need to work outside the local ordinances to perform work during available line outage windows in order to take advantage of low electrical draw periods during nighttime hours. The construction contractor would comply with variance procedures required by local authorities.		X		
Construction equipment would be maintained in good working order in accordance with manufacturer's recommendations.		X		X
Idling of construction equipment and vehicles would be minimized during construction.		X		
Workers would be provided with appropriate hearing protection, if necessary, as described in the HASP.		X	X	X
Paleontology				
In consultation with appropriate land management agencies, Southline and its contractor would participate in the preparation of a Monitoring Plan, paleontological surveys, personnel education, monitoring ground disturbance for fossils, curation of fossils, and deposition of fossils in a paleontological repository, as necessary in areas of highest likelihood of encountering resources.	X	X		
If significant fossils are encountered during construction, construction activities would be temporarily diverted away from the discovery. The monitor would notify all concerned parties and collect matrix for testing, processing, and documentation, as directed by the authorized officer of the BLM.		X		
Recreation				
Southline and its contractor would coordinate with the BLM to display appropriate "closed" signage at the entrance to new spur roads to structure locations and access roads located on BLM-managed lands. This includes temporary signs during the construction phase of the Project and permanent signs and/or vehicle barriers that would close the spur routes to public travel during the operational phase. Signs would be removed as appropriate upon decommissioning.	X	X	X	X
If temporary short-term closures to recreational areas are necessary for construction activities, Southline and its contractor would coordinate those closures with recreational facility owners. To the extent practicable, Southline and its construction contractor would schedule construction activities to avoid heavy recreational use periods (e.g., holidays or tournaments). Southline and its construction contractor would coordinate with the facility owner to post notice of the planned closure on-site 14 calendar days prior to the closure.	X	X	X	X

If the Arizona National Scenic Trail must be temporarily closed during construction, an alternate trail route (detour) would be provided during the closure. If it is necessary for trail users to leave the trail during the temporary closure, trail users would need to obtain permission from the ASLD.	X	X		X

Table 3-7. Mitigation and Avoidance Measures for Environmental Protection by Resource (Continued)

Measures by Resource	Preconstruction	Construction	Operation and Maintenance	Decommissioning
Soils				
As appropriate and feasible, Southline and its construction contractor would implement topsoil segregation and conservation practices at substation sites and as directed by the BLM and Western.		X		
In construction areas (i.e., temporary use areas, structure sites, access roads, etc.) where grading is required, surface restoration would be implemented as required by the landowner or BLM authorized officer. The method of restoration would normally consist of returning disturbed areas back to their normal contour, replacing topsoil, reseeding (where required), installing cross drains for erosion control, placing water bars in the road, and filling ditches. The Reclamation, Vegetation, and Monitoring Plan would include final details on the details of restoration.		X		
Transportation				
Prior to the start of construction, Southline and its construction contractor would prepare a Traffic and Transportation Management Plan for the Project to address the timing and routing of Project trips in an effort to minimize Project impacts on local streets, highways, and railroad operations.	X			
At least 90 days prior to any helicopter use on the Project, Southline and its construction contractor would coordinate with the FAA for review and approval of plans for any helicopter flights that would take place during construction and operation. Southline and its construction contractor would then provide information to the BLM and Western regarding the intended need and use of helicopters during construction and operation of the Project, including the Flight and Safety Plan; the estimated number of days and hours that the helicopter would operate; the type and number of helicopters that would be used; the location, size, and number of staging areas for helicopter takeoffs and landings; and written approval from property owners for use of helicopter staging areas.	X	X	X	
Transmission structures would be identified with high-visibility markers in areas where they intersect or parallel military training routes.			X	
Gates and fencing would be provided in areas where off-highway-vehicle use would be restricted due to military operations, or to protect sensitive resources.		X	X	X
Vegetation				

Preconstruction native plant inventories and surveys for noxious weed species as stipulated by the appropriate land managing agency would be conducted once transmission line centerline, access road, and transmission line structure sites have been located.	X

Table 3-7. Mitigation and Avoidance Measures for Environmental Protection by Resource (Continued)

Measures by Resource	Preconstruction	Construction	Operation and Maintenance	Decommissioning
Every effort would be made to minimize vegetation removal and permanent loss at construction sites to the extent practicable. Access would not be graded unless necessary for erosion control or other engineering reason. Final structure and spur road locations would be selected to avoid sensitive vegetation to the greatest extent feasible.		X		
In construction areas where grading is not required, vegetation would be left in place wherever possible, and original contours would be maintained to avoid excessive root damage and allow for regrowth. All existing roads would be left in a condition that is equal to or better than their condition before the construction of the transmission lines, as determined by the appropriate land managing agency.		X		
Southline and its construction contractor would develop a Reclamation, Vegetation, and Monitoring Plan that would guide restoration and revegetation activities for all disturbed lands associated with construction of the Project and its eventual termination and decommissioning. The plan would address all land disturbances, regardless of ownership. It would be developed in consultation with appropriate agencies and landowners and would be provided to these entities for review and concurrence. The plan would provide details on topsoil segregation and conservation, vegetation treatment and removal, salvage of appropriate species, and revegetation methods, including use of native seed mixes, application rates, transplants, and criteria to monitor and evaluate revegetation success.	X	X	X	X
Special status plants, including the Pima pineapple cactus, would be avoided. Where avoidance is not possible, special status plants would be conserved by relocating plants and/or reseeding, replacing topsoil with existing topsoil that was removed, and regrading in compliance with local ordinances (Pima County). Measures to conserve special status plants would be implemented through the Reclamation, Vegetation, and Monitoring Plan.	X	X		X
Removal of riparian scrubland vegetation would be avoided where possible. Natural regeneration of native plants would be supported by selectively cutting vegetation with hand tools, mowing, trimming, or using other removal methods that allow root systems to remain intact.		X	X	X
Southline and its construction contractor would provide training to all personnel working in the project area to identify noxious weeds and prevent spread. Training would discuss known invasive and noxious weed species, known locations, identification methods, and treatment protocols. Training materials and a list of Project personnel completing the course would be provided to the BLM and Western.		X		
In consultation with local BLM field offices and local resource agencies, Southline and its construction contractor would develop and implement a Noxious Weed Management Plan.	X	X	X	X
Invasive and noxious weed populations would be mapped and reported to BLM/Western. BLM and Western will determine in which areas vehicle washing would be required, based on the results of the invasive/noxious weed surveys.	X	X		

Table 3-7. Mitigation and Avoidance Measures for Environmental Protection by Resource (Continued)

Measures by Resource	Preconstruction	Construction	Operation and Maintenance	Decommissioning
As required, equipment would be cleaned before ingress to minimize the potential for the spread of invasive species. These details would be described in the Noxious Weed Management Plan. Buffelgrass would be specifically addressed in the plan, which would outline efforts to eliminate it from within areas disturbed by the proposed Project to ensure that it does not spread to adjoining lands.	X	X	X	X
Visual Resources				
In order to restore disturbed areas to an appearance that would blend back into the overall landscape, seeding and/or planting would be conducted in any area that has been cleared or disturbed during construction. Seed mix would be tailored to an area's soil type, existing vegetation, and native species.		X		X
The Project would incorporate nonspecular conductors into the Project design to decrease reflectivity and visibility of Project features, where specified by the BLM authorized officer.	X	X		
Non-transmission line structures such as operations and maintenance buildings, microwave equipment buildings, regeneration structures, emergency generators, and other associated structures would be treated or painted with non-reflective, flat-toned surface treatment. The color of the structures would be painted in earth tones or in a color designed to reduce color contrasts with the surrounding landscape. A dark, neutral color, such as the BLM Standard Environmental Color, "Carlsbad Canyon," or similar is recommended because the hue tends to blend into desert landscape at varying distances.		X	X	
"Dulled" metal or self-weathering finish structures would be used to reduce visual impacts, if specified by the BLM authorized officer.	X	X		
The alignment of any new access roads (including unimproved spur roads) would stay within the designated access ROW and would follow the designated area's landform contours and avoid steep areas as much as feasible, provided that such alignment does not additionally impact resource values. This would minimize ground disturbance and/or reduce scarring (visual contrast).	X	X		
Aerial markers or warning lights would be required for conductors or structures, in keeping with FAA, U.S. Customs and Border Protection, and Department of Defense regulations for structures over 130 feet. The use of red strobe lighting would reduce potential impacts from artificial night lighting and would reduce impacts from night brightness and viewing of night skies. The minimum number and intensity of lights would be used, given that the tallest structures are under the 200-foot FAA requirement (FAA Advisory Circular 70/7460-1K (FAA 2007)). Exterior lights installed on conductors or other facilities would be aviation warning lights, or FAA L-864 aviation red-colored flashing lights with 20 to 40 flashes per minute standard flashing range.		X	X	

Table 3-7. Mitigation and Avoidance Measures for Environmental Protection by Resource (Continued)

Measures by Resource	Preconstruction	Construction	Operation and Maintenance	Decommissioning
Water Resources				
A Project-specific construction SWPPP would be prepared prior to the start of construction of the transmission line and substations in compliance with CWA Section 402, if required. The SWPPP would use BMPs to address the storage and handling of hazardous materials and sediment runoff during construction activities to minimize the risk of an accidental release. As part of the SWPPP, soil disturbance at structure construction sites and access roads would be the minimum necessary for construction and would be designed to prevent long-term erosion, through activities such as restoration of disturbed soil, revegetation, and/or construction of permanent erosion control structures. A Department of the Army permit application would be prepared prior to the start of construction of the transmission line and substations for the discharge of dredged or fill material in compliance with CWA Section 404, if required. Activities in and around streams and wetlands would be designed to avoid, minimize, and mitigate impacts to WUS.	X	X		
Roads would be built as close as possible to right angles to the streams and washes. Culverts or temporary bridges would be installed where conditions warrant. All construction and operations activities shall be conducted in a manner that would minimize disturbance to vegetation, drainage channels, and intermittent or perennial stream banks.		X		
To the extent practicable, structures would be sited with a minimum distance of 200 feet from streams.	X			
Construction equipment would be kept out of flowing stream channels. Structures would be located to avoid active drainage channels, especially downstream of steep slope areas, to minimize the potential for damage by flash flooding and mud and debris flows.	X	X		X
Flood control devices would be located where required to protect structures or other Project structures from flooding or erosion. Appropriate design of structure foundations would be used to prevent scour or inundation by a 100-year flood to avoid disturbed areas. The locations of transmission structures would be designed to avoid steep, disturbed, or otherwise unstable slopes. If drainages cannot be avoided by structure placement, Southline and its construction contractor would design drainage crossings to accommodate estimated peak flows and ensure that natural volume capacity can be maintained throughout construction and upon postconstruction restoration.	X	X		
Wildlife				
In consultation with the BLM and Western, Southline and its construction contractor would prepare and implement a Biological Monitoring Plan prior to issuance of a notice to proceed and prior to construction that would specify the level of biological monitoring to be provided throughout construction activities in all construction zones with the potential for presence of sensitive biological resources. The number of monitors and monitoring frequency would be specified for each work zone.	X	X		

Table 3-7. Mitigation and Avoidance Measures for Environmental Protection by Resource (Continued)

Measures by Resource	Preconstruction	Construction	Operation and Maintenance	Decommissioning
Preconstruction surveys would be required in areas where Sonoran desert tortoise (now a separate species: Morafka's desert tortoise (*Gopherus morafkai*)), Gila monster, and Tucson shovel-nosed snake are expected to occur. In consultation with the BLM and Western, Southline and its construction contractor would hire qualified biologists to conduct preconstruction surveys in ground disturbance areas within suitable habitat for appropriate special status species.	X			
To reduce impacts on the Sonoran (Morafka's) desert tortoise, known to exist in the western portion of the project area, only authorized biologists with a valid Arizona Game and Fish Department (AGFD) permit would handle desert tortoises if encountered within the project area, following the most current desert tortoise handling guidelines published by the AGFD.		X		X
Preconstruction surveys for species listed under the ESA or specified by the appropriate land management agency as sensitive or of concern would be conducted in areas of known occurrences or suitable habitat. Timing of the surveys would be determined by FWS approved species-specific survey protocol.	X			
Monitoring of construction activities would be required in some areas to ensure that effects on these species are avoided during construction. If bald eagle or golden eagle nests are identified during preconstruction surveys, seasonal restrictions on construction within a specified buffer would be implemented where applicable, according to FWS protocols, to comply with the Bald and Golden Eagle Protection Act. Preconstruction nesting-season surveys for migratory birds and surveys for burrowing owls in suitable habitat would be conducted as needed to comply with the Migratory Bird Treaty Act.		X		
Surveys for bat roosts would be conducted within 0.25 mile of the Project ROW in areas that potentially contain caves, karst features, or mines. Occupied bat roosts would be avoided.	X			
Access roads in Tucson shovel-nosed snake habitat would be posted closed to off-road-vehicle use and gated if appropriate to decrease the potential for vehicles striking the subspecies.		X	X	
Where appropriate, protective drift fencing would be placed along access roads and disturbance areas in suitable Tucson shovel-nosed snake habitat during the active season of the snake to limit the potential for vehicle strikes.		X	X	
In Tucson shovel-nosed snake habitat, temporarily disturbed areas will be revegetated with native shrubs, grasses, and forbs to reduce impacts on habitat for prey populations of the Tucson shovel-nosed snake.		X		X
Tucson shovel-nosed snake identification and avoidance measures would be included in the worker training program. If during construction activities Tucson shovel-nosed snakes are discovered in or near areas being disturbed, biological monitors would be required to be present on-site during construction activities.	X	X		

Table 3-7. Mitigation and Avoidance Measures for Environmental Protection by Resource (Continued)

Measures by Resource	Preconstruction	Construction	Operation and Maintenance	Decommissioning
To reduce impacts on migratory birds and raptors, especially near the Willcox Playa: 1) Southline and its construction contractor would consult with the appropriate agencies (BLM or FWS) on a case-by-case basis when active nests are found in project areas, unless directed to do otherwise by these same agencies; 2) active bird nests would not be moved during breeding season, in compliance with the Migratory Bird Treaty Act, unless the Project is expressly permitted to do so by the FWS or BLM, depending on the location of the nest; 3) all active nests and disturbance or harm to active nests would be reported to the FWS or BLM, upon detection; and 4) work would halt if it is determined that active nests would be disturbed by construction activities, until further direction or approval to work is obtained from the appropriate agencies.	X	X		
Clearing, grubbing, blading, and access road improvements occurring within identified sensitive areas would be conducted outside the breeding season for most desert-nesting migratory birds.	X	X		
Construction holes left open overnight would be appropriately fenced or covered to prevent damage to wildlife or livestock.		X		
To reduce impacts on golden eagles and other raptors, Southline and its construction contractor would develop and implement an APP, in coordination with the BLM and Western for approval. The plan would be prepared in accordance with guidance provided by the FWS and in consultation with best practices such as the "Suggested Practices for Avian Protection on Power Lines" (APLIC 2006).	X	X	X	X
Southline and its construction contractor would follow Pima County guidelines for surveys prior to disturbance in priority conservation areas located in Pima County for western burrowing owls.	X	X		
Final structure and spur road locations would be adjusted to avoid sensitive wildlife resources to the greatest extent feasible.	X	X	X	
Additional Avoidance and Mitigation Measures for Special Status Species				
Lesser long-nosed bat and Mexican long-nosed bat				
All paniculate agaves (*Agave palmeri*, *A. parryi*, and *A. chrysantha*) and saguaros (*Carnegiea gigantea*) would be inventoried within the proposed ROW, and the potential to avoid or salvage each plant would be assessed. The priority would be avoidance when feasible.	X			
All suitable (e.g., healthy, undamaged, not flowering) paniculate agaves that could not be avoided would be salvaged using methods approved by the BLM/Western and FWS, but larger agaves would be given preference for avoidance when feasible. Plants salvaged from areas of permanent disturbance would be used to reclaim areas of temporary disturbance, or replanted outside disturbed areas if necessary.	X	X		

Table 3-7. Mitigation and Avoidance Measures for Environmental Protection by Resource (Continued)

Measures by Resource	Preconstruction	Construction	Operation and Maintenance	Decommissioning
Saguaros less than 15 feet in height would be salvaged, unless prevented by site-specific conditions or poor plant health. Plants salvaged from areas of permanent disturbance would be used to reclaim areas of temporary disturbance, or replanted outside of disturbed areas if necessary. Larger saguaros would be avoided whenever feasible, but would be topped or removed if necessary.	X	X		
Agave and saguaro salvage would be augmented, as necessary, within 3 years after completion of initial restoration activities. Augmentation would occur within the ROW in areas of higher value to bats (e.g., in the vicinity of active roosts, within areas of high concentration agaves) to achieve a goal of no net loss of forage plants. Stocks from local sources or approved nursery-grown plants would be used.	X	X		
Salvaged plants would be monitored following reclamation for a period of 3 years, as described in the POD. Supplementary water would be provided, if monitoring indicates that rainfall is insufficient to achieve the goal of no net loss of forage plants. Plant survival through the monitoring period would be reported annually to the BLM/Western and FWS.		X	X	
Northern Aplomado Falcon				
Preconstruction surveys would take place in habitat classified as moderate or high suitability for the northern aplomado falcon within the proposed ROW and a 1-mile buffer.	X			
All existing raptor nests or other large nests found during preconstruction surveys would be preserved in place, if possible, or relocated if necessary. No relocation of active nests would occur, and no nests would be relocated until after consultation with the BLM and FWS.	X	X		
Construction would not take place within 1 mile of occupied northern aplomado falcon nests between February 1 and September 1.		X		
Yellow-billed Cuckoo				
All non-emergency Construction and maintenance in riparian woodlands at the San Pedro River, Cienega Creek, and the Santa Cruz River would take place between September 15 and March 1, to avoid disturbance of yellow-billed cuckoos.		X	X	
Line marking devices would be placed at the proposed crossings of the San Pedro River and Cienega Creek to minimize the potential for avian collisions with transmission lines.		X		
Southwestern Willow Flycatcher				
All non-emergency construction and maintenance in riparian woodlands at the San Pedro River, Cienega Creek, and the Santa Cruz River would take place between September 15 and March 1, to avoid disturbance of southwestern willow flycatchers		X	X	
Line marking devices would be placed at the proposed crossings of the San Pedro River, Cienega Creek, and the Santa Cruz River to minimize the potential for avian collisions with transmission lines.				
Pima Pineapple Cactus				

For Pima pineapple cactus that cannot be avoided, Southline will purchase credits in an FWS-approved conservation bank for Pima pineapple cactus, corresponding to the area of permanent disturbance to occupied habitat. Alternative, Southline may purchase suitable mitigation lands within Pima County's Pima pineapple cactus priority conservation areas.		X	X	

Table 3-7. Mitigation and Avoidance Measures for Environmental Protection by Resource (Continued)

Measures by Resource	Preconstruction	Construction	Operation and Maintenance	Decommissioning
Any Pima pineapple cactus that are not within the area of permanent disturbance but are present within the Project vicinity shall be flagged by a qualified biologist prior to the commencement of work to avoid accidental damage during construction.	X	X		
Plant species protected under the Arizona Native Plant Law (cactus, yucca, and native trees) shall be avoided to the extent practicable during construction. If impacts to native plants cannot be avoided, the plants shall be treated in accordance with state law. All Pima pineapple cactus within the area of permanent disturbance shall be salvaged and replanted on Conservation Lands north of the substation footprint by a biologist with previous experience transplanting Pima pineapple cactus. Transplantation would be accomplished in accordance with the cactus transplantation methodology described by the University of Arizona (2009).	X	X		
Prior to construction, protocol-level surveys for Pima pineapple cactus shall be conducted to identify any individuals that could be affected by construction activities. These surveys would be limited to areas of suitable habitat that could be disturbed by construction and maintenance activities.	X			

United States Department of the Interior

Fish and Wildlife Service
Arizona Ecological Services Office
2321 West Royal Palm Road, Suite 103
Phoenix, Arizona 85021-4951
Telephone: (602) 242-0210 Fax: (602) 242-2513

In Reply Refer to:
AESO/SE
02EAAZ00-2014-F-0140-R001
02EAAZ00-2014-F-0140
FWS/R2/ES-ARD/057714

November 10, 2015

Memorandum

To: Manager, Las Cruces District, Bureau of Land Management, Las Cruces, New Mexico

From: Field Supervisor, Arizona Ecological Services Office, U.S. Fish and Wildlife Service, Phoenix, Arizona

Subject: Reinitiation of Consultation on the Proposed Southline Transmission Project to Reflect an Update to the Agency Preferred Alternative for the Final Environmental Impact Statement (Final EIS)

Thank you for your July 27, 2015, correspondence transmitting your *Request to Amend the Biological and Conference Opinion and Conference Report on the Proposed Southline Transmission Project with an Update to the Agency Preferred Alternative for the Final Environmental Impact Statement* (Final EIS). The document was received by us on July 28, 2015. We are providing this response pursuant to section 7 of the Endangered Species Act of 1973 (16 U.S.C. 1531-1544), as amended (ESA), and the ESA's implementing regulations at 50 CFR 402.

Our *Final Biological and Conference Opinion and Conference Report* (Final BO), dated December 30, 2014 (File number 02EAAZ00-2014-F-0140), considered the preferred agency alternative that had appeared in your March 2014 *Proposed Southline Transmission Line Project Draft Environmental Impact Statement and Draft Resource Management Plan Amendment* (Draft EIS). In response to letters of concern from the vintner industry, the Bureau of Land Management (BLM)` and Western Area Power Administration (Western) decided to change the location of the segment of transmission line in the vicinity of Willcox Playa from the Segment P7a [located east and south of the Playa in order to minimize impacts to migratory birds, including sandhill cranes (*Grus canadensis*)], which was considered in the Draft EIS and Final BO, back to Segment P7 (adjacent to the southern and eastern edges of Willcox Playa), considered in our Draft BO transmitted to you on November 10, 2014.

Your July 27, 2015, memorandum requested an Amendment to our Final BO to consider the revised Segment P7 alignment. This request involves a change to the agency action (route change), which is one of the four reinitiation criteria; therefore, this memorandum will serve as a reinitiation of consultation for this project. BLM and Western have determined that the effect on the only listed species occurring in the area in which both segments are located (the endangered lesser-nosed bat; *Leptonycteris yerbabuenae*) is essentially the same: may affect, likely to adversely affect. Since the portion of the route that is changed is relatively short and there is only one listed species to consider, this reinitiation of formal consultation will be streamlined.

The December 30, 2014, Final BO's analyses and conclusions for the endangered Mexican long-nosed bat (*Leptonycteris nivalis*), the endangered Pima pineapple cactus (*Coryphantha scheeri var. robustispina*), the endangered southwestern willow flycatcher (*Empidonax traillii extimus*), the threatened yellow-billed cuckoo (*Coccyzus americanus*), and threatened northern Mexican gartersnake (*Thamnophis eques megalops*) and critical habitats, as applicable, remain unchanged. This consultation also remains a concurrence with your prior determination that the proposed action was not likely to adversely affect the Gila chub (*Gila intermedia*) and its critical habitat and the endangered Huachuca water umbel (*Lilaeopsis schaffneriana* var. *recurva*) or its critical habitat. We therefore incorporate, via reference, the analyses appearing in the narrative and Appendix A of our December 30, 2014, Final BO.

This reinitiated biological opinion is based on the project proposal, literature, telephone conversations, field investigations, and other sources of information. Literature cited in this reinitiated biological opinion is not a complete bibliography of all literature available on the affected species, or on other subjects considered in this opinion. A complete administrative record of this consultation is on file at this office.

The subsequent narrative represents our streamlined consultation on the proposed action and includes only information that has changed subsequent to the transmittal of our December 30, 2014, Final BO.

CONSULTATION HISTORY

December 30, 2014: We transmitted our Final BO on the effects of implementing what was, at that time, the agency-preferred alternative in the March 2014 *Proposed Southline Transmission Line Project Draft Environmental Impact Statement and Draft Resource Management Plan Amendment* (Draft EIS). The Consultation History of this prior consultation is incorporated herein via reference. Of specific relevance to this reinitiation, our December 30, 2014, Final BO evaluated the effects of the P7a route near the Wilcox Playa.

July 28, 2015: We received your July 27, 2015, memorandum requesting reinitiation of formal consultation in order to evaluate the effects of your decision to implement the P7 alignment. We note that our November 10, 2014, Draft BO had included, among analyses of the entire proposed action, our analysis of Segment P7.

September 3, 2015: We transmitted a memorandum to you stating that all information required of you to reinitiate formal consultation required by the regulations governing section 7(a)(2) interagency consultation at 50 CFR §402.14 had been provided in your July 27, 2015, memorandum. We also

provided the dates by which reinitiated consultation would be completed and provided notice that, pursuant to section 7(d) of the ESA, you shall not make any irreversible or irretrievable commitment of resources which have the effects of foreclosing the formulation or implementation of any reasonable and prudent alternative measures which would not violate section 7(a)(2) and would avoid jeopardizing the continued existence of endangered or threatened species or destroying or adversely modifying their critical habitats.

June 17, 2015 through October 20, 2015: We provided and received relevant project information via electronic mail and during telephone conversations.

October 21, 2015: We transmitted the Draft BO for the proposed action to your staff via electronic mail.

November 4, 2015: We received an electronic mail message from your staff stating that there were no comments on the October 21, 2015, Draft BO and requesting we transmit a final version of the document.

BIOLOGICAL OPINION

Description of the Proposed Action

The proposed action has been changed to reflect the implementation of Segment P7 rather than Segment P7a. Both segments are in Route Group 2, although Segment 7a does not appear in BO Figure 1 on page 69 in our December 30, 2014, Final BO. The initial proposal of Segment P7 triggered concern on the part of the Arizona Game and Fish Department (AGFD) and FWS over effects to sandhill cranes wintering at the Wilcox Playa. This resulted in the selection of Segment P7a, which shifted the segment to the east, away from the playa. Subsequent public comments regarding prospective economic concerns resulted in an abandonment of the rerouted line and a return to the initial P7 alignment.

The remainder of the proposed action, including the proposed conservation measures for threatened and endangered species, remains as described in your February 2014 *Biological Assessment for the Southline Transmission Project*, your March 2014 Proposed Southline Transmission Line Project Draft Environmental Impact Statement and Draft Resource Management Plan Amendment, and our December 30, 2014, Final BO, and is incorporated herein via reference.

Status of the Species and Critical Habitat

The status of the species for the lesser long-nosed bat has not changed since our December 30, 2014, Final BO. The prior narrative is incorporated herein via reference.

Environmental Baseline

The Environmental Baseline for the lesser long-nosed bat has not changed since our December 30, 2014, Final BO. The prior narrative is incorporated herein via reference.

Effects of the Proposed Action

Both Segments 7 and the alternate Segment 7a are in Route Group 2 (see BO Table 1 in the Final BO). Changes in this alignment are relevant only to the lesser long-nosed bat; the remaining species do not occur in either affected area. Given that all nectivorous bat-related conservation measures (see Appendix D in the Final BO) remain part of the proposed action, there will be no additional effects to this species. Critical habitat has not been designated for the lesser long-nosed bat; therefore, none will be affected.

Cumulative Effects

There have been no changes to the Cumulative Effects described in our December 30, 2014, Final BO; the prior analyses are incorporated herein via reference.

Conclusion

The lesser long-nosed bat's status and baseline information has not changed since we transmitted our December 30, 2014, Final BO. The effects of Segment 7 and Segment 7a are identical in terms of the species. The cumulative effects are also unchanged.

We therefore conclude that the implementation of Segment 7 rather than Segment 7a will not jeopardize the continued existence of the lesser long-nosed bat. Critical habitat has not been designated for this species; therefore, none will be affected.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulations pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. "Take" is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. "Harm," is defined (50 CFR 17.3) and means an act which actually kills or injures wildlife. Such act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering. "Harass" is defined (50 CFR 17.3) and means an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering. "Incidental take" is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

Sections 7(b)(4) and 7(o)(2) of the Act generally do not apply to listed plant species, including the Pima pineapple cactus. However, limited protection of listed plants from take is provided to the extent that the Act prohibits the removal and reduction to possession of federally listed endangered plants from areas under Federal jurisdiction, or for any act that would remove, cut, dig up, or damage or destroy any such

species on any other area in knowing violation of any regulation of any State or in the course of any violation of a State criminal trespass law.

Amount or Extent of Take

We concluded in our December 30, 2014, Final BO, and have determined again, that incidental take of the lesser long-nosed bat is not reasonably certain to occur; therefore, no incidental take is authorized.

Conservation Recommendations

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

We incorporate, via reference, the Conservation Recommendations for the lesser long-nosed bat that appeared in our December 30, 2014, Final BO. We are also adding the following recommendation for a non-listed, but rare, native plant:

- We request that pre-construction surveys be conducted for the Chihuahua scurfpea (*Pediomelum pentaphyllum*) in to-be-affected areas and that we be contacted prior to disturbance if any are located. Surveys are most effective following rains when the plants are most visible. We recommend that the vegetation and weed-related conservation measures appearing in Appendix D of the Final BO be implemented with consideration given for this species.

In order for the FWS to be kept informed of actions minimizing or avoiding adverse effects or benefiting listed species or their habitats, the FWS requests notification of the implementation of any conservation recommendations.

REINITIATION AND CLOSING STATEMENT

The conference portion of the December 30, 2014, Final BO for the Southline Transmission Project remains in effect. You may ask the FWS to confirm the conference opinion as a biological opinion issued through formal consultation if the proposed species is listed or critical habitat is designated. The request must be in writing. If the FWS reviews the proposed action and finds there have been no significant changes in the action as planned or in the information used during the conference, the FWS will confirm the conference opinion as the biological opinion for the project and no further section 7 consultation will be necessary.

After listing as threatened or endangered and any subsequent adoption of this conference opinion, the Federal agency shall request reinitiation of consultation if: 1) the amount or extent of incidental take is exceeded; 2) new information reveals effects of the agency action that may affect the species in a manner or to an extent not considered in the conference opinion; 3) the agency action is subsequently modified in

a manner that causes an effect to the species that was not considered in this opinion; or 4) a new species is listed or critical habitat designated that may be affected by the action.

Please note that there always exists the potential for critical habitat proposed rules to undergo revisions prior to being subject to a final rulemaking. Final critical habitat designations may also differ substantively from proposed critical habitat. Should either of these events occur for the respective proposed critical habitats for the yellow-billed cuckoo and/or northern Mexican gartersnake, we recommend that you review the applicable documents, analyze the effects the proposed action may have upon them, and contact FWS immediately.

This also concludes formal consultation on the actions outlined in your July 27, 2015, request. The remainder of the December 30, 2014, Final BO remains in effect. As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

Certain project activities may also affect species protected under the Migratory Bird Treaty Act (MBTA) of 1918, as amended (16 U.S.C. sec. 703-712) and/or bald and golden eagles (*Haliaeetus leucocephalus* and *Aquila chrysaetos*, respectively) protected under the Bald and Golden Eagle Protection Act (Eagle Act). The MBTA prohibits the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, except when authorized by the FWS. We reiterate our concerns regarding Segment P7 and its potential impact on sandhill cranes [see memorandum of July 9, 2014 (File Number FWS/R2/ES-ARD/057714)].

The Eagle Act prohibits anyone, without a FWS permit, from taking (including disturbing) eagles, and including their parts, nests, or eggs. If you think migratory birds and/or eagles will be affected by this project, we recommend seeking our Technical Assistance to identify available conservation measures that you may be able to incorporate into your project.

For more information regarding the MBTA and Eagle Act, please visit the following websites. More information on the MBTA and available permits can be retrieved from http://www.fws.gov/migratorybirds and http://www.fws.gov/migratorybirds/mbpermits.html. For information on protections for bald eagles, please refer to the FWS's National Bald Eagle Management Guidelines (72 FR 31156) and regulatory definition of the term "disturb" (72 FR 31132) published in the Federal Register on June 5, 2007 (http://www.fws.gov/southwest/es/arizona/BaldEagle.htm), as well at the Conservation Assessment and Strategy for the Bald Eagle in Arizona (SWBEMC.org).

In keeping with our trust responsibilities to American Indian Tribes, we encourage you to continue to coordinate with the Bureau of Indian Affairs in the implementation of this consultation. We also encourage you to coordinate the review of this project with the Arizona Game and Fish Department, particularly with respect to minimizing impacts on sandhill cranes via the relocation of Crane Lake away from the Segment 7 alignment (as discussed during a September 15, 2015, project conference call between our respective agencies).

Please refer to consultation number 02EAAZ00-2014-F-0140-R001 in all future correspondence regarding this proposed action. Should you require further assistance or if you have any questions regarding the ESA issues, please contact Jason Douglas at (520) 670-6150 (x226) or Jean Calhoun at (x223). If you have any questions regarding migratory bird issues, please contact Greg Hughes, Chief, Migratory Birds, at (505) 248-6460.

Steven L. Spangle

cc (hard copy):
Field Supervisor, U.S. Fish and Wildlife Service, Phoenix, Arizona (2 copies)
Jean Calhoun, Assistant Field Supervisor, U.S. Fish and Wildlife Service, Tucson, Arizona

cc (electronic copy):
Greg Hughes, Chief, Migratory Birds, U.S. Fish and Wildlife Service, Albuquerque, New Mexico
Wally Murphy, Field Supervisor, U.S. Fish and Wildlife Service, Albuquerque, New Mexico
Tim Shannon, Manager, Gila District, Bureau of Land Management, Tucson, Arizona
Scott Cooke, Manager, Safford District, Bureau of Land Management, Safford, Arizona
Melissa Warren, Manager, Tucson Field Office, Bureau of Land Management, Tucson, Arizona
Mark Masser, Wildlife Biologist, California Desert District, Bureau of Land Management, Palm Springs, California
Johnida Dockens, Environmental Protection Specialist, Western Area Power Administration, Phoenix, Arizona

Chief, Habitat Branch, Arizona Game and Fish Department, Phoenix, Arizona (pep@azgfd.gov)
Raul Vega, Regional Supervisor, Arizona Game and Fish Department, Tucson, Arizona

filename: FINAL BO Southline Streamlined Reinitiation.jd.docx

Attachment C:
Programmatic Agreement

Programmatic Agreement
Among
The Bureau of Land Management,
Las Cruces District, New Mexico
Arizona State Historic Preservation Officer
New Mexico State Historic Preservation Officer
Advisory Council on Historic Preservation
Tohono O'odham Nation
United States Coronado National Forest
Bureau of Indian Affairs
United States Army Corps of Engineers
New Mexico State Land Office
Arizona State Land Department
Arizona State Museum
University of Arizona
City of Tucson
Pima County
National Park Service
Western Area Power Administration
and
Southline Transmission, LLC
Regarding the
Southline Transmission Project

1. **Whereas,** Southline Transmission, LLC (Applicant), intends to construct, operate and maintain the Southline Transmission Project (Undertaking) in New Mexico and Arizona according to general parameters contained in the project Plan of Development (POD), summarized in the Undertaking Description (Attachment 2); and

2. **Whereas,** the Las Cruces District of the Bureau of Land Management (BLM) intends to issue a right-of-way (ROW) grant to Southline, LLC for the construction, operation and maintenance of the Undertaking, and the ROW grant will reference this Programmatic Agreement (PA); and

3. **Whereas,** this PA and the Historic Properties Treatment Plan (HPTP) that will be developed pursuant to this PA will be incorporated into the POD; and

4. **Whereas,** the Las Cruces District Office of the (BLM) has been designated to serve as the lead federal agency for the Undertaking, is a Signatory to this PA and in consultation with other parties has determined that the Undertaking will have an adverse effect upon historic properties as defined in 36 CFR 800.16.l(1), identified and not yet identified within the Area of Potential Effects (APE); and

5. **Whereas,** the BLM has consulted with the New Mexico State Historic Preservation Officer and the Arizona State Historic Preservation Officer (SHPO), and the Tohono O'odham Nation Tribal Historic Preservation Officer (THPO) pursuant to Section 800.6 of the

regulations (36 CFR part 800) implementing Section 106 of the National Historic Preservation Act (NHPA) (54 U.S.C. 306108) as revised in 2004 and they are Signatories to this PA; and

6. **Whereas,** the BLM has notified the Advisory Council on Historic Preservation (ACHP) pursuant to 36 CFR § 800.6(a) (1)(i)(C) that the Undertaking will have adverse effects on historic properties and be resolved through a PA (3-4-13) and the ACHP has agreed to participate to resolve adverse effects and is a Signatory to this PA (3-19-13); and

7. **Whereas,** the Tohono O'odham Nation has assumed the role as Tribal Historic Preservation Office (THPO) for lands within their reservation boundaries and this Undertaking crosses lands under their jurisdiction (San Xavier District); and

8. **Whereas,** no provision of this PA will be construed by any of the Signatories as abridging or debilitating any sovereign powers of the Tohono O'odham Nation; affecting the trustee-beneficiary relationship between the Secretary of the Interior and Tohono O'odham Nation or individual Indian landowners; or interfering with the government-to-government relationship between the United States and the Tohono O'odham Nation; and

9. **Whereas,** the Bureau of Indian Affairs (BIA) is the agency responsible for issuing permits and approving rights-of-ways on tribal and allotted lands of the Tohono O'odham Nation, San Xavier District, and the BLM has consulted with the BIA about the effects of the Undertaking on historic properties and has invited them to be an Invited Signatory to this PA; and

10. **Whereas,** Western Area Power Administration (Western), an agency within the Department of Energy, owns and maintains transmission lines on rights-of-way in Arizona that may be upgraded as part of this Undertaking if Western transmission lines are utilized as part of the Undertaking; and

11. **Whereas,** the Applicant has applied for, and Western is considering providing Federal funding for the Undertaking, as authorized under the 2009 amendments to the Hoover Power Plant Act of 1984; and

12. **Whereas,** this PA is not applicable to Western's ongoing routine maintenance of its existing infrastructure which is instead governed by *Programmatic Agreement Among Western Area Power Administration, the Advisory Council on Historic Preservation, and the Arizona State Historic Preservation Officer, Regarding Maintenance and Minor Construction Activities at Existing Western Transmission Lines, Facilities and Properties in Arizona*; and

13. **Whereas,** should Western elect to acquire the land rights for the new build portion of the Undertaking in Arizona and New Mexico as part the Undertaking, Western will obtain temporary access rights as well as later permanent land rights in accordance with the Uniform Relocation Assistance and Real Property Acquisition Act of 1970, where land rights across each non-federal land ownership parcel are appraised pursuant to federal standards, and BLM has invited Western to participate as an Invited Signatory to this PA; and

14. **Whereas,** the Applicant has participated in consultations and BLM has invited them to be an Invited Signatory to this PA; and

15. **Whereas,** the Undertaking crosses lands under the jurisdiction of the U.S. Coronado National Forest (CNF) and the BLM has consulted with the CNF and has invited them to be an Invited Signatory to this PA; and

16. **Whereas,** the Undertaking crosses lands under the jurisdiction of the Arizona State Land Department (ASLD) and the New Mexico State Land Office (NMSLO); and the ASLD may use provisions of this PA to address the applicable requirements of the Arizona State Historic Preservation Act (ARS § 41-861 et seq.) and the Arizona Antiquities Act (AAA) (ARS § 41-841 et seq.) on state trust lands in Arizona; and the NMSLO may use the provisions of this PA to address the applicable requirements of the Cultural Properties Act (§§ 18-6-1 et seq. NMSA 1978) and the Cultural Properties Protection Act (§§ 18-6A-1 et seq. NMSA 1978); and the BLM has consulted with these agencies about the effects of the Undertaking on historic properties and has invited them to be Invited Signatories to this PA; and

17. **Whereas,** the BLM has consulted with the New Mexico Department of Transportation (NMDOT) and the Arizona Department of Transportation (ADOT), which may issue rights-of-ways to the Applicant for access to and construction of certain components of the Undertaking, has invited them to be Invited Signatories to this PA, and both NMDOT and ADOT have declined to sign; and

18. **Whereas,** the United States Army Corps of Engineers (USACE), will be responsible for issuing permits under Section 404 of the Clean Water Act for the Undertaking and the BLM has consulted with them about the effects of the Undertaking on historic properties and has invited them to be an Invited Signatory to this PA; and

19. **Whereas,** the Undertaking crosses lands under the jurisdiction of the City of Tucson and Pima County and the BLM has consulted with them about the effects of the Undertaking on historic properties and has invited them to be Invited Signatories to this PA; and

20. **Whereas,** the Department of the Interior (DOI), through the National Park Service (NPS), is responsible for National Historic Landmarks (NHLs) under Section 101 of the NHPA and consults with agencies on undertakings adversely affecting those NHLs; and

21. **Whereas,** the Undertaking crosses the Desert Laboratory National Historic Landmark (NHL) and the Tumamoc Hill Archaeological National Register (NR) District, which are nearly identical in location, and may affect this NHL and NR District; and the BLM will follow 36 CFR § 800.10 and the provisions contained in this PA, and the BLM has consulted with the NPS, which administers the NHL Program, and has invited the NPS (NHL Program) to be an Invited Signatory to this PA; and

22. **Whereas,** the Undertaking crosses the Desert Laboratory NHL and the Tumamoc Hill Archaeological NR District which are properties owned by Pima County and the Arizona Board of Regents (University of Arizona) and the BLM has consulted with these entities about the effects of the Undertaking on these historic properties and has invited them to be Invited Signatories to this PA; and

23. **Whereas,** the Arizona State Museum (ASM) has been invited to participate pursuant to 36 CFR § 800.6 (c)(2)(iii), as it has mandated authority and responsibilities under the Arizona Antiquities Act (AAA), ARS § 41-841 et seq., that apply to that portion of the Undertaking on state lands in Arizona (state, county and city); and mandated authority and responsibilities under ARS § 41-865 that apply to that portion of the Undertaking on private lands and BLM has invited them to be an Invited Signatory to this PA; and

24. **Whereas,** the BLM is responsible for government-to-government consultation with Indian tribes pursuant to section 101(d)(6)(B) of the NHPA, 36 CFR § 800.2(c)(2)(ii), the American Indian Religious Freedom Act (42 § U.S.C. 1996) (AIRFA), Executive Order 13175, and section 3(c) of the Native American Graves Protection and Repatriation Act (25 USC §§ 3001-13) (NAGPRA), and has formally invited the 21 Indian tribes listed below to participate in consultations regarding the potential effects of the Undertaking on properties to which they ascribe traditional religious and cultural significance; and

25. **Whereas,** the Gila River Indian Community, Salt River Pima-Maricopa Indian Community, Ak-Chin Indian Community, Hopi Tribe, Tonto Apache Tribe, Yavapai-Apache Nation, Pascua Yaqui Tribe, San Carlos Apache Tribe, Mescalero Apache Tribe, White Mountain Apache Tribe, Navajo Nation, Pueblo of Acoma, Pueblo of Laguna, Pueblo of Isleta, Pueblo of Tesuque, Pueblo of Zuni, Comanche Indian Tribe, Fort Sill Apache Tribe of Oklahoma, Kiowa Tribe of Oklahoma, and the Ysleta del Sur Pueblo, have been contacted, invited to engage in consultations and invited to be Concurring Parties to this PA; and

26. **Whereas,** the Tohono O'odham Nation, Gila River Indian Community, Salt River Pima-Maricopa Indian Community, Ak-Chin Indian Community, San Carlos Apache, Fort Sill Apache, Mescalero Apache, Pueblo of Isleta, Pueblo of Zuni, Hopi Tribe, and the Pueblo of Ysleta del Sur have participated in consultations for this Undertaking and the development of this PA; and

27. **Whereas,** the Butterfield Trail is an historic trail that is Under National Trail Feasibility Study, in accordance with the National Trails System Act (P.L. 90-543, as amended through P.L. 111-11), by the NPS, National Trails Intermountain Region (NTIR), and the BLM has coordinated and consulted with the NPS about this trail and has invited the NPS (NTIR) to be a Concurring Party to this PA; and

28. **Whereas,** the following have participated in consultations as Consulting Parties in accordance with 36 CFR § 800.2(c)(5) and 800.3(f)(1) and (3): the National Trust for Historic Preservation, Archaeology Southwest, and the Town of Marana and BLM has invited these entities to be Concurring Parties to this PA; and

29. **Whereas,** the Juan Bautista de Anza National Historic Trail (NHT) is administered by the NPS, Pacific West Regional Office, and the BLM has determined that this NHT is not a historic property where it occurs in the Undertaking's APE, nor are there any trail-related historic properties in the APE, and the BLM has consulted with the NPS regarding these conclusions; and

30. **Whereas,** the BLM has provided the public opportunities to comment on the Undertaking and participate in the National Environmental Policy Act (NEPA) process through a Notice of Intent to Prepare an Environmental Impact Statement (EIS) published in the Federal Register on 4-4 2012 for the development of the EIS; held six public scoping meetings in May 2012; published the Draft EIS on April 11, 2014 and held six public meetings in May 2014. Public meeting materials included information about the NHPA and the Section 106 process and BLM considered comments received through the NEPA and NHPA processes concerning cultural resources in the development of this PA; and

31. **Whereas,** Human Remains, Associated/Unassociated Funerary Objects, Sacred Objects, and Objects of Cultural Patrimony recovered within or on federal and tribal land will be treated in accordance with NAGPRA pursuant to 25 U.S.C. §3001–13, and with the American Indian Religious Freedom Act (AIRFA) pursuant to 42 U.S.C. §1996; and

32. **Whereas,** Human Remains and Funerary Objects discovered on state and private land in New Mexico will be treated in accordance with § 18-6-11.2 NMSA 1978; and in Arizona, in accordance with ARS §41-844 (state lands) and ARS §41-865 (private lands); and

33. **Whereas,** the BLM is using the provisions of this PA to address applicable requirements of the Archaeological Resources Protection Act (ARPA) (16 U.S.C. §470aa), the American Indian Religious Freedom Act (AIRFA) (42 U.S.C. §1996), and the Native American Graves Protection and Repatriation Act (NAGPRA) (25 U.S.C. §3001–13); and

Now, therefore, the parties to this PA agree that the Southline Transmission Line Project shall be completed in accordance with the stipulations established in this PA in order to take into account the effects of the Undertaking on historic properties.

UNDERTAKING DESCRIPTION

The Undertaking encompasses the construction phase of the proposed transmission line project that takes place after the BLM ROW grant is issued and includes associated project facilities as well as reclamation of areas used during construction but not necessary for operation and maintenance of the facilities. The Undertaking may include surveys, geotechnical testing, engineering, mitigation planning and design, or other activities initiated prior to construction of project facilities. The potential effects to historic properties will be the most extensive and substantial during the construction phase. The Undertaking also encompasses those activities necessary to operate and maintain the transmission line over the life of the project. Operation and maintenance activities are approved in the ROW grant and confined to the ROW. Changes to approved operations and maintenance activities, including new actions outside of the approved BLM ROW grant, require BLM approval and may necessitate a separate Section 106 review and additional ROWs. This PA stipulates the process necessary to comply with Section 106 obligations for construction and reclamation as well as operation and maintenance of the proposed transmission line and associated facilities.

If decommissioning takes place in the future, it will be considered a separate undertaking when it occurs.

DEFINITIONS USED IN THIS PA: see Attachment 1

DETAILED DESCRIPTION OF UNDERTAKING: see Attachment 2

LOCATION OF UNDERTAKING: see Attachment 3 for a map of the Undertaking

STIPULATIONS

BLM shall ensure that the Undertaking is carried out in accordance with the following stipulations in order to take into account the effect of the Undertaking on historic properties:

I. Identification, Evaluation, and Determination of Effects

A. **The Areas of Potential Effects (APE)** (see Attachments 1 and 3) are defined as:

1. **Direct effects:** The APE for direct effects during construction and reclamation for the new build portion of the Undertaking (from the Afton substation to the Apache substation) will include all areas likely to be affected by construction and reclamation activities. This APE will be the 200-foot-wide permitted ROW corridor for one 345 kV transmission line and access roads (within corridor) plus 100 feet on either side of the corridor (400' total width). This width will allow for adjustments in transmission line or access road placement to avoid when possible any natural, cultural, or modern features such as outcrops, historic properties, petroglyph sites, and structures. For the upgrade portion of the Undertaking (from Apache substation to Saguaro substation) from an existing 115 kV to a 230 kV transmission line, the APE will be the 150 foot wide permanent ROW plus 100 feet on either side of the corridor (350' total width).

   a. Proposed new access routes and existing roads requiring improvement outside the transmission line ROW will have a 150-foot wide APE (75 feet from centerline).

   b. The APE for staging areas, borrow areas, substations and other transmission infrastructure will include the footprint of the facility and a buffer of 250 feet around the footprint of the proposed activity/facility.

   c. The APE for pulling/tensioning sites that fall outside the ROW will be the footprint of the site plus a 250-foot radius around these points.

   d. Direct effects from operation and maintenance activities will be confined to the ROW.

2. **Indirect effects**: The APE for indirect effects shall be areas visible and within 5 miles of any project component (including conductors and access roads) or to the visual horizon, whichever is closer, or where consultation identifies a need to expand this APE in certain locations.

   a. BLM will use a Geographic Information System (GIS) view shed analysis to identify areas in the indirect effects APE from which the Undertaking may be visible.

   b. The indirect effects APE may extend beyond the 5-mile convention to encompass properties that have traditional religious and cultural importance, including traditional cultural properties (TCPs), or other geographically extensive historic

properties such as trails, when effects have been determined to extend beyond this distance.

3. **Cumulative effects**: The APE for cumulative effects shall be the same as that for direct and indirect effects combined.

B. The Applicant shall complete a cultural resources inventory to identify historic properties that could be affected by the Undertaking. This inventory will include:

1. A Class I, Existing Data Inventory of all previously recorded cultural resources within 0.25 mile of the APEs described in I.A.1, and the entire APE described in I.A.2 which shall include a review of historical maps, including 15-minute topographic maps, General Land Office maps and survey notes, and other archival sources for properties that are over 45 years old that may be affected by the Undertaking.

2. A Class III, Intensive Field Inventory of the direct effects APE as defined in Stipulation I.A.1. The Class III Inventory will be conducted with sensitivity for locations or other features identified as important through tribal consultation or ethnographic studies.

   a. For the direct effects APE as defined in I.A.1, all historic linear cultural resources such as canals, roads, trails, and railroads will be identified and recorded where they intersect the APE and will be fully recorded within the APE. For the indirect effects APE as defined in I.A.2, all historic linear cultural resources such as canals, roads, trails, and railroads will be identified and evaluated where the Undertaking would be visible to such linear cultural resources.

   b. All previously recorded cultural resources within the direct effects APE will be re-visited with the associated records updated and revised as appropriate, including NRHP eligibility recommendations and determinations. Previously recorded cultural resources and newly recorded cultural resources whose boundaries lie partially within, or straddle the APE will be fully recorded outside the APE, to the extent practical, regardless of surface ownership.

   c. Previously recorded and newly recorded cultural resources will be referenced by permanent site numbers with Universal Transverse Mercator (UTM) coordinates.

   d. An assessment of visual impacts will be conducted for historic properties within the direct and indirect effects APEs that could be considered visually sensitive and potentially affected by the Undertaking which meet the following criteria:

      1) View shed analysis indicates that the Undertaking would be visible from the historic property;

      2) The historic property is eligible for the NRHP under criteria listed at 36 CFR 60 "(a), (b), or (c)". Under special circumstances, historic properties eligible only under criterion d may be included (e.g., an archaeological site with standing architecture). Inclusion of such properties will be at the discretion of the BLM in consultation with involved land managing agencies and the SHPO/THPO.

3) Not less than 60 days prior to commencement of the visual analysis, the BLM will provide a proposed methodology for review and comment by Consulting Parties. The BLM, in consultation with land managing agencies and SHPO/THPO will consider all comments in refining the methodology prior to implementation.

C. The Applicant shall prepare a comprehensive Inventory Report incorporating findings from the existing Class I Data Inventory and the Class III, Intensive Field Inventory for each state. This report shall include NRHP eligibility recommendations and assessments of direct, indirect, and cumulative effects within the APE of the Undertaking as described in I.A.

D. The Applicant shall submit drafts of the Inventory Report for each state to the BLM. The BLM will provide the reports to the appropriate land managers, the ASM, and concerned tribes within each state for review, concurrent with BLM review. These parties will provide written comments to the BLM within 60 calendar days regarding:

1. The adequacy of the identification effort;
2. The NRHP eligibility of the cultural resources identified;
3. The assessment of effects of the Undertaking on the historic properties identified,
4. The presence of TCPs or any properties of traditional religious or cultural importance to tribes that were not identified in the inventory that may be affected by the Undertaking.

The BLM shall ensure that comments received within 60 calendar days are considered in development of the revised Inventory Reports. The BLM will submit the revised Inventory Reports to the appropriate SHPO/THPO, tribes, and Consulting Parties for a 60-calendar-day review and will request SHPO/THPO concurrence on determinations of NRHP eligibility and BLM's assessments of effects to each historic property identified. BLM will notify the Consulting Parties via electronic mail of the submittal and the date that comments are due. In New Mexico, one appendix to the Inventory Report shall include a data compendium with copies of the appropriate New Mexico Cultural Resource Information System (NMCRIS) and Laboratory of Anthropology (LA) archaeological site and Historic Cultural Properties Inventory (HCPI) forms and maps.

E. The Inventory Report will accomplish and provide the following:

1. Completion of the Identification of Historic Properties (except properties found during possible future Variances and Discoveries).
2. Determinations of Eligibility (except undetermined cultural resources and properties found during possible future Variances and Discoveries).
3. Determinations of effects to historic properties by the Undertaking (except undetermined cultural resources and properties found during possible future Variances and Discoveries).
4. Recommendations for treatment measures to be applied to historic properties affected by the Undertaking (except undetermined cultural resources and properties found during possible future Variances and Discoveries).

F. As part of its identification efforts, the BLM has consulted with Indian tribes whose aboriginal territories included portions of the Undertaking area or who have previously expressed interest in undertakings within the APE. The BLM shall continue to consult with Indian tribes regarding properties of traditional religious and cultural importance to them that might be affected by the Undertaking and shall provide opportunities for review and comment on draft and final versions of the Inventory Report. The consultation process will remain open for any tribe that expresses a desire to participate.

G. When making determinations of NRHP eligibility, the BLM will consider sites, districts, buildings, structures and objects that are significant and meet the integrity criteria. For properties that have traditional cultural values, the BLM shall take into consideration values expressed by the consulted tribes. The BLM shall make NRHP eligibility determinations, and provide this documentation to appropriate Consulting Parties to provide comment, taking into consideration all comments received from the Consulting Parties. If a SHPO/ THPO, land managing agency or any tribe disagrees with the BLM's determinations of eligibility, the BLM shall consult with the SHPO/ THPO, the land managing agency, and/or tribe to resolve the objection. If a resolution cannot be agreed upon, the BLM shall forward the required documentation to the Keeper of the National Register for final determinations. The BLM shall ensure that the Applicant prepares a revised Inventory Report incorporating BLM's eligibility determinations, or the Keeper's determination, if requested.

H. Any cultural resources for which eligibility cannot be determined during the inventory phase of the Undertaking shall be identified in the Historic Properties Treatment Plan (HPTP), and treated as eligible until a determination is made. Additional studies such as testing, archival research and oral histories will be completed for all such resources that will be affected by the Undertaking to enable the BLM in consultation with the land manager, and the SHPO/THPO to make an eligibility determination. The BLM's eligibility determinations for such resources will be submitted via electronic and regular mail to the respective SHPO/THPO and land manager with a Summary report describing the results of the additional studies, and a request for concurrence on the determination of eligibility. The SHPO/THPO will review these eligibility determinations and respond to the BLM within 30 calendar days. If the SHPO/THPO does not respond to the BLM within 30 calendar days, the BLM will assume concurrence with the determination(s) of NRHP eligibility.

II. Avoiding and Minimizing Adverse Effects of the Undertaking on Historic Properties

A. The BLM shall, if possible, avoid adverse effects to historic properties, with input from Consulting Parties.

1. Avoidance measures for historic properties may include (but are not limited to) realignment of the transmission line, fencing of sites during construction, monitoring of construction near site areas, or placing towers, maintenance roads and ancillary facilities outside of site boundaries.

2. The BLM shall develop avoidance measures for any properties of traditional religious and cultural importance in consultation with the SHPO/THPO and affected tribes or Native American groups who ascribe traditional religious and cultural importance to the properties.

3. The BLM shall identify measures to avoid adverse effects from operation and maintenance activities to those historic properties remaining within the ROW, and shall incorporate these measures in the HPTP in accordance with Stipulation III.A.

B. Where avoidance is not possible, the BLM shall minimize or mitigate adverse effects to historic properties to the degree possible with input from Consulting Parties.

C. If any Indian tribe or other Native American groups have expressed concerns about effects on properties to which they ascribe traditional religious and cultural importance, BLM shall consult with them and the appropriate SHPO/THPO about possible measures to resolve the adverse effects and ensure that those measures are properly considered in the development of the HPTP.

D. For state and private land in New Mexico, if the adverse effect is to a property listed in the State Register of Cultural Properties or NRHP, the agency or political subdivision shall determine whether § 18-8-7 NMSA 1978 of the Prehistoric and Historic Sites Preservation Act applies. The agency or political subdivision should contact the New Mexico SHPO for assistance in making this determination and satisfying the requirements of 4.10.12 New Mexico Administrative Code (NMAC).

III. Resolution of Adverse Effects: Development of the HPTP

A. The BLM shall ensure that the Applicant prepares an HPTP for each state that will address the effects of the proposed Undertaking on historic properties, including properties of traditional religious and cultural importance, and traditional cultural properties (TCPs) as discussed in National Register Bulletin No. 38. The HPTP shall address potential direct, indirect and cumulative effects from construction and reclamation as well as from operation and maintenance of the proposed transmission line and associated facilities. The HPTP will be incorporated into the POD as an appendix and will:

1. Identify the nature of the effects to historic properties and describe the strategies proposed to avoid, minimize, or mitigate those effects.

2. Identify cultural resources that will be affected by the Undertaking for which NRHP eligibility determinations could not be made, and will specify the strategy for determining eligibility. It will further specify the strategy that will be used in the event that these cultural resources are determined eligible as a result of the testing/study phase. Stipulations I.G and I.H will be followed for determining eligibility.

3. Be consistent with the Secretary of the Interior's Standards and Guidelines (48 CFR 44716-44742); the ACHP's handbook, Section 106 Archaeology Guidance (http://www.achp.gov/archguide); the rules implementing the AAA and 36 CFR§ 800.13, Post-Review Discoveries, and in so doing will incorporate provisions for monitoring and inadvertent Discoveries.

4. At a minimum, the HPTP will specify and include:

   a. The historic properties to be affected by the Undertaking and the nature of those effects.

b. The historic properties to be avoided and applicable avoidance measures, pursuant to Stipulation II.

c. The historic properties where harm will be minimized and applicable measures to minimize harm.

d. The properties at which adverse effects will be mitigated through scientific data recovery or other means.

e. For archaeological resources, research questions and goals that are applicable to the Undertaking area and which can be addressed through data recovery and archival studies, along with an explanation of their relevance and importance. These research questions and goals will incorporate the concept of historic contexts as defined in National Register Bulletin 16.

f. Fieldwork and analytical methods and strategies applicable to the Undertaking area, along with an explanation of their relevance to the research questions when dealing with archaeological resources. Treatment methods will be developed for each class of property identified in the Inventory report and may include, but are not limited to, excavation, scientific studies outside of the ROW, archival research, off-site interpretation, remote sensing, ethnographic studies, and oral history, as appropriate.

g. The level of effort to be expended on the treatment of each property. For archaeological resources this will include methods of sampling, i.e., sample size, and rationale for specific sample unit selection.

h. Data management and dissemination methodologies, including a proposed schedule of reports.

i. A stand-alone Monitoring and Discovery Plan which will be an appendix to the HPTP. It will contain:

   1) A monitoring plan to be used during construction and reclamation.

   2) A discovery plan consistent with Stipulation VI to be used during the entire Undertaking.

   3) If appropriate, a monitoring plan to be used during operations and maintenance will be developed in accordance with Stipulation III.E in consultation with the Consulting Parties and added after treatment activities are concluded. Any reports resulting from post-construction monitoring will be submitted to the Consulting Parties in accordance with the monitoring plan.

   4) All monitoring shall follow clearly stated objectives and methodologies for achieving those objectives, such as to ensure impact avoidance or minimization during construction and reclamation; to measure the effectiveness of avoidance, minimization and mitigation measures; to assess the effects of operations and maintenance activities, or to help define treatments for historic properties with long-term concerns.

j. A Project Termination Plan with provisions for the following programs to be implemented in the event that the Undertaking is terminated for any reason:

1) A program outlining the steps to be taken in order to complete any data recovery or other treatment measures that are in progress at the time of project termination; and

2) A component outlining how analysis, interpretation, reporting, and curation for all historic properties will be completed.

k. Plans which include methods and procedures for the discovery and/or treatment of human remains, associated funerary objects, and sacred objects that reflect any concerns and/or conditions identified as a result of consultations between the BLM and the appropriate Tribes and :

1) A NAGPRA (of 1990 (25 § USC 3002) Plan of Action (POA) which will be consistent with 36 CFR § 800.13, NAGPRA (43 CFR Part 10).

2) In Arizona on state and private land, methods and procedures will be consistent with ARS § 41-844 and ARS § 41-865 and their implementing rules.

3) In Arizona, the Cultural Resources Contractor (CRC), working through the ASM, shall obtain "burial agreements" with Indian tribes pursuant to ARS § 41-844 and ARS § 41-865, that govern Discoveries of human remains and funerary objects on state and private lands.

4) On lands within the exterior boundaries of the Tohono O'odham Nation (TON), the BIA and the TON THPO will be contacted and consulted to ensure compliance with NAGPRA.

5) In New Mexico unmarked human burial grounds, including human remains and associated funerary objects discovered on state and private land, shall receive appropriate and respectful treatment and disposition in accordance with § 18-6-11.2 NMSA 1978 and in accordance with the methods and procedures in 4.10.11 NMAC.

l. A strategy for cultural resource law and sensitivity training for all Undertaking personnel (including new, added, and replaced personnel) and contractors involved in transmission line construction, construction zone rehabilitation, and operation and maintenance of this transmission line. Instruction will be to a degree commensurate with their involvement in the Undertaking and will include information on the statutes protecting cultural resources, resource sensitivity, and requirements to avoid damage to historic properties and to report Discoveries of cultural resources in accordance with the Monitoring and Discovery Plan. Indian tribes will be provided opportunities to participate in the training program, which could be offered by a variety of means including training sessions, field visits, video programs, or printed materials.

m. A strategy for a public outreach program to disseminate information about the results of the cultural resource work to the general public. This program may include, but is not limited to, the following: a short report written specifically for the public, a brochure, exhibits for use at public outreach venues such as archaeology awareness fairs, slide or PowerPoint presentations, presentations to local historical and archaeological societies, lesson plans and educational

materials for use in schools, podcasts, website and/or social media content or a traveling museum exhibit.

n. For the new build portion of the Undertaking, a variance review process to be used during operation and maintenance to address any changes in procedure that could have an adverse effect on historic properties in the ROW.

o. For the new build portion of the Undertaking, a list of operation and maintenance activities that will not require additional Section 106 review.

p. For the new build portion of the Undertaking, a list of operation and maintenance activities that will require additional Section 106 review.

B. Process for Developing the Historic Property Treatment Plan

1. The Applicant shall submit the draft HPTP to the BLM for initial review and comments. The BLM shall provide the SHPO/ THPO and other Consulting Parties within each state a copy for review, requesting comments on the adequacy of the proposed treatment measures. These parties will be notified of the review period via electronic mail and will have 45 calendar days to review and comment on the plan. If no comments are received by the BLM within the 45-calendar-day review period, concurrence with the draft HPTP will be assumed.

   a. During this review period, if necessary, the ASM will develop a burial agreement or agreements to provide for the treatment and disposition of human remains discovered on state or private lands in Arizona. The ASM will provide appropriate tribes, the BLM, and the Applicant with a draft of the burial agreement for a 30-calendar-day review.

   b. The BLM will convene at least one consultation meeting in each state with all interested Consulting Parties during the 45-day period.

2. The BLM shall consolidate the comments from Consulting Parties in each state and advise the Applicant of necessary revisions to the draft HPTP. The BLM shall ensure that all comments are taken into consideration in finalizing the HPTP and that the revised HPTP is distributed to all Consulting Parties for a 21-calendar-day review period. The BLM, in consultation with the SHPO/THPO, shall approve the final HPTP. The BLM will notify the Applicant and the Consulting Parties when the final HPTP has been approved.

C. The Applicant shall provide the BLM a Summary Report of treatment completed at each site. The Summary Report will include a brief characterization of site assemblage/contents, the types of analyses yet to be completed, a brief description of how the provisions of the HPTP were implemented, and any deviations from the HPTP that were implemented and the reasons for such deviations.

D. The BLM shall review the Summary Report of treatment that has occurred at each site and provide a copy via electronic and regular mail to the appropriate SHPO/ THPO and other Consulting Parties for review, requesting comments and concurrence with eligibility determinations for previously undetermined cultural resources and Discoveries, within 15 calendar days. The BLM shall consider comments submitted during the review period and shall consult with the appropriate reviewer(s) to resolve differences and/or

disagreements. If no comments are received within the 15-calendar-day review period, concurrence with the adequacy of the treatment described in the preliminary summary will be assumed.

E. The BLM shall ensure that the Applicant prepares draft Treatment Reports for each state that incorporate the results of all the site-specific preliminary summaries into a comprehensive regional overview for each state. The Final Treatment Reports also will include:

1. Post-treatment eligibility recommendations for historic properties that have been subjected to treatment measures.
2. A listing of historic properties for which post-construction monitoring would be appropriate, and the reasons for this (i.e., proximity to Undertaking components with the potential for damage from operation and maintenance, percentage of property remaining in ROW, sensitivity of the property, a property identified as being of particular importance to a tribe(s), etc.).
3. The objectives that monitoring could achieve as part of the effort to avoid, minimize and/or mitigate adverse effects to those properties.

F. The BLM shall review the draft Treatment Reports and provide a copy to the appropriate SHPO/ THPO and other Consulting Parties for a 60-calendar-day review and comment period. The BLM will notify these parties of the submittal and review periods via electronic mail. The BLM shall consider comments received during the review period and shall consult with the appropriate reviewer(s) to resolve differences and/or disagreements. If no comments are received within 60 calendar days, concurrence with the adequacy of the Treatment Report will be inferred.

G. The BLM shall ensure that the Applicant prepares a revised Treatment Report that considers comments received on the draft Treatment Report. The BLM shall review the revised Treatment Report and provide copies to the appropriate SHPO/ THPO and other Consulting Parties for a 30-calendar-day review period. The BLM will notify these parties of the submittal and review periods via electronic mail. The BLM shall consider comments submitted during the review period and shall consult with the appropriate reviewer(s) to resolve differences and/or disagreements. If no comments are received within 30 calendar days, concurrence with the adequacy of the revised Treatment Report will be assumed and the revised Treatment Report shall be considered the final Treatment Report. The BLM shall notify the Applicant when the final Treatment Report has been accepted and will distribute it to the Consulting Parties, if necessary.

H. During the Treatment phase, if deviations to the approved plan are warranted, the Applicant will submit proposed deviations from the HPTP to the BLM for review prior to implementation. The BLM shall provide copies of the proposed deviation via electronic mail to the appropriate SHPO/ THPO, the tribes, the ASM and land manager(s) within the respective state for a 15-calendar-day review. The BLM shall consider comments received within the review period and shall determine the adequacy of the proposed deviation. The BLM will notify the Applicant when the deviation has been approved.

IV. Construction Variance Review Process

A. All construction needs cannot be anticipated in advance and areas required for additional work space, access roads, ancillary facilities, reroutes, etc. may be identified at any time following the acceptance of the Inventory Report(s) by the appropriate SHPO/THPO and land managing agencies. If any newly identified construction needs would result in ground disturbing activities outside of the surveyed areas identified in the Inventory Report, the Applicant will request a variance review from the BLM.

1. The APEs of all variance areas will be consistent with those defined in Stipulation I.A.
2. A Class I Existing Data Inventory review and a Class III Intensive Field Inventory will be performed on all variance areas.
3. If the proposed variance will affect more than 10 acres of land or more than 1 mile of road, the BLM will provide the Consulting Parties with a description and map of the variance.

B. The following process for review and approval of construction Variances will be used.

1. If no cultural resources or properties of traditional cultural or religious importance to tribes are present within the variance APE, the results of the Class I and Class III inventories will be reported on SHPO Survey Report Summary Form (SRSF) (for Arizona) or the New Mexico Cultural Resource Information System (NMCRIS) Investigation Abstract Form (NIAF) (for New Mexico) prior to any access or use. The BLM will provide an expedited review of the variance request, not to exceed 2 working days following receipt, and will provide the Applicant's CRC with written approval/disapproval of the variance via electronic mail.
2. If cultural resources or properties of traditional cultural or religious importance to tribes are present within the variance APE, the Applicant's CRC will prepare an inventory report, as defined in Stipulation I.C, above, and submit it via electronic mail to BLM and the appropriate SHPO/THPO, tribes, and land manager for review. Because variance requests may be necessary in the midst of construction activities, the agencies and tribes will provide an expedited review within 5 working days or less. If no objections to the variance are received, at the end of the 5-day period, BLM shall provide the Applicant's CRC with written approval of the variance via electronic mail. If objections are received, additional consultation regarding the variance will ensue in accordance with Stipulation XIII of this PA.
   a. If historic properties exist in the variance APE and cannot be avoided, a Supplemental Treatment Plan for those properties will be developed and shall be consistent with the HPTP developed pursuant to Stipulation III of this PA.
   b. Review procedures shall follow Stipulation III.B.
   c. The supplemental Treatment Plan shall be appended to the HPTP and after the completion of these treatment measures, a preliminary Summary Report will be prepared and distributed in accordance with Stipulation III.D.
   d. The BLM shall ensure that the results of such treatment efforts are reported in the final Treatment Report for the Undertaking.

e. Once the BLM determines that the approved treatment has been completed, the BLM shall provide the Applicant's CRC with written approval of the variance via electronic mail.

V. Authorization of Construction

Requests for authorizations of construction will be approved only if such authorizations will not restrict subsequent measures to avoid, minimize or mitigate the adverse effects to historic properties through rerouting of the corridor or placement of ancillary facilities.

A. Upon the BLM's acceptance of the final Inventory Report for each state, as described in Stipulation I, the BLM, at its discretion and pending compliance with all other applicable laws and regulations, may authorize the Applicant to begin construction on lands under any ownership or jurisdiction, subject to the appropriate jurisdiction's right-of-entry and ROW requirements, where **there are no historic properties present.**

B. Upon the BLM's acceptance of the final HPTP for each state, the BLM, at its discretion and pending compliance with all other applicable laws and regulations, may authorize the Applicant to begin construction on lands under any ownership or jurisdiction, subject to the appropriate jurisdiction's right-of-entry and ROW requirements, **where all effects to historic properties and unevaluated cultural resources will be avoided** (as described in the approved HPTP).

C. Following acceptance of the Summary Report of treatment that has occurred at each site described in Stipulation III.D, the BLM, at its discretion and pending compliance with all other applicable laws and regulations, may authorize the Applicant to begin construction on lands under any ownership or jurisdiction, subject to the appropriate jurisdiction's right-of-entry and ROW requirements **where provisions of the HPTP have been implemented.**

VI. Discoveries during the Undertaking

A. If potential historic properties are discovered, or unanticipated effects occur to known historic properties, the BLM will implement the Monitoring and Discovery Plan. This plan will be included as a standalone appendix to the HPTP (see Stipulation III.A.4.i) and will incorporate the following:

1. The Applicant shall ensure that all surface-disturbing activities within 100 feet of the discovery immediately cease and that measures are taken to protect the cultural resources. The Applicant shall notify the BLM of the discovery within 24 hours. The BLM shall immediately notify the appropriate SHPO/THPO, tribe(s), ASM (in Arizona) and any other agency having jurisdiction over the land involved.

2. If the discovered cultural resource is subsequently identified by an Indian tribe as a property of traditional religious and cultural importance, the BLM shall consult with the appropriate tribe(s).

3. In Arizona on state and private land, the BLM shall ensure that the Discoveries are treated according to ARS § 41-841 et seq. and 41-865.

4. In New Mexico on state and private land, the BLM shall ensure that Discoveries follow the process in 4.10.8 NMAC.

B. Treatment of the discovered cultural resources shall be consistent with the HPTP developed pursuant to Stipulation III of this PA and shall consider NRHP eligibility of the resource in accordance with 36 CFR § 800.13(c), which assumes eligibility.

1. A preliminary Summary Report with eligibility recommendations(s) will be prepared and distributed in accordance with Stipulation III.D. The BLM shall ensure that the results of such treatment efforts are reported in the final Treatment Report for the Undertaking.

2. Once the BLM determines that the approved treatment has been completed, the Applicant may resume construction upon receiving written authorization from the BLM.

C. If human remains, funerary objects, or objects of cultural patrimony are discovered, BLM will follow the provisions of applicable federal, state and local laws, any agreements and/or the NAGPRA POA for the Undertaking, which will be included as an appendix to the HPTP.

1. In Arizona, the Applicant shall promptly report the discovery of human remains to the BLM, who shall notify the SHPO and the ASM Repatriation Coordinator pursuant to ARS § 41-844 (state lands), and pursuant to ARS § 41-865 (private lands).

2. In New Mexico, the Applicant shall report the discovery of human remains to the BLM and local law enforcement and treat such Discoveries of human remains on state and private lands consistent with § 18-6-11.2 of the Cultural Properties Act NMSA, 1978 and 4.10.11 NMAC.

3. On lands of the TON, the Applicant shall report the discovery of human remains to the BLM and the TON THPO.

4. Once the BLM has verified that the requirements of NAGPRA or of state laws governing nonfederal and nontribal lands have been met, the BLM may authorize the Applicant to proceed with construction.

VII. Standards for Conducting and Reporting Work

A. The BLM shall ensure that all work and reporting performed under this PA meets, at a minimum, the *Secretary of the Interior's Standards and Guidelines for Archaeological and Historic Preservation* (48 CFR 44716-44742, September 23, 1983) (the Secretary's Standards) and takes into consideration the ACHP's handbook, Section 106 Archaeology Guidance (http://www.achp.gov/archguide); *Procedures For Performing Cultural Resource Fieldwork On Public Lands in the Area of New Mexico State BLM Responsibilities* BLM Manual Supplement H-8100-1; *Guidelines for Identifying Cultural Resources* BLM Manual H-8110 and Guidelines for Evaluating and Documenting Traditional Cultural Properties, National Register *Bulletin 38*, 1989.

1. In Arizona, on state land, including municipalities, counties and other political subdivisions, all activities and documentation shall be consistent with AAA ARS § 41-841 et seq. and the Arizona State Historic Preservation Act ARS § 41-861 et seq. along with rules for implementing the AAA and AZ SHPO guidance on implementing the Arizona State Historic Preservation Act, and shall conform to

specifications and guidelines contained in *Guidelines for State Historic Preservation Act*, available online at: http://azstateparks.com/SHPO/review.html.

Additionally, *AZ SHPO Standards for Documents Submitted for SHPO Review in Compliance with Historic Preservation Laws* (Revised December 2012) shall guide reports for all work done in Arizona, available online at:

http://azstateparks.com/SHPO/downloads/SHPO_Guidelines_SHPA.pdf

2. In New Mexico, on state land all activities and documentation shall be consistent with the standards in Title 4, Chapter 10 of the New Mexico Administrative Code (NMAC). All activities and documentation on state land shall be consistent with the appropriate state standards found in rules 4.10.8 NMAC, Permits to Conduct Archaeological Investigations on State Land; 4.10.15 NMAC, Standards for Survey and Inventory; 4.10.16 NMAC, Standards for Excavation and Test Excavation; and 4.10.17 NMAC, Standards for Monitoring. The rules are available online at:

   http://www.nmcpr.state.nm.us/nmac/parts/title04/04.010.0008.htm

   http://www.nmcpr.state.nm.us/nmac/parts/title04/04.010.0015.htm

   http://www.nmcpr.state.nm.us/nmac/parts/title04/04.010.0016.htm

   http://www.nmcpr.state.nm.us/nmac/parts/title04/04.010.0017.htm

B. In Arizona, the Applicant shall ensure that its CRC obtains an AAA project-specific permit from the ASM prior to excavating sites on state, city and county lands pursuant to ARS § 41-841 et seq.

C. In New Mexico, the Applicant shall ensure that its CRC obtains a Project-specific excavation permit or other appropriate permit from the Cultural Properties Review Committee prior to excavating sites on state lands owned, operated or controlled by the State of New Mexico pursuant to § 18-6-5 NMSA 1978of the Cultural Properties Act. For NMSLO lands the Applicant shall obtain the appropriate rights-of-entry from the NMSLO concurrently with the permit application. The Applicant shall ensure that its CRC obtains a permit prior to excavating unmarked human burials on state or private land pursuant § 18-6-11.2 NMSA 1978 of the Cultural Properties Act (4.10.11 NMAC) or conducting mechanical excavation of archaeological sites on private land in the State of New Mexico pursuant to § 18-6-11 NMSA 1978 of the Cultural Properties Act (4.10.14 NMAC). The rules are available online at:

   http://www.nmcpr.state.nm.us/nmac/parts/title04/04.010.0011.htm

   http://www.nmcpr.state.nm.us/nmac/parts/title04/04.010.0014.htm

D. On lands of TON, the Applicant shall ensure that its CRC obtains a Project-specific excavation permit from the TON. This is a permit under the TON Archeological Resources Protection Ordinance. Once secured, the CRC shall approach the BIA for an ARPA permit.

VIII. Confidentiality of Records

A. BLM will maintain confidentiality of sensitive information regarding historic properties to which a tribe attaches religious or cultural significance to the maximum extent allowed

by federal and state law. However, any documents or records the BLM has in its possession are subject to the Freedom of Information Act (FOIA) (5 USC § 552 et seq.) and its exemptions, as applicable. In the event that a FOIA request is received for records or documents that relate to a historic property to which an Indian tribe attaches religious or cultural significance and that contain information that BLM is authorized to withhold from disclosure by other statutes including Section 304 of the NHPA and the Archaeological Resources Protection Act, then, the BLM will consult with such tribe prior to making a determination in response to such a FOIA request not to withhold particular records and/or documents from disclosure.

B. All Parties to this PA agree that, to the extent consistent with Section 304 of the NHPA, and the Archaeological Resources Protection Act of 1979 (16 U.S.C. 470aa-mm)(ARPA) 27 Section 9(a), cultural resource description and locational data from this project will be treated as confidential by all Consulting Parties and is not to be released to any person, organization, or agency not a Consulting Party to this PA.

IX. Curation

A. On all lands other than that of TON, the Applicant shall arrange curation agreements with repositories approved by the BLM. The BLM shall ensure that all artifacts and records resulting from the inventory and treatment program are curated in accordance with 36 CFR Part 79, except as determined through consultations with Indian tribes carried out in accordance with federal and state laws pertaining to the ownership of artifacts and treatment and disposition of Native American human remains and funerary objects.

1. All artifacts recovered from state land in New Mexico, including associated records and documentation, shall be curated at the Museum of New Mexico, Museum of Indian Arts and Culture.
2. All artifacts recovered from lands owned, controlled or operated by the State of Arizona, including associated records and documentation, shall be curated at the Arizona State Museum and in accordance with the standards and guidelines required by ASM.
3. All artifacts recovered from lands of the TON, including associated records and documentation, shall be curated at the TON Cultural Center.
4. Artifacts that are not associated with human remains recovered from private lands are the property of the private landowner. It is understood that private landowners are not required to follow this Stipulation and may retain ownership and control of artifacts recovered from their private land.

X. Undertaking Monitoring, Annual Reporting and Evaluation

A. The BLM will be responsible for monitoring activities associated with this Undertaking on all jurisdictions during construction and reclamation.

1. In consultation with interested tribes, the BLM will select a 10 percent sample of cultural resources found during the inventory and conduct field inspections while accompanied by the CRC and interested tribal members to provide input regarding NRHP eligibility and possible future treatment options.

2. In consultation with interested tribes, the BLM will select a 25 percent sample of historic properties identified for mitigation of adverse effects, and conduct field inspections at those historic properties to ensure adequate implementation of the HPTP for those historic properties. Interested tribal members will be invited to attend these field inspections.

3. The lead BLM office shall prepare an annual letter report of cultural resources activities pertaining to this Undertaking for all Consulting Parties by December 31 for the duration of this PA. The annual letter report will include an update on project schedule, status, and any ongoing relevant cultural resources monitoring or mitigation activities, discovery situations, or outstanding tasks to be completed under this PA or the HPTP. The implementation and operation of this PA shall be evaluated on an annual basis by the Consulting Parties who will review and comment on the annual letter report within 30 days of receipt. This evaluation, to be conducted after the receipt of the BLM letter report, may include in-person meetings or conference calls among these parties, and suggestions for possible modifications or amendments to this PA.

4. The BLM shall monitor activities pursuant to this PA. Should the Applicant or its CRC fail to comply with any provision of this PA, the BLM may, at its discretion, counsel the Applicant and/or its CRC regarding performance requirements or suspend the permit under which this PA is executed. Such suspension would result in the issuance of a "stop work" order for the entire Project.

5. The BLM will remain responsible to inspect for compliance with the terms and conditions of the BLM ROW grant pertaining to historic properties for the life of the grant, and will ensure that the appropriate BLM cultural resources specialist participates in these compliance reviews.

XI. Operation and Maintenance of the Transmission Line and Facilities

A. After construction of the transmission line, the Applicant (ROW grant holder) will be required to follow all of the terms, conditions and stipulations concerning the operation and maintenance of the lines which are included in the Plan of Development (POD) and the ROW grants. These terms, conditions and stipulations will include any provisions identified in the HPTP that resolve potential adverse effects to historic properties identified within the ROW.

1. The BLM will be responsible for ensuring that the stipulations in the BLM ROW grant are enforced.

2. The ASLD will be responsible for ensuring that the stipulations in their ROW grant are enforced on ASLD administered lands.

3. The NMSLO will be responsible for ensuring that the stipulations in their ROW grant are enforced on NMSLO administered lands.

4. The BIA and TON will be responsible for ensuring that the stipulations in their ROW grant are enforced on TON.

5. In accordance with *Programmatic Agreement Among Western Area Power Administration, the Advisory Council on Historic Preservation, and the Arizona State*

Historic Preservation Officer, Regarding Maintenance and Minor Construction Activities at Existing Western Transmission Lines, Facilities and Properties in Arizona, Western is the lead agency for compliance with Section 106 for Western's maintenance program activities on existing lines in Arizona .

B. Post-construction evaluation and management of historic properties are described in Stipulation III.E.1–III.E.3.

C. Should any variance be necessary during operation and maintenance, the Applicant will follow the variance procedure in the HPTP and a BLM cultural resource specialist will review the action and make recommendations regarding potential effects and appropriate actions to avoid, minimize, or mitigate any adverse impacts (e.g., using hand tools if mechanical vegetation treatments are proposed in sensitive areas).

XII. Decommissioning

Should decommissioning of the transmission line and associated facilities be deemed necessary at any point, the ROW grant shall stipulate and the BLM shall ensure that it will be considered a new action for Section 106 review, and that historic properties potentially affected by decommissioning will be considered in the BLM-approved Termination and Reclamation Plan in accordance with the pertinent laws, regulations, and policies extant at the time.

XIII. Dispute Resolution

A. Should any Consulting Party to this PA object at any time to any actions proposed or the manner in which the terms of this PA are implemented, that party shall notify BLM in writing expressing its concern, including proposed modifications. The BLM shall consult with such party to resolve the objection. If the BLM determines that such objection cannot be resolved, BLM will notify Consulting Parties of the dispute and will:

1. Forward all documentation relevant to the dispute, including the BLM's proposed resolution, to the ACHP, asking that office to provide BLM with its advice on the resolution of the objection within 30 days of receiving adequate documentation. Prior to reaching a final decision on the dispute, BLM shall prepare a written response that takes into account any timely advice or comments regarding the dispute from the ACHP and Consulting Parties, and provide them with a copy of this written response. BLM will then proceed according to its final decision.

2. If the ACHP does not provide its advice regarding the dispute within the 30-day period, the BLM may make a final decision on the dispute and proceed accordingly. Prior to reaching such a final decision, the BLM shall prepare a written response that takes into account any timely comments regarding the dispute from the Consulting Parties, and provide them and the ACHP with a copy of such written response.

3. The BLM will be responsible for carrying out all other actions subject to the terms of this PA that are not the subject of the dispute.

XIV. Amendments and Termination

A. Any Signatory or Invited Signatory to this PA may request that it be amended by informing BLM in writing of the reason for the request and the proposed amendment language, whereupon BLM shall inform the other parties and request their views concerning the proposed amendment. The amended PA shall take effect upon final signature by the ACHP.

B. Pursuant to 36 CFR § 800.6(c) (8), if any Signatory or Invited Signatory to this PA determines that the terms of the PA cannot be or are not being carried out, then such party must provide written notice to the BLM and the other Signatories and Invited Signatories stating the reasons for the determination and requesting consultation to resolve the stated concerns through amendment of the PA or other means. The Signatories and Invited Signatories shall consult regarding potential amendments to the PA to resolve the stated concerns within 30 calendar days of the written request. If the Signatories and Invited Signatories are unable to amend the PA or agree on other actions to resolve the concerns, and it has been determined that the terms of the PA cannot be or are not being carried out, provided that they consult during the 30-calendar-day period, the objecting party may terminate the PA by providing written notice to the Signatories and Invited Signatories.

C. In the event that this PA is terminated, the BLM shall comply with 36 CFR § 800.6 (c) (8) and will take reasonable steps to avoid adverse effects to historic properties until another PA has been executed or will request, take into account, and respond to Council comments, in accordance with 36 CFR § 800.7. BLM will notify all parties to this PA as to the course of action it will pursue.

D. At any point after the execution of this PA, and after providing written notice to the other Signatories and Invited Signatories, Western may decide to continue complying with its Section 106 responsibilities for the undertaking independently through a separate Programmatic Agreement per 36 CFR § 800.14 (b) or, failing that, through its request, consideration, and response to the formal comments of the ACHP per 36 CFR § 800.7(c). Such a decision by Western will not affect this PA with regard to its other parties.

XV. Term of the PA

This PA will expire if the Undertaking has not been initiated within 5 years of the signing of this PA, or the BLM ROW grant expires or is withdrawn. Otherwise, this PA shall take effect from the date of execution and will remain in effect for 15 years or until acceptance of the final Treatment Reports by the Signatories.

XVI. Non-Endorsement Clause

Nothing in this PA should be interpreted to imply that any party endorses the Southline Transmission Project. The parties will not take any action or make any statement that suggests or implies such an endorsement based on signing this PA.

The Execution and Implementation of this PA evidences that the BLM, as lead federal agency, has satisfied its Section 106 responsibilities with regard to the construction, operation, and maintenance of the Southline Transmission Project.

ATTACHMENT 1: DEFINITIONS FOR TERMS USED IN THIS PA

Adverse Effect – Alteration of the characteristics of a historic property qualifying it for inclusion in or eligibility for the National Register of Historic Places.

Area of Potential Effects (APE) – The geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist. The APE is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking (36 CFR §800.16(d)).

Authorized Officer – The Authorized Officer for this Undertaking is the BLM Las Cruces District Manager and/or his or her delegated representative.

Consultation – The process of seeking, discussing, and considering the views of other participants, and, where feasible, seeking agreement with them regarding matter that arise in the section 106 process. The Secretary's "Standards and Guidelines for Federal Agency Preservation Programs pursuant to the National Historic Preservation Act" provide further guidance on consultation.

Consulting Party – Any party that has participated in the development of this PA and has indicated intent to participate in consultations during its implementation either by signing in concurrence or by written notification to the Agency Official. The refusal of any party invited to sign the PA, other than the Signatories, does not invalidate the PA. Consulting Parties include:

Signatory – Parties who have legal or financial responsibilities for completions of stipulations of the PA. The signatories have sole authority to execute the PA, and together with the invited signatories, to amend or terminate the PA.

Invited Signatory – The authorized official may invite additional parties to sign the PA and upon signing, they have the same rights with regard to amendments and termination as the signatories. These parties have legal responsibility in terms of the Undertaking, such as the issuance of a permit, license or ROW, and they have a compliance responsibility under the NHPA or a state cultural resource statute.

Concurring Party – A party who signs this PA but is not legally or financially responsible for completion of stipulations set forth in the PA.

Construction and Reclamation– The construction phase begins when BLM has issued a ROW grant to the proponent for the Undertaking. It includes all activities related to construction of the Undertaking, including activities required to be completed in advance of construction, as well as all activities completed in order to reclaim lands disturbed during construction for two years after construction is completed or until cost recovery agreements related to construction expire.

Cultural Resource – Any location of human activity, occupation, or use identifiable through field inventory, historical documentation, or oral evidence. The term includes archaeological, historic, or architectural sites, landscapes, buildings, structures, objects, and places that possess

historic and/or cultural significance as well as places with important public and scientific uses, and may include definite locations (sites or places) of traditional cultural or religious importance to specified social and/or cultural groups. Cultural resources may be but are not necessarily eligible for the NRHP; these properties have not been evaluated for NRHP eligibility.

Cultural Resource Consultant/Contractor (CRC) – A qualified and permitted professional consultant in cultural resources (archaeologist, historian, ethnographer, historic architect, architectural historian, or anthropologist) who is responsible for implementing cultural resource inventories and who prepares cultural resource documents, reports, analysis, records, and professional literature. CRCs must meet the Secretary of the Interior's Professional Qualification Standards and hold appropriate permits from land managing agencies.

Cultural Resource Inventory (from H-8100-1) –

Class I – Existing data inventory: Large-scale review of known cultural resource data

Class II – Sampling field inventory: Sample oriented field inventory

Class III – Intensive field survey: A complete surface inventory of a specific area involving a systematic field examination of an area to gather information regarding the number, location, condition, distribution, and significance of cultural resources present, typically requiring a systematic pedestrian review of an area with transect intervals that shall not exceed 50 feet (15 meters).

Decommissioning – The action in which the transmission line(s) and/or related facilities such as substations are taken out of commission (cease to operate) and are physically dismantled

Discovery – A previously unknown cultural resource identified in the APE during construction, subsequent to the Class III Inventory.

Effects are alterations to the characteristics of a historic property qualifying it for inclusion in or eligibility for the NRHP –

Direct effects are caused by the Undertaking and occur at the same time and place.

Indirect effects are also caused by the Undertaking and are effects that may be visual, atmospheric, or audible that could diminish the integrity of the properties.

Cumulative effects are the impacts on cultural resources which results from the incremental impact of the Undertaking when added to other past, present and reasonably foreseeable future actions regardless of what agency (Federal or non-federal) or person undertakes such other actions [per 40.CFR § 1508.7]. Cumulative effects may be direct or indirect and result from incremental effects related to the Undertaking over time (e.g. increased access because of new roads, future transmission lines along the same corridor, new projects feeding into the Undertaking, etc.). Additional roads and visitors to the area (construction personnel, recreationists, etc.) also increase opportunities for effects from pot hunting, vandalism of historic properties, and disruption of spiritually important sites.

Eligible (for Inclusion in the National Register) – Includes both properties formally determined as such in accordance with regulations of the Secretary of the Interior and all other properties that meet the National Register criteria as determined by the Federal Agency in consultation with the SHPO/THPO and other parties.

Historic Property – Any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria.

Historic Property(ies) Treatment Plan (HPTP) – A document that details the procedures and techniques for resolving adverse effects to historic properties within the APE through avoidance, minimization, and/or mitigation

Indian Tribe – Any Indian tribe, band, nation, or other organized group or community, including a native village, regional corporation, or village corporation, as those terms are defined in section 3 of the Alaska Native Claims Settlement Act (43 USC 1602), which is recognized as eligible for the special programs and services provided by the United States to Indians because of their status as Indians.

Integrity – Refers to location, design, setting, materials, workmanship, feeling and association as defined in 36 CFR Part 60.

Interested tribal members – Tribal members who have identified themselves either as individuals or a group, through consultations with the BLM or through the THPO or the tribal member designated to participate in consultations concerning this Undertaking, as being interested in attending field inspection visits with the BLM and/or the CRC.

Inventory Report – The inventory report documents the results of the cultural resources inventory detailing the areas surveyed, the methodologies used, the cultural framework of the project area and the cultural resources discovered and documented. It includes assessments of direct, indirect, and cumulative effects within the APE of the Undertaking. It also provides recommendations on National Register eligibility of all of the cultural resources within the inventoried area.

Monitoring and Discovery Plan – The Monitoring and Discovery Plan is a component of the HPTP and (1) provides a detailed plan to monitor compliance with stipulations of the HPTP to avoid, minimize, or mitigate adverse effects of the Undertaking, (2) may include specific plans where monitoring is necessary to help resolve adverse effects to historic properties, (3) establishes procedures to follow in the event that previously undiscovered cultural resources are encountered during the Undertaking, and (4) includes a POA developed specifically to address the handling of human remains pursuant to the Native American Graves Protection and Repatriation Act (NAGPRA) and applicable state laws. All monitoring plans shall explicitly state the objectives of the monitoring and provide a methodology for attaining these objectives.

Monitoring Report – A document that summarizes the results of monitoring activities performed as outlined within the HPTP.

NAGPRA Plan of Action (POA) – A written document that establishes procedures for ensuring the proper treatment of Native American remains and related grave goods encountered on Federal lands pursuant to 43 CFR Part 10.

National Register of Historic Places – The official list of the Nation's prehistoric and historic places worthy of preservation including districts, cultural resources, buildings, structures, and objects significant in American history, architecture, archaeology, engineering, and culture and is maintained by the Secretary of the Interior.

National Register Criteria – The criteria of significance established by the Secretary of the Interior for use in evaluating the eligibility of properties for inclusion in the National Register (36 CFR Part 60).

Operation and Maintenance – Activities associated with operation and maintenance of the approved ROW grant over the life of the ROW grant. This includes all activities related to the functioning of the Undertaking after construction and reclamation are completed and prior to any activities related to decommissioning of the Undertaking, per Stipulation XI. Activities during this this time are generally infrequent, predictable, and routine. Any actions not specifically approved in the ROW grant, such as changes in equipment used or actions outside the ROW require approval of the BLM.

Plan of Development (POD) – The Final POD is a BLM approved document that will be an enforceable term and condition as part of the BLM approved ROW authorization. Contributors in the development of the Final POD prior to construction will include the Arizona State Land Department and New Mexico State Land Office. The Arizona and New Mexico surface managing agencies will be responsible for developing and enforcing their respective stipulations as they deem necessary to mitigate natural and cultural resource impacts, on state administered lands. Should the Arizona and New Mexico agencies choose to adopt the terms, conditions, and special stipulations as outlined in the Final POD on their respective state authorized rights-of-ways, responsibility to enforce these Final POD terms, conditions, and stipulations is strictly their sole responsibility. Enforcement will be between the state agency and the applicant.

Programmatic Agreement (PA)– A document that records the terms and conditions agreed upon to resolve the potential adverse effects of a Federal agency program, complex Project or other situations in accordance with 36 CFR § 800.14(b).

Reclamation – The activities necessary to restore lands disturbed by construction to as close to a pre-construction condition as possible. This may include ripping and re-seeding temporary access roads and staging areas, removal of wooden poles no longer in use and re-seeding of the abandoned transmission corridor(s).

Right-of-Way (ROW) – The public lands BLM authorizes to use or occupy under a grant. The PA and the HPTP are appended to the POD which is an essential component of the ROW grant.

Section 106 – Section 106 of the National Historic Preservation Act of 1966 (NHPA) requires Federal agencies to take into account the effects of their undertakings on historic properties, and afford the Advisory Council on Historic Preservation (ACHP) a reasonable opportunity to comment. The historic preservation review process mandated by Section 106 is outlined in regulations issued by the ACHP. Revised regulations, "Protection of Historic Properties" (36 CFR Part 800), became effective August 5, 2004.

State Historic Preservation Officer (SHPO) – The official appointed or designated pursuant to section 101(b) (1) of the act to administer the State Historic Preservation Program or a representative designated to act for the State Historic Preservation Officer.

State Lands of New Mexico - Lands owned, operated or controlled by departments, agencies, institutions or political subdivisions of the state of New Mexico.

Summary Report – A document that summarizes results of treatment activities undertaken on an individual historic property for the purposes of informing the agency and Consulting Parties for the purposes of gaining approval for the Project to go forward prior to the acceptance of the final Treatment Report.

Termination and Reclamation Plan – A document that addresses the removal of project facilities from permitted areas and addresses reclamation procedures identified by land management agencies in conjunction with project owners, prior to decommissioning.

Transmission line new build - The portion of the Southline Project that will be constructed in a completely new ROW: from the Afton substation to the Apache substation.

Transmission line upgrade – The portion of the Southline Project that will be constructed in an existing ROW corridor to replace and upgrade an existing line that will be subsequently decommissioned: from the Apache substation to the Saguaro substation.

Treatment Report – A document that presents the complete results of the treatment activities performed on all historic properties (and any undetermined cultural resources for which additional studies were performed to determine eligibility), addresses the research questions developed in the Treatment Plan and synthesizes the results into a regional overview of the Project Area.

Tribal Historic Preservation Officer (THPO) – the tribal official appointed by the tribe's chief governing authority or designated by a tribal ordinance or preservation program who has assumed the responsibilities of the SHPO for purposes of section 106 compliance on tribal lands in accordance with section 101(d) (2) of the NHPA.

Undertaking – A project, activity, or program funded in whole or in part under the direct or indirect jurisdiction of a Federal agency, including those carried out by or on behalf of a Federal agency; those carried out with Federal financial assistance; and those requiring a Federal permit, license or approval. The Undertaking may include surveys, geotechnical testing, engineering, mitigation planning and design, or other activities initiated prior to construction of project facilities.

ATTACHMENT 2: PROJECT DESCRIPTION

The Southline Transmission Project, following the Agency Preferred Alternative, would originate at the existing Afton substation in Doña Ana County, New Mexico, and terminate at the Saguaro Substation in Pinal County, Arizona. The Project would be located within Doña Ana, Luna, Grant, and Hidalgo counties in New Mexico; and Cochise, Pinal, and Pima counties in Arizona (see Attachment 3). It is divided into a New Build and Upgrade sections.

The New Build Section of the undertaking begins at the existing Afton Substation southwest of Las Cruces, New Mexico and extends to the existing Apache Substation in Arizona. At the Afton Substation, there would be a short (5-mile) segment (in and out loop) between the existing Afton Substation and the existing Luna–Diablo 345-kV transmission line. The undertaking continues northwest through Doña Ana County to the proposed Midpoint North substation in Luna County. At Midpoint North, the undertaking includes a 31-mile-long connector segment (for interconnection to potential future solar generation), running north-south between Interstate-10 and New Mexico Route 9.

From the Midpoint North Substation, the undertaking proceeds north of Deming, through Luna County and Grant County in a northwesterly direction to the existing Hidalgo Substation in Hidalgo County. The undertaking continues west from Hidalgo Substation, proceeding north of Lordsburg and north and west of the Lordsburg Playa. It then turns south for approximately 7 miles, then turns and proceeds west into Cochise County, Arizona. It continues west to a point east of Willcox, Arizona where it turns south for approximately 20 miles. Then, going around the Willcox Playa, it turns west again and runs to the existing Apache Substation.

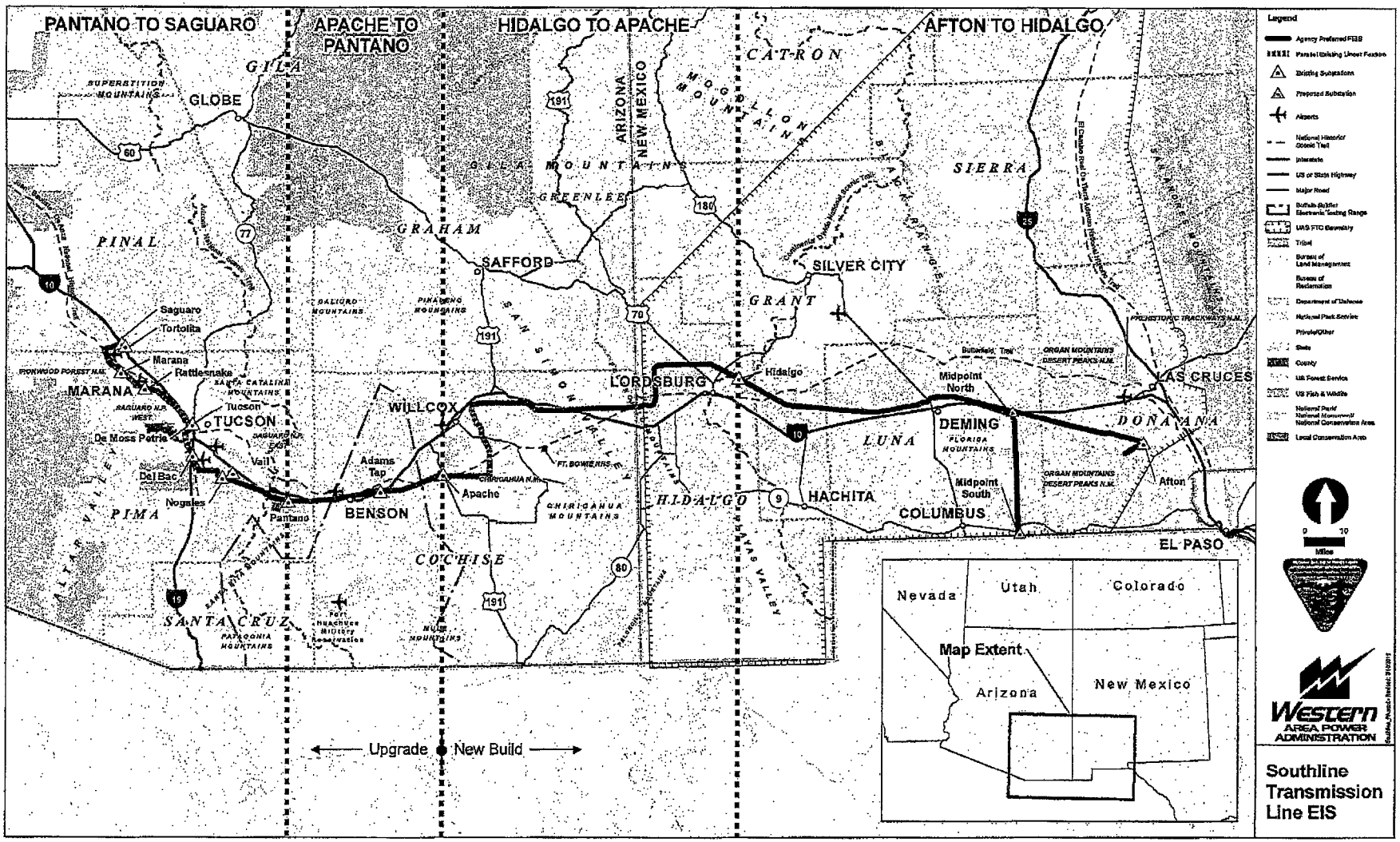
The Upgrade portion of the undertaking follows of the existing Western Saguaro–Tucson and Tucson–Apache 115-kilovolt (kV) transmission line and reroutes. It begins at the Apache Substation south of Willcox, Arizona and proceeds southwesterly to the Adams Tap Substation just east of Benson, Arizona. From there, it continues southwesterly to the Pantano Substation in Pima County following the existing transmission line. From Pantano, it turns in a northwesterly direction to the Nogales Substation. From there, it proceeds west and then north following the existing line except for a short reroute around the town of Summit to the Del Bac Substation, near the San Xavier Indian Reservation. From the Del Bac Substation, it proceeds north to the south side of Tumamoc Hill at Starr Pass Boulevard in Tucson. At this point, the existing Western line would be relocated to local alternative TH1a that runs west of Tumamoc Hill along Starr Pass Boulevard and then turns north, proceeding along Greasewood Road. From the intersection of Greasewood Road and Anklam Road, local alternative TH1a would then connects to TH1-Option proceeding east along St. Mary's Road, connecting back to the existing Western line. From there, it would proceeds northwesterly to the De Moss Petrie and Tucson substations, continuing to the Rattlesnake Substation, then to the Marana Substation, following the existing transmission line except for a reroute around the Marana Regional Airport. It then would continue north-northwest for nine miles and then turn sharply north-northeast to terminate at the Saguaro Substation in Pinal County.

Overhead Transmission Lines and Substations

In the New Build Section the proposed Project would include a 345-kV transmission line with two subconductors per phase; there would be three phases per circuit (six total) located within a right-of-way (ROW) up to 200 feet wide. In the Upgrade Section the proposed Project would include an upgrade of the existing 115-kV line to a double-circuit 230-kV line with one subconductor per phase, located within a ROW between 100 and 150 feet wide. Depending on the configuration, the Project could provide up to initially by about 1,000 megawatts (MW) of additional transfer capability on the regional electrical grid. The ultimate capacity could be 1,500 to 2,000.

In the New Build Section, based on a typical span of 1,000 to 1,400 feet, four to five transmission line structures per mile would be required for the line, with typical structure heights between 110 and 170 feet. In the Upgrade Section, based on a typical span of 700 to 1,100 feet, five to six transmission line structures would be required per mile with typical structure heights of between 100 to 140 feet. In the Upgrade Section the existing facilities would be removed after construction of the new transmission line. Both new permanent ROW and temporary construction ROW would be required in the New Build Section and in some portions of the Upgrade Section for the transmission line, substations, access roads, and other permanent and temporary Project components; the anticipated ROW width for the Upgrade Section 230-kV transmission line would be 150 feet where expansion to that width is feasible. No new ROW is anticipated in the Upgrade Section across Bar V Ranch in Pima County, and between the Del Bac and Rattlesnake substations; in these areas, the tear-down and rebuild in place method of construction would be necessary.

The transmission line would extend between the Afton Substation and the Saguaro Substation for approximately 377 miles. The transmission line components include structures, foundations, conductors, insulators and associated hardware, overhead groundwire (OHGW), and fiber optic facilities. One additional substation, the Midpoint North Substation would be associated with the proposed Project, constructed on private or state lands, and therefore not included in the BLM right-of-way grant. Substations would include the secure, fenced area containing the electrical equipment, plus sufficient area surrounding the substation components for placement of transmission structures entering and exiting the substation, and to provide setbacks to buffer neighboring lands. The maximum height of structures in the substation would be approximately 80 feet. The substation yards would be open air and include equipment such as transformers, circuit breakers, disconnect switches, lightning/surge arrestors, reactors, capacitors, bus (conductor) structures, and a microwave antenna. Typically, substation components would be surrounded by an 8-foot-high chain-link fence topped with barbed wire for a total fence height of 8-feet.


PANTANO TO SAGUARO
APACHE TO PANTANO
HIDALGO TO APACHE
AFTON TO HIDALGO
GILA
GLOBE
SUPERSTITION MOUNTAINS
PINAL
GRAHAM
SAFFORD
ARIZONA
NEW MEXICO
CATRON
SIERRA
SILVER CITY
GRANT
Saguaro
Tortolita
Marana
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BENSON
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Apache
LORDSBURG
Hidalgo
Midpoint North
DEMING
LUNA
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COLUMBUS
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Existing Substations
Proposed Substation
Airports
National Historic Scenic Trail
Interstate
US or State Highway
Major Road
Buffalo Soldier Electronic Testing Range
UAS FTC Boundary
Tribal
Bureau of Land Management
Bureau of Reclamation
Department of Defense
National Park Service
Private/Other
State
County
US Forest Service
US Fish & Wildlife
National Park/ National Monument/ National Conservation Area
Local Conservation Area
Miles
Nevada
Utah
Colorado
Map Extent
Arizona
New Mexico
Western
AREA POWER ADMINISTRATION
Southline Transmission Line EIS

SIGNATURES
(Signatory page 1 of 5)

SIGNATORY:

BUREAU OF LAND MANAGEMENT, LAS CRUCES DISTRICT OFFICE

By: Bill Childress Date: August 20, 2015

Bill Childress Title: District Manager

SIGNATURES
(Signatory page 2 of 5)

SIGNATORY:

NEW MEXICO STATE HISTORIC PRESERVATION OFFICER

By: _____ Date: 11/16/15

Jeff Pappas Title: State Historic Preservation Officer

SIGNATURES
(Signatory page 3 of 5)

SIGNATORY:

ARIZONA STATE HISTORIC PRESERVATION OFFICER

By: James W. Garrison Date: 10 NOVEMBER 2015

James W. Garrison Title: State Historic Preservation Officer

SIGNATURES
(Signatory page 4 of 5)

SIGNATORY:

TOHONO O'ODHAM NATION

By: _____ Date: 2/23/16

Edward Manuel Title: Chairman

Approved as to form: _____
Acting Attorney General

SIGNATURES
(Signatory page 5 of 5)

SIGNATORY:

ADVISORY COUNCIL ON HISTORIC PRESERVATION

By: _____ Date: 3/12/16

John M. Fowler Title: Executive Director

2015 DEC 21 PM 2:25

SIGNATURES
(Invited Signatory page 1 of 12)

INVITED SIGNATORY:

SOUTHLINE, LLC

By: _____ SAF Date: 12-15-15

Enrique Marroquin Title: Senior Vice President

SIGNATURES
(Invited Signatory page 2 of 12)

2015 NOV 16 PM 1:29

INVITED SIGNATORY:

By: _____ Date: NOV 11 2015

Ronald E. Moulton

Ronald E. Moulton

Senior Vice President and
Desert Southwest Regional Manager
Western Area Power Administration

SIGNATURES
(Invited Signatory page 3 of 12)

INVITED SIGNATORY:

UNITED STATES FOREST SERVICE, CORNADO NATIONAL FOREST

By: Kerwin S. Dewberry Date: 11/10/2015

Kerwin S. Dewberry Title: Forest Supervisor

SIGNATURES

(Invited Signatory page 4 of 12)

2015 DEC -8 AM 8:20

INVITED SIGNATORY:

BUREAU OF INDIAN AFFAIRS

By: _____ Date: 11/25/15

BRYAN BAWKER Title: REGIONAL DIRECTOR

SIGNATURES
(Invited Signatory page 5 of 12)

INVITED SIGNATORY:

ARMY CORPS OF ENGINEERS, ALBUQUERQUE DISTRICT

By: Allan Steinle Date: 23 Nov 15

Allan Steinle Title: Regulatory Division Chief

SIGNATURES
(Invited Signatory page 6 of 12)

INVITED SIGNATORY:

ARIZONA STATE MUSEUM

By: _____ Date: 10 NOV 15

Patrick D. Lyons, Ph.D. Title: Director

SIGNATURES
(Invited Signatory page 7 of 12)

INVITED SIGNATORY:

NEW MEXICO STATE LAND OFFICE

By: _____ Date: _____

Aubrey Dunn _____ Title: Commissioner of Public Lands

SIGNATURES
(Invited Signatory page 8 of 12)

INVITED SIGNATORY:

ARIZONA STATE LAND DEPARTMENT

By: _____ Date: 12/8/2015

Matthew Behrend Title: Lead Archaeologist

SIGNATURES

(Invited Signatory page 9 of 12)

INVITED SIGNATORY:

PIMA COUNTY

By: _____ Date: 11/9/15

Title: County Administrator

SIGNATURES
(Invited Signatory page 10 of 12)

INVITED SIGNATORY:

CITY OF TUCSON

By: _____ Date: _____

_____ Title: _____

SIGNATURES
(Invited Signatory page 11 of 12)

INVITED SIGNATORY:

UNIVERSTIY OF ARIZONA (ARIZONA BOARD OF REGENTS)

By: _____ Date: _____

_____ Title: _____

SIGNATURES
(Invited Signatory page 12 of 12)

INVITED SIGNATORY:

NATIONAL PARK SERVICE, NATIONAL HISTORIC LANDMARKS PROGRAM

By: _____ Date: _____

_____ Title: _____

SIGNATURES
(Concurring Party signature page 1 of 22)

CONCURRING PARTY:

GILA RIVER INDIAN COMMUNITY

By: _____ Date: _____

_____ Title: _____

SIGNATURES
(Concurring Party signature page 2 of 22)

CONCURRING PARTY:

SALT RIVER PIMA-MARICOPA INDIAN COMMUNITY

By: _____ Date: _____

_____ Title: _____

SIGNATURES
(Concurring Party signature page 3 of 22)

CONCURRING PARTY:

AK-CHIN INDIAN COMMUNITY

By: _____ Date: _____

_____ Title: _____

SIGNATURES
(Concurring Party signature page 4 of 22)

CONCURRING PARTY:

FORT SILL APACHE TRIBE OF OKLAHOMA

By: Jeff Haozous

Date: February 25, 2016

Title: Chairman

SIGNATURES
(Concurring Party signature page 5 of 22)

CONCURRING PARTY:

SAN CARLOS APACHE

By: _____ Date: _____

_____ Title: _____

SIGNATURES

(Concurring Party signature page 6 of 22)

CONCURRING PARTY:

MESCALERO APACHE

By: _____ Date: _____

_____ Title: _____

SIGNATURES
(Concurring Party signature page 7 of 22)

CONCURRING PARTY:

THE HOPI TRIBE

By: _____ Date: _____

_____ Title: _____

SIGNATURES
(Concurring Party signature page 8 of 22)

CONCURRING PARTY:

PUEBLO OF ISLETA

By: _____ Date: _____

_____ Title: _____

SIGNATURES
(Concurring Party signature page 9 of 22)

CONCURRING PARTY:

PUEBLO OF ZUNI

By: _____ Date: _____

_____ Title: _____

SIGNATURES
(Concurring Party signature page 10 of 22)

CONCURRING PARTY:

PUEBLO OF YSLETA DEL SUR

By: Javier Loera Date: Nov. 10, 2015

JAVIER LOERA Title: WAR CAPTAIN / TRIBAL HISTORIAN

SIGNATURES

(Concurring Party signature page 11 of 22)

CONCURRING PARTY:

NATIONAL TRUST FOR HISTORIC PRESERVATION

By: _____ Date: _____

_____ Title: _____

SIGNATURES
(Concurring Party signature page 12 of 22)

CONCURRING PARTY:

ARCHAEOLOGY SOUTHWEST

By: _____ Date: _____

William H. Doelle _____ Title: President and CEO

SIGNATURES

(Concurring Party signature page 13 of 22)

CONCURRING PARTY:

NATIONAL PARK SERVICE, NATIONAL TRAILS INTERMOUNTAIN REGION

By: _____ Date: _____

Aaron Mahr _____ Title: Superintendent

SIGNATURES
(Concurring Party signature page 14 of 22)

CONCURRING PARTY:

TOWN OF MARANA

By: _____ Date: _____

_____ Title: _____

SIGNATURES
(Concurring Party signature page 15 of 22)

CONCURRING PARTY:

PASQUA YAQUI TRIBE

By: _____ Date: _____

_____ Title: _____

SIGNATURES

(Concurring Party signature page 16 of 22)

CONCURRING PARTY:

PUEBLO OF ACOMA

By: _____ Date: _____

_____ Title: _____

SIGNATURES

(Concurring Party signature page 17 of 22)

CONCURRING PARTY:

PUEBLO OF LAGUNA

By: _____ Date: _____

_____ Title: _____

SIGNATURES

(Concurring Party signature page 18 of 22)

CONCURRING PARTY:

PUEBLO OF TESUQUE

By: _____ Date: _____

_____ Title: _____

SIGNATURES

(Concurring Party signature page 19 of 22)

CONCURRING PARTY:

COMANCHE TRIBE

By: _____ Date: _____

_____ Title: _____

SIGNATURES
(Concurring Party signature page 20 of 22)

CONCURRING PARTY:

KIOWA TRIBE

By: _____ Date: _____

_____ Title: _____

SIGNATURES

(Concurring Party signature page 21 of 22)

CONCURRING PARTY:

TONTO APACHE TRIBE

By: _____ Date: _____

_____ Title: _____

SIGNATURES
(Concurring Party signature page 22 of 22)

CONCURRING PARTY:

YAVAPAI APACHE TRIBE

By: _____ Date: _____

_____ Title: _____

Attachment D:
Form 1842-1

Form 1842-1
(September 2006)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

INFORMATION ON TAKING APPEALS TO THE INTERIOR BOARD OF LAND APPEALS

DO NOT APPEAL UNLESS
1. This decision is adverse to you,
AND
2. You believe it is incorrect

IF YOU APPEAL, THE FOLLOWING PROCEDURES MUST BE FOLLOWED

1. NOTICE OF APPEAL..... A person who wishes to appeal to the Interior Board of Land Appeals must file in the office of the officer who made the decision (not the Interior Board of Land Appeals) a notice that he wishes to appeal. A person served with the decision being appealed must transmit the *Notice of Appeal* in time for it to be filed in the office where it is required to be filed within 30 days after the date of service. If a decision is published in the FEDERAL REGISTER, a person not served with the decision must transmit a *Notice of Appeal* in time for it to be filed within 30 days after the date of publication (43 CFR 4.411 and 4.413).

2. WHERE TO FILE

NOTICE OF APPEAL..... Bureau of Land Management, 1800 Marquess Street, Las Cruces, NM 88005

WITH COPY TO SOLICITOR... Office of the Regional Solicitor, Southwest Regional Office, 505 Marquette Ave. NW, Suite 1800 Albuquerque, NM 87102

3. STATEMENT OF REASONS Within 30 days after filing the *Notice of Appeal*, file a complete statement of the reasons why you are appealing. This must be filed with the United States Department of the Interior, Office of Hearings and Appeals, Interior Board of Land Appeals, 801 N. Quincy Street, MS 300-QC, Arlington, Virginia 22203. If you fully stated your reasons for appealing when filing the *Notice of Appeal*, no additional statement is necessary (43 CFR 4.412 and 4.413).

WITH COPY TO SOLICITOR.....

4. ADVERSE PARTIES..... Within 15 days after each document is filed, each adverse party named in the decision and the Regional Solicitor or Field Solicitor having jurisdiction over the State in which the appeal arose must be served with a copy of: (a) the *Notice of Appeal*, (b) the Statement of Reasons, and (c) any other documents filed (43 CFR 4.413).

5. PROOF OF SERVICE..... Within 15 days after any document is served on an adverse party, file proof of that service with the United States Department of the Interior, Office of Hearings and Appeals, Interior Board of Land Appeals, 801 N. Quincy Street, MS 300-QC, Arlington, Virginia 22203. This may consist of a certified or registered mail "Return Receipt Card" signed by the adverse party (43 CFR 4.401(c)).

6. REQUEST FOR STAY..... Except where program-specific regulations place this decision in full force and effect or provide for an automatic stay, the decision becomes effective upon the expiration of the time allowed for filing an appeal unless a petition for a stay is timely filed together with a *Notice of Appeal* (43 CFR 4.21). If you wish to file a petition for a stay of the effectiveness of this decision during the time that your appeal is being reviewed by the Interior Board of Land Appeals, the petition for a stay must accompany your *Notice of Appeal* (43 CFR 4.21 or 43 CFR 2801.10 or 43 CFR 2881.10). A petition for a stay is required to show sufficient justification based on the standards listed below. Copies of the *Notice of Appeal* and Petition for a Stay **must** also be submitted to each party named in this decision and to the Interior Board of Land Appeals and to the appropriate Office of the Solicitor (43 CFR 4.413) at the same time the original documents are filed with this office. If you request a stay, you have the burden of proof to demonstrate that a stay should be granted.

Standards for Obtaining a Stay. Except as otherwise provided by law or other pertinent regulations, a petition for a stay of a decision pending appeal shall show sufficient justification based on the following standards: (1) the relative harm to the parties if the stay is granted or denied, (2) the likelihood of the appellant's success on the merits, (3) the likelihood of immediate and irreparable harm if the stay is not granted, and (4) whether the public interest favors granting the stay.

Unless these procedures are followed, your appeal will be subject to dismissal (43 CFR 4.402). Be certain that **all** communications are identified by serial number of the case being appealed.

NOTE: A document is not filed until it is actually received in the proper office (43 CFR 4.401(a)). See 43 CFR Part 4, Subpart B for general rules relating to procedures and practice involving appeals.

(Continued on page 2)

43 CFR SUBPART 1821--GENERAL INFORMATION

Sec. 1821.10 Where are BLM offices located? (a) In addition to the Headquarters Office in Washington, D.C. and seven national level support and service centers, BLM operates 12 State Offices each having several subsidiary offices called Field Offices. The addresses of the State Offices can be found in the most recent edition of 43 CFR 1821.10. The State Office geographical areas of jurisdiction are as follows:

STATE OFFICES AND AREAS OF JURISDICTION:

Alaska State Office ---------- Alaska
Arizona State Office --------- Arizona
California State Office ------- California
Colorado State Office -------- Colorado
Eastern States Office --------- Arkansas, Iowa, Louisiana, Minnesota, Missouri
and, all States east of the Mississippi River
Idaho State Office ---------- Idaho
Montana State Office --------- Montana, North Dakota and South Dakota
Nevada State Office ---------- Nevada
New Mexico State Office ---- New Mexico, Kansas, Oklahoma and Texas
Oregon State Office ---------- Oregon and Washington
Utah State Office ---------- Utah
Wyoming State Office -------- Wyoming and Nebraska

(b) A list of the names, addresses, and geographical areas of jurisdiction of all Field Offices of the Bureau of Land Management can be obtained at the above addresses or any office of the Bureau of Land Management, including the Washington Office, Bureau of Land Management, 1849 C Street, NW, Washington, DC 20240.

(Form 1842-1, September 2006)

EXHIBIT B-4 – WAPA ROD[4]

[4] A hard copy of the WAPA ROD can be found at pages B-15.1 – B-15.13 in the original Application filed with the Siting Committee and an electronic copy is provided at Exhibit B-4 on the DVD attached to the bound copy of the Application.

Department of Energy
Western Area Power Administration
P.O. Box 281213
Lakewood, CO 80228-8213

APR 05 2016

MEMORANDUM FOR TREENA GARRETT, GC-33, WASHINGTON, DC

FROM: MARK A. GABRIEL
ADMINISTRATOR

SUBJECT: Publication of Notice in the *Federal Register*

Please arrange for the publication of the attached Record of Decision for the Southline Transmission Line Project Environmental Impact Statement in the *Federal Register*.

If you have any questions, please contact Shellie Scott at (202) 586-5581.

Attachment

APPROVED AS TO LEGAL SUFFICIENCY

John D. Bremer
General Counsel

6450-01-P

DEPARTMENT OF ENERGY

Western Area Power Administration

Southline Transmission Line Project Environmental Impact Statement (DOE/EIS-0474)

AGENCY: Western Area Power Administration, DOE

ACTION: Record of Decision

SUMMARY: The Western Area Power Administration (Western) and the U.S. Bureau of Land Management (BLM), acting as joint lead agencies, issued the Proposed Southline Transmission Line Project (Project) Final Environmental Impact Statement (EIS) (DOE/EIS-0474) on November 6, 2015. The Agency Preferred Alternative developed by Western and the BLM through the National Environmental Policy Act (NEPA) process and described in the Final EIS is summarized in this Record of Decision (ROD). This alternative is also the Environmentally Preferred Alternative for most of the Project. One segment in the New Build Section and some local alternatives in the Upgrade Section were selected that reduce substantial existing resource conflicts while creating only minor new impacts. All practicable means to avoid or minimize environmental harm have been adopted.

Since the BLM and Western were joint lead agencies in the preparation of the EIS, each agency will issue its own ROD(s) addressing the overall Project and the specific matters within its jurisdiction and authority. This ROD constitutes Western's decision with respect to the alternatives considered in the Final EIS.

Western has selected the Agency Preferred Alternative identified in the Final EIS as the route for the Project. This decision on the route will enable design and engineering activities to

proceed. This ROD also commits Western and Southline Transmission, LLC (Southline) to implement the proponent-committed environmental measures (PCEMs) identified in table 2-8, Project PCEMs by Resource, of the Final EIS. Selection of the Agency Preferred Alternative will also allow detailed Project costs to be developed, which are necessary for future participation and financing decisions. This ROD does not make decisions about Western's participation in the Project or financing. Those decisions are contingent on the successful development of participation agreements and financial underwriting, and would be recorded in a second ROD.

FOR FURTHER INFORMATION CONTACT: For information on Western's participation in the Project contact Stacey Harris, Public Utilities Specialist, Transmission Infrastructure Program (TIP) Office A0700, Headquarters Office, Western Area Power Administration, P.O. Box 281213, Lakewood, CO 80228-8213, telephone (720) 962-7714, facsimile (720) 962-7083, email sharris@wapa.gov. For information about the Project EIS process or to request a CD of the document, contact Mark J. Wieringa, NEPA Document Manager, Natural Resources Office A7400, Headquarters Office, Western Area Power Administration, P.O. Box 281213, Lakewood, CO 80228-8213, telephone (720) 962-7448, facsimile (720) 962-7263, email wieringa@wapa.gov. The Final EIS, this ROD, and other Project documents are also available on the Project Web site at *http://www.blm.gov/nm/southline*.

For general information on the Department of Energy (DOE) NEPA process, please contact Carol M. Borgstrom, Director, Office of NEPA Policy and Compliance (GC-54), U.S. Department of Energy, 1000 Independence Avenue, SW., Washington, DC 20585, telephone (202) 586-4600 or (800) 472-2756.

SUPPLEMENTARY INFORMATION: Southline, a subsidiary of Hunt Power, LP, is the Project proponent. Black Forest Partners, LP, is the manager for the Project. In March 2011, Southline submitted a Statement of Interest to Western for consideration of its Project. As part of their Project, Southline proposed the upgrade of approximately 120 miles of Western's existing Saguaro-Tucson and Tucson-Apache 115-kilovolt (kV) single-circuit transmission lines to a double-circuit 230-kV transmission line (Upgrade Section) using existing rights-of-way (ROWs). The New Build Section of the Project would include 240 miles of new 345-kV double-circuit transmission line on new ROWs between Afton Substation in New Mexico and Apache Substation in Arizona. In addition, Southline requested that Western consider providing financing for the Project using the borrowing authority provided to Western under the American Recovery and Reinvestment Act of 2009 amendment of the Hoover Power Plant Act of 1984. Southline's proposal prompted Western to initiate an EIS process to determine the environmental impacts of the Project and alternatives to inform Western's decisions regarding the Project.

Southline also filed a ROW application with the BLM pursuant to Title V of the Federal Land Policy and Management Act of 1976, as amended, proposing to construct, operate, maintain, and eventually decommission a high-voltage electric transmission line on land managed by the BLM. The BLM initiated its own NEPA process to address whether to grant a ROW permit. Because both agencies had NEPA decisions to consider, Western and the BLM agreed to be joint lead agencies in accordance with NEPA, 40 CFR 1501.5(b), for the purpose of preparing the EIS for the Project. The agencies issued the Final EIS for the Project on November 6, 2015. Each agency will issue its own ROD(s) addressing the overall Project and the specific matters within its jurisdiction and authority. This ROD constitutes Western's decision with respect to the alternatives considered in the Final EIS.

Project Description

The Project includes:

The New Build Section (Afton–Apache), which includes construction and operation of:

- Approximately 205 miles of 345-kV double-circuit electric transmission line in New Mexico and Arizona with a planned bidirectional capacity of up to 1,000 MW. This section is defined by endpoints at the existing Afton Substation, south of Las Cruces in Doña Ana County, New Mexico, and the existing Apache Substation, south of Willcox in Cochise County, Arizona;
- Approximately 5 miles of 345-kV single-circuit electric transmission line between the existing Afton Substation and the existing Luna-Diablo 345-kV transmission line. This segment of the Project is included in the analysis, but development of this segment would be determined at a later date;
- Approximately 30 miles of 345-kV double-circuit electric transmission line between New Mexico State Route 9 and Interstate 10 east of Deming in Luna County, New Mexico, to provide access for potential renewable energy generation sources in southern New Mexico. This segment of the Project is included in the analysis, but development of this segment would be determined at a later date;
- A new substation in Luna County, New Mexico (proposed Midpoint Substation), to provide an intermediate connection point for future interconnection requests; and
- Substation expansion for installation of new communications equipment at, and connection to, two existing substations in New Mexico and one in Arizona.

The Upgrade Section (Apache-Saguaro), which would replace and upgrade a portion of Western's transmission system and includes:

- Replacing 120 miles of Western's existing Saguaro-Tucson and Tucson-Apache 115-kV single-circuit wood-pole H-frame electric transmission lines with a 230-kV double-circuit electric steel-pole transmission line. This section is defined by endpoints at the existing Apache Substation, south of Willcox in Cochise County, Arizona, to the existing Saguaro Substation, northwest of Tucson in Pima County, Arizona;
- Approximately 2 miles of new-build double-circuit 230-kV electric transmission line to interconnect with the existing Tucson Electric Power Company Vail Substation located southeast of Tucson and just north of the existing 115-kV Tucson-Apache line; and
- Connection to and upgrading, modification, and expansion of 12 existing substations in southern Arizona, including installation of new bays, transformers, breakers, switches, communications equipment, and related facilities associated with the voltage increase and compatibility with existing substations. Depending on design and engineering considerations, some substation expansions may require separate yards.

Alternatives

Based on a series of public meetings, routing workshops and meetings with local, State, and other Federal agencies prior to developing their Project, Southline published a Project routing study (April 2012). Many different route segments were identified and analyzed during this process. The route segments were designed to maximize the paralleling of existing linear infrastructure, maximize use of existing access roads, and identify and reject route segments with substantial environmental conflicts. This process resulted in a 'Proponent Preferred' or northern route, and a 'Proponent Alternative' or southern route, for the New Build Section. Although other options were considered, rebuilding the existing

Western lines was the only option that preserved connectivity with the 12 existing substations in southern Arizona, an important feature of the Project.

Southline presented the Proponent Preferred and Proponent Alternative routes to the BLM with their application for a ROW grant and these alternatives were analyzed in the NEPA process. Because Western and BLM participated in Southline's routing study and public outreach, they each understood why various route segments were selected and rejected. Both agencies analyzed both of the Southline proponent alternatives and the No Action Alternative, and used the NEPA process to identify other potentially reasonable, viable alternatives. Due to Southline's thorough routing process, extensive stakeholder outreach, and early route screening with Western and the BLM, agency alternatives developed through the NEPA process resulted in only small route variations which could potentially reduce or avoid local resource conflicts.

The 360-mile-long Project was divided into four 'route groups', two in the New Build Section and two in the Upgrade Section, with Apache Substation in Arizona being the point separating the two sections and route groups 1 and 2 from route groups 3 and 4. Within the four route groups various sub-routes including segments of the Proponent Preferred and Proponent Alternative were identified. Some of the sub-routes also include local alternatives that were departures from the proponent alternatives due to potential resource conflicts or opportunities identified during the NEPA process. The agencies' alternatives analyses did not result in major new alternatives but did identify local alternatives and route variations that avoided or reduced localized resource conflicts. The division of the Project into smaller sections provided a framework for a more meaningful and localized comparison of resource

impacts and provided the agencies with the ability to 'mix and match' route segments to create multiple full-length alternatives.

Agency Preferred Alternative

The Agency Preferred Alternative developed in the Final EIS varies somewhat from the one described in the Draft EIS due to consideration and incorporation of comments from the public, interested parties and the agencies. In the New Build Section, the Agency Preferred Alternative consists of a combination of the Proponent Preferred, Proponent Alternative, and local alternative segments. Draft EIS local alternative LD4 would have included the shared use of approximately 50 miles of ROW with the proposed SunZia Project to consolidate linear facility impacts into one utility corridor, an important BLM management objective. However, a Western Electricity Coordinating Council Regional Business Practice standard requires separation between large, main system transmission lines, which could largely negate the environmental benefits of constructing transmission lines in adjacent ROWs. Additionally, if one line were not constructed, the remaining line would traverse previously undeveloped land and create a new utility corridor of its own, precisely the situation the BLM is trying to prevent by consolidating development. Accordingly, the Agency Preferred Alternative in the Final EIS was shifted south to another route segment that parallels an existing natural gas pipeline ROW.

Both the Department of Defense and the Arizona Game and Fish Department (AZGFD) expressed concerns about alternatives in the area near Willcox Playa and north and east of Apache Substation. The route selected in the Draft EIS that runs parallel to an existing transmission line east of the playa presented conflicts with wintering sandhill cranes and waterfowl, and routes to Apache Substation on the west side of the playa conflicted with

activities on the Buffalo Soldier Electronic Testing Range. Options east of developed agricultural areas near the playa that turned directly west to enter Apache Substation were prepared and analyzed, but were found to conflict with agricultural interests. Ultimately, mitigation of potential effects on sandhill cranes and waterfowl acceptable to the AZGFD was agreed upon and the route on the east side of the Willcox Playa that was originally included as part of the Agency Preferred Alternative was retained.

The Agency Preferred Alternative for the Upgrade Section consists of a combination of the Proponent Preferred, a route variation south of the Tucson International Airport, and local alternatives at Tumamoc Hill and near the Marana Airport. The Agency Preferred Alternative maximizes the use of existing Western ROWs for the Saguaro-Tucson and Tucson-Apache transmission lines while also addressing existing impacts and opportunities where appropriate. The route skirts the edge of the culturally and visually sensitive Tumamoc Hill property and allows the removal of the section of existing line that crosses through the middle of the property, relocates a portion of the existing line to facilitate Pima County future development plans south of Tucson International Airport, relocates a segment of existing line out of the Summit community where development is encroaching on the ROW, and relocates a segment of existing line near the Marana Airport to reduce conflicts with military training operations.

Environmentally Preferred Alternative

Except for one segment the Environmentally Preferred Alternative for the New Build Section is the same as the Agency Preferred Alternative. This is due to the emphasis placed on routing the Project to parallel existing linear infrastructure and consolidating development to the maximum extent possible. Consolidation also maximizes the opportunity to use

existing access roads for the Project. This approach minimizes new disturbance and, in turn, environmental impacts.

The Environmentally Preferred Alternative for the Upgrade Section involves an upgrade of the existing single-circuit 115-kV wood pole lines and use of the existing Western ROWs for the entire length of the section from Apache Substation to Saguaro Substation. The existing lines have been operated and maintained for over 60 years and have well-established access roads. New construction disturbance would be minimal and little or no new impacts to environmental resources would occur except that new monopole steel structures would be taller and have an incrementally larger visual impact. Any existing impacts on the human environment are already included in the baseline condition.

Responsible transmission planning also looks for opportunities to reduce existing impacts or address changing attitudes about the values and weights of impacts. Each of the three local alternatives included in the Agency Preferred Alternative would have associated new environmental impacts, but in each case it was determined that the reduction in present or future conflicts more than offset the new impacts.

Minimization of environmental impacts was an integral part of Project routing and planning, and all practicable means have been adopted to avoid or minimize environmental harm. Table 2-8 in section 2.4.6, Typical Design Features and Agency Mitigation Measures, of the Final EIS is a compilation of PCEMs that would be implemented to minimize impacts. If the Project moves into the construction phase, this table will be incorporated into the construction contract to ensure the PCEMs are an integral part of the construction process. The PCEMs include design features that minimize impacts, agency identified best management practices, known regulatory and permit requirements, and other project-specific

measures developed during the EIS process. As described in section 2.4.1 of the Final EIS, Site Preparation and Preconstruction Activities, Southline and the BLM have developed an extensive Plan of Development (Appendix N to the Final EIS). Numerous framework plans (appendices to the Plan of Development) are being developed that include specific best management practices and resource protection measures that condition the ROW grant. The Plan of Development only applies to activities on BLM-managed public lands. Western may implement applicable provisions of the Plan of Development and its attached framework plans on State and private lands as appropriate.

Changes to Final EIS

The Town of Marana, Arizona, in consultation with the AZGFD, requested that a clarification be made to PCEM in table 2-8 concerning a bat colony under the Ina Road bridge. The agencies are incorporating the requested clarification in the BLM Plan of Development and table 2-8. The revised language will read as follows: "To avoid impacting roosting bats at the Ina Road bridge, blasting activities will be restricted to less than 130 decibels (dB) at the project site if possible, and if that is not possible, then blasting activities will occur at night after most bats have left their roost. No blasting will occur in April or May when the maternity colony is present."

The Benson/San Pedro Valley Chamber of Commerce and J-6/Mescal Community Development Organization also raised questions after the Final EIS was published. Both parties indicated a preference for Local Alternative H, a route developed for analysis based on public comment. Local Alternative H departs from the existing alignment and bypasses Benson and the Mescal residential development on the north before rejoining the existing alignment east of Benson and the Mescal residential development. The parties raised

concerns about visual impacts, EMF, and future development in the area, which were all analyzed in the EIS. Local Alternative H was not selected as part of the Agency Preferred Alternative. The existing transmission line has been in place since the early 1950s, and development has been planned around the existing ROW. Moving to Local Alternative H would only shift impacts from one set of landowners to a new set of landowners. Additionally, staying on the existing ROW would use the existing crossing of the San Pedro River, a sensitive environmental resource. The issues expressed by the parties do not present any significant new circumstances or information relevant to environmental concerns.

Section 7 and Section 106 Consultation

The BLM, as the main affected Federal land management agency, retained the lead role for Section 7 and Section 106 consultation. Consultation with the U.S. Fish and Wildlife Service resulted in the issuance of a final Biological Opinion on November 10, 2015. The requirements of the Biological Opinion will apply to the entire Project, whether on BLM managed land or not. The Biological Opinion is provided as Appendix M of the Final EIS and can also be found on the Project Web site. Western also participated as an invited signatory in the Section 106 process, which led to a Programmatic Agreement that will govern Section 106 actions as they apply to the Project. The Programmatic Agreement, Appendix L of the Final EIS, is also posted on the Project Web site.

Western's Decision

Informed by the analyses and environmental impacts documented in the Final EIS, Western has selected[1] the Agency Preferred Alternative identified in the Final EIS as the route for the Project. The Agency Preferred Alternative route will be the basis for design and

[1]On November 16, 2011, DOE's Acting General Counsel restated the delegation to Western's Administrator all the authorities of the General Counsel respecting environmental impact statements.

engineering activities that will finalize the centerline, ROW, and access road locations, particularly in the New Build Section. Additionally, this ROD commits Western and Southline to implement the PCEMs identified in the Final EIS in table 2-8 to minimize environmental impacts. Selection of the Agency Preferred Alternative will also allow detailed Project costs to be developed, which are necessary for future participation and financing decisions. These decisions are contingent on the successful development of participation agreements and financial underwriting, and would be recorded in a second ROD. Participation and financing agreements will address Project details such as interconnections, ownership, operations, maintenance, marketing, financing, and land acquisition.

This ROD was prepared in accordance with the requirements of the Council on Environmental Quality regulations for implementing NEPA (40 CFR parts 1500-1508) and U.S. Department of Energy NEPA regulations (10 CFR part 1021).

Dated: APR 05 2016

Mark A. Gabriel
Administrator

EXHIBIT B-5 – Summary of Final EIS

INTRODUCTION

In 2009, Southline Transmission, L.L.C. ("Southline" or "Applicant"), a wholly-owned indirect subsidiary of Hunt Power, L.P., submitted an application to the Bureau of Land Management ("BLM") for right-of-way ("ROW") to construct, operate, and maintain the proposed Southline Transmission Project ("Project") on public land administered by the BLM. The BLM initiated the National Environmental Policy Act ("NEPA") process to address whether to grant an ROW permit. During 2011, Southline submitted a Statement of Interest to Western Area Power Administration ("WAPA") for consideration of the Project and requested that WAPA consider providing financing for the Project using the borrowing authority provided to WAPA under the American Recovery and Reinvestment Act of 2009. Southline's proposal prompted WAPA to initiate its own NEPA process to determine the environmental impacts of the Project and to inform WAPA's decisions regarding the Project. WAPA and the BLM agreed to be joint lead agencies in accordance with NEPA, 40 Code of Federal Regulations ("C.F.R.") 1501.5(b), for purposes of preparing the Environmental Impact Statement ("EIS") for this Project.

The overall Project is an approximately 370-mile electric transmission line proposed to run through Federal, State, tribal, and private lands in southern New Mexico and southern Arizona. The Arizona portion of the Project for which Applicant seeks a CEC includes the construction of (i) approximately 66 miles of new double-circuit 345-kilovolt ("kV") transmission line and less than 1 mile of 115-kV or 230-kV transmission line and associated facilities (the "CEC New Build Route") and (ii) approximately 5 miles of new non-WAPA owned 138-kV and 230-kV transmission lines and associated facilities that would interconnect the upgraded WAPA 230-kV transmission lines to four existing substations owned and operated by other Arizona load-serving utilities (the "CEC Upgrade Route").

As required under NEPA and Council on Environmental Quality regulations pursuant to NEPA, an EIS was prepared to analyze and disclose the potential effects of the Project. The Draft Environmental Impact Statement and Draft Resource Management Plan Amendment (Draft EIS/RMPA) document was issued in April 2014, while the Final EIS

was issued in November 2015. The BLM and WAPA both published their respective Records of Decision in April 2016.

BLM and WAPA invited 21 American Indian tribes and 33 agencies at the Federal, State, and local level to participate as cooperating agencies in preparation of the EIS. Seventeen agencies accepted, affording the BLM and WAPA the benefit of each agency's particular expertise and guidance, including: U.S. Army Corps of Engineers; Reclamation; Department of Defense ("DOD") Clearinghouse; U.S. Environmental Protection Agency; DOD Fort Huachuca; National Park Service; Forest Service (Coronado National Forest); U.S. Fish and Wildlife Service; Bureau of Indian Affairs Western Regional Office; Arizona Game and Fish Department; Arizona State Land Department; New Mexico Department of Game and Fish; New Mexico State Land Office; Cochise County, Arizona; Greenlee County, Arizona; Graham County, Arizona; and City of Sierra Vista, Arizona.

ALTERNATIVES

Southline began investigating route alternatives for the proposed Project in 2009, and its efforts are documented in the April 2012 routing report (Southline 2012a); the routing report is available online.[5] As part of the routing process, Southline first identified the geographic study area within which feasible routes could be considered between the identified connection points at the Afton, Apache, and Saguaro Substations. Southline then performed siting studies in consultation with stakeholders, such as State and Federal agencies, county commissioners, tribal officials, local utilities, and private landowners, to identify routing opportunities and constraints and determine the most feasible routes within the study area.

Southline hosted a series of meetings and workshops with stakeholders between June and December 2011. Southline's public outreach efforts were conducted to understand initial public concerns from a wide range of project stakeholders so these concerns could be integrated into Southline's routing process from the outset. Initial outreach efforts focused on defining the study area, followed by meetings with stakeholders, which reviewed a number of potential route corridors. The route corridors were high-level route alignments looking at all potentially viable options (*see* Final EIS Figures 2-1a and 2-1b). These corridors were presented at a round of public information meetings, and stakeholders had an opportunity to provide feedback directly onto high-resolution maps regarding potential resource and land use conflicts to guide Southline's route selection.

[5] http://southlinetransmissionproject.com/files/Routing_Report_AppA_and_Figures_042412_final.pdf.

Finally, Southline received additional feedback from stakeholders, including feedback received from a public informational meeting in Benson, Arizona, and simultaneously winnowed the potential route corridors into a select group of potential and alternative routes to submit to the BLM and WAPA to use in the environmental review process. This final set of potential and alternative routes submitted to BLM and WAPA for consideration in the NEPA process reflected a significant amount of feedback from stakeholders.

All routing efforts prior to the publication of the Notice of Intent were conducted to define the proposed Project and develop the basis for the proposed Project and associated NEPA analysis. The BLM and WAPA used Southline's routing efforts as the basis of the agency alternatives development process (*see* Final EIS Section 2.6).

The focus of the routing effort was to identify potentially viable options within the analysis area that would use previously disturbed areas by following existing linear features. Using previously disturbed areas minimizes new ground disturbance and new access road construction, reduces potential adverse environmental and social impacts, and concentrates development in previously developed areas. Linear features considered reasonable routing options included roads and highways, transmission and distribution lines, railroads, pipelines, Section 368 energy corridors, and cadastral or property boundaries.

The proposed Project consists of two sections. The New Build Section entails construction of approximately 249 miles of new double-circuit 345-kV transmission line to mitigate existing congestion by providing more transmission capacity between the Afton Substation, south of Las Cruces, New Mexico, and the Apache Substation, south of Willcox, Arizona. The existing voltage in the New Mexico facilities (Afton and Hidalgo Substations) is 345 kV; thus, the New Build Section is proposed as a 345-kV transmission line. The Upgrade Section will be an upgrade of approximately 121 miles of WAPA's existing Saguaro–Tucson and Tucson–Apache 115-kV transmission lines to a double-circuit 230-kV transmission line originating at the existing Apache Substation and terminating at the Saguaro Substation, northwest of Tucson, Arizona (*see* Exhibit A-1). The Upgrade Section is proposed as a double-circuit 230-kV line to utilize the existing 230-kV Arizona system voltage, as well as maximize the existing ROW, particularly through the more urban Tucson area, where a 345-kV structure was determined to be too large in terms of ROW requirements. One of two methods for the Upgrade Section will be used, depending on ROW constraints: either the tear-down and rebuild-in-place

method, or construction of new facilities adjacent to the existing facilities. The existing facilities would be removed after construction of the new transmission line.

Using the existing system voltage in both the New Build and Upgrade Sections optimizes Project performance and minimizes Project costs. The existing high-voltage system in southern New Mexico is 345 kV. The network of existing transmission lines in southern New Mexico does not include 230-kV or 500-kV voltage; therefore, the addition of a new voltage system would increase construction, operation, and maintenance costs for the proposed Project. Maintaining 345-kV voltage also provides technical benefits, as the proposed Project could use a double-circuit structure since it could more readily be absorbed into the existing system on a contingency. Higher voltages like 500 kV would require a greater project footprint, requiring two separate sets of structures as opposed to one double-circuit on a single set of structures. The Upgrade Section was designed as double-circuit 230 kV based on the width of the ROW. Further, 230 kV is also a standard voltage upgrade for WAPA and therefore would minimize operation and maintenance costs.

For the New Build Section routing effort, two general types of routing criteria were considered: opportunities and constraints. Routing opportunities consisted primarily of existing linear features, existing access, and existing disturbed areas. Constraints consisted primarily of avoidance areas or sensitive areas, including wilderness areas, areas of high residential development, military reservation/installations, tribal lands, and sensitive lands (*e.g.*, ecologically, visually, and/or culturally). Through an iterative process, more than 1,300 miles of potentially viable routing options were identified. Through early input from the BLM, WAPA, and other stakeholders, those routing options were further assessed to determine whether they should be retained for detailed study by Southline or eliminated from further consideration. Following that assessment, before submittal of the SF-299 application, Southline selected proposed and alternative routes for the New Build Section.

Because the Upgrade Section of the proposed Project focused on interconnection with the 11 existing substations and upgrading an existing line, routing options were limited. Only two existing transmission lines between the Apache and Saguaro substations are available to be upgraded to a capacity that would allow transmission of up to 1,000 MW: the existing WAPA Saguaro–Tucson and Tucson–Apache 115-kV lines, and an Arizona Electric Power Cooperatives ("AEPCO") 230-kV line. The routing process for the Upgrade Section included review of the existing facilities and the land use constraints in the immediate vicinity of the existing lines. This resulted in an evaluation of

approximately 200 miles of viable routing options for the Upgrade Section. The AEPCO route was eliminated from further consideration because it did not connect to the 11 existing substations in the Upgrade Section, and due to highly restrictive land uses along portions of the ROW and less access to existing substations in the area.

As a result of this analysis, a range of alternative routes were identified and analyzed in the Draft EIS. For study purposes and comparison of alternatives, alternative routes were organized into four route groups or segments and then into subroutes within each route group. Route groups were established based on geography, common resource issues, and interconnection points, to allow for localized comparisons among subroutes and local alternatives (*see* Final EIS Section 2.7).

In the preparation of the Draft and Final EISs, an evaluation was made of a full range of alternatives. All reasonable alternatives were given further consideration by the BLM and WAPA, including alternatives to the transmission line option, new generation facilities, reliance on the existing transmission system, and alternative transmission technologies. Alternatives that were (1) ineffective (*i.e.*, did not meet the agencies' purpose and need), (2) technically or economically infeasible, (3) inconsistent with the basic policy objectives for management of the area (*e.g.*, resource management plans), (4) remote or speculative (*i.e.*, could not be analyzed), or (5) substantially similar in design or effects to another alternative being analyzed, were eliminated from detailed analysis. The BLM and WAPA selected the Agency Preferred Alternative Route as presenting in Section 2.10.5 of the Final EIS.

PROPOSED ROUTE

As discussed above, WAPA and the BLM selected the Agency Preferred Alternative Route. The Agency Preferred Alternative Route best balances the meeting of the BLM's and WAPA's purpose and need with the limiting of environment impacts by the Project. The Agency Preferred Alternative Route also provides the best scenario for implementing mitigation to minimize or eliminate adverse impacts to resources. The Arizona portion of the New Build Section of the Agency Preferred Alternative Route and the approximately five miles of new transmission line associated with the Upgrade Section of the Agency Preferred Alternative constitute the CEC Proposed Route discussed in this Application.

I. NEW BUILD SECTION

The Agency Preferred Alternative Route for the New Build Section consists of a combination of the Proponent Preferred and local alternative segments within route groups 1 and 2 contained in the Final EIS. The Agency Preferred Alternative Route for the New Build Section includes Proponent Preferred segments P1, P2, P3, P4a, P5b, P6a, P6b, P6c P7, P8, in combination with local alternatives LD3a and LD3b for a total of 249 miles (*see* Final EIS Figure 2). Approximately 85% of the Agency Preferred Alternative Route in the New Build Section parallels existing linear infrastructure such as transmission lines, gas line, and roadways.

This route was selected by the BLM and WAPA as the Agency Preferred Alternative Route because it:

- Uses existing linear ROWs by paralleling existing infrastructure and transmission lines;
- Eliminates the need for plan amendments through conformance with existing land use plans;
- Minimizes impacts to military operations at and near the Willcox Playa; and
- Minimizes impacts to sensitive resources, particularly near the Lordsburg Playa.

Segments P1, P2, P3, P4a, LD3a, and LD3b are all within New Mexico. Segment P5b begins in New Mexico at the segments' intersection with segment LD3b and extends west, crossing into Arizona and roughly paralleling an existing El Paso Natural Gas line for approximately 20 miles before connecting to P6a. At the point where link P5b crosses into Arizona, the CEC New Build Route for the purposes of this Application begins. The CEC New Build Route follows the Proponent Preferred route along segments P6a, P6b, and P6c (also along existing El Paso Natural Gas lines), P7 (paralleling an existing Southwest Transmission Cooperative 230-kV transmission line) around the southeast side of the Willcox Playa, and P8, which will connect to the existing Apache Substation. The total length of the CEC New Build Route is approximately 67 miles.

The Agency Preferred Alternative Route for the New Build Section is the same as the environmentally preferred alternative (described in Final EIS Section 2.10.6),[6] except for

[6] The Environmentally Preferred Alternative is the "alternative that causes the least damage to the biological and physical environment; it also means the alternative which best protects, preserves, and enhances historic, cultural, and natural resources." Council on Environmental Quality, 1981, Forty most

segments Gb, Gc, and WC1, which were not chosen by the BLM/WAPA because of their impacts to military operations.

II. UPGRADE SECTION

As described in the Final EIS, the Agency Preferred Alternative Route for the Upgrade Section consists of a combination of the Proponent Preferred, the new route variation south of the Tucson International Airport, and local alternatives at Tumamoc Hill and near the Marana Regional Airport, within route group 3. The Agency Preferred Alternative Route for the Upgrade Section is approximately 121 miles, of which approximately 110 miles is the upgrade of WAPA's existing Saguaro–Tucson and Tucson–Apache 115-kV transmission lines. Approximately 98% of the Agency Preferred Alternative Route in the Upgrade Section parallels existing or proposed linear infrastructure, such as transmission lines, gas line, and roadways.

This route was selected by the BLM and WAPA as the Agency Preferred Alternative Route because:

- Maximizes use of the existing right-of-way and facilities currently utilized for WAPA's existing Saguaro–Tucson and Tucson–Apache 115-kV transmission lines;
- Reduces existing conflicts in the community of Summit, and minimize impacts to future Pima County economic development plans south of the Tucson International Airport;
- Addresses cultural resources and visual concerns regarding upgrading the existing WAPA line across Tumamoc Hill; and
- Minimizes impacts to military training operations at the Marana Regional Airport.

The Upgrade Section of the Agency Preferred Alternative Route will start at the existing Apache Substation south of Willcox, Arizona, and extends through Benson, upgrading the existing WAPA 115-kV line. The Agency Preferred Alternative Route between Apache and Del Bac substations includes Proposed Project segments U1a, U1b, U2, U3a, and U4 as well as route variation U3aPC. From the Del Bac Substation, the Agency

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asked questions concerning National Environmental Policy Act regulations (Question 6a), 16 Federal Register 18,026.

Preferred Alternative Route includes upgrading the existing WAPA 115-kV line north along segments U3b, U3c, and U3d. From the south side of Tumamoc Hill at Starr Pass Boulevard, the Agency Preferred Alternative Route connects segment U3d to local alternative TH1a west along Starr Pass Boulevard and then turn north along Greasewood Road. Local alternative TH1a connects to TH1-Option east along St. Mary's Road, connecting back up to the existing WAPA line and ROW at segment U3g. The Agency Preferred Alternative Route then includes the upgrade of the existing WAPA line north to the Saguaro Substation (segments U3h, U3i, U3k, U3l, U3m, and U4), except for reroute using local alternative MA1 near the Marana Regional Airport.

AFFECTED ENVIRONMENT AND ENVIRONMENTAL IMPACTS

The following is a summary of affected environment and environmental impacts. A more detailed summary and comparison of the potential impacts of the proposed Project and alternatives can be found in Tables 2-15, 2-16, 2-17, and 2-18 in Chapter 2 of the Final EIS.

I. AIR QUALITY

Construction of the transmission lines and substations would result in emissions of air pollutants from equipment exhaust, vehicle exhaust from travel to and from construction areas, and fugitive dust from soil disturbance. Construction emissions would, however, be transient, short term, and spread over large distances and multiple airsheds. Emissions from operation and maintenance activities (*e.g.*, vehicle exhaust from travel to substations and the transmission line for routine inspection and/or repairs) would be similar in nature to those of construction emissions but would be much lower.

The proposed Project would lie within the boundaries of two nonattainment/maintenance areas, regardless of the action alternative chosen: the Rillito particulate matter 10 (PM10) nonattainment area and the Tucson carbon monoxide (CO) maintenance area. The closest Class I area to the Proponent Preferred route and/or local alternatives is Saguaro National Park outside Tucson, Arizona, located approximately 1 mile from the proposed route. Pima County incorporates the National Ambient Air Quality Standards (NAAQS) by reference; specific Pima County permitting and emission limitations regulations apply for Class I areas and nonattainment areas in Pima County.

Construction of any of the Project alternatives, including the Agency Preferred Alternative, would result in emissions of all regulated pollutants below the de minimis thresholds for conducting regionally significant conformity determinations in all

airsheds the proposed Project would cross or for which the Project would be within 31 miles of, including all nonattainment/maintenance areas. Additionally, pollutant emissions are predicted to be within regulatory limits (below the applicable National, Arizona, and/or New Mexico Ambient Air Quality Standards) for construction of any of the Project alternatives. The impact intensity of the proposed Project and alternatives on air quality would be minor, including the Agency Preferred Alternative.

II. NOISE

Construction of any of the proposed Project alternatives, including the Agency Preferred Alternative, would result in audible noise from Project equipment and vehicles. Operation and maintenance activities would be similar in terms of the activities that would cause noise. However, during operation and maintenance these activities would occur much less frequently, include fewer individual noise point sources such as pieces of equipment and vehicles, and be of much shorter duration.

Unmitigated noise levels could result as high as 83 A-weighted decibels (dBA) to sensitive receptors near proposed Project construction activities (within 100 feet) under the Agency Preferred Alternative or any other Project alternative; however, construction noise would be short term, temporary, and intermittent in nature. Corona noise for both the New Build and Upgrade Sections of the proposed Project and alternatives would be highest in areas where the new lines would be constructed in close proximity to existing transmission lines. Overall, because of the relatively dry nature of the area crossed by the proposed Project, the overall level of operational noise would be minimal and would therefore represent a minor, but long-term, impact to ambient soundscapes. The impact intensity of the proposed Project and alternatives on noise would be major but temporary, including the Agency Preferred Alternative.

III. GEOLOGY AND MINERAL RESOURCES

The proposed Project could have potential indirect impacts to mining districts during operation and maintenance. However, this impact would only have consequences in areas within active mining districts where active mines are located. Small areas of active and inactive mining districts are crossed by the New Build Section. Access to minerals can be accomplished between spans, or structures can be left on "islands," or the mining interests can have the transmission line locally rerouted. In this case, the proposed Project would not produce obvious changes in the baseline condition of the resource, and potential impacts would be local, short term, temporary, and minor. Therefore, no significant impacts to geological or mineral resources are expected. The impact intensity

of the proposed Project and alternatives on geology and mineral resources would range from no impact to minor, including the Agency Preferred Alternative.

IV. SOIL RESOURCES

Potential impacts to the soil resources include disturbance to fragile biological crusts, accelerated rates of erosion by water or wind, as well as loss of soil productivity due to the removal of soils during construction of access roads, and at structure and substation sites. Limited clearing of vegetation and topsoil would result in newly exposed, disturbed soils that could be subject to accelerated erosion by wind and water. The potential for accelerated rates of erosion would be higher in areas with highly erodible soils, such as Lordsburg and Willcox playas. Indirect impacts associated with soil removal may include sediment redistribution of the soil resource as a result of wind and water erosion, invasive plant colonization, soil erosion, and reduction of soil water retention due to compaction. However, no significant impacts to soil resources are expected with the implementation of appropriate Proponent Committed Environmental Measures ("PCEMs") to control erosion, including stormwater run-on and runoff prevention, silt fences and/or retention basins, topsoil management and conservation practices, and revegetation activities. The impact intensity of the proposed Project and alternatives on soil resources would range from no impact to minor, including the Agency Preferred Alternative.

V. PALEONTOLOGICAL RESOURCES

Potential negative impacts to paleontological resources could result from the loss of important fossils due to ground-disturbing activities during construction in sensitive geological deposits. Potential positive impacts to paleontological resources could result from the discovery of important fossils that would otherwise be unavailable for study as an inadvertent result of ground-disturbing activities. The existing WAPA lines between the Apache and Saguaro substations cross deposits composed almost entirely of Low Sensitivity (Potential Fossil Yield Classification ("PFYC") 1-2) for paleontological resources. If fossils are present, adverse impacts to paleontological resources would be mitigated in accordance with PCEMs, applicable laws, and regulations. The impact intensity of the proposed Project and alternatives on paleontological resources would range from no impact to moderate, including the Agency Preferred Alternative.

VI. WATER RESOURCES

Potential impacts to water resources include the potential for discharge of pollutants, including sediment, to groundwater or surface water, the placement of larger structures within floodplains, and potential disturbance of WUS, including wetlands. Proper implementation of PCEMs and controls would prevent discharge of pollutants. Avoidance measures during final siting would prevent most disturbances of WUS or wetlands. Minor to moderate long-term impacts would occur to WUS and wetland areas that are too extensive to be fully avoided: Willcox Playa (segment P7); Stein's Creek (segment LD1); and the Santa Cruz River (segment TH3b).

In accordance with DOE regulations contained at 10 C.F.R § 1022, "Compliance with Floodplain and Wetlands Environmental Review Requirements," the Final EIS includes a floodplain assessment and statement of findings that analyzes the potential floodplain impacts associated with the proposed Project (*see* Final EIS Section 4.7 for a detailed discussion). WAPA has concluded that the proposed Project is consistent with the policies set forth in EO 11988 and EO 11990 and 10 C.F.R. § 1022, and conforms to applicable floodplain protection standards, provided that local approval by the floodplain administrator is received and permitting conditions are followed.

The impact intensity of the proposed Project and alternatives on water resources would range from no impact to moderate. The intensity of impacts on water resources from the Agency Preferred Alternative would be minor.

VII. BIOLOGICAL RESOURCES

A. Vegetation

All action alternatives would involve the removal of vegetation during construction activities, resulting in the direct loss of plant communities. The primary direct and indirect impacts to vegetation and special status species during construction and operation of the proposed facilities would be associated with removal and/or crushing of vegetation communities from construction of transmission lines, substation expansions, temporary work areas, and access roads; decreased plant productivity from fugitive dust; and plant community fragmentation. Indirectly, removal of protective vegetation would also expose soil to potential wind and water erosion. This could result in further loss of soil and vegetation, as well as increased sediment input to water resources. There would also be indirect effects resulting from the fragmentation of connected vegetation types. Edge areas have different microclimatic conditions and

structure, which could lead to different species' composition than in the interior area. The introduction and colonization of disturbed areas by invasive exotic plant species also would lead to changes in vegetation communities, including the possible shift to more wildfire-prone vegetation, which favors invasive exotic species over native species.

PCEMs would be applied to reduce, avoid, or otherwise provide compensation for impacts to sensitive vegetation. Examples of these include the following: (1) vegetation disturbance would be minimized to the extent practicable; (2) a Reclamation, Vegetation, and Monitoring Plan would be developed and implemented; (3) a Plant and Wildlife Species Conservation Measures Plan would be developed and implemented; (4) clearing of riparian vegetation would be avoided where possible; (5) Noxious Weed Management Plan would be developed and implemented; and (6) construction equipment would be washed prior to moving onto the construction site to limit introduction and spread of noxious weeds. Additional mitigation provided by the AGFD for segment P7 is also considered.

The vegetation communities impacted by the action alternatives, however, are generally common and geographically widespread, and much of the proposed Project is located within an area of existing disturbance. Therefore, impacts to vegetation communities, special status species, and noxious weeds are unlikely to be significant. The impact intensity of the proposed Project and alternatives on vegetation would be minor, including the Agency Preferred Alternative.

B. Wildlife

Potential Project-related impacts on wildlife include the loss, degradation, and/or fragmentation of breeding, rearing, foraging, and dispersal habitats; collisions with and crushing by construction vehicles; loss of burrowing animals in burrows in areas where grading would occur; increased invasive and noxious weed establishment and spread; increased noise/vibration levels; increased potential for migratory birds to strike transmission lines; and increased access for off-highway-vehicle ("OHV") users.

The transmission line ROW would serve as a movement corridor for some species and as a barrier to others. The proposed Project would increase the amount of edge habitat along the ROW. Effects from increased amounts of edge would include decreased habitat block size. Decreased habitat block size may negatively impact those species that require large blocks of contiguous habitat and benefit other species that use edge habitats or have more general habitat requirements. These impacts would be

minor/negligible in previously disturbed areas with low vegetative cover and would be minor in areas of new disturbance and higher vegetation density.

PCEMs to minimize impacts to wildlife habitat could include limiting the area of disturbance, restoring disturbed areas, and avoiding aquatic and riparian areas. PCEMs also include pre-construction surveys, erosion control measures, a worker training program, and measures to limit invasive species' establishment and spread. Line marking devices would be used to decrease the potential for birds striking transmission lines near Willcox Playa, where wintering sandhill cranes would have to cross the proposed Project during their daily migrations to the agricultural fields east of the playa to feed. Additional mitigation provided by the AGFD for segment P7 is also considered.

The following impacts to general wildlife and special status species may occur with construction and operation of the Agency Preferred Alternative:

- Habitat for the northern aplomado falcon (*Falco femoralis septentrionalis*), Sprague's pipit (*Anthus spragueii*), lesser long-nosed bat (*Leptonycteris curasoae yerbabuenae*), Mexican longnosed bat (*Leptonycteris nivalis*), and Sonoran desert tortoise (*Gopherus morafkai*) would be impacted. Restoration of disturbed areas, measures to minimize invasive plant establishment and spread, and closure of access roads to OHV use would reduce impacts on habitat for these species.

- A known lesser-long nosed bat roost is within 0.7 mile of the proposed ROW in segment P5b (part of the Agency Preferred Alternative). Given the distance, the intervening topography and the PCEM of limiting loud construction noise (i.e., blasting) to the spring (preferably April 1 to May 31) within 0.5 mile of where the roost is located before the bats arrive at the roost would avoid direct impacts to the species and other bat species that use the area.

- Segment P7 would pass northwest of Crane Lake and through the AGFD managed Willcox Playa Wildlife Area. Mitigation (PCEMs) requested by the AGFD includes (1) funding the relocation of Crane Lake away from P7, (2) funding riparian emergent wetlands along Kansas Settlement Road, and (3) funding the management of non-native vegetation; these would be implemented to reduce the intensity of impacts to habitat in the Willcox Playa Wildlife Area.

- Potential mortality of wintering sandhill cranes (Grus canadensis) could occur at Willcox Playa where the proposed Project would intersect their daily

migration flights to feed in agricultural fields to the south and east. There is the potential for sandhill crane collisions with the transmission line during daily migration, which could impact individual sandhill cranes. Implementing PCEMs such as the relocation of Crane Lake (see above), and installation of line marking devices, where appropriate, would decrease the potential for birds striking transmission lines near Willcox Playa; as a result impacts on the species would be minor and both short and long term.

- Impacts to northern Mexican gartersnake (*Thamnophis eques megalops*) proposed critical habitat at the Cienega Creek and San Pedro River crossings would be avoided through project siting.

- Impacts on Gila chub (*Gila intermedia*) designated critical habitat downstream from the Cienega Creek crossing would be avoided through Project siting and erosion control measures.

- Habitat for BLM Sensitive Species, New Mexico Wildlife Conservation Act Species, New Mexico Species of Greatest Conservation Need, Arizona Wildlife Species of Concern, Arizona Species of Greatest Conservation Need, and migratory birds would be lost, fragmented, and degraded. Measures to limit ground disturbance, avoid aquatic and riparian habitats, limit invasive plant establishment and spread, and restore disturbed areas would reduce impacts on habitat for these species.

The wildlife and special status species habitat impacted by the action alternatives is common relative to the amount of surrounding available habitat, and much of the proposed Project occurs within areas of existing disturbance. In addition, the Project has been sited to avoid ground disturbance in both designated and proposed critical habitat, and PCEMs have been developed to address specific habitat impacts, such as those in the Willcox Playa Wildlife Area. Therefore, impacts to wildlife and special status species are not expected to be significant. The impact intensity of the proposed Project and alternatives on wildlife would be minor, including the Agency Preferred Alternative.

VIII. CULTURAL RESOURCES

Potential impacts to cultural resources such as archaeological sites, historic built environment resources, trails, and American Indian traditional use areas and sacred sites could result from construction, operation, and maintenance of the proposed Project. Loss of integrity would be the primary adverse direct or indirect impact to cultural resources.

In terms of historic properties, loss of integrity often stems from alterations of a resource's characteristics that make it eligible for the National Register of Historic Places. During construction, direct impacts would result from ground disturbance if resources are present and would be long term; indirect impacts would result from visual encroachment on a resource's setting during structure and facility installation and would be long term. During operation and maintenance, long-term visual impacts would occur from the presence of the transmission line if resources are present.

Once a route is selected, the route and its associated access roads and facilities would be inventoried in accordance with Section 106 of the National Historic Preservation Act. Resources would then be evaluated for their National Register of Historic Places eligibility.

The Agency Preferred Alternative could impact 157 previously recorded sites, including the following four listed properties: the Valencia Site, AZ BB:13:315(ASM), the Empirita Ranch Historic District, the Los Robles Archaeological Area, and the Tumamoc Hill Archaeological District and Desert Laboratory National Historic Landmark (Tumamoc Hill). The Agency Preferred Alternative would cross the Butterfield Trail and the Juan de Bautista de Anza National Historic Trail ("Anza NHT"). Potential impacts to both trails are also discussed in "Special Designations."

Visual impacts to Tumamoc Hill are expected; however, the Agency Preferred Alternative has been designed, in consultation with stakeholders, to go around rather than through Tumamoc Hill to minimize visual impacts from upgrading the existing WAPA line across Tumamoc Hill. The removal of the existing line, which does run through the Tumamoc Hill property, would also help minimize the line's current visual impacts to a degree; however, relocating the line off Tumamoc Hill to along Greasewood Road would still result in potential visual impacts.

Mitigation of adverse direct impacts to historical properties would be developed in accordance with the Section 106 Programmatic Agreement (PA) and Southline's Plan of Development ("POD"). Avoidance of resources through design and micro-siting would be the preferred mitigation measure. If avoidance is not feasible, other types of mitigation such as monitoring or data recovery would be needed. A Historic Properties Treatment Plan would be developed to outline all mitigation measures (PCEMs). The PA outlines steps by the agencies, the Project proponent, and other consulting parties to be taken prior to construction and during operation and maintenance of the proposed Project to comply with the National Historic Preservation Act. The final PA is included in Appendix L of the Final EIS. The impact intensity of the proposed Project and

alternatives on cultural resources would range from no impact to major, including the Agency Preferred Alternative.

IX. VISUAL RESOURCES

The visual impact analysis included the characterization of the existing landscape and an analysis of changes to the landscape that may result from the proposed Project under each alternative and an assessment of impacts to sensitive viewers. Additionally, 106 key observation points ("KOPs") were established along the potential Project routes and were used as representative viewpoints from which to assess impacts to sensitive viewers and whether the proposed changes to the visual landscape would meet BLM management objectives for visual resources. Together with scenic quality mapping, visual simulation, and field reconnaissance, each KOP was used to establish how the proposed Project would affect the existing aesthetic conditions of the landscape and how sensitive viewers would be impacted. The degree of change to the existing landscape was assessed in terms of visual contrast, based on 10 environmental factors for identifying and characterizing impacts related to viewer sensitivity and Project visibility.

The major visual impacts in Arizona resulting from the proposed Project would include:

- Scenic views from winery tasting rooms and private property along the Willcox Bench would be partially obstructed and within close proximity (less than 0.25 mile in places from route variations P7a, P7b, P7c, P7d).

- Travelers along the I-10 corridor would have sporadic views of new transmission line in some areas.

- Recreational areas such as Sentinel Peak, Anza NHT, Butterfield Trail, Arizona National Scenic Trail ("Arizona NST"), Santa Cruz River Bikeway, and Saguaro National Park would have varying degrees of visual impact resulting from the introduction of the proposed Project. In most cases, the proposed corridor is sited along areas that have been previously disturbed by similar structures or would replace existing structures, giving an opportunity to implement PCEMs to reduce visibility.

- The analysis of the Tumamoc Hill area, located in a historic, well-maintained residential area of Tucson, included a series of working group sessions intended to derive the best alternative to avoid impacts to the aesthetic, historic, and visually sensitive features of the area. The Agency Preferred

Alternative follows existing development to avoid additional visual impacts to Tumamoc Hill. Also, the existing "H" frame line that is located within the Tumamoc Hill would be removed, thus removing the visual impacts of the existing line.

Implementation of PCEMs would be applied to reduce visual impacts, preserve sensitive views, and minimize visual contrast. Included are methods of micro-siting the corridor to follow landform contours, clearing trees and vegetation to reduce visual contrast and blend into adjacent landscape, and implementing tower and facility design to reduce visibility of the structures. However, the structures would still be visible in many situations. The impact intensity of the proposed Project and alternatives on visual resources would range from minor to major, including the Agency Preferred Alternative.

X. LAND USE, INCLUDING FARM AND RANGE RESOURCES AND MILITARY OPERATIONS

A. Land Use

The proposed Project would be constructed across lands owned and managed by Federal, State, tribal, private, or other entities, under a variety of RMPs, comprehensive plans, or other land use plans. The proposed Project and alternatives cross large tracts of undeveloped land, as well as urban and suburban areas. Approximately 75 percent of the Project alternatives considered in detail in the EIS would be parallel to existing linear facilities in disturbed corridors, including transmission and distribution lines, roads, gas lines, and abandoned railroad right-of-ways.

Approximately 27 percent of the Agency Preferred Alternative route would cross public lands administered by the BLM; State lands in New Mexico and Arizona form approximately 35 percent of the route; and the remaining 38 percent would cross county, private, tribal, and other non-Federal or State lands. Right of way would be acquired on these lands, which are generally used for grazing, farming, recreation, and open space. BLM and State lands are primarily used for grazing or recreation in open space areas. Residential uses are located on private lands in rural areas and near small cities and towns within the analysis area. As noted previously, approximately 85 percent of the Agency Preferred Alternative in the New Build Section, and approximately 98 percent in the Upgrade Section, would be parallel to existing or proposed linear infrastructure such as transmission lines, gas line, and roadways.

In general, land use impacts are minimized where linear utilities are constructed within established or designated corridors. The alignment of the Agency Preferred Alternative route was sited to maximize the use of established utility corridors, and to minimize conflicts with incompatible land uses such as wilderness, national parks and monuments, special management areas, conservation areas, densely populated areas, and military installations. For all segments, impacts to land uses would occur in some form along any portions of the route that cross undeveloped lands, irrigated agricultural lands, domestic farm wineries, residential subdivisions, and areas used for industrial or military testing and training. PCEMs would be effective in avoiding or minimizing direct impacts with land uses in most conditions. There would be no direct displacement of existing land use authorizations or ROWs, residential, business, or industrial structures.

B. Farmland and Range

Construction of the transmission line would have direct effects on farmlands and rangelands by removing land acreage from productivity. Except under extraordinary circumstances, all operation and maintenance activities would occur within the transmission line and access road ROWs. These activities would not directly or indirectly impact adjacent farmlands or rangelands. No direct effect would occur on farmlands and rangelands during the operation and maintenance phase of the proposed Project beyond the long-term loss of lands resulting from Project construction. The proposed Project would not significantly reduce farmlands or rangelands in the analysis area because farming and ranching operations are still allowable uses within the transmission line ROW. While permanent disturbance would result in a conversion of farmland to non-farmable land, temporary disturbance along the right-of-way would be returned to farmland. Much of the Agency Preferred Alternative parallels existing linear facilities, which have already resulted in conversion of land to non-farmable land.

C. Military Operations

Impacts to military operations could occur from construction, operation, and maintenance of the proposed Project where the transmission line, substations, and ancillary facilities intersect with military-owned, leased, or withdrawn (including Electronic Proving Ground/Buffalo Soldier Electronic Testing Range ("BSETR") facilities. This could include military training visual routes ("MTRs") or areas where training is for electronics and communications. Ground disturbance–based impacts on military uses would not be significant, as all operations/training occurring in visual routes is aerial in nature, and the BSETR is used for electronics and communications

testing. These impacts would be below the above-ground-level thresholds since the areas that may intersect military training visual routes include existing transmission line facilities that are already below above-ground-level thresholds, and the military operations have operated in conjunction with these facilities previously. Additionally, in accordance with PCEMs (*see* Final EIS Table 2-8), the Project would include the optional structure heights in areas intersecting some MTRs. Structures crossing the MTRs would also have anti-collision lighting to the maximum extent possible in order to make the hazard of transmission lines more apparent to pilots flying low altitude at night. These measures would mitigate impacts to military training and airspace usage, as well as contribute to the safe conduct of missions.

Within the Upgrade Section near Fort Huachuca, the proposed Project could include changes to the "zero point" level for electronics and communications testing purposes on the BSETR. An upgrade of the existing line would include a higher electronic load; however, any transmission line design would use best available technology to minimize electromagnetic interference. Therefore, upgrading the existing line could potentially reduce electromagnetic interference from current levels. Additionally the Department of Defense provided specific mitigation measures ("PCEMs") considered in the analysis to minimize impacts to the BSETR. Any changes to EMF would require Fort Huachuca to revise its radio frequency emitter inventory for this area to account for the new design and operation of the line. Existing transmission lines that are currently in operation within the BSETR are already accounted for in the existing EMF calculations.

The impact intensity of the proposed Project and alternatives on land use, including farm and range resources and military operations, would range from no impact to moderate. The impact intensity for the Agency Preferred Alternative would be minor.

XI. SPECIAL DESIGNATIONS

Potential impacts from construction activities that would be common to all action alternatives include direct ground disturbance and temporary increases in ambient noise levels in areas where the transmission line, substations, and ancillary facilities intersect with or are adjacent to special designations.

The only BLM special designations that would be intersected by the proposed Project would be National Trails and/or Trails Recommended as Suitable for National Trail Designation. The proposed Project crosses the Continental Divide National Scenic Trail ("NST"), Butterfield Trail, Arizona NST, Anza National Historic Trail, Sonoita Valley Acquisition Planning District, and approximately eight county or city parks. During

construction, increases in ambient noise levels, the presence of equipment, and dust would be temporary and would decrease with the completion of construction activities; therefore, the impact would be minor. There would be no expansion of the ROW in Pima County or the City of Tucson parks and conservation areas.

There would be no direct impacts on designated wilderness areas and wilderness study areas ("WSAs"), as no facilities would be sited within wilderness area or WSA boundaries. The short-term, indirect impacts to wilderness areas and WSAs during construction may include impacts to air quality, noise, visual, or other resources. Potential long-term, indirect impacts to wilderness areas or WSAs could include loss of outstanding opportunities for solitude or primitive and unconfined recreation as a result of changes to the visual character of the surrounding lands; these impacts are anticipated to be minor since existing facilities (*e.g.*, transmission lines, pipelines, roads) would also be visible. The impact intensity of the proposed Project and alternatives on special designations would range from no impact to minor. The impact intensity for the Agency Preferred Alternative would be minor.

XII. WILDERNESS CHARACTERISTICS

The BLM Las Cruces District Office reviewed and updated previous inventories for the Wilderness Inventory Units ("WIUs") that are included in the New Build Section of the analysis area to ensure consistency with previous conclusions for wilderness characteristics (*i.e.*, the area's size; naturalness; outstanding opportunities for solitude or primitive, unconfined recreation; and supplemental values).

Potential impacts to WIUs in terms of the four criteria (size; naturalness; outstanding opportunities for solitude or primitive, unconfined recreation; and other supplemental values) that must be present in order for the land to be considered as containing wilderness characteristics are analyzed in this EIS. Potential impacts from construction activities that would be common to all action alternatives under route groups 1 and 2 include direct ground disturbance and temporary increases in ambient noise levels in areas where the transmission line, substations, and ancillary facilities intersect with lands that possess wilderness characteristics. Increases in ambient noise levels would be temporary and would decrease with the completion of construction activities. This would be a short-term, minor impact to the opportunities for solitude and primitive, unconfined recreation in the immediate area. Ground disturbance and temporary increases in ambient noise levels would be a minor, short-term impact to the naturalness of the immediate area. However, ground disturbance would not occur across the entire right-of-way.

Within route groups 1 and 2, the proposed Project and alternatives would intersect 10 inventoried WIUs. No WIUs would be intersected by the proposed Project and alternatives in route groups 3 and 4. Where the Agency Preferred Alternative intersects the WIUs, those units were determined not to include the requisite wilderness characteristics. Therefore, no impacts to lands with wilderness characteristics along the Agency Preferred Alternative are expected. If an alternative or combination of alternatives other than the Agency Preferred Alternative is chosen in the ROD, additional field verification may be required to evaluate lands with potential wilderness characteristics. The impact intensity of the proposed Project and alternatives on wilderness characteristics would range from no impact to moderate. There would be no impact to wilderness characteristics from the Agency Preferred Alternative.

XIII. RECREATION

Construction of the proposed Project has the potential to have negligible to minor, short-term, direct, and indirect impacts to recreation opportunities or activities, desired recreation experiences, and the recreation setting. Where the proposed Project would parallel existing linear facilities (*i.e.*, transmission lines, gas lines, etc.), impacts would be negligible because these facilities are already factored into the existing recreation character. Where the proposed Project would not parallel existing linear facilities, the potential impacts would be minor where the existing conditions would change.

In particular, short-term, minor impacts would occur in at the intersections of the proposed Project with national trails and trails recommended as suitable for national trail designation, Aden Hills OHV area, Bar V Ranch, Tucson Mountain Park, Tumamoc Hill, Joaquin Murrieta Park, Santa Cruz River Park, and Christopher Columbus Park during construction. These short-term changes to the recreation setting would result from construction activities that would cause increased noise and fugitive dust.

Hunting opportunities (both big- and small-game) that could be disrupted by the construction of the proposed Project would not represent a significant impact to hunting overall, since the areas within game management units ("GMUs") that are outside the proposed Project footprint would remain available for hunting, subject to applicable laws and regulations. BLM and WAPA would coordinate the timing of activities with State game and fish management agencies to further minimize impacts to hunters. The impact intensity of the proposed Project and alternatives on recreation would range from no impact to minor. The impact intensity for the Agency Preferred Alternative would be minor.

XIV. SOCIAL AND ECONOMIC CONDITIONS

In general, the proposed Project would not have a significant impact on regional population or housing as a result of construction or operation. The construction of the New Build Section would directly and indirectly support an estimated total of 481 jobs, approximately 235 of which would be expected to be filled by local workers. Construction of the Upgrade Section would directly and indirectly support an estimated total of 270 jobs, approximately 138 of which would be filled by local workers. The combined total of about 378 non-local construction workers for the New Build Section and the Upgrade Section has the potential to create isolated, short-term shortages in temporary housing. In particular, the more remote portions of the project along the western parts of the New Build Section and the eastern portion of the Upgrade Section would be the most likely to experience a temporary strain on housing resources.

The proposed Project would generate State and local tax revenues during both the construction and the continued operation/maintenance stages. The construction of the New Build Section would generate approximately $462,000 in additional sales tax and $219,000 in State and local property taxes per year. Local governments would receive approximately $150,000 and $210,000 per year in sales and property taxes, respectively. Once Project construction is complete, the operation and maintenance of the New Build Section has the potential to initially generate approximately $4.2 million per year in additional property tax revenues for local governments.

Construction of the Upgrade Section of the proposed Project would generate approximately $309,000 in State and local sales tax and $214,000 in State and local property taxes per year. Local shares are estimated to be approximately $206,000 and $200,000, respectively. The initial property tax revenues during operation and maintenance of the proposed Project could be around $4.3 million per year. The impact intensity of the proposed Project and alternatives on social and economic conditions would be minor, including the Agency Preferred Alternative.

XV. ENVIRONMENTAL JUSTICE CONDITIONS

Sixteen of the 19 census tracts that would be crossed by any of the alternatives for the New Build Section, including the Agency Preferred Alternative, can be defined as environmental justice communities. In the Upgrade Section, 26 of the 37 census tracts potentially impacted by the Project can be defined as environmental justice communities. Compared with the states in which they are located, these communities have either higher minority populations or a greater proportion of residents living below the

poverty line, or both. These communities may be adversely affected by localized impacts, including noise and other disruptions during the construction phase and potentially diminished property values and visual characteristics during the operations and maintenance of the Project. However, few, if any, of these impacts would be characterized as "high." As the proposed Project is not anticipated to result in the condemnation of multiple residential properties or result in new visual impacts in close proximity to residential properties in previously undisturbed corridors, these impacts are not expected to be high.

Environmental justice communities may also be positively affected by the benefits of the proposed Project, including the short-term economic stimulus from construction activities and expenditures, short-term and longer-term increases in tax revenues, and added capacity and reduced congestion for electricity transmission. However, because these benefits are likely to be more geographically dispersed than the localized adverse effects, it is uncertain whether or not low-income and minority populations would receive disproportionate benefits from the proposed Project. Given the prevalence of low-income and minority residents throughout the area, impacts on these groups are likely inevitable from any feasible transmission line alignment; however, these residents and the area were not unduly targeted in order to site the proposed Project. The impact intensity of the proposed Project and alternatives on environmental justice conditions would be minor, including the Agency Preferred Alternative.

XVI. PUBLIC HEALTH AND SAFETY

Potential risks to public health and safety associated with construction activities would include, but would not be limited to, electrocution, exposure to extreme weather, falling, exposure to hazardous materials, and injury from equipment and materials. The implementation of Occupational Safety and Health Administration safety requirements through the use of PCEMs, along with other safety requirements, would minimize the chance that an accident could occur.

The potential for increased public exposure to EMF would occur in both the New Build and Upgrade Sections. While there are currently no Occupational Safety and Health Administration standards that address exposure to EMFs, nonbinding guidelines for EMF exposure have been developed by the International Commission on Non-Ionizing Radiation Protection, the Institute of Electrical and Electronics Engineers, and the American Conference of Governmental Industrial Hygienists. As noted in chapter 4 of the EIS, EMFs produced by the proposed Project are not expected to exceed these safety guidelines. In the New Build Section, transmission lines would be built in areas where

no current transmission lines exist and therefore would create the potential for public exposure to EMF where they did not previously occur. EMF impacts in the New Build Section would be negligible because the newly introduced EMFs would occur in areas that are sparsely populated, would not be adjacent to residential areas or areas where long-term public exposure would occur, and would be further reduced by the implementation of the PCEMs. Therefore, the potential increase of public exposure to EMFs from transmission lines in the New Build Section would be negligible, especially considering that EMF exposure guidelines would be met outside the right-of-way.

In the Upgrade Section, the EMFs currently created by the existing transmission infrastructure do not exceed EMF exposure guidelines within the right-of-way. Consequently, the existing transmission infrastructure is not impacting public health and safety. The upgraded lines would generate higher EMF levels within the ROW. However, EMF levels outside the right-of-way are expected to be comparable to EMF levels created by the existing transmission infrastructure as a result of the double-circuit configuration's phase cancellation effect. Therefore, any increased risk of public exposure to EMFs in the Upgrade Section would also be considered negligible.

The proposed Project would have both negative and beneficial long-term impacts to public health and safety. Potential long-term, negative impacts could occur as a result of increase of EMF in areas where they do not currently occur. However, with implementation of the PCEMs and proponent-proposed measures, the impacts to public health and safety would be expected to be negligible. Construction of the proposed transmission infrastructure would also have a long-term, beneficial impact to public health and safety by improving the reliability of electricity transmission to areas that would be served by the proposed infrastructure. In the Upgrade Section, the new facilities would be constructed to modern design standards, including modern hardware and grounding systems. These new facilities would require less frequent and less intensive maintenance work than the older facilities, resulting in decreased potential for occupational accidents to occur and a reduction in fire risks. The impact intensity of the proposed Project and alternatives on public health and safety would be minor, including the Agency Preferred Alternative.

XVII. HAZARDOUS MATERIALS AND HAZARDOUS AND SOLID WASTE

The potential impacts to human health and the environment from preexisting hazardous materials that may be present along the proposed Project corridor, and from hazardous materials generated during construction or operation and maintenance of the Project, were analyzed. With adherence to PCEMs to ensure safe handling, storage, and use of

hazardous materials, no effects are anticipated from preexisting hazardous materials or the use of hazardous materials under any of the action alternatives. The PCEMs described above would be implemented to prevent spills and leaks of hazardous materials and provide for adequate containment and cleanup if spills and leaks do occur. There would be no impact from hazardous materials and hazardous and solid waste from the proposed Project and alternatives, including the Agency Preferred Alternative.

XVIII. TRANSPORTATION

In general, the proposed Project would cross a sparsely populated rural area in the New Build Section and in the Upgrade Section with the exception of the Tucson metropolitan area. Traffic would be generated primarily during the construction, but also minimally during the maintenance and operation phases. However, given the existing low level of traffic on primary roadways within the New Build Section and the low level of anticipated traffic during construction, only short-term, minor impacts to traffic on primary roads would be anticipated. The additional traffic volume on primary roadways would represent a volume increase of 1 percent or less on various segments of I-10 in the New Build and Upgrade Sections.

Continued coordination with Federal, State, and local transportation agencies would ensure that the proposed Project would not impact transportation plans in the New Build and Upgrade Sections. Similarly, continued coordination with airports and the Federal Aviation Administration would ensure that the proposed Project would not interfere with flight paths or airport plans in the New Build and Upgrade Sections. Given the location of the proposed Project, it appears likely that the height of the proposed transmission structures (approximately 134 feet) would be below the runway approach surface elevations for all airports in both the New Build and Upgrade Sections.

The proposed Project in the New Build and Upgrade Sections would impact BLM roads and roadless areas by increasing opportunities for illegal access to roads/areas currently closed to public access. This impact would most likely occur from the construction of new access road types D (new down-ROW primary access) and E (spur roads). The impact of increasing access to BLM roads and BLM roadless areas would be considered minor. The impact intensity of the proposed Project and alternatives on transportation would be minor, including the Agency Preferred Alternative.

XIX. INTENTIONAL ACTS OF DESTRUCTION

Intentional acts of destruction could include sabotage or terrorism. Predicting the occurrence of intentional acts of sabotage or terrorism or the potential damage from these acts is not possible. By constructing and operating new transmission lines, saboteurs and terrorists would have a new potential target to carry out their acts. Historically, acts of sabotage and terrorism on transmission infrastructure have been rare, and the effects of events that have occurred have not had a significant impact to adjacent lands or public health and safety. Moreover, the addition of transmission lines and associated facilities generally strengthens the reliability of delivering electricity to the general public, because if one line is affected by an intentional act of destruction or any other disruption, other lines would be available to continue the delivery of electricity. Therefore, the potential impacts from the unlikely event of an act of terrorism or sabotage would be considered minor. There would be no impacts from the proposed Project and alternatives in terms of intentional acts of destruction.

XX. PROPOSED RESOURCE MANAGEMENT PLAN AMENDMENTS

No plan amendments would be required for any Project segments in Arizona. Additionally, the Agency Preferred Alternative would not require a plan amendment. In New Mexico, a plan amendment for the Mimbres Resource Management Plan ("RMP") would be required for the portion of the alternative route segment (local alternative LD2 near the Lordsburg Playa) that parallels an avoidance area designated for the Butterfield Trail. A plan amendment would also be required for the Mimbres RMP that would change the VRM Class II designation to VRM Class III or IV for six Project segments within the New Build Section that intersect VRM Class II lands located in New Mexico.

Amending the Mimbres RMP would not itself result in ground disturbance or development; this action would not directly or indirectly impact many resources beyond the direct and indirect impacts described in Sections 4.2 through 4.19 of the Final EIS.

XXI. CUMULATIVE EFFECTS

The effects of the proposed Project, when taken together with past, present, and reasonably foreseeable future actions, constitute the cumulative effects of the Project and are fully analyzed in Section 4.21 of the Final EIS. This analysis assumes that the proposed Project would be constructed and examines all action alternatives, including the Agency Preferred Alternative, agency local alternatives, and the Proponent Preferred

and Proponent Alternative routes. Because the Project was routed, and many agency alternatives were developed, along existing and proposed linear facilities, the cumulative effects analysis considers the past, present, and reasonably foreseeable future actions that may have cumulative effects, along with the proposed Southline Project. Approximately 85 percent of the Agency Preferred Alternative in the New Build Section would parallel existing or proposed linear infrastructure; virtually all of the Agency Preferred Alternative for the Upgrade Section would use WAPA's existing ROW, or parallel an existing road.

SCOPING, CONSULTATION, AND COORDINATION

Though not part of the NEPA process, Southline also conducted a series of stakeholder meetings and workshops in 2011, prior to the formal scoping period. The goals of these meetings were to give the public early notification and to solicit public input from interested stakeholders that would help Southline develop a proposed Project that could be presented to the BLM in a formal right-of-way application. Southline met with local jurisdictions such as city administrators, county commissioners and supervisors, and State officials in both New Mexico and Arizona, as well as representatives from local community organizations and agencies within the Project area.

As required under the National Environmental Policy Act of 1969, the BLM and WAPA (in coordination with cooperating agencies) conducted scoping in the early stages of the EIS preparation, to encourage public participation and solicit agency and public comments on the scope and significance of the proposed Project (40 C.F.R. § 1501.7).

The public was informed about the formal application for the Project and public scoping period by an NOI published in the Federal Register on April 4, 2012. This initiated the NEPA process for the Project and began a 60-day public scoping period, during which the public had the opportunity to provide input on potential issues to be addressed in the EIS. As a result of public requests for an extension of the 60-day scoping comment period, the scoping comment period was extended by 30 days (ending on July 5, 2012). The completed Southline Transmission Line Project Environmental Impact Statement Scoping Summary (September 2012) can be found on Exhibit B-2.

The BLM and WAPA published an NOA for the Draft EIS/Draft RMPA in the Federal Register on April 11, 2014. The NOA announced the release of the Draft EIS and the beginning of a 90-day comment period. BLM and WAPA hosted three public open houses/hearings and one agency meeting in each state, for a total of six public open houses/hearings and two agency meetings. These were hosted to provide information

on the proposed Project, answer questions about the analysis in the Draft EIS, and encourage public comments on the Draft EIS.

Consultation and coordination with Federal and intergovernmental agencies, organizations, American Indian tribes, and interested groups of individuals are important to ensure that the most appropriate data have been gathered and employed for analyses, and that agency and public sentiment and values are considered and incorporated into decision making. Throughout the preparation of the EIS, formal and informal efforts were made by the BLM and WAPA to involve these groups in the scoping process and in subsequent public involvement activities, formal consultation, and review of the EIS.

OTHER DECISIONS TO BE MADE

Approximately 35 percent of the proposed Project (including alternatives) would be located on BLM-administered public land. Other portions of the Project may be located on lands administered by Reclamation (Upgrade Section only), the U.S. Forest Service (Upgrade Section only), State (New Build and Upgrade Sections), and Tohono O'odham Nation (Upgrade Section only), as well as private lands.

Where the proposed Project would cross private and State lands, it would be subject to applicable land use planning regulations, zoning ordinances, or other requirements enforced by the State, county, or local jurisdiction, and Southline would need to secure any necessary permits. Acquisition of right-of-way on State lands would require application to the New Mexico State Land Office or Arizona State Land Department for right-of-entry and easements. Legal access or easements crossing private lands would need to be obtained from private landowners.

I. U.S. BUREAU OF RECLAMATION

A short (0.2-mile) segment of the existing WAPA 115-kV line and a segment of the Agency Preferred Alternative (segment U3i), as well as the existing WAPA owned and operated Rattlesnake Substation in urban Tucson, are located on Federal lands administered by Reclamation. Upgrade of the existing line and expansion of the Rattlesnake Substation on Reclamation lands would require Reclamation approval. Segment U3i is part of the Agency Preferred Alternative in the Final EIS.

II. DEPARTMENT OF DEFENSE

A short (0.2-mile) portion of the Proponent Preferred Alternative on the east side of Willcox Playa (segment P7) could cross DOD lands, depending on how the proposed Project is micro-sited in this area. Any applications for use of rights-of-way or easements on DOD lands would require DOD approval.

III. TOHONO O'ODHAM NATION

A 2.9-mile-long segment of WAPA's existing 115-kV line, as well as the Agency Preferred Alternative (segment U3a), crosses lands administered by the Tohono O'odham Nation, south of the existing Del Bac Substation in urban Tucson. Upgrade of the existing line on tribal lands would require approval by the Tohono O'odham Nation. WAPA is currently negotiating renewal of its existing right-of-way and the expansion needed for the upgrade to 230-kV for that portion of the line located on allotted tribal lands. Segment U3a is part of the Agency Preferred Alternative in the Final EIS.

EXHIBIT C

EXHIBIT C – AREAS OF BIOLOGICAL WEALTH

As stated in R14-3-219, Exhibits to Application, Exhibit C of the Rules of Practice and Procedure Before Power Plant and Transmission Line Siting Committee:

"Describe any areas in the vicinity of the proposed site or route which are unique because of biological wealth or because they are habitats for rare and endangered species. Describe the biological wealth or species involved and state the effects, if any, the proposed facilities will have thereon."

INTRODUCTION

The exhibit includes a description of special-status plant and wildlife species that may occur in the areas to be affected by the proposed Project-related facilities and areas of biological wealth along with a discussion of the regulatory framework.

The biological wealth study area includes the Project footprint for the CEC New Build Route, the CEC Upgrade Route, and CEC Substations. The CEC New Build Route includes 66 miles of new-345 kV transmission line and less than 1 mile of 115-kV or 230-kV transmission line from the Arizona border to the Apache Substation. The right-of-way ("ROW") width will be 200 feet for the CEC New Build Route.

The CEC Upgrade Route includes approximately 5 miles of new non-Western Area Power Administration ("WAPA") owned 138-kV and 230-kV connection lines and associated facilities to interconnect the upgraded WAPA 230-kV transmission lines to existing substations owned and operated by other Arizona load-serving utilities.. The connection lines will have a ROW width of 150 feet.

The CEC Substation expansions will occur outside the ROW in the New Build Section at Apache Substation (69.4 acres); and in the Upgrade Section at the Pantano (25.4 acres), Vail (27.7 acres), DeMoss Petrie (4.2 acres), and Tortolita Substations (16.1 acres).

Impacts to areas of biological wealth were considered by evaluating the presence or absence of suitable habitat within the study area, the potential for direct mortality, and habitat fragmentation.

REGULATORY FRAMEWORK

I. FEDERAL

A. National Environmental Policy Act

The National Environmental Policy Act ("NEPA") requires the federal government to assess the environmental impacts of major federal actions, which include actions undertaken (1) on federal land, (2) by a federal agency, (3) with federal funds, or (4) where the federal government will be issuing a permit.

B. Endangered Species Act

Section 7 of the Endangered Species Act ("ESA") of 1973, as amended requires federal agencies to consult with the U.S. Fish and Wildlife Service ("USFWS") to ensure that undertaking, funding, permitting, or authorizing an action is not likely to jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat. Critical habitat, as defined under the act, exists only after USFWS officially designates it. Critical habitats are (1) areas within the geographic area that have features essential to the conservation of the species and that may require special management consideration or protection; and (2) those specific areas outside the geographic area occupied by a species at the time it is listed that are essential to the conservation of the species.

C. Migratory Bird Treaty Act

The Migratory Bird Treaty Act ("MBTA") of 1918, as amended, gives federal protection to all migratory birds, including nests and eggs. This law states that it is unlawful to "pursue, hunt, take, capture, kill, attempt to take, capture or kill, possess, offer for sale, sell, offer to purchase, purchase, deliver for shipment, ship, cause to be shipped, deliver for transportation, transport, cause to be transported, carry, or cause to be carried by any means whatever, receive for shipment, transportation or carriage, or export, at any time, or in any manner, any migratory bird, included in the terms of this Convention . . . for the protection of migratory birds . . . or any part, nest, or egg of any such bird" (16 U.S.C. § 703). More than 800 species of migratory birds are protected under this law. The MBTA includes protection for all raptor species. This regulation does not discriminate between live or dead birds, and it also grants full protection to any bird parts, including feathers, eggs, and nests. In order to relocate or destroy any nest and maintain compliance with the MBTA, it is necessary to obtain a permit from the

USFWS, the responsible agency for regulating this law. Only those entities permitted by the USFWS can assist in the relocation of birds or nests. Section 1 of the USFWS Region 2 "Interim Empty Nest Policy" states that if the nest is completely inactive at the time of destruction or movement, a permit is not required to comply with the MBTA. If an active nest is observed during any activities related to the Project, measures should be taken to protect the nest from destruction and to avoid a violation of the MBTA.

D. Fish and Wildlife Coordination Act

The Fish and Wildlife Coordination Act of 1934, as amended, requires coordination with federal and state wildlife agencies (USFWS and the Arizona Game and Fish Department ("AGFD")) for the purpose of mitigating losses of wildlife resources caused by a Project that impounds, diverts, or otherwise modifies a stream or other natural body of water.

E. Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act ("BGEPA") of 1940 (16 U.S.C. §§ 668-668c), as amended, prohibits "taking" bald eagles (*Haliaeetus leucocephalus*) and golden eagles (*Aquila chrysaetos*), including their parts, nests, or eggs, without a permit from the USFWS. The Act provides criminal penalties for persons who "take, possess, sell, purchase, barter, offer to sell, purchase or barter, transport, export or import, at any time or any manner, any bald eagle . . . [or any golden eagle], alive or dead, or any part, nest, or egg thereof."

The BGEPA defines "take" as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest, or disturb." The USFWS defines "disturb" under the BGEPA as "to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, (1) injury to an eagle, (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior."

F. Bureau of Land Management Sensitive Plant Species

The Arizona offices of the Bureau of Land Management ("BLM") maintain lists of sensitive species that are known to occur on BLM lands and are listed by BLM districts that are managed by various field offices. These species are believed to be declining in numbers and may need special conservation measures. Potential threats to these species

are likely to include those for the ESA-listed species. BLM Sensitive Species in the Safford and Tucson Field Offices, which include Pinal, Pima, and Cochise Counties, Arizona, are listed in the Arizona Sensitive Species List (BLM 2010).

G. BLM Manual 6840

The BLM policy (Manual 6840) dictates that the BLM must carry out management for the conservation of state-listed plants and animals in addition to species protected under the ESA (BLM 2008e). BLM Manual 6840 is a federal guidance document that outlines the criteria for listing species as Sensitive on BLM-administered lands and provides direction on management of these species. BLM Sensitive Species are species that the USFWS currently lists under status review; species whose populations are declining rapidly and may warrant federal protection in the future; species that have small, widely distributed populations; and species that are located in special or unique habitats.

H. BLM Safford District Resource Management Plan

The Safford District Resource Management Plan ("RMP"), finalized in December 1991, establishes management direction for lands administered by the Safford District Office, extending from the New Mexico border to west of Benson. The CEC New Build Route of the proposed Project passes through this area. The Safford RMP identifies objectives and policies for lands managed by the BLM and identifies avoidance and exclusion areas that include wilderness areas.

I. BLM Phoenix District Resource Management Plan

The Phoenix District RMP, finalized in 1988, covers the BLM lands within the Phoenix District called the Phoenix Resource Area. It includes portions of the proposed Project's CEC Upgrade Route in Pima County from east of Benson to the Project terminus. The Phoenix District RMP identifies objectives and policies for lands managed by the BLM and avoidance and exclusion areas including wilderness study areas. This area is now managed by the Tucson Field Office.

II. STATE

A. Arizona Native Plant Law

The Arizona Native Plant Law (Arizona Department of Agriculture ("ADA") 2013a) and Revised Statutes (ADA 2013b) regulate the destruction and transportation of native plants that are growing wild in Arizona. This law establishes a list of protected plants in Arizona and prohibits removal or destruction of wild-growing, protected plants without a permit, whether on public, state, or private land. Parties interested in removing native plants in Arizona must complete an application with the ADA to receive a permit.

The ADA maintains a list of sensitive species separated into the categories of highly safeguarded, salvage restricted, salvage assessed, and harvest restricted (ADA 2013c). Highly safeguarded ("HS") species are those "whose prospects for survival in this State are in jeopardy or which are in danger of extinction throughout all or a significant portion of their ranges, and those native plants which are likely within the foreseeable future to become jeopardized or in danger of extinction throughout all or a significant portion of their ranges" (Arizona Revised Statutes ("ARS") § 3-903.B.1) (ADA 2013b). Salvage restricted ("SR") species are those "which are not included in the highly safeguarded category but are nevertheless subject to a high potential for damage by theft or vandalism" (ARS § 3-903.B.2) (ADA 2013b). Salvage assessed ("SA") species are those "which are not included in either the highly safeguarded or salvage restricted categories but nevertheless have a sufficient value if salvaged to support the cost of salvage tags and seals" (ARS § 3-903.B.3) (ADA 2013b). Harvest restricted species are those "which are not included in the highly safeguarded category but are subject to excessive harvesting or overcutting because of the intrinsic value of their by-products, fiber, or woody parts" (ARS § 3-903.B.4) (ADA 2013b). Permitting procedures for collection or salvage of protected plants are provided in ARS 3-906.

B. Arizona State Wildlife Action Plan

Per the Arizona State Wildlife Action Plan, the State of Arizona lists various wildlife species as SGCN, which is an AGFD status listing defined as wildlife of conservation priority – described nationally as Wildlife of Greatest Conservation Need. As discussed in the 2012 AGFD's Comprehensive Wildlife Conservation Strategy (AGFD 2012a), SGCN are species of vertebrates, crustaceans, and mollusks that rank high in the vulnerability category and have been identified for immediate action.

III. COUNTY

A. Pima County Sonoran Desert Conservation Plan

The Sonoran Desert Conservation Plan (SDCP), prepared by Pima County (2009), was developed as an ESA Section 10 consultation with USFWS. The plan includes 23 species in Pima County of which four are plant species.

B. Pima County Native Plant Protection Ordinance

Pima County regulates the loss of native plant material associated with ground-disturbing activities through their Native Plant Protection Ordinance ("NPPO") (Pima County 1998). The NPPO requires inventory of the site, along with protection and mitigation of certain plant species slated for destruction. There are various tables that determine the mitigation ratio for different native plant species (*e.g.*, saguaros (*Carnegiea gigantea*), ironwood trees (*Olneya tesota*), and Pima pineapple cactus (*Coryphantha scheeri* var. *robustispina*).

METHODOLOGY

Areas of biological wealth include areas of designated critical habitat, wildlife corridors, areas managed for conservation of biological resources, and other areas identified during the NEPA process (Figure C-1 Areas of Biological Wealth). Special status species that may occur in the study area are included in Final EIS Table C-1. These include species listed under the ESA, BLM Sensitive Species, State of Arizona Wildlife Species of Concern, State of Arizona Species of Greatest Conservation Need, and species covered under the Pima County Multi-species Conservation Plan. These species are discussed in further detail below.

INVENTORY AND EFFECTS OF THE PROPOSED FACILITIES

I. AREAS OF BIOLOGICAL WEALTH

A. Willcox Playa Wildlife Area

The AGFD owns and administers the Willcox Playa Wildlife Area on the southeastern edge of the Playa for hunting and wildlife recreation. The Willcox Playa Wildlife Area is considered to be high value habitat for Arizona wildlife species. The original management emphasis for the Willcox Playa Wildlife Area was waterfowl and

waterfowl habitat (AGFD 2015); however, because sandhill cranes have increased in number at the wildlife area, the management emphasis now is sandhill crane winter habitat, wildlife education, and viewing. The Wildlife Area is considered to be Resource Category 1 under the AGFD's habitat compensation policy (AGFD, 2010a). Resource Category 1 areas have a compensation goal of no loss of existing in-kind habitat value. With the implementation of Project mitigation and Proponent committed environmental measures ("PCEMs") to relocate Crane Lake and to further enhance the Wildlife Area with pond renovations and vegetation management (*see* Final EIS Table 2-8 in Exhibit B-1 and Exhibit J-3), the policy goal will be met and possibly exceeded.

Sandhill cranes utilize Willcox Playa and the agricultural fields to the south and east for foraging and roosting habitat and make a daily migration between the Playa and the fields. The Project will pass northwest of Crane Lake through the AGFD managed Willcox Playa Wildlife Area, an important winter roosting area for the sandhill cranes. There is the potential for sandhill crane collisions with the transmission line during daily migration that could impact individual sandhill cranes. With the implementation of PCEMs such as line marking devices and mitigation measures requested by the AGFD, including (1) funding the relocation of Crane Lake away from P7, (2) funding riparian emergent wetlands along Kansas Settlement Road, and (3) funding the management of non-native vegetation; the intensity of impacts to habitat in the Willcox Playa Wildlife Area will be reduced. Based on the amount of habitat available within the study area and implementation of PCEMs, impacts on sandhill cranes will be minor and both short- and long-term. As such, there will be no detectable effect on the viability of this species by Project-related activities or contribution toward a downward population trend or listing of this species as threatened or endangered.

B. Willcox Playa /Lake Cochise Important Bird Area

The National Audubon Society considers the Willcox Playa/Lake Cochise as an Important Bird Area ("IBA") of global priority because of the large concentration (greater than 1 percent of the North America population simultaneously or greater than 5 percent of the entire population over a single season) of sandhill cranes that use the Playa as overwintering habitat (National Audubon Society 2013). Ducks Unlimited (2013) considers the Playa as an important part of the Pacific flyway for waterfowl and performs some habitat projects in the area, though it does not consider the flyway where the playa is situated to be one of high conservation concern. Local birding organizations, including Wings over Willcox (2013), consider the Playa and immediately adjacent habitats to be important for bird populations.

The alkaline lakebed itself supports large numbers (5,000 to 9,000) (see National Audubon Society 2013) of roosting sandhill cranes in the winter months, which garners much of the attention of birding enthusiasts. However, when the lakebed fills with water from seasonal precipitation, it also supports thousands of waterfowl, gulls, and other shorebirds of more than 100 species, particularly during migratory periods. While the lakebed is sparsely covered by a variety of grasses, the shrub cover on its margins can be quite extensive, consisting of saltbush, mesquite, and tamarisk (*Tamarix ramosissima*). A few Goodding's willows (*Salix gooddingii*) and Fremont cottonwoods (*Populus fremontii*) also persist in the drainages ditches that have been constructed around the playa (Northern Arizona University 2011b). These habitats support a variety of avian species ranging from migrating warblers to several raptor species.

Also in the immediate vicinity of the Willcox Playa are two networks of manmade lakes named Twin Lakes or Cochise Lakes. They are located just south of Willcox, Arizona, near a municipal golf course and are fed by effluent discharges from the nearby wastewater treatment plant and the golf course. The second network was created by the Arizona Electric Power Cooperative near the Apache generating station on the west side of the playa. Both of these wetlands support foraging habitat for migrating waterfowl and shorebirds.

C. Designated Critical Habitat

There is no designated critical habitat in the study area.

D. Wildlife Linkages

Potential wildlife linkage zones ("PLZs") are areas identified as important areas for wildlife movement. There are three PLZs within the study area. They include the Ironwood - Tortolita PLZ, the Pinaleño – Dos Cabezas – San Simon Valley PLZ; and the Willcox Playa – Winchester – Pinaleño – Dos Cabezas PLZ (Figure C-1).

Ironwood – Tortolita PLZ

The Ironwood – Tortolita PLZ provides a roughly northeast-southwest linkage between the habitat blocks in the Ironwood Forest National Monument and the Tortolita Mountains (Figure C-1). Focal species include black bear (*Ursus americanus*), Chiricahua leopard frog (*Lithobates chiricahuensis*), giant-spotted whiptail (*Aspidoscelis stictogramma*), Gila chub (*Gila intermedia*), Gila topminnow (*Poeciliopsis occidentalis*), javelina (*Tayassu tajacu*), lesser long-nosed bat (*Leptonycteris curasoae yerbabuenae*), longfin dace (*Agosia*

chryogaster chryogaster), lowland leopard frog (*Lithobates yavapaiensis*), Mexican long-tongued bat (*Choeronycteris mexicana*), Mexican spotted owl (*Strix occidentalis lucida*), mountain lion (*Puma concolor*), northern gray hawk (*Buteo plagiatus*), ornate box turtle (*Terrapene ornata ornata*), Sonoran desert tortoise (*Gopherus morafkai*), western red bat (*Lasiurus blossevillii*), western yellow-billed cuckoo (*Coccyzus americanus*), and white-tailed deer (*Odocoileus virginianus*). The Project intersects this PLZ on approximately 44 acres.

Pinaleño - Dos Cabezas - San Simon Valley PLZ

The Pinaleño - Dos Cabezas - San Simon Valley PLZ provides north-south and east-west linkages among the habitat blocks in the Pinaleño Mountains, San Simon Valley, and Dos Cabezas Mountains (Figure C-1). Focal species include-California leaf-nosed bat (*Macrotus californicus*), fringed myotis (*Myotis thysanodes*), jaguar (*Panthera onca*), long-legged myotis (*Myotis volans*), Mexican spotted owl, mule deer (*Odocoileus hemionus*), ornate box turtle, Pale Townsend's big-eared bat (*Corynorhinus townsendii*), Texas horned lizard (*Phrynosoma cornutum*), white-nosed coati (*Nasua narica*), and yellow-nosed cotton rat (*Sigmodon ochrognathus*). The Project crosses this PLZ on approximately 697 acres.

Willcox Playa - Winchester - Pinaleño - Dos Cabezas PLZ

The Willcox Playa- Winchester – Pinaleño – Dos Cabezas PLZ provides north-south and east-west linkages among the habitat blocks in Willcox Playa, the Winchester Mountains, the Pinaleño Mountains, and the Dos Cabezas Mountains (Figure C-1). Focal species include bobcat (*Lynx rufus*), Chiricahua leopard frog, javelina, kit fox (*Vulpes macrotis*), Mexican spotted owl, mountain lion, mule deer, ornate box turtle, Plain's leopard frog (*Lithobates blairi*), Texas horned lizard, and western burrowing owl (*Athene cunicularia hypugaea*). The Project crosses this PLZ on approximately 282 acres.

E. Pima County Conservation Lands System

The Project crosses lands managed by Pima County as Biological Core Management Areas and Important Riparian Areas (Figure C-1). The Pantano Substation expansion will impact these two areas. The expansion will occur on approximately 25 acres of the Biological Core Management Area and on approximately 0.5 acre of an Important Riparian Area.

Biological Core Management Areas are primarily distinguished from other lands within the Conservation Land System ("CLS") by their potential to support high-value habitat for five or more priority vulnerable species as identified by the SDCP (Regional Plan Policy 6 Environmental Element 2005). At least 80 percent of the total acreage of lands within this designation shall be conserved as undisturbed natural open space. As such, land use changes will result in 4:1 land conservation (*i.e.*, 4 acres conserved for every 1 acre developed) and may occur through a combination of onsite and/ or offsite conservation inside the Biological Core Management Area or Habitat Protection Priority Areas.

Important Riparian Areas are valued for their higher water availability, vegetation density, and biological productivity. In addition to the inherent high biological value of these water-related communities, important riparian areas including their associated upland areas provide a framework for linkages and landscape connections. Important riparian areas are essential elements in the CLS (Regional Plan Policy 6 Environmental Element 2005). At least 95 percent of the total acreage of lands within this designation shall be conserved in a natural or undisturbed condition. Every effort should be made to protect, restore, and enhance the structure and functions of Important Riparian Areas, including their hydrological, geomorphological, and biological functions. Areas within an Important Riparian Area that have been previously degraded or otherwise compromised may be restored and/or enhanced. Such restored and/or enhanced areas may contribute to achieving the 95 percent conservation guideline for Important Riparian Areas. (Regional Plan Policy 6 Environmental Element 2005).

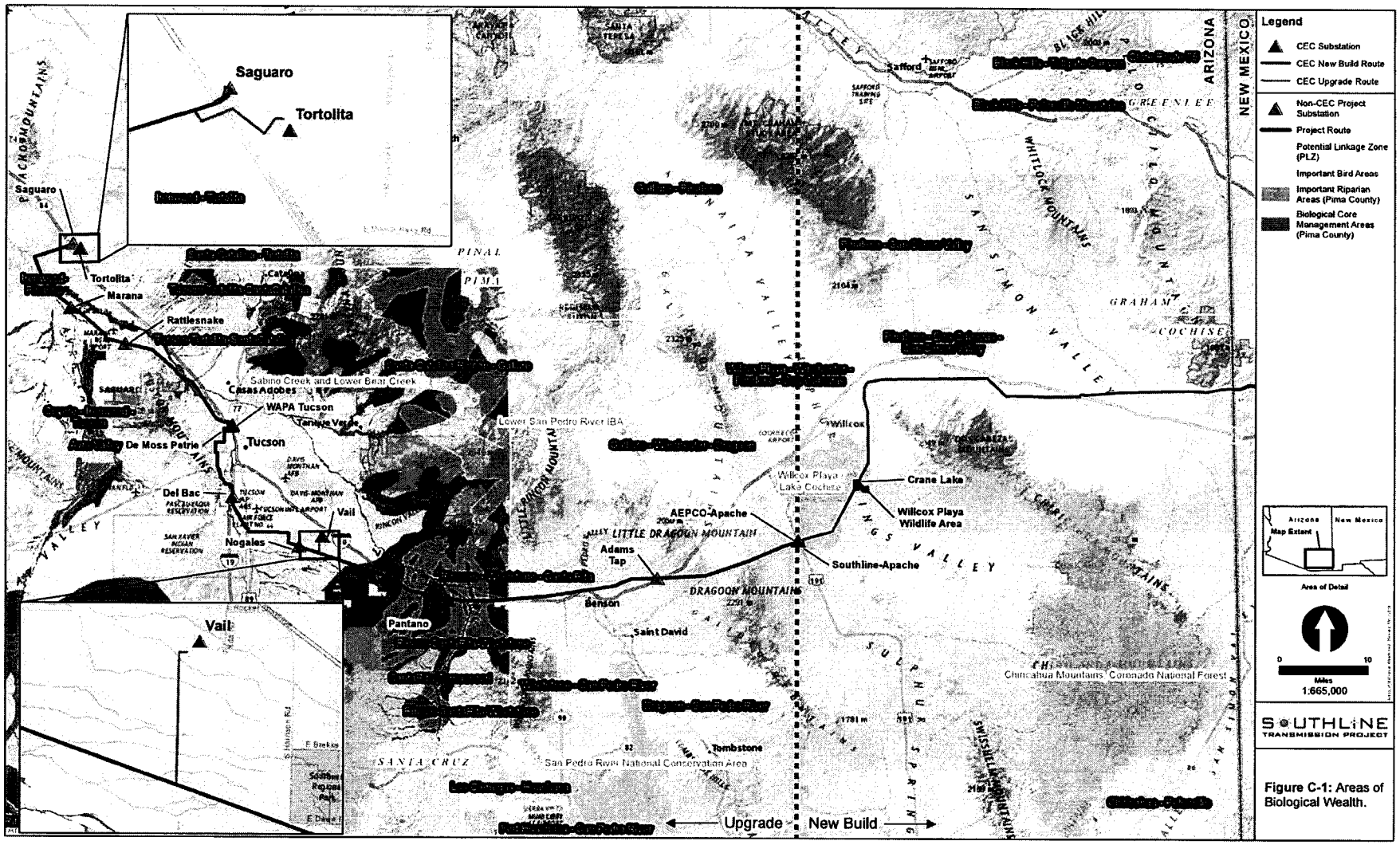

Figure C-1: Areas of Biological Wealth.

II. SPECIAL STATUS SPECIES

Final EIS Table C-1 lists each special-status species reviewed, and provides a rationale for whether each species may occur in the study area. Detailed discussions of individual species that may occur are provided following the table.

Impacts to ESA-listed species were assessed in detail during Section 7 consultation for the Project (*see* Exhibit B-1, Final EIS Section 5.5.2). The BLM provided a Biological Assessment ("BA") and additional communications reflecting new information on ESA-listed species to the USFWS to support Section 7 consultation. This section incorporates terms and conditions provided in the Biological Opinion ("BO") and amendment issued by the USFWS, for each ESA-listed species that may be affected by the Project. These terms and conditions were also incorporated as requirements in the BLM and WAPA's Records of Decision (*see* Exhibits B-3 and B-4, respectively).

Table C-1. Special Status Species that May Occur in the Vicinity of the Project in Arizona

Common Name *Scientific Name*	Habitat	Status	Potential for Occurrence
Mammals			
Allen's big-eared bat *Idionycteris phyllotis*	Ponderosa pine, pinyon-juniper woodlands, Mexican woodlands and riparian areas. Roosts in caves and mines.	BLM Sensitive	May occur.
Antelope jackrabbit *Lepus alleni*	Desertscrub and grasslands.	AZ WSC	May occur.
Arizona pocket mouse *Perognathus amplus*	Desertscrub and grasslands.	AZ WSC	May occur.
Banner-tailed kangaroo rat *Dipodomys spectabilis*	Areas with sparse cover in desertscrub.	BLM Sensitive	May occur.
Big free-tailed bat *Nyctinomops macrotis*	Coniferous and mixed woodland, Chihuahuan tarbush creosote and Sonoran mesquite creosote desertscrub, and riparian areas. Roosts in cliffs.	BLM Sensitive	May occur.
California leaf-nosed bat *Macrotus californicus*	Desertscrub with roosts in mines, caves and rock shelters.	BLM Sensitive	May occur.
Cave myotis *Myotis velifer*	Desertscrub communities. Roosts in caves and mines.	BLM Sensitive	May occur.
Fringed myotis *Myotis thysanodes thysanodes*	Mid-elevation desert habitats including desertscrub and grasslands, but typically associated with oak-pinyon woodlands. Roosts in caves and abandoned mines.	BLM Sensitive	May occur.
Greater western mastiff bat *Eumops perotis californicus*	Lower and upper Sonoran Desertscrub near cliffs. Roosts in crevices within high cliff walls.	BLM Sensitive	May occur.
Harris' antelope squirrel *Ammospermophilus harrisii*	Desertscrub habitat in areas with dense vegetation.	AZ WSC	May occur.
Kit fox *Vulpes macrotis*	Desertscrub.	AZ WSC	May occur.

Common Name *Scientific Name*	Habitat	Status	Potential for Occurrence
Lesser long-nosed bat *Leptonycteris curasoae yerbabuenae*	Desertscrub habitat with agave and columnar cacti present as food source. Roosts in caves and abandoned mines.	USFWS Endangered	May occur.
Little brown myotis *Myotis lucifugus occultus*	Roosts in buildings, cavities, and abandoned mines. Forages along water surfaces. Utilizes areas near water in pine-oak woodlands, desertscrub, ponderosa pine forests, spruce-fir forests, coniferous forests, and deciduous riparian habitats. Throughout Arizona except southeastern portion. Elevations range from 1,000 to 8,000 feet	BLM Sensitive	May occur
Little pocket mouse *Perognathus longimembris*	Desertscrub and grasslands in western and southwestern Arizona.	AZ WSC	May occur.
Long legged-myotis *Myotis volans interior*	Montane communities, desertscrub, riparian areas, and oak-juniper woodlands. Roosts in snags, caves, abandoned mines, rocky cliffs and buildings.	BLM Sensitive	May occur.
Mexican free-tailed bat *Tadarida brasiliensis*	Desert scrub, coniferous forests, and coniferous woodlands.	AZ SGCN	May occur.
Mexican long-nosed bat *Leptonycteris nivalis*	Caves and mines near ocotillo, yucca, agave, manzanita, oaks, and juniper. Animas and Guadalupe Canyon of the southernmost Peloncillo Mountains of extreme southwestern Hidalgo County of New Mexico. Also may occur in eastern Arizona. Elevations range from 4,600 to 6,200 feet	USFWS Endangered	May occur
Mexican long-tongued bat *Choeronycteris mexicana*	Mesic areas of mixed oak-conifer communities and desert grasslands. Roosts in caves and abandoned mines.	BLM Sensitive	May occur.
Pale Townsend's big-eared bat *Corynorhinus townsendii pallescens*	Xeric habitats including sagebrush, desertscrub, chaparral, deciduous forests and coniferous forests. Roosts in caves and abandoned mines.	BLM Sensitive	May occur
Pocketed free-tailed bat *Nyctinomops femorosaccus*	In Arizona, forages in riparian corridors dominated by sycamore and mesquite and bounded by large cliffs. Roosts in cliffs and tall, rocky outcrops.	AZ WSC	May occur.
Spotted bat *Euderma maculatum*	Roosts in crevices and high cliff walls. Inhabits desertscrub, riparian, pinyon-juniper woodlands, and coniferous forests.	BLM Sensitive	May occur.

Common Name *Scientific Name*	Habitat	Status	Potential for Occurrence
Yuma myotis *Myotis yumanensis yumanensis*	Roosts in buildings, cliffs, caves, trees and abandoned mines. Forages in a variety of habitats near open water.	BLM Sensitive	May occur.
Desert bighorn sheep *Ovis canadensis Mexicana*	Pinyon-juniper, Sonoran desertscrub, and Chihuahuan Desert communities. Rocky, arid, and open areas. Near (within 1 mile) water sources.	AZ SGCN	May occur.
Birds			
Abert's towhee *Melozone aberti aberti*	Lowland riparian thickets and adjacent dry desert washes, irrigated parks and backyards.	AZ WSC	May occur.
American bittern *Botaurus lentiginosus*	Marshes and very wet meadows with dense, emergent vegetation along rivers lakes and ponds.	AZ WSC	Unlikely to occur.
American peregrine falcon *Falco peregrinus anatum*	Woodlands and riparian areas, rocky areas with steep cliffs primarily near water where prey concentrations are high. Nests on ledges of cliffs.	AZ SGCN	May occur.
Bald eagle *Haliaeetus leucocephalus*	Areas with large trees or cliffs near water (reservoirs, rivers, and streams) and abundant prey.	Bald Eagle and Golden Eagle Protection Act	May occur.
Bank swallow *Riparia riparia*	Low areas along rivers, streams, reservoirs and oceans, often with cliffs or vertical banks.	AZ WSC	Unlikely to occur.
Bell's vireo *Vireo bellii*	Dense, shrubby vegetation along woodland edges, especially with a mesquite component.	AZ WSC	May occur.
Buff collared nightjar *Antrostomus ridgwayi*	Desert drainages with dense vegetation.	AZ SGCN	May occur.
Cactus ferruginous pygmy-owl *Glaucidium brasilianum cactorum*	Sonoran desertscrub and occasionally in riparian drainages and woodlands within semidesert grassland communities.	BLM Sensitive	May occur.
Crested caracara *Caracara cheriway*	Sonoran desertscrub, pastures, and cultivated areas.	AZ WSC	May occur.

Common Name *Scientific Name*	Habitat	Status	Potential for Occurrence
Desert purple martin *Progne subis hesperia*	Nests in tree or cactus cavities. Sonoran Desert populations nest almost exclusively in large saguaros	AZ SGCN	May occur.
Eared grebe *Podiceps nigricollis*	Shallow lakes and ponds.	AZ SGCN	Unlikely to occur.
Gila woodpecker *Melanerpes uropygialis uropygialis*	Sonoran desert uplands with large saguaros.	AZ WSC	May occur.
Gilded flicker *Colaptes chrysoides*	Sonoran Desert uplands, utilizes saguaro cacti.	BLM Sensitive	May occur.
Golden eagle *Aquila chrysaetos*	Inhabits open areas with cliffs for nesting.	Bald Eagle and Golden Eagle Protection Act	May occur.
Loggerhead shrike *Lanius ludovicianus*	Variety of forest types, xeric habitats, desertscrub, mixed shrub, and agricultural fields. Throughout Arizona. Elevations range from 2,800 to 7,500 feet.	BLM Sensitive	May occur.
Northern aplomado falcon *Falco femoralis septentrionalis*	Grasslands and savannas, Nonessential experimental population designated in Arizona, In Arizona this species is extremely rare. Elevations range from 3,500 to 9,000 feet.	USFWS E, Experimental Population, Non-Essential	May occur.
Northern harrier *Circus cyaneus*	Grasslands and wetlands, wintering habitat includes deserts, sand dunes, agricultural fields, grasslands and marshes.	AZ WSC	May occur.
Northern pintail *Anas acuta*	Found in shallow wetlands with low vegetation. Wintering habitat include shallow inland freshwater habitats.	AZ SGCN	Unlikely to occur.
Sandhill crane *Grus canadensis*	Agricultural fields, annual grasslands, farmlands, and playas. Shallow waters. Willcox Playa in Arizona.	AZ SGCN	May occur.

Common Name *Scientific Name*	Habitat	Status	Potential for Occurrence
Southwestern willow flycatcher *Empidonax traillii extimus*	Cottonwood/willow and tamarisk vegetation communities along rivers and streams.	USFWS E	Unlikely to occur, no habitat present in the CEC Proposed Route.
Sprague's pipit *Anthus spragueii*	Native grasslands with vegetation of intermediate height and lacking woody shrubs.	BLM Sensitive	May occur.
White-faced ibis *Plegadis chihi*	Vegetation along shorelines, marshes, and open water. Nests in shrubs and low trees. Found in desert riparian woodlands with sufficient permanent water for emergent plants, moist grasslands, and irrigated agricultural fields. Nest at Cibola Lake, migrate throughout Arizona.	BLM Sensitive	May occur.
Western burrowing owl *Athene cunicularia hypugaea*	Open grasslands and agricultural areas.	BLM Sensitive	May occur.
Yellow warbler *Setophaga petechia*	Streams and wetlands.	AZ WSC	May occur.
Reptiles			
Canyon spotted whiptail *Aspidoscelis burti*	Primarily in Semidesert Grassland and Madrean Evergreen Woodland communities and in drainages in Sonoran desertscrub.	AZ WSC	May occur
Desert ornate box turtle *Terrapene ornata [luteola]*	Semi-arid regions with plains, grasslands, and pastures. Often associated with prairie dog towns.	BLM Sensitive	May occur.
Gila monster *Heloderma suspectum*	Sonoran desertscrub and less often in semidesert grasslands.	AZ WSC	May occur.
Goode's horned lizard *Phrynosoma goodie*	Lower Colorado River Valley Subdivision of Sonoran desertscrub.	AZ SGCN	May occur
Ground snake *Sonora semiannulata*	Desertscrub, semidesert grassland, interior chaparral, and Great Basin grassland.	Pima County	May occur.
Regal horned lizard *Phrynosoma solare*	Sonoran desertscrub, Chihuahuan desertscrub and semidesert grassland	AZ WSC	May occur.

Common Name *Scientific Name*	Habitat	Status	Potential for Occurrence
Saddled leaf-nosed snake *Phyllorhynchus browni*	Sonoran desertscrub.	AZ WSC	May occur.
Sonoran collared lizard *Crotaphytus nebrius*	Sonoran desertscrub.	AZ WSC	May occur.
Sonoran coralsnake *Micruroides euryxanthus*	desertscrub to semidesert grassland	AZ WSC	May occur.
Sonoran desert tortoise *Gopherus morafkai*	Sonoran desertscrub but may also use semidesert grassland and Madrean evergreen woodland.	BLM Sensitive	May occur.
Sonoran mud turtle *Kinosternon sonoriense sonoriense*	Creeks, streams, and rivers as well as ditches, ponds, and cattle tanks in Lower Colorado River desertscrub through woodlands.	BLM Sensitive	May occur.
Sonoran whipsnake *Coluber bilineatus*	Desertscrub, semidesert grassland, Madrean evergreen woodland and into Great Basin conifer woodland	AZ WSC	May occur.
Texas horned lizard *Phrynosoma cornutum*	Chihuahuan desertscrub and semidesert grassland, Flat, dry, open country with low plant cover. Sandy, loamy or rocky soils.	BLM Sensitive	May occur.
Tiger rattlesnake *Crotalus tigris*	Desertscrub, interior chaparral, and Madrean evergreen woodland.	AZ WSC	May occur.
Variable sandsnake *Chilomeniscus stramineus*	Sonoran desertscrub.	AZ WSC	May occur.
Amphibians			
Chiricahua leopard frog *Lithobates chiricahuensis*	Springs, streams in upper portions of watersheds, and livestock tanks free from non-native predators or in marginal habitats. Southern population is in the mountains and valleys south of the Gila River in the southeastern part of the State. Elevations range from 3,300 to 8,900 feet.	USFWS T	Unlikely to occur.
Colorado River toad (aka Sonoran desert toad). *Bufo alvarius*	Sonoran and Chihuahuan desertscrub, semidesert grassland, and Madrean evergreen woodland. Breeds in temporary pools caused by monsoon rains. Adults can be found far from water. Southern Arizona.	BLM Sensitive	May occur.

Common Name *Scientific Name*	Habitat	Status	Potential for Occurrence
Lowland leopard frog *Lithobates yavapaiensis*	Desert grasslands to pinyon-juniper forests near water. Habitat generalists. Central and southeastern Arizona with the majority found below the Mogollon Rim. Elevations below 6,200 feet.	BLM Sensitive	Unlikely to occur.
Great Plains narrow-mouthed toad *Gastrophryne olivacea*	Found near streams, springs, and rain pools in Sonoran desertscrub, semidesert grasslands, and oak woodlands.	BLM Sensitive	May occur.
Sonoran green toad *Bufo retiformis*	Sonoran Desertscrub near rain pools, wash bottoms, and areas near water.	BLM Sensitive	May occur.
Plants			
Button cactus *Epithelantha micromeris*	Found in the Chihuahuan Desert in semi-desert grasslands on ridges and hillsides with limestone and sometimes igneous soils.	Salvage Restricted	May occur.
Chihuahua scurfpea *Pediomelum pentaphyllum*	Desert grasslands in sandy, loamy soils.	BLM Sensitive	Unlikely to occur.
Devilthorn hedgehog cactus *Echinocereus pseudopectinatus*	Found in the Chihuahuan desert, primarily in grasslands, desertscrub, igneous substrates and rocky slopes.	Salvage Restricted	May occur.
Dune prickly pear *Opuntia arenaria*	Sandy areas in Chihuahuan desertscrub.	Salvage Restricted.	Unlikely to occur.
Gregg night-blooming cereus *Peniocereus greggii*	Desert grasslands and Chihuahuan desertscrub.	Salvage Restricted	May occur.
Huachuca water umbel *Lilaeopsis schaffneriana var. recurva*	Semi-aquatic and aquatic systems.	ESA Endangered	Unlikely to occur.
Needle-spined pineapple cactus *Echinomastus erectocentrus* var. *erectocentrus*	Desert grasslands on low gravelly hills with igneous and limestone substrates.	Salvage Restricted	Unlikely to occur.

Common Name *Scientific Name*	Habitat	Status	Potential for Occurrence
Parish's alkali grass *Puccinellia parishii*	Restricted to alkali springs, seeps, and seasonally wet areas near the heads of drainages	Highly Safeguarded	May occur.
Pima pineapple cactus *Coryphantha scheeri* var. *robustispina*	Found in semi-desert grassland or Sonoran desertscrub.	ESA Endangered	May occur.
Playa spider plant *Cleome multicaulis*	Found in in wet, saline, or alkaline soils in playas or alkaline meadows.	Salvage Restricted	May occur.
San Carlos wild-buckwheat *Eriogonum capillare*	Disturbed, gravelly areas free from competition as well as on slopes and in washes.	Salvage Restricted	May occur.
Slender needle corycactus *Coryphantha scheeri* var. *valida*	Found in deep, sandy soils in the bottomlands or grasslands and deserts.	Salvage Restricted	May occur.
Varied fishhook cactus *Mammillaria viridiflora*	Found in in semi-desert grassland, interior chaparral and pinyon-juniper woodlands on gravelly igneous substrates.	Salvage Restricted.	May occur.
Wilcox pincushion cactus *Mammillaria wrightii* var. *wilcoxii*	Found in low hills in semi-desert grassland, along the edges of pine-oak woodlands as well as on steep alluvial slopes.	Salvage Restricted.	May occur.
San Pedro River wild buckwheat *Eriogonum terrenatum*	Found in limestone and clay soils of the St. David formation. It is found in gravelly soils in association with creosotebush and whitethorn acacia. It is known range is limited to two disjunct populations, one on the San Pedro River south of St. David and the other on Cienega Creek near Pantano Road.	BLM Sensitive	Unlikely to occur.
Littleleaf false tamarind *Lysiloma watsonii*	Found in the Arizona Upland subdivision of Sonoran desertscrub and in desert grasslands on rocky hillsides as well as the slopes of creeks and tributaries.	Salvage Restricted	May occur.
Thornber fishhook cactus *Echinocereus fasciculatus*	Found in Sonoran desertscrub under shrubs on valley floors in silty or sandy substrates.	Salvage Restricted	May occur.
Magenta-flowered hedgehog cactus *Mammillaria thornberi*	Found in Sonoran desertscrub, semi-desert grassland, and interior chaparral.	Salvage Restricted	May occur.

Common Name *Scientific Name*	Habitat	Status	Potential for Occurrence
Kelvin cholla *Cylindropuntia x kelvinensis*	Found in the edges of grasslands, desertscrub, rolling hills, and rocky flats and slopes.	Salvage Restricted	May occur.
Night blooming cereus *Peniocereus greggii* var. *transmontanus*	Found in Sonoran Desert, desertscrub in creosote-bursage flats, along the edges of washes, and on the slopes of small hills with sandy or gravelly loam substrates.	Salvage Restricted	May occur.
Pima Indian mallow *Abutilon parishii*	Found in Sonoran desertscrub on rocky hillsides, cliff bases, canyon bottoms, and among rocks and boulders on canyon edges.	BLM Sensitive	May occur.
Staghorn cholla *Cylindropuntia versicolor*	Found in Sonoran Desert, desertscrub, in canyons, washes, flats, and rocky hillsides.	Salvage Restricted	May occur.
Desert barrel cactus *Ferocactus cylindraceus*	Found in the Sonoran and Mohave deserts on gravelly or rocky hillsides, canyon walls, alluvial fans, and wash margins.	Salvage Restricted	May occur.
Engelmann prickly pear *Opuntia engelmannii* var. *flavispina*	Found in Sonoran desert on sandy bajadas.	Salvage Restricted	May occur.

A. Mammal Species Accounts

Allen's big-eared bat (*Idionycteris phyllotis*): BLM Sensitive

Allen's big-eared bat is found in ponderosa pine, pinyon-juniper woodlands, Mexican woodlands, and riparian areas with deciduous trees (AZGFD, 2001a). The species is found across most of Arizona, except the southwestern deserts at elevations from 1,320 to 9,800 feet. The species is most common at 3,500 to 7,500 feet (AZGFD, 2001a). Allen's big-eared bat may occur in the CEC New Build Route in segments P6a and P6b and in the CEC Upgrade Route segments U3l and U4 as well as the Vail Substation expansion area.

Antelope jackrabbit (*Lepus alleni*): AZ WSC

The antelope jackrabbit is found in grasslands and desertscrub (Best 1993). The species may occur in the CEC Upgrade Route in segments U3l and U4 as well as the Vail Substation and Pantano Substation expansion areas.

Arizona pocket mouse (*Perognathus amplus*): AZ WSC

The Arizona pocket mouse is found in grasslands and desertscrub. The species may occur in the CEC Upgrade Route in segments U3l and U4 as well as the Vail Substation expansion area.

Banner-tailed kangaroo rat (*Dipodomys spectabilis*): BLM Sensitive

The Banner-tailed kangaroo rat is found in areas with sparse cover in desertscrub (Best 1988). The species may occur in the CEC Upgrade Route in segments U3l and U4 as well as the Vail Substation expansion area.

Big free-tailed bat (*Nyctinomops macrotis*): BLM Sensitive

The big free-tailed bat roosts in cliffs and forages in coniferous and mixed woodland; Chihuahuan tarbush creosote and Sonoran mesquite creosote desertscrub; and riparian areas (BISON-M, 2010a) throughout Arizona (Adams, 2003). The species is found at elevations below 8,000 feet, most commonly below 6,000 feet (BISON-M, 2010a). The species may occur in the CEC New Build Route in segments P5b, P6a, P6b, P6c, P7, and P8 as well as the Apache Substation expansion area.

California leaf-nosed bat (*Macrotus californicus*): BLM Sensitive

The California leaf-nosed bat is found in desertscrub. The species roosts in mines, caves, and rock shelters and is found at elevations from 160 to 3,980 feet (AGFD 2014). The species may occur in the CEC Upgrade Route in segments U3l and U4 as well as the Vail Substation expansion area.

Cave myotis (*Myotis velifer*): BLM Sensitive

The cave myotis roosts in caves and mines and forages in desertscrub communities (AZGFD, 2002a). The species is found throughout the southern half of Arizona at elevations from 300 to 5,000 feet (AZGFD, 2002a). The cave myotis may occur in the CEC New Build Route in segments P5b, P6a, P6b, P6c, P7 and P8 as well as the Apache Substation expansion area. The species may occur in the CEC Upgrade Route in segments U3l and U4 as well as the Vail Substation expansion area.

Desert bighorn sheep (*Ovis canadensis mexicana*): AZ SGCN

Desert bighorn sheep use rocky, arid, and open areas with cliffs within 1 mile of water sources. The species is found in pinyon-juniper, Sonoran desertscrub, and Chihuahuan Desert communities at elevations from 5,500 to 6,500 feet. It avoids elevations below 4,500 or above 7,500 feet (BISON-M, 2010b). The species may occur in the CEC New Build Route in segments P5b, P6a, and P6b.

Fringed myotis (*Myotis thysanodes thysanodes*): BLM Sensitive

The fringed myotis roosts in caves and abandoned mines. The species forages in middle-elevation desert habitats including desertscrub and grasslands, but is typically associated with oak-pinyon woodlands (BISON-M, 2010c). The species is found throughout Arizona except in the southwestern deserts (Adams, 2003) at elevations from 4,000 to 8,437 feet (BISON-M, 2010c). The species may occur in the CEC New Build Route in segments P5b, P6a, P6b, P6c, P7, and P8 as well as the Apache Substation expansion area.

Greater western mastiff bat (*Eumops perotis californicus*): BLM Sensitive

The greater western mastiff bat forages in lower and upper Sonoran Desertscrub near cliffs. The species roosts in crevices within high cliff walls (AZGFD, 2014). Records of the species are scattered throughout Arizona at elevations from 240 to 8,475 feet (AZGFD, 20014). The species may occur in the CEC New Build Route in segments P5b,

P6a, P6b, P6c, P7, and P8. The species may occur in the CEC Upgrade Route in segments U3l and U4 as well as the Vail Substation expansion area.

Harris' antelope squirrel (*Ammospermophilus harrisii*): AZ WSC

Harris' antelope squirrel is found in desertscrub habitat in areas with dense vegetation. The species may occur in the CEC Upgrade Route in segments U3l and U4 as well as the Vail Substation expansion area.

Kit fox (*Vulpes macrotis*): AZ WSC

The kit fox is found in desertscrub habitats. The species may occur in the CEC Upgrade Route in segments U3l and U4 as well as the Vail Substation expansion area.

Lesser long-nosed bat (*Leptonycteris curasoae yerbabuenae*): USFWS Endangered

The lesser long-nosed bat is found in desertscrub habitat with agave and columnar cacti present as food source. The species roosts in caves and abandoned mines (USFWS, 2001). Roosts in Arizona are found in several sky island mountains in southeastern Arizona including Big Dragoons, Rincons, and Santa Catalina Mountains. The lesser long nosed bat is found at elevations from 1,600 to 11,500 feet (USFWS, 2001). The species may occur in the CEC New Build Route in segments P5b, P6a, P6b, P6c, P7, and P8 as well as the Apache Substation expansion area. The species may occur in the CEC Upgrade Route in segments U3l and U4 as well as the Vail Substation and Pantano Substation expansion areas.

Little brown myotis (*Myotis lucifugus occultus*): BLM Sensitive

The little brown myotis roosts in buildings, cavities, and abandoned mines and forages along water surfaces. It utilizes areas near water in pine-oak woodlands, desertscrub, ponderosa pine forests, spruce-fir forests, coniferous forests, and deciduous riparian habitats (BISON-M, 2008). The little brown myotis is found throughout Arizona except the southeastern portion (Adams, 2003) at elevations from 1,000 to 8,000 feet (BISON-M, 2008). The species may occur in the CEC New Build Route in segments P5b, P6a, P6b, P6c, P7, and P8 as well as the Apache Substation expansion area.

Long-legged myotis (*Myotis volans interior*): BLM Sensitive

The long-legged myotis roosts in snags, caves, abandoned mines, rocky cliffs and buildings. The species forages at temperatures between 12 to 18° Celsius. The species

primarily uses montane communities with open areas for foraging; it also uses desertscrub, riparian areas, and oak-juniper woodlands (BISON-M, 2010d). The long-legged myotis is found throughout Arizona except the southwestern portion (Adams, 2003) at elevations below 11,500 feet (BISON-M, 2010d). This species utilizes a variety of roosts including abandoned buildings, cracks in the ground, crevices in cliff faces and spaces behind exfoliating tree bark. Caves and mine tunnels are used as hibernacula. In the summer, they apparently do not use caves as a daytime roost site. The species may occur in the CEC New Build Route in segments P5b, P6a, P6b, P6c, P7, and P8 as well as the Apache Substation expansion area.

Little pocket mouse (*Perognathus longimembris*): AZ WSC

The little pocket mouse is found in desertscrub and grassland habitats. The species is found in western and southwestern Arizona and may occur in the CEC Upgrade Route in segments U3l and U4 as well as the Vail Substation expansion area.

Mexican free-tailed bat (*Tadarida brasiliensis*): AZ SGCN

The Mexican free-tailed bat is found in desertscrub and coniferous forests (AZGFD, 2004a). The species may occur in the CEC Upgrade Route in segments U3l and U4 as well as the Vail Substation expansion area.

Mexican long-nosed bat (*Leptonycteris nivalis*): USFWS Endangered

The Mexican long-nosed bat is found in caves and mines near ocotillo, yucca, agave, manzanita, oaks, and juniper at elevations from 4,600 to 6,200 feet (BISON-M, 2010e). Southeastern Arizona is the western extent of the species' range. The species may occur in the CEC New Build Route in segments P5b, P6a, P6b, P6c, P7, and P8 as well as the Apache Substation expansion area.

Mexican long-tongued bat (*Choeronycteris mexicana*): BLM Sensitive

Mexican long-tongued bats roost in caves and abandoned mines in mesic areas of mixed oak-conifer communities and desert grasslands in southern Arizona (AZGFD, 2006a). The species is found at elevations from 2,540 to 7,320 feet in Arizona (AZGFD, 2006a). The species may occur in the CEC New Build Route in segments P6a, P6b, P6c, P7, and P8. The species may occur in the CEC Upgrade Route in segments U3l and U4 as well as the Vail Substation expansion area.

Pale Townsend's big-eared bat (*Corynorhinus townsendii pallescens*): BLM sensitive

Pale Townsend's big-eared bat roosts in caves and abandoned mines. Maternity colonies form from May through July and disperse in August. The species inhabits a variety of xeric habitats including sagebrush, desertscrub, chaparral, deciduous forests, and coniferous forests (AZGFD, 2003a). The species is widespread in Arizona at elevations from 4,000 to over 8,000 feet (AZGFD, 2003a). The species may occur in the CEC New Build Route in segments P5b, P6a, P6b, P6c, P7, and P8. The species may occur in the CEC Upgrade Route in segments U3l and U4 as well as the Vail Substation expansion area.

Pocketed free-tailed bat (*Nyctinomops femorosaccus*): AZ WSC

The pocketed free-tailed bat roosts in cliffs and tall, rocky outcrops. In Arizona, the species forages in riparian corridors dominated by sycamore and mesquite and bounded by large cliffs in the southern part of the state at elevations up to 4,100 feet (Adams, 2003). The species may occur in the CEC New Build Route in segments P5b, P6a, P6b, P7, and P8 as well as the Apache Substation expansion area. The species may occur in the CEC Upgrade Route in segments U3l and U4 as well as the Vail Substation and Pantano Substation expansion areas.

Spotted Bat (*Euderma maculatum*): BLM Sensitive

The spotted bat roosts in crevices and high cliff walls in desertscrub, riparian, pinyon-juniper woodlands, and coniferous forests at elevations of 110 to 8,670 feet (AZGFD, 2003b). The species may occur in the CEC New Build Route in segments P5b, P6a, P6b, P6c, P7, and P8. The species may occur in the CEC Upgrade Route in segments U3l and U4 as well as the Vail Substation expansion area.

Yuma myotis (*Myotis yumanensis yumanensis*): BLM Sensitive

Yuma myotis roosts in buildings, cliffs, caves, trees, and abandoned mines. The species forages in a variety of habitats near open water (BISON-M, 2010f). Yuma myotis is a summer resident throughout Arizona at elevations from 4,000 to 8,000 feet (BISON-M, 2010f). The species may occur in the CEC New Build Route in segments P5b, P6a, P6b, P6c, P7, and P8 as well as the Apache Substation expansion area.

B. Bird Species Accounts

Abert's towhee (Melozone aberti aberti): AZ WSC

Abert's towhee is found in lowland riparian thickets and adjacent dry desert washes as well as irrigated parks and backyards (Corman and Wise-Gervais, 2005). The species is found in western, central, and southern Arizona at elevations from 80 and 4,900 feet (Corman and Wise-Gervais, 2005). The species may occur in the CEC Upgrade Route in segments U3l and U4 as well as the Vail Substation expansion area.

American peregrine falcon (*Falco peregrinus anatum*): AZ SGCN

The American peregrine falcon uses rocky areas with steep cliffs primarily near water where prey (mainly shorebirds, songbirds, and waterfowl) concentrations are high. Nests are found on ledges of cliffs, and sometimes on human-made structures such as office towers and bridge abutments. The species forages primarily in woodlands and riparian areas, but also in xeric and urban areas when prey is available throughout Arizona (AZGFD, 2002b). The species is found at elevations from 3,500 to 9,000 feet (AZGFD, 2002b). No nesting habitat for the species is present in the CEC Proposed Route. The species may forage in the CEC New Build Route in segments P5b, P6a, P6b, P6c, P7, and P8 as well as the Apache Substation expansion area. The species may also forage in the CEC Upgrade Route in the Vail Substation expansion area and in segments U3l and U4.

Bald Eagle (*Haliaeetus leucocephalus*): Bald Eagle and Golden Eagle Protection Act

Bald eagles breed and winter in areas with large trees or cliffs near water (reservoirs, rivers, and streams) and abundant prey. Known breeding areas are located on the Gila and San Pedro rivers in Arizona (AZGFD, 2011). No breeding habitat is present in the CEC Proposed Route; however, the species could forage in the CEC Upgrade Route in segments U3l and U4 as well as the Vail Substation expansion area.

Bell's vireo (*Vireo bellii*): AZ WSC

Bell's vireo utilize dense, shrubby vegetation along woodland edges, especially with a mesquite component (Corman and Wise-Gervais, 2005). The species is widespread through central and southern Arizona at elevations from 160 to 4,800 feet (Corman and Wise-Gervais, 2005). The species may occur in the CEC New Build Route in segments P5b, P6a, P6b, P7, and P8 as well as the Apache Substation expansion area.

Buff-collared nightjar (*Antrostomus ridgwayi*): AZ SGCN

The buff-collared nightjar is found in Arizona in desert drainages with dense vegetation (Audubon 2016a). The species may occur in the CEC Upgrade Route in segments U3l and U4 as well as the Vail Substation expansion area.

Cactus ferruginous pygmy-owl (*Glaucidium brasilianum cactorum*): BLM Sensitive Species

Cactus ferruginous pygmy-owls are resident of desert woodlands with tall canopy cover. They are primarily found in Sonoran desertscrub and occasionally in riparian drainages and woodlands within semidesert grassland communities. The species prefers to nest in cavities of saguaro cacti but has been found in low-density suburban developments that include natural open spaces (AZGFD, 2001b). The species is found in southcentral Arizona, primarily in Pima County. There are no records of the species from Cochise County (AZGFD, 2001b). The species is found in elevations below 4,000 feet. The species may occur in the CEC Upgrade Route in segments U3l and U4 as well as the Vail Substation expansion area.

Crested caracara (*Caracara cheriway*): AZ WSC

In Arizona the crested caracara is found in Sonoran desertscrub, pastures, and cultivated areas at elevations from 1,890 to 3,360 feet amsl (AZGFD, 2003c). The species may occur in the CEC New Build Route in segments P5b, P6a, P6b, P6c, P7, and P8 as well as the Apache Substation expansion area. The species may also occur in the CEC Upgrade Route in the Vail Substation expansion area and segments U3l and U4.

Desert purple martin (*Progne subis hesperia*): AZ SGCN

The desert purple martin nests in tree or cactus cavities. Sonoran Desert populations nest almost exclusively in large saguaros (Corman and Wise-Gervais, 2005). In Arizona they are found in the Salt River Canyon and Roosevelt Lake south along San Pedro River and near San Carlos Indian Reservation and Markham Creek. The species is also found throughout Pima County west to Organ Pipe Cactus National Monument in Arizona (Corman and Wise-Gervais, 2005). Elevations range from 2,800 to 11,000 feet (BISON-M, 2010g). The species may occur in the CEC Upgrade Route in segments U3l and U4 as well as the Vail Substation expansion area.

Gila woodpecker (*Melanerpes uropygialis uropygialis*): AZ WSC

The Gila woodpecker is found in Sonoran desert uplands with large saguaros and less commonly in lowland riparian woodlands (Corman and Wise-Gervais, 2005). The species is found in southern Arizona at elevations from 150 and 4,800 feet (Corman and Wise-Gervais, 2005). The species may occur in the CEC New Build Route in segments P5b, P6a, P6b, P6c, P7, and P8 as well as in the CEC Upgrade Route in segments U3l and U4 as well as the Vail Substation expansion area.

Gilded flicker (*Colaptes chrysoides*): BLM Sensitive

The gilded flicker nests in cavities within Sonoran Desert uplands (Corman and Wise-Gervais, 2005) utilizing saguaro cacti (BLM, 2010). The species is found throughout southern Arizona (NatureServe, 2011bb) at elevations from 3,000 to 9,000 feet (BISON-M, 2007). The species may occur in the CEC Upgrade Route in segments U3l and U4 as well as the Vail Substation expansion area.

Golden Eagle (*Aquila chrysaetos*): Bald Eagle and Golden Eagle Protection Act

Golden eagles are found in areas with significant cliffs and large undeveloped areas (BLM, 2010). The species utilize a wide range of habitats at elevations from 4,000 to 10,000 feet (AZGFD, 2002c). The species may occur in the CEC Upgrade Route in segment U3l.

Loggerhead shrike (*Lanius ludovicianus*): BLM Sensitive

The loggerhead shrike is found in a variety of forest types, xeric habitats, desertscrub, mixed shrub, and agricultural fields throughout Arizona (Corman and Wise-Gervais, 2005). Elevations range from 2,800 to 7,500 feet (AZGFD, 2004b). The species may occur in the CEC New Build Route in segments P5b, P6a, P6b, P6c, P7, and P8 as well as the Apache Substation expansion area.

Northern aplomado falcon (*Falco femoralis septentrionalis*): USFWS Endangered, Experimental Population, Non-Essential

The northern aplomado falcon is found in grasslands and savannas (AZGFD, 2001c). The species is listed as a nonessential experimental population designated in Arizona and New Mexico in 2006. In Arizona, this species is extremely rare (AZGFD, 2001c) Elevations range from 3,500 to 9,000 feet. The species may occur in the CEC New Build

Route in segments P5b, P6a, P6b, P6c, P7, and P8 as well as the Apache Substation expansion area.

Northern harrier (*Circus cyaneus*): AZ WSC

The northern harrier utilizes grasslands and wetlands, wintering habitat such as that in the CEC Proposed Route includes desertscrub, agricultural fields, grasslands and marshes (USGS 2016). The species may occur in the CEC New Build Route in segments P5b, P6a, P6b, P6c, P7, and P8 as well as the Apache Substation expansion area. The species may also occur in the CEC Upgrade Route at the Pantano Substation expansion area.

Sandhill crane (*Grus canadensis*): AZ SGCN

The sandhill crane winters near agricultural fields, annual grasslands, farmlands, and playas at elevations form 2,800 to 4,500 feet (BISON-M, 2010). The species may occur near Willcox Playa in the CEC New Build Route in segments P5b, P6a, P6b, P7, and P8 as well as the Apache Substation expansion area.

Sprague's pipit (*Anthus spragueii*): BLM Sensitive

Sprague's pipits are found in native grasslands with vegetation of intermediate height and lacking woody shrubs. The species winters in grasslands of the San Rafael, Sonoita, and Sulphur Spring valleys in southeastern Arizona (AZGFD, 2010b). The species may occur in the CEC New Build Route in segments P5b, P6a, P6b, P6c, P7, and P8 as well as Apache Substation expansion.

White-faced ibis (*Plegadis chihi*): BLM Sensitive

The white-faced ibis if found near vegetation along shorelines, marshes, and open water. The species nests in shrubs and low trees. The species is found in desert riparian woodlands with sufficient permanent water for emergent plants, moist grasslands, and irrigated agricultural fields. The species nests at Cibola Lake and migrate throughout Arizona (Corman and Wise-Gervais, 2005). The species may occur in the CEC New Build Route in segment P6b.

Yellow Warbler (*Setophaga petechia*): AZ WSC

The yellow warbler is found in streamside thickets and the edges of cultivated areas (Audubon 2016b). The species may occur in the CEC New Build Route in segments P5b, P6a, P6b, and P6c.

Western burrowing owl (*Athene cunicularia hypugaea*): BLM Sensitive

Western burrowing owls are found in areas with open grasslands and agricultural areas (AZGFD, 2001d). The species is found at elevations from 650 to 6,140 feet in Arizona (AZGFD, 2001d). The species may occur in the CEC New Build Route in segment P6b and in the CEC Upgrade Route in segments U3l and U4 as well as the Pantano Substation expansion area.

C. Reptile Species Accounts

Canyon spotted whiptail (*Aspidoscelis burti*): AZ WSC

The canyon spotted whiptail is found primarily in Semidesert Grassland and Madrean Evergreen Woodland communities and in drainages in Sonoran desertscrub. The species may occur in the CEC Upgrade Route in segments U3l and U4 as well as the Vail Substation expansion area.

Desert ornate box turtle (*Terrapene ornata [luteola]*): BLM Sensitive

The desert ornate box turtle is found in semi-arid regions with plains, grasslands, and pastures and is often associated with prairie dog towns. The species is found in Cochise, Pima, and Santa Cruz Counties of Arizona at elevations from 3,000 to 7,000 feet (AZGFD, 2008a). The species may occur in the CEC New Build Route in segments P5b, P6a, P6b, P6c, P7, and P8 as well as the Apache Substation expansion area.

Gila monster (*Heloderma suspectum*): AZ WSC

The Gila monster is found in Sonoran desertscrub and less often in semidesert grasslands (AZGFD, 2013a). The species may occur in the CEC Upgrade Route in segments U3l and U4 as well as the Vail Substation expansion area.

Goode's horned lizard (*Phrynosoma goodie*): AZ SGCN

Goode's horned lizard is found in the Lower Colorado River Valley Subdivision of Sonoran desertscrub (Reptiles of Arizona 2016). The species may occur in the CEC Upgrade Route in segments U3l and U4 as well as the Vail Substation expansion area.

Ground snake (*Sonora semiannulata*): Pima County

The ground snake is found in desertscrub, semidesert grassland, interior chaparral, and Great Basin grassland (Reptiles of Arizona 2016). The species may occur in the CEC Upgrade Route in segments U3l and U4 as well as the Vail Substation expansion area.

Regal horned lizard (*Phrynosoma solare*): AZ WSC

The regal horned lizard is found in Sonoran desertscrub, Chihuahuan desertscrub and semidesert grassland (Reptiles of Arizona 2016). The species may occur in the CEC Upgrade Route in segments U3l and U4 as well as the Vail Substation and Pantano Substation expansion areas.

Saddled leaf-nosed snake (*Phyllorhynchus browni*): AZ WSC

The saddled leaf-nosed snake is found in Sonoran desertscrub in several Arizona counties including Pima and Pinal counties (Reptiles of Arizona 2016). The species may occur in the CEC Upgrade Route in segments U3l and U4 as well as the Vail Substation expansion area.

Sonoran collared lizard (*Crotaphytus nebrius*): AZ WSC

The Sonoran collared lizard is found in Sonoran desertscrub (AZGFD, 2007). The species may occur in the CEC Upgrade Route in segments U3l and U4 as well as the Vail Substation expansion area.

Sonoran coralsnake (*Micruroides euryxanthus*): AZ WSC

The Sonoran coralsnake is found in habitats from desertscrub to semidesert grassland. The species is usually found below 6,000 feet and near rocky drainages and mesquite lined washes (AZGFD, 2008b). The species may occur in the CEC Upgrade Route in segments U3l and U4 as well as the Vail Substation expansion area.

Sonoran desert tortoise (*Gopherus morafkai*): BLM Sensitive

The Sonoran desert tortoise is primarily found in Sonoran desertscrub but may also use semidesert grassland and Madrean evergreen woodland (AZGFD, 2015a). The species is primarily found at elevations below 5,000 feet. The species may occur in the CEC Upgrade Route segments U3l and U4 as well as the Vail Substation expansion area.

Sonoran whipsnake (*Coluber bilineatus*): AZ WSC

The Sonoran whipsnake is found in areas of desertscrub, semidesert grassland, Madrean evergreen woodland, and into Great Basin conifer woodland (Reptiles of Arizona 2016). The species may occur in the CEC Upgrade Route segments U3l and U4 as well as the Vail Substation and Pantano Substation expansion areas.

Texas horned lizard (*Phrynosoma cornutum*): BLM Sensitive

The Texas horned lizard is found in Chihuahuan desertscrub and semidesert grassland (Brennan and Holycross, 2006). The species utilizes flat, dry, open country with low plant cover with sandy, loamy, or rocky soils. In Arizona the species is found in the valleys of southeastern Arizona, primarily in Cochise County (Brennan and Holycross, 2006). The species may occur in the CEC New Build Route in segments P5b, P6a, P6b, P6c, P7, and P8 as well as the Apache Substation expansion area.

Tiger rattlesnake (*Crotalus tigris*): AZ WSC

The tiger rattlesnake is found in desertscrub, interior chaparral, and Madrean evergreen woodlands at elevations from 1,000 to 5,000 feet (Reptiles of Arizona 2016). The species may occur in the CEC Upgrade Route segments U3l and U4 as well as the Vail Substation expansion area.

Variable sandsnake (*Chilomeniscus stramineus*): AZ WSC

The variable sandsnake is found in Sonoran desertscrub in several Arizona counties including Pima and Pinal counties (Reptiles of Arizona 2016). The species may occur in the CEC Upgrade Route segments U3l and U4 as well as the Vail Substation expansion area.

D. Amphibian Species Accounts

Colorado River toad (aka Sonoran desert toad) (*Bufo alvarius*): BLM Sensitive

The Colorado River toad is found in Sonoran and Chihuahuan desertscrub, semidesert grassland, and Madrean evergreen woodland. It breeds in temporary pools caused by

monsoon rains. Adults can be found far from water (Brennan and Holycross, 2006). The species is found in southern Arizona (Brennan and Holycross, 2006). The species may occur in the CEC New Build Route in segments P5b, P6a, P6b, P6c, P7, and P8 as well as the Apache Substation expansion area. The species also may occur in the CEC Upgrade Route at the Vail Substation and Pantano Substation expansion area and in segments U3l and U4.

Great Plains narrow-mouthed toad (*Gastrophryne olivacea*): BLM Sensitive

The Great Plains narrow-mouthed toad is found near streams, springs, and rain pools in Sonoran desertscrub, semidesert grasslands, and oak woodlands. The species requires water for breeding (AZGFD, 2013b). The species occupies south-central Arizona, including Tucson area at elevations from 1,400 to 4,700 feet (AZGFD, 2013b). The species may occur in the CEC Upgrade Route in segments U3l and U4 as well as the Vail Substation and Pantano Substation expansion areas.

Sonoran green toad (*Bufo retiformis*): BLM Sensitive

The Sonoran green toad is found in Sonoran desertscrub near rain pools, wash bottoms, and areas near water (AZGFD 2005ba). The species is known from south-central Arizona with the easternmost records from the San Xavier Mission near Tucson, Arizona. The species utilizes elevations range from 500 to 3,225 feet (AZGFD, 2005a). The species may occur in the CEC Upgrade Route in segments U3l and U4 as well as the Vail Substation expansion area.

E. Plant Species Accounts

Pima pineapple cactus

The Pima pineapple cactus (*Coryphantha scheeri* var. *robustispina*) is listed as endangered under the ESA. The Pima pineapple cactus is a small cactus normally found in semi-desert grassland or Sonoran desertscrub plant associations. Within Arizona, its range is primarily in the Santa Cruz and Altar valleys, west of the Santa Rita Mountains, east of the Baboquivari Mountains, and south of Tucson.

The Pima pineapple cactus is found in south-central Arizona and north-central Sonora, Mexico. Within Arizona the species is found in Pima and Santa Cruz counties and is bounded by the Santa Rita Mountains to the east, Baboquivari Mountains to the west, City of Tucson to the north, and the Arizona/Mexico border to the south (AZGFD, 2001e).

Pima pineapple cactus is found in alluvial basins and on ridges in desert grasslands and Sonoran desertscrub with little to no slope and sparse vegetation, between 2,300 and 4,500 feet amsl. The species blooms only once—at midday on one day—per year and reproduces by both seed and asexually. Pollination is by small black and white bees (AZGFD, 2001e).

Pima pineapple cactus has potential to occur near segment U4 and the Vail Substation. The Project will cross approximately 1.9 miles (61.4 acres) of the known range of the Pima pineapple cactus in segment U4. In addition, the Vail Substation expansion will occur on 1.2 acres within the known range of the species.

Gregg-night blooming cereus

The Gregg night-blooming cereus (*Peniocereus greggii* var. *greggii*) is an obscure cactus that typically grows through other plant species. The species is listed as a salvage restricted plant under the AZNPL. It is generally found in desert grasslands and Chihuahuan desert scrub (New Mexico Rare Plants Technical Council 1999). This variety is not the same variety that is common in the Tucson vicinity (*P. greggii* var. *transmontanus*). It has potential to be present in the CEC New Build Route portion of the study area in segments P5b, P6a, P6b, and P6c.

Parish's alkali grass

Parish's alkali grass (*Puccinellia parishii*) is a dwarf annual grass restricted to alkali springs, seeps, and seasonally wet areas near the heads of drainages. The species is listed as Highly Safeguarded under the AZNPL (AZGFD, 2015b). It has potential to be present in the CEC New Build Route in segment P5b, although alkali seeps and springs are relatively rare in this vicinity.

Slender needle corycactus

The slender needle corycactus (*Coryphantha scheeri* var. *valida*) is listed as a salvage restricted species under the AZNPL. The species is found in deep, sandy soils in the bottomlands or grasslands and deserts (AZGFD, 2005b). It is known from grasslands in the San Simon Valley near Willcox and may occur in the CEC New Build Route including segments P5b, P6a, P6b, P6c, P7, and P8 as well as the Apache Substation expansion area. The species also may occur in the CEC Upgrade Route in the Vail Substation and Pantano Substation expansion areas and in segments U3l and U4.

Devilthorn hedgehog cactus

The devilthorn hedgehog cactus (*Echinocereus pseudopectinatus*) is listed as salvage restricted under the AZNPL. The species is found in the Chihuahuan desert, primarily in grasslands, desertscrub, igneous substrates and rocky slopes (Flora of North America 2016). The species may occur in the CEC New Build Route including segments P5b, P6a, P6b, P6c, P7, and P8 as well as the Apache Substation expansion area.

Willcox pincushion cactus

The Willcox pincushion cactus (*Mammillaria wrightii* var. *wilcoxii*) is listed as a salvage restricted plant under the AZNPL. The species is found in low hills in semi-desert grassland, along the edges of pine-oak woodlands as well as on steep alluvial slopes (Flora of North America 2016). The species may occur in the CEC New Build Route including segments P5b, P6a, P6b, P6c, P7, and P8 as well as the Apache Substation expansion area.

San Carlos wild buckwheat

San Carlos wild buckwheat (*Eriogonum capillare*) is listed as a salvage restricted plant under the AZNPL. It is found in disturbed, gravelly areas free from competition as well as on slopes and in washes (AZGFD, 2003d). The species may occur in the CEC New Build Route including segments P5b, P6a, P6b, P6c, P7, and P8 as well as the Apache Substation expansion area.

Varied fishhook cactus

The varied fishhook cactus (*Mammillaria viridiflora*) is listed as a salvage restricted plant under the AZNPL. The species is found in semi-desert grassland, interior chaparral and pinyon-juniper woodlands on gravelly igneous substrates (Flora of North America 2016). The species may occur in the CEC New Build Route including segments P6b, P6c, P7, and P8 as well as the Apache Substation expansion area.

Button cactus

The button cactus (*Epithelantha micromeris*) is listed as salvage restricted under the AZNPL. The species is found in the Chihuahuan Desert in semi-desert grasslands on ridges and hillsides with limestone and sometimes igneous soils (AZGFD, 2005c). The species may occur in the CEC New Build Route in segment P8 as well as the Apache Substation expansion area.

Playa spider plant

The playa spider plant (*Cleome multicaulis*) is listed as a salvage restricted plant under the AZNPL. It is found in wet, saline, or alkaline soils in playas or alkaline meadows (Flora of North America 2016). The species may occur in the CEC New Build Route where it crosses Willcox Playa in segments P7 and P8 as well as the Apache Substation expansion area.

Littleleaf false tamarind

Littleleaf false tamarind (*Lysiloma watsonii*) is listed as a salvage restricted species under the AZNPL. It is found in the Arizona Upland subdivision of Sonoran desertscrub and in desert grasslands on rocky hillsides as well as the slopes of creeks and tributaries (AZGFD, 2005d). The species may occur in the CEC Upgrade Route in segments U4 and U3l.

Thornber fishhook cactus

Thornber fishhook cactus (*Echinocereus fasciculatus*) is listed as a salvage restricted species under the AZNPL. The species is found in Sonoran desertscrub under shrubs on valley floors in silty or sandy substrates (AZGFD, 2005e). The species may occur in the CEC Upgrade Route in segments U4 and U3l as well as the Vail Substation expansion area.

Magenta flowered hedgehog cactus

Magenta-flower hedgehog cactus (*Mammillaria thornberi*) is listed as a salvage restricted species under the AZNPL. The species is found in Sonoran desertscrub, semi-desert grassland, and interior chaparral (Flora of North America 2016). The species may occur in the CEC Upgrade Route in segments U4 and U3l as well as the Vail Substation and Pantano Substation expansion areas.

Kelvin cholla

Kelvin cholla (*Cylindropuntia x kelvinensis*) is listed as a salvage restricted plant under the AZNPL. It is found on the edges of grasslands, desertscrub, rolling hills, and rocky flats and slopes (Flora of North America 2016). The species may occur in the CEC Upgrade Route in segments U4 and U3l as well as the Vail Substation expansion area.

Night blooming cereus

The night blooming cereus (*Peniocereus greggii* var. *transmontanus*) is listed as a salvage restricted species under the AZNPL the species is found in Sonoran Desert, desertscrub in creosote-bursage flats, along the edges of washes, and on the slopes of small hills with sandy or gravelly loam substrates (Flora of North America 2016). The species may occur in the CEC Upgrade Route in segments U4 and U3l as well as the Vail Substation expansion area.

Pima Indian mallow

Pima Indian mallow (*Abutilon parishii*) is a BLM sensitive species and is listed as a salvage restricted species under the AZNPL. The species is found in Sonoran desertscrub on rocky hillsides, cliff bases, canyon bottoms, and among rocks and boulders on canyon edges (AZGFD, 2000). The species can be found on slopes of up to 45 degrees. The species may occur in the CEC Upgrade Route in segments U4 and U3l as well as the Vail Substation expansion area.

Staghorn cholla

Staghorn cholla (*Cylindropuntia versicolor*) is listed as a salvage restricted species under the AZNPL the species is found in Sonoran Desert, desertscrub, in canyons, washes, flats, and rocky hillsides (Flora of North America 2016). The species may occur in areas of Sonoran desertscrub in the CEC Upgrade Route in segments U4 and U3l as well as the Vail Substation expansion area.

Desert barrel cactus

Desert barrel cactus (*Ferocactus cylindraceus*) is listed as a salvage restricted species under the AZNPL the species is found in the Sonoran and Mohave deserts on gravelly or rocky hillsides, canyon walls, alluvial fans, and wash margins (AZGFD, 2005f). The species may occur in Sonoran desertscrub in the CEC Upgrade Route in segments U4 and U3l as well as the Vail Substation expansion area.

Engelmann prickly pear

Engelmann prickly pear (*Opuntia engelmannii* var. *flavispina*) is listed as a salvage restricted species under the AZNPL the species is found in the Sonoran desert on sandy bajadas (Flora of North America 2016). The species may occur in the CEC Upgrade Route in segments U4 and U3l as well as the Vail Substation expansion area.

III. SUMMARY OF POTENTIAL EFFECTS OF THE PROPOSED FACILITIES

A. Access Roads

There will be approximately 71.2 miles of access roads, 68.7 miles occurring in the CEC New Build Route section with the remaining 2.5 miles in the CEC Upgrade Route section. In most areas the access roads will parallel existing utility roads.

The primary direct and indirect impacts of access roads will include the removal or crushing of native vegetation, decreased plant productivity from fugitive dust, plant community fragmentation, and the introduction or increased spread of noxious weeds. Impacts on wildlife will include the potential for direct collisions with construction and Project equipment, loss of burrowing animals in burrows in areas where grading will occur as well as the loss, degradation, and/or fragmentation of breeding, rearing, foraging, and dispersal habitats.

The access roads for the Project will increase the amount of edge habitat along the ROW. Effects from increased amounts of edge will include decreased habitat block size. Decreased habitat block size may negatively impact those species that require large blocks of contiguous habitat and benefit other species that utilize edge habitats or have more general habitat requirements. In areas where there is higher vegetation density the potential impacts from habitat fragmentation and edge effects will be greatest.

Access roads could provide increased access for off-highway vehicle ("OHV") users, which could increase the potential for OHV collisions with wildlife, and increase fire ignition sources from increased OHV access. Required mitigation measures, or PCEMs, are a condition of both the BLM and WAPA's RODs. PCEMs to provide spur and access road closure signage at the entrances to these roads will reduce the potential for impacts from the access roads. While mitigation will minimize OHV use along the transmission line and access roads, trespass use of the area could still occur. The increased potential for fire ignition could lead to fires that dramatically modify habitat over large areas, especially in habitat types that are not adapted to fire.

B. Transmission Line

The CEC New Build Route includes 66 miles of new 345-kV transmission line and less than 1 mile of 115-kV or 230-kV transmission line and associated facilities from the Arizona border to the Apache Substation and the Apache Substation expansion. The

ROW width will be 200 feet for the CEC New Build Route. The total acreage in the CEC New Build section will be approximately 1,518 acres, with 248 acres to be disturbed.

The CEC Upgrade Route will include two 230-kV connection lines. The connection lines will be approximately 5 miles in length and will have a ROW width of 150 feet. The CEC Upgrade section will be approximately 63.1 acres, with 17.9 acres to be disturbed.

Disturbance associated with the CEC Substation expansions will occur at 5 existing substations; the Apache Substation (69.4 acres), the Pantano (25.4 acres), Vail (27.7 acres), DeMoss Petrie (4.2 acres), and Tortolita substations (16.1 acres).

Project activities will involve the removal of vegetation during construction resulting in the direct loss of plant communities. The primary direct and indirect impacts to vegetation during construction and operation and maintenance of the proposed Project will be associated with the removal and/or crushing of natural, native-species dominated vegetation communities or associations from construction of transmission lines, substations, temporary work areas, and access roads; decreased plant productivity from fugitive dust; and plant community fragmentation.

Vegetation removal could have a variety of effects on vegetation communities ranging from changes in community structure and composition along the ROW to alteration of soil moisture or nutrient regimes. The degree of impact depends on the type and amount of vegetation affected, and the rate at which vegetation regenerates after construction. Ultimately, these direct and indirect effects could reduce or change the functional qualities of vegetation, including habitat and forage. Fugitive dust from construction and maintenance traffic has the potential to affect photosynthetic rates and decrease plant productivity. Potential impacts from fugitive dust caused by Project activities will be highest near the ROW and occur during construction activities. The overall impact on vegetation from fugitive dust will be localized along the ROW and will be reduced below significance once construction activities are completed. These impacts will only occur during occasional maintenance activities and will be insignificant after construction activities are complete.

Indirectly, removal of vegetation could cause increased soil desiccation, and will also expose soil to potential wind and water erosion. This could result in further loss of soil and vegetation, as well as increased sediment input to water resources. This impact will occur in areas of disturbance, localized in the ROW; however, as the proposed Project will occur in an area with an arid climate and large existing areas with low vegetation

density the impacts from soil desiccation will be localized and minimal. Increased potential for erosion will occur but will be minimized through PCEMs to limit erosion.

There will also be indirect effects resulting from the fragmentation of connected vegetation types and creation of edge areas. Edge areas have different microclimatic conditions and structure, which could lead to different species composition than interior areas. In areas where there is higher vegetation density the potential impacts from habitat fragmentation and edge effects will be greatest. However, portions of the CEC Proposed Route and CEC Substation expansions will occur in areas with low vegetation density. In these areas impacts from fragmentation and edge effects will be minimal. The introduction and colonization of disturbed areas by invasive exotic plant species also will lead to changes in vegetation communities, including the possible shift to more wildfire-prone vegetation that favors invasive exotic species over native species.

Much of the CEC Proposed Route and CEC Substation expansions are collocated with existing roads, railroads, pipelines, and existing transmission lines. In areas where the proposed transmission line will be collocated with existing infrastructure impacts on vegetation will be less than in areas where there is no collocation of facilities. Impacts to native plant associations throughout these collocated portions of the proposed route will therefore be minimal relative to the existing undeveloped portions of the proposed route.

The proposed Project could have direct and indirect impacts on vegetation resources located within areas disturbed by construction activity. These potential impacts will be mitigated through implementation of the required PCEMs VEG-1, VEG-2, VEG-3, VEG-4, VEG-5, or VEG-6 (*see* Exhibit B-1, Final EIS Table 2-8).

PCEM VEG-1 states that every effort will be made to minimize vegetation removal and permanent loss at construction sites to the extent practicable. Access will not be graded unless necessary for erosion control or other engineering reason. Final structure and spur road locations will be selected to avoid special status vegetation to the greatest extent feasible.

PCEM VEG-2 states that Southline and its construction contractor will develop a Reclamation, Vegetation, and Monitoring Plan that will guide restoration and revegetation activities for all disturbed lands associated with construction of the Project and its eventual termination and decommissioning. The plan will address all land disturbances, regardless of ownership. It will be developed in consultation with

appropriate agencies and landowners and will be provided to these entities for review and concurrence. The plan will identify reclamation zones based on the biotic communities within the Project area and reclamation levels based on the construction activity and type of disturbance. The plan will provide details on topsoil segregation and conservation, vegetation treatment and removal, salvage of appropriate species, and revegetation methods, including use of native seed mixes, application rates, transplants, and criteria to monitor and evaluate revegetation success.

PCEM VEG-4 states that removal of riparian scrubland vegetation will be avoided where possible. Natural regeneration of native plants will be supported by selectively cutting vegetation with hand tools, mowing, trimming, or using other removal methods that allow root systems to remain intact.

Routine operation and maintenance activities could increase long-term chances for invasive weed and wildfire threats to vegetation communities. Application of measures PCEM VEG 1-6 as discussed above will be used to mitigate these impacts, particularly PCEM VEG-1: Minimize Vegetation Impacts, PCEM VEG-2: Reclamation, Vegetation, and Monitoring Plan, and PCEM VEG-4: Vegetation Clearing. Adherence to these measures will result in short-term, minor impacts to vegetation communities.

Vegetation removal could have a variety of effects on special status species ranging from alteration of soil moisture or nutrient regimes to population loss to the extent that continued existence of the population is threatened. Any changes to the habitats of special status species may negatively affect individuals of those species, including altering soils, microenvironments, and introducing invasive weeds and increasing wildfire potential. These potential impacts will be minimal due to the implementation of PCEMs to avoid individual plants as well as habitat for special status species.

Pre-construction surveys for the species with the potential to occur in the ROW could allow direct impacts to be avoided. Furthermore, application of measures PCEM VEG 1-6 described above will be used to mitigate these impacts, particularly PCEM VEG-1: Minimize Vegetation Impacts; and PCEM VEG-2: Reclamation, Vegetation, and Monitoring Plan. Measures to restore special status species will also be implemented through the Reclamation, Vegetation, and Monitoring Plan (PCEM VEG-3). Measures that reduce ground disturbance and aid reclamation will also reduce any detrimental effects on sensitive biological soil crusts.

Application of PCEMs to reduce the transfer of invasive species on construction vehicles (as directed under PCEM VEG-5: Noxious Weed Management Plan and PCEM

VEG-6 regarding equipment washing) should also mitigate most direct and indirect impacts to special status species associated with the spread of noxious weeds during construction. Adherence to measures included in these plans will result in short-term, minor impact to special status species.

Measures to conserve and restore special status plants will be implemented through the Reclamation, Vegetation, and Monitoring Plan. Special status plants, including Pima pineapple cactus, will be restored by relocating plants and/or reseeding, replacing topsoil with existing topsoil that was removed, and regarding in compliance with local ordinances (State of Arizona, Pima County) and/or measures in the BO and amendment.

Reclamation activities will utilize plant species that are reflective of the local ecosystem and habitat types. Compensatory mitigation planning will be developed as part of the Plant and Wildlife Species Conservation Measures Plan. Compensatory mitigation planning will address residual impacts anticipated following application of the Reclamation, Vegetation, and Monitoring Plan. The plan will be developed in accordance with BLM regulations and approval.

Preconstruction presence/absence surveys will be required in areas where special status species are expected to occur. In consultation with the BLM, Southline will hire qualified biologists to conduct preconstruction surveys in ground-disturbance areas within suitable habitat for appropriate special status species and their habitats.

Routine operation and maintenance activities could increase long-term chances for invasive weed and wildfire threats to special status plant species. Application of measures PCEM VEG 1-6 as previously discussed will be used to mitigate these impacts particularly PCEM VEG-1: Minimize Vegetation Impacts and PCEM VEG-2: Reclamation, Vegetation, and Monitoring Plan. Measures to restore special status species will also be implemented through the Reclamation, Vegetation, and Monitoring Plan (PCEM VEG-3).

Application of PCEMs to reduce the transfer of invasive species on vehicles (as directed under PCEM VEG-5: Noxious Weed Management Plan and PCEM VEG-6: Equipment Washing) should also mitigate most direct and indirect impacts to special status species associated with the spread of noxious weeds. Adherence to these measures will result in short-term, minor impacts to special status species.

Potential impacts from the transmission line will include the potential for birds to strike the electrical transmission lines, ground wires, and towers. Proponent proposed measures to design the transmission lines and structures in accordance with "Reducing Avian Collision with Power Lines" (APLIC 2012), utilizing the existing Western transmission line ROW, and route siting will minimize the potential for bird collisions with transmission lines or towers (PCEM WILD-6). However, during poor weather conditions and along elevated terrain migrating birds and raptors will be at greater risk for collisions as they will fly nearer to transmission line facilities. While some individuals could be impacted these impacts will be unlikely to reach population levels. They will be minor and long-term. Small and mobile bird species will be anticipated to have a very low potential for collisions.

Electrocution is not a potential issue for birds as the proposed transmission lines will have conductor spacing that is much larger than the largest wingspan of bird species that could occur in the area. Types of mitigation described by APLIC include collision monitoring, line marking, changing line configurations, and increasing wire diameters (2012). Mitigation measures will be provided in the Avian Protection Plan and will be tailored to Project-specific conditions. With the application of PCEMs, there will be no impact on birds from electrocution.

The presence of transmission poles will provide perches as well as nesting habitat for some species. In some areas the transmission poles may be the only suitable nesting structures for some species. This will allow some species to utilize areas that will otherwise be unsuitable. This will be a beneficial impact to species that utilize the transmission line and could increase impacts on prey species near the ROW.

The increased amount of edge habitat created by the proposed Project will allow for an increase in species that use edge habitats, such as brown-headed cowbirds (Molothrus ater). This will change the species composition of the ROW area and impact species that utilize larger blocks of habitat as they will be subject to increased predation and nest parasitism. Other species that utilize edge habitats or have more general habitat requirements will benefit from the increased amount of edge habitat. In areas where there is higher vegetation density the potential impacts from habitat fragmentation and edge effects will be greatest. However, as portions of the proposed Project occur in areas with low vegetation density or in areas with existing development, impacts from habitat fragmentation and edge effects will be minor and short-term.

Noise and vibration associated with construction activities may temporarily change habitat use patterns for some species. Some individuals will move away from the

source(s) of the noise/vibration to adjacent or nearby habitats; which may increase competition for resources within these areas. Noise/vibration and other disturbances may also lead to increased stress on individuals, which could decrease their overall fitness due to increased metabolic expenditures.

Operation and maintenance impacts will be temporary and will occur sporadically over the life of the proposed Project. It is estimated that maintenance activities will occur once or twice a year under normal circumstances.

C. Construction Activities and Temporary Work Areas

Potential construction-related impacts, including in temporary work areas, from the proposed Project will include the removal of vegetation and plant community fragmentation; loss, degradation, and/or fragmentation of wildlife breeding, rearing, foraging, and dispersal habitats; collisions with and crushing by construction vehicles; loss of burrowing animals in burrows in areas where grading will occur, increased invasive and noxious weed establishment and spread; and increased noise/vibration levels. PCEMs and collocation of the transmission line, and access road with existing infrastructure, and routing of the line to avoid sensitive areas will reduce these impacts and they will be minor/negligible and short-term to long-term.

Project construction and use of temporary work areas will create temporary impacts associated with the presence of workers and equipment that may cause species to avoid using work areas during construction activities. These potential impacts will be temporary and will cease with the completion of construction and reclamation activities. As such, they will be unlikely to be significant at the population level.

Noise and vibration associated with construction activities may temporarily change habitat use patterns for some species. Some individuals will move away from the source(s) of the noise/vibration to adjacent or nearby habitats, which may increase competition for resources within these areas. Noise/vibration and other disturbances may also lead to increased stress on individuals, which could decrease their overall fitness due to increased metabolic expenditures. These effects will be temporary and of short duration and will cease with the completion of construction activities. Impacts from noise/vibration will likely be limited to individuals, will be minor and short-term, and could lead to reproductive failure for one season. However, given the temporary nature of noise/vibration impacts, they will not be significant at the population level.

Design features and mitigation (PCEMs) for vegetation and wildlife will apply and reduce the amount of vegetation and habitat that will be lost or degraded/fragmented during construction activities. Some of the habitat will be restored or reconstructed elsewhere after the completion of construction activities; however, restoration in arid environments is difficult and slow and may require 50 to 100 or more years. The habitat types affected are abundant in the study area. As such, impacts from ground disturbance will be minor and long-term.

A Project speed limit for construction areas and spur roads will be implemented to reduce the potential for construction activities leading to wildlife collisions with construction equipment. Burial of some individuals could occur during ground-disturbing activities. Given the amount of habitat in the study area, implementation of PCEMs, the temporary nature of construction activities, and the ability of many species to leave impacted areas, it is unlikely that there will be population level impacts. The presence of construction-related trash and debris will be an attractant for some wildlife species. This will be minimized by PCEM HAZ-6. As such, impacts from construction will be short- and long-term and minor.

Mitigation measures PCEM VEG-4 and PCEM VEG-5 will minimize the introduction and spread of invasive and noxious weeds within the ROW or to adjacent areas from construction equipment. Minimization of ground-disturbing activities (PCEM VEG-1) will decrease conditions that favor the establishment and spread of invasive and noxious weed species. These species could adversely modify wildlife habitat by changing vegetation composition and altering fire regimes.

In areas that are not adapted to fire, increased frequency and intensity of fires could lead to dramatic changes in the overall vegetation community and available habitat for wildlife. Impacts from fire will be minimized through PCEM HEA-3. Given that vegetation types that will be disturbed are common in the study area and the implementation of PCEMs, impacts from the establishment and spread of invasive and noxious weeds will be short- and long-term and minor.

D. Off-Site and Compensatory Mitigation

Compensatory mitigation could include payment of an in lieu fee; acquiring mitigation land or conservation easements; or a combination of the two. As established in the BO and amendment, for Pima pineapple cactus that cannot be avoided Southline will purchase credits in an USFWS-approved conservation bank for Pima pineapple cactus, corresponding to the area of disturbance to occupied Pima pineapple cactus habitat.

Alternatively, Southline may purchase suitable mitigation lands within Pima County's Pima pineapple cactus priority conservation areas.

Implementation of PCEMs and mitigation measures requested by the AGFD, including (1) funding the relocation of Crane Lake away from P7, (2) funding riparian emergent wetlands along Kansas Settlement Road, and (3) funding the management of non-native vegetation; will reduce the intensity of impacts to habitat in the Willcox Playa Wildlife Area.

As noted previously, the AGFD managed Willcox Playa Wildlife Area is considered to be habitat of the highest value to Arizona wildlife species. The Wildlife Area is considered to be Resource Category 1 under the AGFD's habitat compensation policy (AZGFD, 2010a). Resource Category 1 areas have a compensation goal of no loss of existing in-kind habitat value. With the implementation of PCEMs to relocate Crane Lake and to further enhance the Wildlife Area with pond renovations and vegetation management, the policy goal will be met and possibly exceeded.

CONCLUSION

Potential impacts to species listed under the ESA were addressed during Section 7 consultation with USFWS. In their BO (USFWS, 2014) the USFWS concluded that the proposed Project was not likely to jeopardize the continued existence of listed species likely to be present in the study area. PCEMs and mitigation measures will minimize or avoid potential impacts to species listed under the ESA.

A total of 91 special status species were reviewed for the proposed Project. Of those species, 75 have the potential to occur in the study area. This includes 4 species listed under the Endangered Species Act, 27 BLM Sensitive Species, 21 AGFD WSC, 7 Arizona SGCN, 2 BGEPA species, 14 AZNPL Species, and 1 Pima County Species.

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EXHIBIT D

EXHIBIT D – BIOLOGICAL RESOURCES

As stated in R14-3-219, Exhibits to Application, Exhibit D of the Rules of Practice and Procedure Before Power Plant and Transmission Line Siting Committee:

"List the fish, wildlife, plant life and associated forms of life in the vicinity of the proposed site or route and describe the effects, if any, the proposed facilities will have thereon."

INTRODUCTION

The biological resources study area includes the Project footprint for the CEC New Build Route, the CEC Upgrade Route, and CEC Substations. The CEC New Build Route includes 66 miles of new double-circuit 345-kV transmission line in a new 200-foot-wide ROW, which would terminate at a new substation to be owned by Southline near the existing AEPCO Apache Substation,[1] and less than 1 mile of 115-kV or 230-kV transmission line and associated facilities needed to connect the proposed Southline Apache Substation to the AEPCO Apache Substation. The right-of-way ("ROW") width will be 200 feet for the CEC New Build Route.

The CEC Upgrade Route consists of approximately 5 miles of new non-WAPA owned 138-kV and 230-kV transmission lines and associated facilities that would interconnect the upgraded WAPA 230-kV Apache-Tucson and Tucson-Saguaro transmission lines to four existing substations owned and operated by other Arizona load-serving utilities. The connection lines will have a ROW width of 150 feet. The CEC Substation expansions will occur outside the ROW at the Apache (69.4 acres), Pantano (25.4 acres), Vail (27.7 acres), DeMoss Petrie (4.2 acres), and Tortolita substations (16.1 acres).

[1] The existing Apache Substation is owned and operated by AEPCO. Southline proposes to construct a new substation ("Southline Apache Substation") located near the AEPCO Apache Substation that would connect the New Build Section of the Project to the AEPCO Apache Substation and to the Upgrade Section of the Project. See Application at Section 4.b.i.(3) for additional details.

Impacts to biological resources were considered by evaluating the presence or absence of suitable habitat within the study area, the potential for direct mortality, and habitat fragmentation.

EXISTING CONDITIONS

I. PHYSICAL SETTING

The CEC New Build Route is located within the Mexican Highland Subprovince of the Basin and Range Physiographic Province. The Basin and Range Physiographic Province is characterized by numerous elongated, subparallel mountain ranges and intervening broad alluvial basins that formed during Late Cenozoic extension. The CEC Upgrade Route is located in the eastern edge of the Sonoran Desert Subprovince of the Basin and Range Physiographic Province. The Basin and Range Physiographic Province is a region dominated by basins filled with sediments separated by uplifted mountain blocks. Major basins include the Avra Valley, Tucson Basin, San Pedro Valley, and Willcox Playa (Trapp and Reynolds 1995).

II. LARGE-SCALE BIOTIC COMMUNITIES: BROWN AND LOWE BIOTIC COMMUNITIES

The map of biotic communities of the Southwest described in Brown (1984) shows four communities within the study area (*see* Figure D-1). Acreage calculations by biotic community presented below were derived for the total study area for the CEC New Build Route, the CEC Upgrade Route, and the CEC Substations. In descending order of coverage, these communities are Semidesert Grassland (888.6 acres), Chihuahuan Desertscrub (789.0 acres), Arizona Upland Subdivision of Sonoran Desertscrub (66.9 acres), and Lower Colorado River Valley Subdivision of Sonoran Desertscrub (44.3 acres), for a total of 1,788.8 acres. A description of each of these communities is provided in the following paragraphs. The Willcox Playa is north of the project ROW in segments P7 and P8.

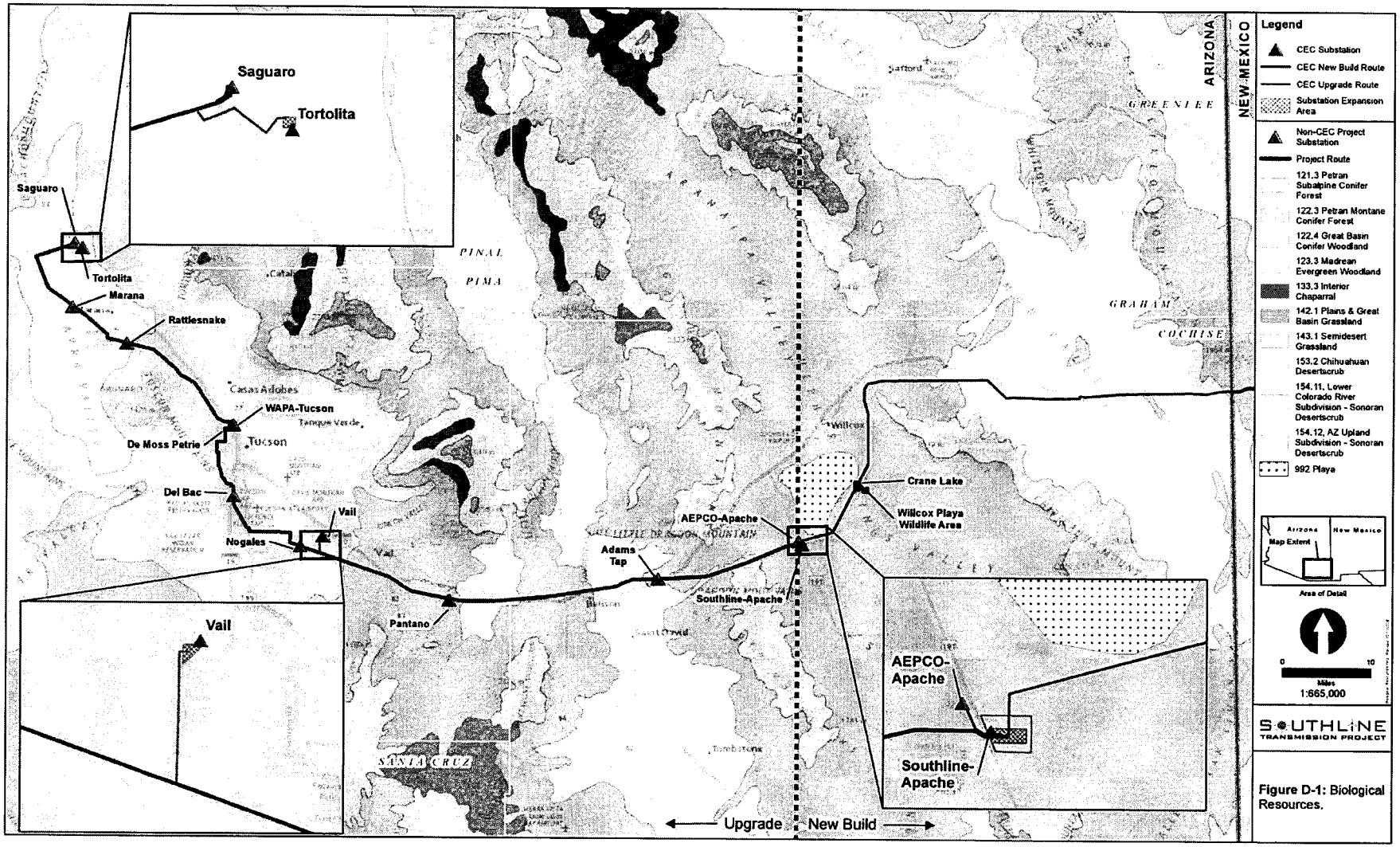

Figure D-1: Biological Resources.

The vegetation communities crossed by the proposed Project are described below as background information and to place the finer-scale SWReGAP plant associations in a broader biogeographic context, but are not addressed in the further analysis of biotic communities.

Note that plant species names used below are based on those presented by Brown and Lowe (1980), and some of the plant names and taxonomic classifications have changed since then. Updated and current plant classifications and names are available at the NRCS PLANTS Database (NRCS 2016).

A. Semidesert Grassland

The Semidesert Grassland biotic community comprises 49.7 percent of the study area and covers large areas of southeast Arizona, southwest New Mexico, West Texas, and northern parts of Sonora and Chihuahua, Mexico. This perennial, grass-shrub-dominated community is situated topographically above desertscrub communities and below evergreen woodland, chaparral, or plains grassland (Brown 1984). The upper and lower elevation limits of this community vary substantially over its distribution. The lower contact with desertscrub is generally between about 3,600 and 4,600 feet, while the upper contact with evergreen woodland or chaparral is generally between 4,920 and 5,580 feet. Average annual rainfall in this community ranges from 9.8 to 17.7 inches. This community is dominated by a variety of grasses and seasonally abundant forbs. Common shrub species include mesquites (*Prosopis* spp.), Mormon tea (*Ephedra* spp.), mimosas (*Mimosa* spp.), catclaw acacia (*Acacia greggii*), and ocotillo (*Fouquieria splendens*). Common leaf succulents include agaves (*Agave* spp.), yuccas (*Yucca* spp.), and sotols (*Dasylirion* spp.). This community is interspersed with Chihuahuan Desertscrub in the study area and occurs in the CEC New Build Route in segments P6b, P6c, P7, P8 and the Apache Substation expansion area. The community is present in the CEC Upgrade Route at the Pantano Substation expansion area.

B. Chihuahuan Desertscrub

The Chihuahuan Desertscrub biotic community comprises 44.1 percent of the study area and covers large areas of southern New Mexico and West Texas, smaller areas of southeast Arizona, and a large part of the State of Chihuahua, Mexico. This community is centered in the highland plains and basins of northern Mexico, below the Semidesert

Grassland community (Brown 1984). This biotic community is dominated by basin and range topography, and most of this community is underlain by limestone.

The lower elevation limit of Chihuahuan Desertscrub is around 1,300 feet, while its upper limit is generally between 4,600 and 5,250 feet. Average annual rainfall in this community ranges from 7.9 to 11.8 inches. Large areas of this desert are dominated by three shrubs: creosotebush (*Larrea tridentata*), tarbush (*Flourensia cernua*), and viscid acacia (*Vachellia neovernicosa*). Honey mesquite (*Prosopis glandulosa*) and saltbush (*Atriplex* spp.) are common in some areas. Common leaf succulents include agaves, yuccas, and sotols. This community is interspersed with Semidesert Grassland and occurs in the CEC New Build Route in segments P5b, P5c, P6a, and P6b.

C. Sonoran Desertscrub – Arizona Upland Subdivision

The Arizona Upland Subdivision comprises 3.7 percent of the study area but covers large areas of the northern and eastern parts of the Sonoran Desertscrub biotic community in Arizona and Sonora, Mexico. This subdivision is a cactus-dominated community situated topographically above the Lower Colorado River Subdivision and below Semidesert Grassland (Brown 1984). As with other communities, the upper and lower elevation limits of this community vary substantially over its distribution. The lower edge of this subdivision is generally between about 1,000 and 2,100 feet, whereas the upper contact with Semidesert Grassland is generally between 2,950 and 3,300 feet. Average annual rainfall in this community ranges from 7.9 to 16.7 inches. This community is dominated by a high diversity of cacti, and most of the woody shrubs have thorns. Common cactus species include saguaro, chollas (*Cylindropuntia* spp.) and pricklypears (*Opuntia* spp.), barrel cactus (*Ferocactus* spp.), hedgehog cactus (*Echinocereus* spp.), and pincushion cactus (*Mammillaria* spp.). Some common small trees and shrubs include paloverde (*Parkinsonia* spp.), ironwood, velvet mesquite (*Prosopis velutina*), acacias (*Acacia* spp.), and creosotebush. In the study area, this community is limited to the CEC Upgrade Route segment U4 and the Vail Substation expansion area. The DeMoss Petrie Substation expansion area is mapped within the community but has been previously cleared of vegetation.

D. Sonoran Desertscrub – Lower Colorado River Valley Subdivision

The Lower Colorado River Valley Subdivision comprises 2.5 percent of the study area but covers large areas of the southern and western parts of the Sonoran Desertscrub biotic community in Arizona, California, Baja California, and Sonora, Mexico. This subdivision is a shrub-dominated community situated topographically below the Arizona Upland Subdivision (Brown 1984). This community is the hottest and driest part of the Sonoran Desert, with average annual rainfall between 1.2 and 11.3 inches. Dominant shrub species include creosotebush, white bursage (*Ambrosia dumosa*), and saltbush. Other shrubs and small trees are present in xeroriparian zones along small drainages. In the study area, this community is limited to the CEC Upgrade Route segment U31. The adjacent Tortolita Substation expansion area is mapped within the community but has been previously cleared of vegetation.

EFFECTS OF THE PROPOSED FACILITIES

Species occurrence, abundance, and distribution are strongly influenced by the topography and habitat types within and surrounding the study area. Tables D-1, D-2, and D-3 (included at the end of this Exhibit) present common mammals, birds, and reptiles/amphibians, respectively, which may occur in the study area. Lists of potentially occurring species of animals were assembled from standard references for the state.

The proposed Project could have direct and indirect impacts on vegetation resources located within areas disturbed by construction activity. These potential impacts will be mitigated through implementation of Proponent Committed Environment Measures ("PCEM") VEG-1, VEG-2, VEG-3, VEG-4, VEG-5, or VEG-6 (*see* Exhibit B-1, Final EIS Table 2-8).

Potential impacts from the proposed Project common to all wildlife groups will include the loss, degradation, and/or fragmentation of breeding, rearing, foraging, and dispersal habitats; collisions with and crushing by construction and maintenance vehicles; loss of burrowing animals in burrows in areas where grading occurs, increased invasive and noxious weed establishment and spread; and increased noise/vibration levels. PCEMs and collocation of the transmission line, substations, and access road

with existing infrastructure, and routing of the line to avoid sensitive areas will reduce these impacts and they will be minor/negligible and short-term to long-term.

Design features and mitigation (PCEMs) for vegetation and wildlife will apply and reduce the amount of habitat lost or degraded/fragmented during construction activities. Some of the habitat will be restored or reconstructed elsewhere after the completion of construction activities; however, restoration in arid environments is difficult and slow and may require 50 to 100 or more years. The habitat types affected are abundant in the representative ROW and the broader study area. As such, impacts from ground disturbance will be minor and long-term.

I. Access Roads

There will be approximately 71.2 miles of access roads, 68.7 miles will occur in the CEC New Build Route section with the remaining 2.5 miles in the CEC Upgrade Route section. In most areas the access roads will parallel existing utility roads.

The primary direct and indirect impacts of access roads will include the removal or crushing of native vegetation, decreased plant productivity from fugitive dust, plant community fragmentation, and the introduction or increased spread of noxious weeds. Impacts on wildlife will include the potential for direct collisions with construction and Project equipment, loss of burrowing animals in burrows in areas where grading occurs as well as the loss, degradation, and/or fragmentation of breeding, rearing, foraging, and dispersal habitats

The access roads for the Project will increase the amount of edge habitat along the ROW. Effects from increased amounts of edge will include decreased habitat block size. Decreased habitat block size may negatively impact those species that require large blocks of contiguous habitat and benefit other species that utilize edge habitats or have more general habitat requirements. In areas where there is higher vegetation density the potential impacts from habitat fragmentation and edge effects will be greatest.

Access roads could provide increased access for off-highway vehicle ("OHV") users, which could increase the potential for OHV collisions with wildlife, and increase fire ignition sources from increased OHV access. Required mitigation measures, or PCEMs, are a condition of the BLM's and WAPA's Record of Decisions. PCEMs to provide spur and access road closure signage at the entrances to these roads will reduce the potential

for impacts from the access roads. While mitigation will minimize OHV use along the transmission line and access roads, trespass use of the area could still occur. The increased potential for fire ignition could lead to fires that dramatically modify habitat over large areas, especially in habitat types that are not adapted to fire.

II. Transmission Line

The total acreage in the CEC New Build Route will be approximately 1,518 acres, with approximately 248 acres to be disturbed by the transmission line. The CEC Upgrade Route will be approximately 63 acres, with approximately 18 acres to be disturbed by the transmission line. Disturbance associated with the CEC Substation expansions will occur at the Apache (69.3 acres), Pantano (25.4 acres), Vail (27.7 acres), DeMoss Petrie (4.2 acres), and Tortolita substations (16.1 acres).

Much of the CEC Proposed Route and CEC Substation expansions are collocated with existing roads, pipelines, and existing transmission lines. In areas where the proposed transmission line will be collocated with existing infrastructure impacts on vegetation will be less than in areas where there is no collocation of facilities. Impacts to native plant associations throughout these collocated portions of the CEC Proposed Route will therefore be minimal relative to the existing undeveloped portions of the proposed route.

Project activities will involve the removal of vegetation during construction resulting in the direct loss of plant communities. The primary direct and indirect impacts to vegetation during construction and operation and maintenance of the proposed Project will be associated with the removal and/or crushing of natural, native-species dominated vegetation communities or associations from construction of transmission lines, substations, temporary work areas, and access roads; decreased plant productivity from fugitive dust; and plant community fragmentation.

Vegetation removal could have a variety of effects on vegetation communities ranging from changes in community structure and composition along the ROW to alteration of soil moisture or nutrient regimes. The degree of impact depends on the type and amount of vegetation affected, and the rate at which vegetation regenerates after construction. Ultimately, these direct and indirect effects could reduce or change the functional qualities of vegetation, including habitat and forage. Fugitive dust from construction and maintenance traffic has the potential to affect photosynthetic rates and

decrease plant productivity. Potential impacts from fugitive dust caused by Project activities will be highest near the ROW and occur during construction activities. The overall impact on vegetation from fugitive dust will be localized along the ROW and will be reduced below significance once construction activities are completed. These impacts will only occur during occasional maintenance activities and will be insignificant after construction activities are complete.

Indirectly, removal of vegetation could cause increased soil desiccation, and will also expose soil to potential wind and water erosion. This could result in further loss of soil and vegetation, as well as increased sediment input to water resources. This impact will occur in areas of disturbance, localized in the ROW; however, as the proposed Project will occur in an area with an arid climate and large existing areas with low vegetation density the impacts from soil desiccation will be localized and minimal. Increased potential for erosion will occur but will be minimized through PCEMs to limit erosion.

There will also be indirect effects resulting from the fragmentation of connected vegetation types and creation of edge areas. Edge areas have different microclimatic conditions and structure, which could lead to different species composition than interior areas. In areas where there is higher vegetation density the potential impacts from habitat fragmentation and edge effects will be greatest. However, portions of the CEC Proposed Route and CEC Substation expansion will occur in areas with low vegetation density. In these areas impacts from fragmentation and edge effects will be minimal. The introduction and colonization of disturbed areas by invasive exotic plant species also will lead to changes in vegetation communities, including the possible shift to more wildfire-prone vegetation that favors invasive exotic species over native species.

The proposed Project could have direct and indirect impacts on vegetation resources located within areas disturbed by construction activity. These potential impacts will be mitigated through implementation of the required PCEMs VEG-1, VEG-2, VEG-3, VEG-4, VEG-5, or VEG-6 (*see* Exhibit B-1, Final EIS Table 2-8).

Routine operation and maintenance activities could increase long-term chances for invasive weed and wildfire threats to vegetation communities. Application of mitigation measures (PCEMs) will be used to mitigate these impacts, particularly PCEM VEG-1: Minimize Vegetation Impacts, PCEM VEG-2: Reclamation, Vegetation, and

Monitoring Plan, and PCEM VEG-4: Vegetation Clearing. Adherence to these measures will result in short-term, minor impacts to vegetation communities.

Pre-construction surveys for the species with the potential to occur in the ROW could allow direct impacts to be avoided. Furthermore, application of measures PCEM VEG 1-6 described above will be used to mitigate these impacts, particularly PCEM VEG-1: Minimize Vegetation Impacts; and PCEM VEG-2: Reclamation, Vegetation, and Monitoring Plan. Measures to restore special status species will also be implemented through the Reclamation, Vegetation, and Monitoring Plan (PCEM VEG-3). Measures that reduce ground disturbance and aid reclamation will also reduce any detrimental effects on sensitive biological soil crusts.

Application of PCEMs to reduce the transfer of invasive species on construction vehicles (as directed under PCEM VEG-5: Noxious Weed Management Plan and PCEM VEG-6 regarding equipment washing) should also mitigate most direct and indirect impacts associated with the spread of noxious weeds during construction. Adherence to PCEMs will result in short-term, minor impact to vegetation and wildlife.

Reclamation activities will utilize plant species that are reflective of the local ecosystem and habitat types. Compensatory mitigation planning will be developed as part of the Plant and Wildlife Species Conservation Measures Plan. Compensatory mitigation planning will address residual impacts anticipated following application of the Reclamation, Vegetation, and Monitoring Plan.

Routine operation and maintenance activities could increase long-term chances for invasive weed and wildfire threats. Application of measures PCEM VEG 1-6 as previously discussed will be used to mitigate these impacts particularly PCEM VEG-1: Minimize Vegetation Impacts and PCEM VEG-2: Reclamation, Vegetation, and Monitoring Plan.

Application of PCEMs to reduce the transfer of invasive species on vehicles (as directed under PCEM VEG-5: Noxious Weed Management Plan and PCEM VEG-6: Equipment Washing) should also mitigate most direct and indirect impacts associated with the spread of noxious weeds. Adherence to these measures will result in short-term, minor impacts to special status species.

Potential impacts to bird species will include temporary disturbance from noise as well as changes to habitat use. Noise-related construction activities could affect nesting, roosting, and foraging activities. Changes to behavior could include increased alertness, turning toward the disturbance, fleeing the disturbance, changes in activity patterns, and nest abandonment. Raptors will be especially susceptible to noise disturbance early in the breeding season, when it can cause nest abandonment and failure for up to one season. Measures to avoid working in sensitive habitats during the breeding season will reduce these impacts (PCEM WILD-5) and they will be minor and short-term.

Potential impacts from the transmission line will include the potential for birds to strike the electrical transmission lines, ground wires, and towers. Proponent proposed measures to design the transmission lines and structures in accordance with "Reducing Avian Collision with Power Lines" (Avian Powerline Interaction Committee ("APLIC") 2012), utilizing the existing WAPA transmission line ROW, and route siting will minimize the potential for bird collisions with transmission lines or towers (PCEM WILD-6). However, during poor weather conditions and along elevated terrain migrating birds and raptors will be at greater risk for collisions as they will fly nearer to transmission line facilities. While some individuals could be impacted these impacts will be unlikely to reach population levels. The impacts will be minor and long-term. Small and mobile bird species will be anticipated to have a very low potential for collisions.

Electrocution is not a potential issue for birds as the proposed transmission lines will have conductor spacing that is much larger than the largest wingspan of bird species that could occur in the area. Types of mitigation described by APLIC include collision monitoring, line marking, changing line configurations, and increasing wire diameters (APLIC 2012). Mitigation measures will be provided in the Avian Protection Plan and will be tailored to Project-specific conditions. With the application of PCEMs, there will be no impact on birds from electrocution.

The presence of transmission poles will provide perches as well as nesting habitat for some species. In some areas the transmission poles may be the only suitable nesting structures for some species. This will allow some species to utilize areas that would otherwise be unsuitable. This will be a beneficial impact to species that utilize the transmission line and could increase impacts on prey species near the ROW.

The increased amount of edge habitat created by the proposed Project will allow for an increase in species that use edge habitats, such as brown-headed cowbirds (*Molothrus ater*). This will change the species composition of the ROW area and impact species that utilize larger blocks of habitat as they will be subject to increased predation and nest parasitism. Other species that utilize edge habitats or have more general habitat requirements will benefit from the increased amount of edge habitat. In areas where there is higher vegetation density the potential impacts from habitat fragmentation and edge effects will be greatest. However, as portions of the proposed Project occur in areas with low vegetation density or in areas with existing development, impacts from habitat fragmentation and edge effects will be minor and short-term.

Noise and vibration associated with construction activities may temporarily change habitat use patterns for some species. Some individuals will move away from the source(s) of the noise/vibration to adjacent or nearby habitats; which may increase competition for resources within these areas. Noise/vibration and other disturbances may also lead to increased stress on individuals, which could decrease their overall fitness due to increased metabolic expenditures.

Operation and maintenance impacts will be temporary and will occur sporadically over the life of the proposed Project. It is estimated that maintenance activities will occur once or twice a year under normal circumstances.

III. Construction Activities and Temporary Work Areas

Potential construction-related impacts, including in temporary work areas, from the proposed Project will include the removal of vegetation and plant community fragmentation; loss, degradation, and/or fragmentation of wildlife breeding, rearing, foraging, and dispersal habitats; collisions with and crushing by construction vehicles; loss of burrowing animals in burrows in areas where grading will occur, increased invasive and noxious weed establishment and spread; and increased noise/vibration levels. PCEMs and collocation of the transmission line, and access road with existing infrastructure, and routing of the line to avoid sensitive areas will reduce these impacts and they will be minor/negligible and short-term to long-term.

Project construction and use of temporary work areas will create temporary impacts associated with the presence of workers and equipment that may cause species to avoid using work areas during construction activities. These potential impacts will be

temporary and will cease with the completion of construction and reclamation activities. As such they will be unlikely to be significant at the population level.

Noise and vibration associated with construction activities may temporarily change habitat use patterns for some species. Some individuals will move away from the source(s) of the noise/vibration to adjacent or nearby habitats; which may increase competition for resources within these areas. Noise/vibration and other disturbances may also lead to increased stress on individuals, which could decrease their overall fitness due to increased metabolic expenditures. These effects will be temporary and of short duration and will cease with the completion of construction activities. Impacts from noise/vibration will likely be limited to individuals, will be minor and short-term and could lead to reproductive failure for one season. However, given the temporary nature of noise/vibration impacts they will not be significant at the population level.

Design features and mitigation (PCEMs) for vegetation and wildlife will apply and reduce the amount of vegetation and habitat that will be lost or degraded/fragmented during construction activities. Some of the habitat will be restored or reconstructed elsewhere after the completion of construction activities; however, restoration in arid environments is difficult and slow and may require 50 to 100 or more years. The habitat types affected are abundant in the study area. As such, impacts from ground disturbance will be minor and long-term.

A Project speed limit for construction areas and spur roads will be implemented to reduce the potential for construction activities leading to wildlife collisions with construction equipment. Burial of some individuals could occur during ground-disturbing activities. Given the amount of habitat in the study area, implementation of PCEMs, the temporary nature of construction activities, and the ability of many species to leave impacted areas, it is unlikely that there will be population level impacts. The presence of construction-related trash and debris will be an attractant for some wildlife species. This will be minimized by PCEM HAZ-6. As such, impacts from construction will be short- and long-term and minor.

Mitigation measures will minimize the introduction and spread of invasive and noxious weeds within the ROW or to adjacent areas from construction equipment. Minimization of ground-disturbing activities will decrease conditions that favor the establishment

and spread of invasive and noxious weed species. These species could adversely modify wildlife habitat by changing vegetation composition and altering fire regimes.

In areas that are not adapted to fire, increased frequency and intensity of fires could lead to dramatic changes in the overall vegetation community and available habitat for wildlife. Impacts from fire will be minimized through PCEM HEA-3. Given that vegetation types that will be disturbed are common in the study area and the implementation of PCEMs, impacts from the establishment and spread of invasive and noxious weeds will be short- and long-term and minor.

IV. Off-Site and Compensatory Mitigation

PCEMs and mitigation for special status species and their habitat are described in Exhibit C. Southline has developed (or will develop prior to construction) framework plans including; a Plant and Wildlife Species Conservation Measures Plan, Noxious Weed Management Plan, Reclamation, Vegetation, and Monitoring Plan, and an Avian Protection Plan (*see* Exhibit B-1, Final EIS Section 2.4.1). These framework plans include measures to mitigate or avoid impacts to vegetation, wildlife, and migratory birds. Off-site mitigation measures at the Willcox Playa Wildlife Area are described in Exhibit J-3.

CONCLUSION

The vegetation communities and wildlife habitat types found in the study area are generally common and widespread in southern Arizona. The area to be impacted by the CEC New Build Route, CEC Upgrade Route, and CEC Substations is a small portion of the vegetation communities and habitat present in the Project vicinity. The Project has been located to avoid new ground disturbance where possible. Given that areas to be disturbed would be a small portion of the vegetation communities and wildlife habitat in the Project vicinity and with the implementation of PCEMs, impacts to vegetation and wildlife are not expected to be significant.

Table D-1. Mammal Species with the Potential to Occur in the Vicinity of the Study Area.

Scientific Name	Common Name	Habitat
Ammospermophilus harrisii	Harris's antelope squirrel	Rocky areas of creosote bush/saltbush/bursage
Ammospermophiolus interpres	Texas antelope ground squirrel	Chihuahuan desertscrub
Ammospermophilus leucurus	White-tailed antelope squirrel	Desertscrub with rocky areas for shelter
Antrozous pallidus	Pallid bat	Desertscrub with caves, mine, cliffs, bridges, or other structures for roosts
Canis latrans	Coyote	Cosmopolitan, from spruce forest to low desert
Chartodipus baileyi	Bailey pocket mouse	Flats and lower slope of desertscrub
Chaetodipus formosus	Long-tailed pocket mouse	Areas with rocky or stony groundcover in desertscrub
Chartodipus intermedius	Rock pocket mouse	Rocky areas of desertscrub
Dipodomys deserti	Desert kangaroo rat	Sonoran desertscrub
Erethizon dorsatum	Porcupine	Generally distributed
Dipodomys merriami	Merriam's kangaroo rat	Sandy areas of desertscrub
Dipodomys nelson	Nelson's kangaroo rat	Chihuahuan desertscrub
Dipodomys spectabilis	Banner-tailed kangaroo rat	Semidesert grassland
Dicotyles tajacu	Peccary, Javelina	Semidesert grassland, Sonoran desertscrub
Eutamias dorsalis	Cliff chipmunk	Rocky outcroppings, cliffs in desertscrub and juniper woodlands
Erethizon dorsatum	Ord's kangaroo rat	Semidesert grassland
Eptesicus fuscus	Big brown bat	Wooded areas, desertscrub
Euderma maculatum	Spotted bat	Rocky cliffs near riparian areas
Felis concolor	Mountain lion	Generally distributed
Felis rufus	Bobcat	Desertscrub, especially thickets along creeks and streambeds
Geomys arenarius	Desert pocket gopher	Chihuahuan desertscrub
Idionycteris phyllotis	Allen's big-eared bat	Caves in mountainous pine forests and desertscrub near permanent water
Lepus californicus	Black-tailed jackrabbit	Desertscrub and other areas with open ground cover
Macrotus californicus	California leaf-nosed bat	Desertscrub
Lasionycteris noctivagans	Silver-haired bat	Areas with rivers, ponds, canals, or other permanent water
Lasiurus borealis	Red bat	Desertscrub with rock faces containing crevices, occasionally caves and mines

Scientific Name	Common Name	Habitat
Lasiurus cinereus	Hoary bat	Open woodlands
Macrotus californicus	California leaf-nosed bat	Desertscrub
Mephitis macroura	Hooded skunk	Desertscrub, especially along creeks and streambeds or rocky ledges of canyons
Mephitis mephitis	Striped skunk	From spruce/fir belt to sea level, usually near permanent water
Microtus longicaudus	Long-tailed vole	Desertscrub, especially along creeks and streambeds
Microtus mexicanus	Mexican vole	Grassy openings of pine forests
Mustela frenata	Long-tailed weasel	Wooded areas in desertscrub and woodlands
Myotis auriculus	Southwestern myotis	Desertscrub with rock faces containing crevices, occasionally caves and mines
Myotis californicus	California myotis	Desertscrub with rock faces containing crevices, occasionally caves and mines
Myotis evotis	Long-eared myotis	Mixed coniferous forests
Myotis leibii	Small-footed myotis	Coniferous forests with rock faces containing crevices, caves, and mines
Myotis occultus	Arizona myotis	Coniferous forests along permanent water
Myotis thysanodes	Fringed myotis	Open, coniferous, middle-elevation forests
Myotis velifer	Cave myotis	Desertscrub with caves, mines, or bridges and water nearby
Myotis volans	Long-legged myotis	Forested mountains
Myotis yumanensis	Yuma myotis	Areas with rivers, ponds, canals, or other permanent water
Nasua narica	Coati	Medium elevation woodland and shrubby grassland, may migrate or wander through desert areas
Neotoma albigula	White-throated wood rat	Areas below the conifer belt, especially with *Opuntia* or paloverde
Neotoma goldmani	Goldman's woodrat	Chihuahuan desertscrub
Neotoma lepida	Desert woodrat	Desertscrub
Neotoma mexicana	Mexican woodrat	Rocky areas in montane mixed coniferous forests
Neotoma micropus	Southern plains woodrat	Semidesert grassland
Neotoma stephensi	Stephen's woodrat	Rocky areas with crevices in juniper woodlands
Notiosorex crawfordi	Crawford's gray shrew	Desertscrub

Scientific Name	Common Name	Habitat
Odocoileus hemionus	Mule deer	Pine forest, oak woodland, chaparral, upland desert
Onychomys leucogaster	Northern grasshopper mouse	Grasslands or open brushlands in desertscrub
Odocoileus virginianus	White-tailed deer	Generally distributed
Odocoileus hemionus crooki	Mule deer	Semidesert grassland, Chihuahuan desertscrub, and Sonoran desertscrub
Odocoileus hemionus crooki	Desert mule deer	Semidesert grassland, Chihuahuan desertscrub, and Sonoran desertscrub
Omychomys torridus	Southern grasshopper mouse	Semidesert grassland
Ovis Canadensis	Bighorn sheep	Areas with rocky outcroppings
Ovis Canadensis mexicana	Desert bighorn sheep	Chihuahuan desertscrub
Perognathus apache	Apache pocket mouse	Sandy areas in desertscrub
Perognathus baileyi	Bailey's pocket mouse	Sonoran desertscrub
Peromyscus boylii	Brush mouse	Medium to high densities of shrubs and tree cover in desertscrub
Peromyscus crinitus	Canyon mouse	Rocky outcroppings
Peromyscus eremicus	Cactus mouse	Desertscrub, rocky areas, chaparral
Perognathus eremicus eremicus	Arizona cactus mouse	Chihuahuan desertscrub
Perognathus flavus	Silky pocket mouse	Desertscrub and juniper woodlands
Perognathus formosus	Long-tailed pocket mouse	Chihuahuan desertscrub
Pappogeomys castanops	Yellow-faced pocket gopher	Chihuahuan desertscrub
Perognathus hispidus	Hispid pocket mouse	Semidesert grassland
Peromyscus leucopus	White-footed mouse	Woodlands near creek and river bottoms
Peromyscus maniculatus	Deer mouse	Creek beds and canals in Sonoran desertscrub
Perognathus nelson	Nelson's pocket mouse	Chihuahuan desertscrub
Perognathus parvus	Great Basin pocket mouse	Desertscrub
Perognathus pencillatus	Desert pocket mouse	Chihuahuan desertscrub and Sonoran desertscrub
Peromyscus truei	Pinyon mouse	Rocky areas in juniper woodlands
Perognathus spp.	Pocket mouse	Semidesert grassland
Pipistrellus hesperus	Western pipistrelle	Areas with canyon walls or cliff faces for roosting, streambeds, and tanks for foraging
Plecotus townsendii	Townsend's big-eared bat	Coniferous forests with caves, mines, or bridges and water nearby
Procyon lotor	Raccoon	Areas with permanent water

Scientific Name	Common Name	Habitat
Reithrodontomys megalotis	western harvest mouse	Desertscrub or chaparral
Sciurus aberti	Abert's squirrel	Coniferous forests
Sigmodon fulviventer	Tawny-bellied cotton rat	Semidesert grassland
Sigmodon hispidus	Hispid cotton rat	Semidesert grassland
Sorex merriami	Merriam's shrew	Sagebrush, pinyon-juniper woodlands, and montane shrublands
Spermophilus lateralis	Manteled ground squirrel	Coniferous and mixed coniferous forests with rocky meadows and sagebrush areas
Spermophilus auduboni	Round-tailed ground squirrel	Chihuahuan desertscrub
Spermophilus spilosoma	Spotted ground squirrel	Sandy soils with sparse vegetation in desertscrub
Spermophilus variegatus	Rock squirrel	Rocky areas above 1,600 feet amsl
Spilogale putorius	Spotted skunk	Low and middle elevations, often in rocky areas or around human habitation
Sylvilagus audubonii	Desert cottontail	Desertscrub, semi-desert grassland
Sylvilagus floridanus	Eastern cottontail	Open grassy areas in desertscrub
Tadarida brasiliensis	Mexican free-tailed bat	Coniferous forests with rock faces containing crevices, caves, and mines
Tamias cinereicollis	Gray-collared chipmunk	Coniferous forests
Tamiasciurus hudsonicus	American red squirrel	Mature coniferous forests
Taxidea taxus	Badger	Generally distributed
Thomomys bottae	Botta's pocket gopher	Any area with soil suitable for digging burrows
Urocyon cinereoargenteus	Gray fox	Open desertscrub, chaparral, lower-elevation woodland
Ursus americanus	Black bear	Generally distributed
Vulpes macrotis	Kit fox	Desertscrub and desert grassland with sandy or softer clay soils

Source: Hoffmeister 1986

Table D-2. Bird Species with the Potential to Occur in the Vicinity of the Study Area.

Scientific Name	Common Name	Habitat
Accipiter cooperii	Cooper's hawk	Broken woodlands or streamside groves
Accipiter gentilis	Northern goshawk	Coniferous forests
Accipiter striatus	Sharp-shinned hawk	Generally distributed
Actitis macularia	Spotted sandpiper	Lakes, ponds, streams, and flooded areas
Aegolius acadicus	Northern saw-whet owl	Coniferous forests with thickets of shrubs
Agelaius phoeniceus	Red-winged blackbird	Riparian areas, irrigated fields, marshes, and feedlots
Aimophila cassinii	Cassin's sparrow	Semidesert grassland.
Amphispiza bilineata	Black-throated sparrow	Chihuahuan desertscrub, Sonoran desertscrub
Anas platyrhynchos	Mallard	Lakes, ponds, streams, canals
Aphelocoma californica	Western scrub-jay	Open areas in pinyon-juniper woodlands
Aquila chrysaetos	Golden eagle	Open coniferous forests in hilly and mountainous regions
Ardea herodias	Great blue heron	Lakes, ponds, streams, marshes, and canals
Asio flammeus	Short-eared owl	Open areas such as grasslands and prairies
Asio otus	Long-eared owl	Open woodlands, forest edges, riparian strips along rivers, wooded ravines and gullies, and juniper thickets
Athene cunicularia	Burrowing owl	Open country, golf courses, airports
Auriparus flaviceps	Verdin	Semidesert grassland, Sonoran desertscrub
Baeolophus griseus	Juniper titmouse	Open areas such as grasslands and prairies, associated with burrowing animals
Bubo virginianus	Great horned owl	Common in a wide variety of habitats
Buteo albonotatus	Zone-tailed hawk	Open areas with scattered trees and riparian areas
Buteo jamaicensis	Red-tailed hawk	Plains, prairie groves, desert
Buteo lagopus	Rough-legged hawk	Near steppes and open juniper woodland
Buteo regalis	Ferruginous hawk	Dry, open country
Buteo swainsoni	Swainson's hawk	Fields and desert
Buteogallus anthracinus	Common black hawk	Lowlands and middle elevations near water
Calypte costae	Costa's hummingbird	Sonoran desertscrub
Callipepla squamata	Scaled quail	Semidesert grassland, Chihuahuan desertscrub

Scientific Name	Common Name	Habitat
Campylorhynchus brunneicapillus	Cactus wren	Semidesert grassland, Chihuahuan desertscrub, Sonoran desertscrub
Cardinalis sinuatus	Pyrrhuloxia	Sonoran desertscrub
Carduelis pinus	Pine siskin	Coniferous forests, brushy pastures, and mixed woodlands
Carpodacus mexicanus	House finch	Riparian and suburban areas, farmland, desert
Cathartes aura	Turkey vulture	Open country, woodlands, farmlands
Catharus guttatus	Hermit thrush	Lowland woodlands and suburban areas
Charadrius vociferus	Killdeer	Ponds, streams, and marshes
Chondestes grammacus	Lark sparrow	Brushy, weedy areas, riparian areas, and field edges
Chordeiles acutipennis	Lesser nighthawk	Chihuahuan desertscrub, Sonoran desertscrub
Chordeiles minor	Common nighthawk	Dry, open country, scrubland, desert
Circus cyaneus	Northern harrier	Open areas including grasslands and prairies
Colaptes auratus	Northern flicker	Open woodlands, suburban areas
Colaptes chrysoides	Gilded flicker	Sonoran desertscrub
Columba livia	Rock dove	Parks, fields, urban settings
Contopus cooperi	Olive-sided flycatcher	Near openings, burns, ponds, and bogs in boreal spruce and fir forests
Contopus sordidulus	Western wood-pewee	Riparian areas, wooded habitats, including suburban areas
Corvus brachyrhynchos	American crow	Fields, open woodlands, and forests
Corvus corax	Common raven	Mountains, deserts, coastal areas
Corvus cryptoleucus	White-necked raven	Semidesert grassland, Chihuahuan desertscrub
Cyanocitta stelleri	Steller's jay	Evergreen forests
Dendroica coronata	Yellow-rumped warbler	Riparian and suburban areas
Dendroica graciae	Grace's warbler	Open forest with tall pines
Empidonax oberholseri	Dusky flycatcher	Open, dry, coniferous forests with a shrubby understory
Empidonax wrightii	Gray flycatcher	Open woodland with bare understory
Eremophila alpestris	Horned lark	Dirt fields, gravel ridges, shores
Euphagus cyanocephalus	Brewer's blackbird	Fields, farmyards, feedlots, ponds, and riparian areas
Falco columbarius	Merlin	Coniferous forest near open areas
Falco mexicanus	Prairie falcon	Dry, open country, prairies

Scientific Name	Common Name	Habitat
Falco peregrinus	Peregrine falcon	Generally distributed
Falco sparverius	American kestrel	Open country, cities
Geococcyx californianus	Roadrunner	Semidesert grassland, Chihuahuan desertscrub, Sonoran desertscrub
Glaucidium gnoma	Northern pygmy-owl	Pine and pine-oak forests
Gymnogyps californianus	California condor	Rugged canyons, gorges, and forested mountains
Gymnorhinus cyanocephalus	Pinyon jay	Pinyon-juniper woodlands and low-elevation ponderosa pine
Haliaeetus leucocephalus	Bald eagle	Areas near large areas of open water
Hirundo rustica	Barn swallow	Streams, ponds, lakes, and agricultural areas
Iceterus parisorum	Scott's oriole	Semidesert grassland, Chihuahuan desertscrub
Junco hyemalis	Dark-eyed junco	Desertscrub
Lanius ludovicianus	Loggerhead shrike	Semidesert grassland
Lophortyx californicus	California quail	Sonoran desertscrub
Lophortyx douglassii	Elegant quail	Sonoran desertscrub
Lophortyx gambelii	Gambel's quail	Semidesert grassland, Sonoran desertscrub
Melanerpes formicivorus	Acorn woodpecker	Oak woodlands containing mature oaks interspersed with grassland
Melanerpes uropygialis	Gila woodpecker	Sonoran desertscrub
Micrathene whitneyi	Elf owl	Sonoran desertscrub
Mimus polyglottos	Northern mockingbird	Variety of habitats
Molothrus ater	Brown-headed cowbird	Suburbs and agricultural areas
Myiarchus cinerascens	Ash-throated flycatcher	Wide variety of habitats
Myiarchus tyrannulus	Wied's crested flycatcher	Sonoran desertscrub
Otus kennicottii	Western screech owl	Open woodlands, streamside groves, deserts, suburban areas
Pandion haliaetus	Osprey	Lakes, ponds, streams, marshes, and canals
Parabuteo unicinctus	Harris' hawk	Sonoran desertscrub
Phainopepla nitens	Phainopepla	Riparian areas, especially in trees with mistletoe
Phalaenoptilus nuttallii	Poor-will	Semidesert grassland
Pheucticus melanocephalus	Black-headed grosbeak	Transient in lowlands
Picoides scalaris	Ladder-backed woodpecker	Semidesert grassland, Sonoran desertscrub

Scientific Name	Common Name	Habitat
Picoides villosus	Hairy woodpecker	Generally distributed
Pipilo fuscus	Canyon towhee	Sonoran desertscrub
Pipilo maculatus	Spotted towhee	Brushy areas, riparian and suburban areas
Piranga flava	Hepatic tanager	Oak-pine woodlands and riparian canyons
Piranga ludoviciana	Western tanager	Transient in lowlands
Poecile gambeli	Mountain chickadee	Dry, mountainous forests
Polioptila melanura	Black-tailed gnatcatcher	Semidesert grassland, Sonoran desertscrub
Quiscalus mexicanus	Great-tailed grackle	Riparian areas, irrigated fields, marshes, and feedlots
Sayornis nigricans	Black Phoebe	Woodlands, parks, suburbs, prefers to nest near water
Sayornis saya	Say's phoebe	Dry, open areas, canyons, cliffs
Selasphorus platycercus	Broad-tail hummingbird	Open woodland, especially pinyon-juniper and pine-oak association
Sialia currucoides	Mountain bluebird	High mountain meadows with scattered trees and bushes
Sialia mexicana	Western bluebird	Woodlands, farmlands, orchards, deserts, especially in mesquite-mistletoe groves
Sitta carolinensis	White-breasted nuthatch	Open mixed forest
Sitta pygmaea	Pygmy nuthatch	Pine forests
Spizella passerina	Chipping sparrow	Brushy edges and riparian areas
Strix occidentalis	Spotted owl	Dense, dark, old-growth coniferous or mixed forest
Sturnella magna	Eastern Meadowlark	Semidesert grassland
Sturnella neglecta	Western meadowlark	Semidesert grassland
Sturnus vulgaris	European starling	Generally distributed
Tachycineta bicolor	Tree swallow	Streams, ponds, lakes
Tachycineta thalassina	Violet-green swallow	Riparian areas, streams, ponds, and lakes
Thryomanes bewickii	Bewick's wren	Wooded riparian areas
Toxostoma bendirei	Bendire's thrasher	Sonoran desertscrub
Toxostoma curvirostra	Curve-billed thrasher	Semidesert grassland, Chihuahuan desertscrub, Sonoran desertscrub
Toxostoma lecontei	LeConte's thrasher	Sonoran desertscrub
Troglodytes aedon	House wren	Dense, brushy areas
Turdus migratorius	American robin	Riparian and suburban areas, desertscrub

Scientific Name	Common Name	Habitat
Tyrannus verticalis	Western kingbird	Semidesert grassland
Tyrannus vociferans	Cassin's kingbird	Varied habitats
Tyto alba	Barn owl	Dark cavities in city and farm buildings, cliffs, trees
Vermivora virginiae	Virginia's warbler	Low brushy areas on dry mountain sides
Vireo plumbeus	Plumbeous vireo	Woodland habitats
Zenaida asiatica	White-winged dove	Sonoran desertscrub
Zenaida macroura	Mourning dove	Wide variety of habitats

Source: Corman and Wise-Gervais 2005 and Glinski 1998.

Table D-3. Reptile and Amphibian Species with the Potential to Occur in the Vicinity of the Study Area.

Scientific Name	Common Name	Habitat
Ambystoma tigrinum mavortium	Barred tiger salamander	Near water in forested and prairie area
Arizona elegans	Glossy snake	Sonoran desertscrub
Arizona elegans eburnata	Desert glossy snake	Sonoran desertscrub
Arizona elegans noctivaga	Arizona glossy snake	Sonoran desertscrub
Arizona elegans philipi	Painted desert glossy snake	Below 6,000 feet in sparsely vegetated woodland, chaparral, grassland, or desertscrub with loose soil
Aspidoscelis uniparens	Desert grassland whiptail	Low valleys, mesquite-lined riparian corridors, floodplains, and moderate slopes in semidesert grassland into interior chaparral and woodland communities
Bufo cognatus	Great Plains toad	Creosote bush, mesquite deserts and desert scrub in association with temporary ponds, wetlands, and irrigation ponds and ditches
Bufo debilis insidior	Western green toad	Semidesert grassland
Bufo punctatus	Red-spotted toad	Rocky desert streams, pools in rocky arroyos, cattle tanks, grassland, oak woodland, scrubland, and river floodplains
Bufo retiformis	Sonoran green toad	Sonoran desertscrub
Bufo woodhousii woodhousii	Rocky Mountain toad	Irrigation ditches, temporary pools, moist meadows, grasslands, ponds, lakes, reservoirs, sagebrush flats, woods, desert streams, farms, river floodplains, irrigation canals, irrigated fields and golf courses
Callisaurus cinctus	Banded sand snake	Sonoran desertscrub
Callisaurus draconoides	Zebratail lizard	Sonoran desertscrub
Callisaurus occipitalis	Western shovelnose snake	Sonoran desertscrub
Gambelia wislizenii wislizenii	Long-nosed leopard lizard	Arid and semiarid plains grown to bunch grass, alkali bush, sagebrush, creosote bush, or other scattered low plants; ground may be hardpan, gravel, or sand
Cnemidophorus hyperythrus	Orangethroat lizard	Sonoran desertscrub
Cnemidophorus inornatus heptagrammus	Trans-Pecos striped whiptail	Inhabits deserts and semiarid habitats, usually where plants are sparse, also found in woodland, streamside growth, and in the warmer, drier parts of forests
Cnemidophorus inonatus	Little striped whiptail	Chihuahuan desertscrub
Cnemidophorus neomexicanus	New Mexico Whiptail	Chihuahuan desertscrub

Scientific Name	Common Name	Habitat
Cnemidophorus tesselatus	Colorado checkered whiptail	Chihuahuan desertscrub
Cnemidophorus tigris gracilis	Southern whiptail	Sonoran desertscrub
Cnemidophorus tigris marmoratus	Marbled whiptail	Chihuahuan desertscrub
Cnemidophorus tigris multiscutatus	Coastal whiptail	Sonoran desertscrub
Cnemidophorus tigris tigris	Western whiptail	Sonoran desertscrub
Cnemidophorus uniparens	Desert grassland whiptail	Semidesert grassland
Coleonyx brevis	Texas banded gecko	Sonoran desertscrub
Coleonyx reticulatus	Reticulated gecko	Sonoran desertscrub
Coleonyx variegatus	Banded gecko	Chihuahuan desertscrub
Cophosaurus texanus	Greater earless lizard	Sonoran desertscrub
Crotalus atrox	Western diamondback rattlesnake	Wide variety of habitats below 7,000 feet
Crotalus cerastes	Sidewinder	Chihuahuan desertscrub
Crotalus molossus molossus	Black-tailed rattlesnake	Upland desert to pine-oak woodland
Crotalus ruber	Red diamondback rattlesnake	Sonoran desertscrub
Crotalus scutulatus scutulatus	Mojave rattlesnake	Mostly in upland desert and lower mountain slopes
Crotalus tigris	Tiger rattlesnake	Sonoran desertscrub
Crotalus viridis	Prairie rattlesnake	Dry regions with sparse vegetation and a rocky component
Crotaphytus collaris baileyi	Western collared lizard	Rock-dwelling lizard that frequents canyons, rocky gullies, limestone ledges, mountain slopes, and boulder-strewn alluvial fans, usually where vegetation is sparse
Dipsosaurus dorsalis	Desert iguana	Sonoran desertscrub
Elaphe subocularis	Trans-pecos rat snake	Chihuahuan desertscrub
Eumeces gaigeae	Variable skink	Rocky grassy slopes in forested areas with ponderosa pine, edges of rocky canyons, pinyon-juniper woodland, and mountain streamsides
Eumeces obsoletus	Great Plains Skink	Canyons, mesas, and mountains in semi-arid regions, especially in shrubby rock outcrops along stream courses
Ficimia cana	Western hooknose snake	Chihuahuan desertscrub
Gopherus agassizi	Desert tortoise	Sonoran desertscrub
Gopherus flavomarginatus	Bolson tortoise	Chihuahuan desertscrub
H. suspectum	Gila monster	Sonoran desertscrub

Scientific Name	Common Name	Habitat
H. suspectum suspectum	Reticulated Gila monster	Sonoran desertscrub
Heterodon nasicus kennerlyi	Mexican hognose snake	Semidesert grassland
Holbrookia maculata approximans	Speckled earless lizard	Sandy soil areas in grassy prairie, cultivated fields, dry streambeds, and desert grasslands
Holbrookia texana scitula	Southwestern earless lizard	Semidesert grassland
Hyla arenicolor	Canyon tree frog	Huddles in niches on sides of boulders or stream banks, favors intermittent or permanent streams with quiet pools that have a hard rocky bottom, frequents arroyos in semi-arid grassland, streams in pinyon-juniper and pine-oak woodlands, and tropical scrub forest
Hypsiglena torquata	Night snake	Various upland and desert habitats used
Lichanura trivirgata	Rosy boa	Sonoran desertscrub
Masticophis flagellum lineatus	Lined coachwhip	Chihuahuan desertscrub
Masticophis taeniatus	Striped whipsnake	Open brushy areas in desertscrub, often along edges of rivers or ponds
Micruroides euryxanthus	Arizona coral snake	Sonoran desertscrub
Pituophis catenifer affinis	Sonoran gopher snake	Variety of habitats including desert flats, agricultural land, and riparian areas
Phrynosoma douglasii hernandesi	Mountain Short-horned lizard	Open, shrubby, or openly wooded areas with sparse vegetation at ground level
Phrynosoma m'calli	Flat-headed horned lizard	Sonoran desertscrub
Phrynosoma modestum	Roundtail horned lizard	Chihuahuan desertscrub
Phrynosoma platyrhinos calidiarum	Southern desert horned lizard	Sonoran desertscrub
Phrynosoma solare	Regal horned lizard	Sonoran desertscrub
Phyllorhynchus decurtatus	Spotted leaf-nose snake	Sonoran desertscrub
Pseudacris triseriata triseriata	Western chorus frog	Wet meadows, marshes, and woodlands
Rana pipiens	Northern leopard frog	Grasslands, wet meadows, potholes, forests, woodland, brushland, springs, canals, bogs, marshes, and reservoirs
Rhinocheilus lecontei	Longnose snake	Arid and semi-arid deserts, grasslands, shrublands, and prairies
Salvadora hexlepis	Western patchnose snake	Sonoran desertscrub
Sauromalus obesus	Chuckwalla	Sonoran desertscrub
Sceloporus cautus	Shy spiny lizard	Chihuahuan desertscrub

Scientific Name	Common Name	Habitat
Sceloporus graciosus graciosus	Sagebrush lizard	Sagebrush, pine or fie forests, brushland, and pinyon-juniper woodland
Sceloporus maculosus	Spotted spiny lizard	Chihuahuan desertscrub
Sceloporus magister	Desert spiny lizard	Chihuahuan desertscrub
Sceloporus magister bimaculosus	Twin-spotted spiny lizard	Chihuahuan desertscrub
Sceloporus merriami	Merriam's canyon lizard	Chihuahuan desertscrub
Sceloporus occidentalis	Western fence lizard	Grassland, broken chaparral, sagebrush, woodland, and coniferous forest
Sceloporus ornatus	Ornate spiny lizard	Chihuahuan desertscrub
Sceloporus poinsetti	Crevice spiny lizard	Chihuahuan desertscrub
Sonora semiannulata	Ground snake	Areas with surface cover and some moisture including grasslands, river bottoms, deserts flats, ranchland, sand hummocks, open rocky hillsides with loose soil, sandy washes, dry streambeds, and riparian thickets
Spea multiplicata	New Mexico spadefoot	Wide range of arid and semi-arid habitat types where soil is sandy or gravelly
Tantilla atriceps	Mexican blackhead snake	Chihuahuan desertscrub
Tantilla hobartsmithi	Southwestern blackhead snake	In loose soil or plant litter in desert grassland and woodland habitats
Thamnophis cyrtopsis cyrtopsis	Western blackneck garter snake	Pine-fir forest to upland desert and chaparral, generally in the vicinity of a water source
Thamnophis elegans vagrans	Wandering garter snake	Variety of habitats
Terrapene ornata	Ornate box turtle	Sonoran desertscrub
Terrapene ornata luteola	Desert box turtle	Semidesert grassland
Trimorphodon biscutatus	Western lyre snake	From oak and juniper woodland to higher elevation desert and grasslands, particularly in rocky areas
Uma exsul	Fringe-toed sand lizard	Chihuahuan desertscrub
Uma notata	Fringe-toed lizard	Sonoran desertscrub
Urosaurus graciosus	Brush lizard	Sonoran desertscrub
Urosaurus microscutatus	Small-scaled lizard	Sonoran desertscrub
Urosaurus ornatus	Western tree lizard	Frequents mesquite, oak, pine, juniper, alder, cottonwood, and non-native trees such as tamarisk and rough-bark eucalyptus, but also may occur in treeless areas, especially attracted to river courses

Source: Stebbins 2003

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EXHIBIT E

EXHIBIT E – SCENIC AREAS, HISTORIC SITES AND STRUCTURES, AND ARCHAEOLOGICAL SITES

As stated in R14-3-219, Exhibits to Application, Exhibit E of the Rules of Practice and Procedure Before Power Plant and Transmission Line Siting Committee:

"Describe any existing scenic areas, historic sites and structures or archaeological sites in the vicinity of the proposed facilities and state the effects, if any, the proposed facilities will have thereon."

The following sub-exhibits include analyses of visual resources and cultural resources in the vicinity of the CEC Proposed Route and anticipated impacts of the Project on those resources.

Exhibit E-1	Visual Resources (Scenic Areas)
Exhibit E-2	Cultural Resources (Historic Sites and Structures and Archaeological Sites)

EXHIBIT E-1 – Visual Resources (Scenic Areas)

The following analysis describes the current landscape and existing land use plan goals and policies for visual resources within the study area. The visual resources evaluation is based upon both spatial (landscape) and temporal (time) limits. The study area for visual resources is generally 5 miles on either side of the right-of-way ("ROW") centerline (10 miles total) for the CEC New Build Route and 2 to 5 miles on either side of the ROW centerline (4 to 10 miles total) for the CEC Upgrade Route (*see* Exhibit B-1, Final EIS Figures 3.10-1 and 3.10-2). Included in this analysis are viewing locations and key observation points ("KOPs"). These views were identified based on the potential visibility of the proposed Project and to inform the assessment of effects on the viewing public as a result of the proposed Project.

INTRODUCTION

Visual resources are the visible physical features on a landscape and may include landform (topography and soils), vegetation, and human-made structures (roads, buildings, fences, and modifications of the land and vegetation). The combination of these physical features creates scenery and provides an overall landscape character. This character is formed by the variety and intensity of the landscape features and four basic elements of form, line, color, and texture. These factors give an area a unique quality that distinguishes it from its surroundings. Usually, the more variety of these elements a landscape has, the more interesting or scenic that landscape becomes if the elements coexist harmoniously. Scenic quality is the relative value of a landscape from a visual perception point of view. The evaluation of visual resources on lands in the study area uses a combination of scenery (established through documentation of regional landforms, vegetation, and water) and viewing locations (established through evaluation of sensitive views and scenic values documented through identification of KOPs).

LAND USE PLANS

Land ownership and management jurisdiction in the visual study area of the CEC Proposed Route includes federal, state, and local government and private. Visual resource management on lands traversed by the Project is guided by federal, state, and local land use plans and policies.

A Visual Resource Inventory ("VRI") is required to be completed to process all permit applications. Further discussion of the BLM VRM system and applicable BLM RMPs can be found in Exhibit B-1, Final EIS Section 3.10.2.

No state or regional land use plans relating to visual resources were identified in the CEC Proposed Route study area. County planning documents exist for Pinal County (2011, 2015), Pima County (2004, 2012, 2015), and Cochise County (2015a). The Pinal County Comprehensive Plan indicates goals to protect scenic viewsheds and dark skies through the implementation of context sensitive design, as well as limiting development intensity, site coverage, vegetation removal, and protection of open space and ecological, geological, archaeological, historic, or cultural features with importance to natural resources. In Pima County, the Comprehensive Plan recommends reducing the visual impact of development on scenic vistas and entry points by providing design guidance and requiring more intensive restoration of graded areas. The Cochise County Comprehensive Plan recommends reduction of light pollution, maintaining rural character, and maintaining a trail network while protecting wildlife, pathways, green open spaces, and dark skies.

The visual study area includes the municipalities of Willcox and Tucson. Each of these municipalities has a general plan and municipal code. The overriding goal of the City of Willcox General Plan is to protect and preserve the city's heritage and to ensure compatible and managed growth for its citizens (City of Willcox 2009). The City of Tucson Land Use Code encourages the most efficient use of land through site-sensitive design, reduces potential hazards to individuals and neighborhoods (public) resulting from incompatible land uses or from the development of environmentally hazardous or sensitive lands, protects and enhances the city's natural, cultural, historical, and scenic resources, and promotes the economic stability of the community (City of Tucson 1995, 2001).

Visual resources on federal lands in the study area are regulated under the Federal Land Policy Management Act ("FLPMA"). FLPMA requires that the BLM prepare and maintain on a continuing basis an inventory of all public lands and their resources and other values (including scenic values). The BLM Visual Resource Management ("VRM") system requires the inventory of scenic resources and the establishment of land management objectives (VRM classes). The VRM is reported in the Resource Management Plans ("RMPs") conducted and updated for all BLM Field Offices.

The federal lands crossed by the CEC New Build Route are administered by the BLM (Tucson and Safford Field Offices). The 1991 Safford RMP is the plan that identifies VRM policies and goals for this portion of the study area. Visually sensitive areas identified by the Safford RMP within the project study area include the Peloncillo Mountains Wilderness and the Willcox Playa NNL/ACEC (BLM 1991).

ASSESSMENT METHODOLOGY

The visual resources evaluation methodology used in the Final EIS (Sections 3.10-7 - 3.10-14) was based upon guidance as stated in BLM 8400 series manuals (H-8410-1 (BLM 1986a); H-8431 (BLM 1986b)) and begins with establishing the area of exposure, identifying the sensitive receptors within the area of exposure, identifying issues of concern as expressed during scoping, KOP selection based on public sensitivity and landscape character, public outreach, field reconnaissance, and any specific communications with vested stakeholders, an assessment of scenic values (as expressed by the public), and the assessment and description of the degree of effect on public scenic value as required by the National Environmental Policy Act ("NEPA").

EXISTING CONDITIONS

The following sections describe the existing landscape in the CEC Proposed Route and CEC Substations. This description includes the basic elements of the characteristic landforms, vegetation, and human modifications found throughout the study area.

I. CHARACTERISTIC LANDSCAPE

The visual study area extends across southern Arizona, from the New Mexico-Arizona border westward (CEC New Build Route) towards the City of Tucson and north to southern Pinal County (CEC Upgrade Route). In addition to the CEC New Build and Upgrade routes, the study area also includes substation expansion areas for Apache, Vail, Pantano, DeMoss, Petrie, and Tortolita substations (CEC Substations).

Scenery throughout the CEC New Build Route is made up of a variety of physical elements. The landscape is generally characterized by flat, open areas interspersed with sparse tree and shrub-covered, rising mountain ridges and hills. Vegetation includes large, open areas of light-colored perennial grasses, forbs, palo verde and mesquite trees, and shrubs interspersed with dense stands of darker green juniper and pine trees. Typical Chihuahuan Desert vegetation cover is present in the eastern part of the CEC

New Build Route as well as the CEC Apache Substation, transitioning to typical Sonoran Desert vegetation cover in the CEC Upgrade Route and remaining CEC Substation areas. There is a notable lack of surface water, and typical vegetation along the route is characterized by low-lying grass and shrub communities. The CEC Proposed Route is broken intermittently by roads, ranch developments, fence lines, transmission and other utility lines, as well as the outskirts of community development. With the exception of the De Moss Petrie Substation (see paragraph below), the majority of the CEC Proposed Route and CEC Substations can be characterized as rural and mostly open space. As noted in the Final EIS, more than 83 percent of the CEC Proposed Route is adjacent to, and routed along, existing linear features, most of which are existing roadways or transmission and gas lines. The CEC Substations (De Moss Petrie excepted, as described below) are located in areas of open desert and cropland, interspersed with rural residences and is characterized by low-density development with a mix of natural landscape, agricultural fields, and rural communities.

The landscape at the CEC Substation located in the City of Tucson (De Moss Petrie Substation) has been completely modified by industrial development, transportation infrastructure, and residential development. Paved roads, paved ditches/canals, overhead transmission lines and buildings have contributed to changes to the landscape in the Tucson area. In the background, the jagged Santa Catalina Mountains are visible to the east.

II. VIEWSHED DELINEATION

Because visual details are diminished the farther the observer is removed, landscapes are subdivided into three distance zones based on relative visibility from observation points, which will be referred to in the following analysis. To help select particular locations for additional analysis, a viewshed delineation was prepared that included the CEC New Build and Upgrade Routes and CEC Substations (*see* Figures E-1 and E-2 below). The viewshed delineation reveals those areas from which the viewer would have a line of sight to the Project and is a useful tool in defining the final areas of analysis and facilitating the selection of KOPs.

To generate the 3-dimensional environment necessary for the viewshed delineation, Digital Elevation Model ("DEM") data files from the USGS were joined into a mosaic with an extent expansive enough to include all potential KOPs within the CEC Proposed Route and CEC Substation areas. The "Background," "Foreground," and "Seldom Seen" areas resulting from the delineations indicate the areas from which an

observer may be able to see the Project (*see* Exhibit B-1; Final EIS Figures 3.10-7 and 3.10-8). The viewshed delineations considered the topography of the CEC Proposed Route and CEC Substations but did not consider how existing vegetation or human modifications would affect visibility. To account for those factors, a field visit to each KOP was completed to determine visibility and the potential visual contrast that would result.

The three zones are foreground-middle ground, background, and seldom seen. The foreground-middle ground includes views that are less than 3 to 5 miles away. The background zone includes views beyond the foreground-middle ground zone but less than 15 miles away. Views not seen as foreground-middle ground or background (i.e., hidden from view) are in the seldom-seen zone. These zones, together with the characteristic landscape and geographic context, will be the basis for assessing visual impacts through contrast analysis and distance zones. Given the long, linear nature of the proposed Project, the study area for visual resources was segmented into sections based on similar scenic quality or landscape character. Visibility mapping indicated that the proposed transmission line would not be visible, or would be negligibly visible, beyond the 10- to 18-mile threshold (*i.e.*, the "seldom seen" distance zone). Recent research on visibility indicates that lattice structures are typically not visible beyond 7 miles and monopoles are typically not visible beyond 5 miles in landscapes similar to that of the proposed Project (Sullivan et al. 2014).

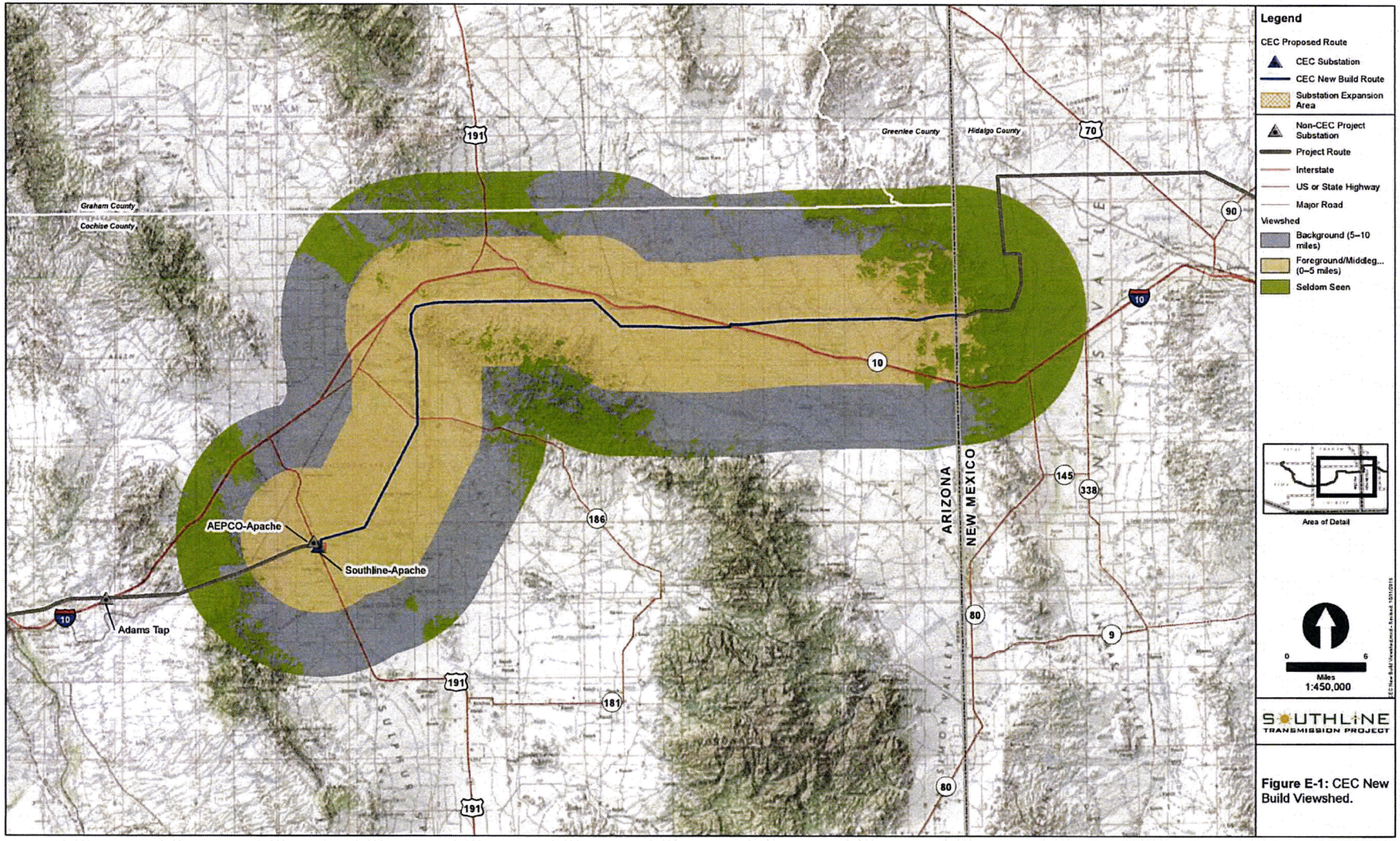

Figure E-1: CEC New Build Viewshed.

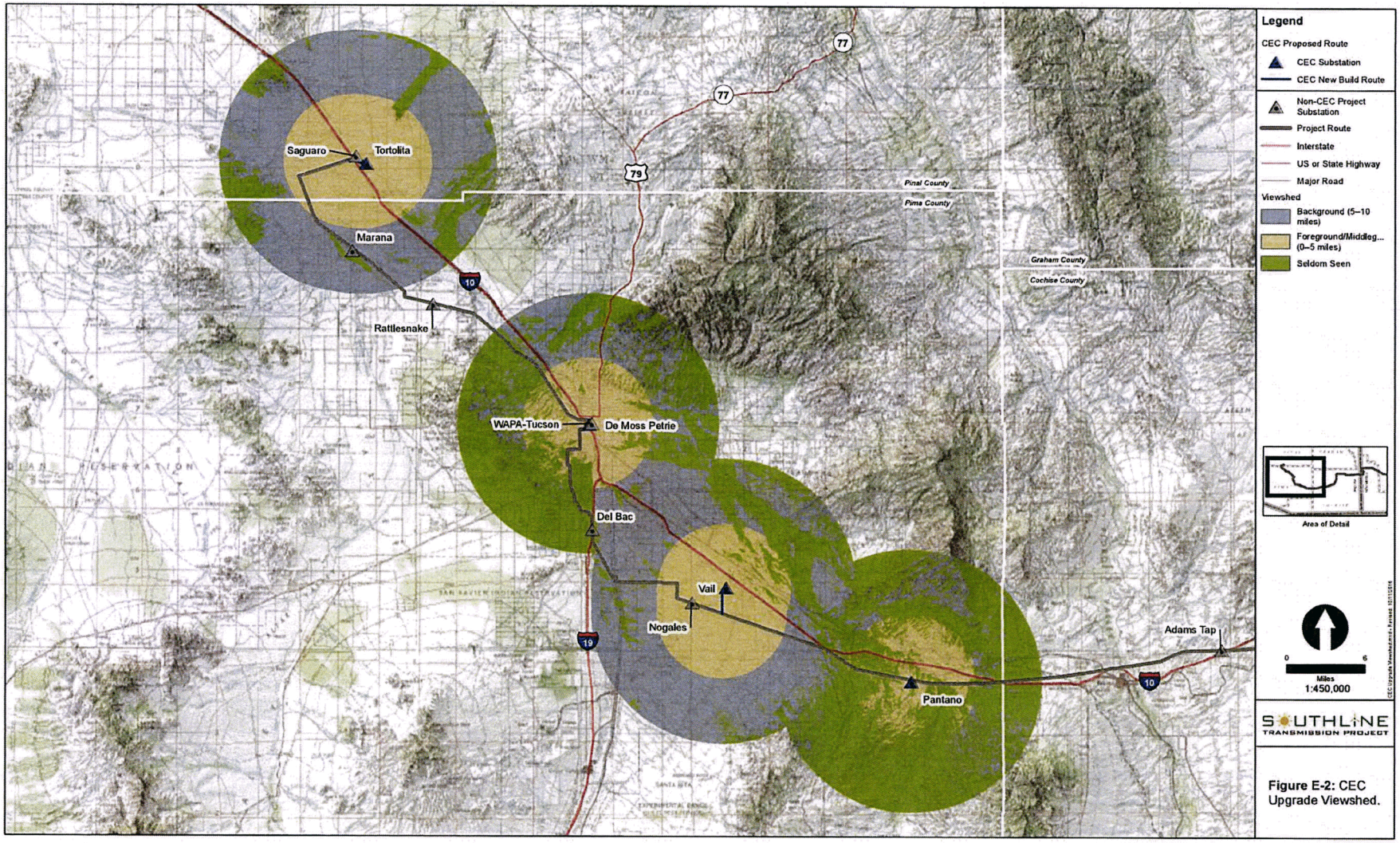

Figure E-2: CEC Upgrade Viewshed.

To further refine the analysis of existing visual conditions, following the inventory and viewshed delineation, representative KOPs and simulations were selected for further study.

III. KEY OBSERVATION POINTS

KOPs are identified to geographically represent typical views of an entire proposed project, and to represent views from places where the greatest number of people reside or gather. A KOP can either be a single point of view that an observer/evaluator uses to rate an area or panorama, or a linear view along a roadway or trail corridor. KOPs can be static locations such as residences, scenic overlooks, or recreation facilities, or they can be located along commonly traveled routes, such as highways, access roads, or hiking trails. Based on public scoping, residential areas, recreational use, and using the viewshed delineations, KOPs were selected to represent the effects of the CEC Proposed Routes as seen from areas that permit a high degree of visibility, areas of differing perspectives, and areas of high viewer sensitivity. Thirteen KOPs represent typical views of the CEC Proposed Route and CEC Substations as it would be seen by people traveling through and recreating within or across the CEC Proposed Route, as well as views from the areas to the south, east, and north of the CEC Proposed Route and CEC Substation (*see* Exhibit B-1; Final EIS Figures 3.10-11 and 3.10-12).

VISUAL CONTRAST ANALYSIS AND POTENTIAL EFFECTS

Impacts on visual resources were evaluated by assessing changes to the characteristic landscape that will result from the construction and operation of the CEC Proposed Route and CEC Substations. As discussed above, visual resources consist of landform, vegetation, and human-made structures. Impacts to visual resources were assessed by (1) generally evaluating visual contrasts that will result from the construction and operation of the Project and (2) assessing visual contrasts resulting from the same actions as they will be seen from identified KOPs.

Construction activities associated with the installation of the substations and transmission line will contribute to visual contrasts to the color, line, form, and texture of the existing characteristic landscape. Those contrasts will result from ground disturbance, removal of vegetation, and the temporary storage of equipment and materials. In addition, construction equipment, vehicles, and associated activities, including restoration, will be temporarily visible during construction activities. Areas of temporary disturbance will be reclaimed after construction activities are completed,

although it could take a number of years before temporary disturbances are no longer visible. Even when vegetation is established following reclamation efforts, the composition of species in the recovery area is often different from the original plant community.

Impacts are anticipated to be highest where new structures are introduced into the existing landscape for viewers (e.g., residential viewers) with unobstructed views of the CEC Proposed Route and CEC Substations within the immediate foreground distance zone. Residences with similar viewing conditions will have reduced impacts where the CEC Proposed Route is co-located with or parallels existing transmission lines, as structure contrast is reduced.

SUMMARY OF IMPACTS OF CEC NEW BUILD ROUTE

I. SCENIC QUALITY

The CEC New Build Route and CEC New Build Substation (Apache) crosses a diversity of landscapes. The Dos Cabezas Mountains are rated as Class A scenic value and are characterized by the highly varied landscape of the Dos Cabezas Mountains (see Exhibit B-1, Final EIS Figure 3.10-13). The Peloncillo Mountains and San Simon Valley are rated as Class B scenic value and are characterized by steep undulating ridgelines, low rounded hills, and eroded rocky peaks. The Willcox Playa area (which includes the CEC Apache Substation) is rated as Class C area and is generally characterized by flat desert valleys and playa surrounded by mountains.

II. SENSITIVITY

The CEC New Build Route and CEC Apache Substation crosses sensitivity level rating units ("SLRUs") with low, moderate, and high sensitivity (see Exhibit B-1, Final EIS Figure 3.10-14). High sensitivity areas include major travel corridors along I-10 with views of the CEC New Build Route in the foreground and middle ground. Tourist attractions and recreation sites along the route with high viewer sensitivity include the Fort Bowie Historic Site, Dos Cabezas Wilderness Area, hiking opportunities in the Langford Mountains (the CEC Proposed Route will not intersect these areas, however), and Willcox Playa Wildlife Area. There are several rural communities, including San Simon, Willcox, and Bowie. Widely dispersed rural residences and agricultural development occur along the route.

III. KEY OBSERVATION POINTS

As noted above, there are concentrations of residences in the communities of San Simon, Willcox, and Bowie. Dispersed rural residences are located in the study area along the remainder of the route. High sensitivity viewing areas within the study area for the proposed route include the I-10 travel corridor, the Peloncillo Mountains, Dos Cabezas Wilderness, Fort Bowie, and the Sulphur Springs Valley/Willcox Playa.

KOPs P5-02, F1-01, P6-02, P7-01, P7-02, P7-03 (as identified in the Final EIS) provide the data for the CEC New Build Route. Figures B-36, B-41, B-42, and B-45 in Appendix K of the Final EIS provide simulations of the CEC New Build Route.

SUMMARY OF IMPACTS OF CEC UPGRADE ROUTE

I. SCENIC QUALITY

Scenic quality for the CEC Upgrade Route and CEC Upgrade Substations (Vail, Pantano, DeMoss, Petrie, and Tortolita ranges from vacant desert open space to moderate and highly developed urban areas. Scenic quality in urban areas is typically designated as Class D (developed land) (*see* Exhibit B-1, Final EIS Figure 3.10-17).

II. SENSITIVITY

Though much of the CEC Upgrade Route and CEC Upgrade Substations are located within developed lands, the sensitivity along the route ranges from low to high as the route and substation are located in areas in which residents and recreationists are located and sensitive to changes in the landscape (see Exhibit B-1, Final EIS Figure 3.10-18). However, due to the existence of other, similar types of utility development (i.e., transmission lines, substations, and ancillary facilities) the viewing sensitivity tends to lessen as the area is characterized by urban congestion, rather than wide open natural views and opportunities for unadulterated desert views.

III. KEY OBSERVATION POINTS

KOPs represent a variety of views and viewer types ranging from open, undeveloped desert views to highly urbanized views of Tucson and Marana from or of specific viewing areas of community or natural concern (*e.g.*, Tumamoc Hill, Tucson Mountain Park, and Saguaro National Park West).

KOPs U3-03, U3-04, U3-05, U3-23, U3-24, and AN-12 (as identified in the Final EIS) provide the data for the CEC Upgrade Route and CEC Upgrade Substations. Figures B-60 B-78, B-79, and B-88 in Appendix K of the Final EIS provide views or simulations of the CEC Upgrade Route.

CONCLUSION

During construction, visual impacts will result from the introduction of construction vehicles, equipment, and construction materials within staging areas, access roads, and within the transmission line ROW. Disturbance resulting from construction will be temporary and largely short in duration, and visible effects from active construction would diminish subsequent to clean up and restoration of the temporary staging areas and access roads. Restoration of desert vegetation can take several years to complete and conditions in areas of disturbance are expected to change over several years as restoration takes place. Because of the small scale of vegetation disturbance required, there will be minimal visible contrasts that will be reduced over time.

Sensitive viewers will be affected by the temporary proposed Project construction impacts. However, the transmission line structures will cause major, long-term change to scenery, while construction of the structures and facilities will be short-term and temporary. During construction, the motion associated with construction equipment, structure movement, conductor stringing, alteration of topography, earthwork, vegetation clearing, short-term impacts from dust generation, and landform modification will be noticeable and create visual contrast within the viewshed.

Sensitivity at Willcox Playa, which is an important ecotourism and viewing area for migrating birds, including the sandhill crane, is high. The CEC New Build Route and CEC Apache Substation are south of critical viewing areas associated with the Willcox Playa. Visual impacts in this area will be low to moderate in the immediate foreground, and low beyond 1 mile of the transmission line; as shown on the visual simulation (*see* Figure B-45, Appendix K of the Final EIS).

Impacts to visual resources associated with the operation of the CEC Proposed Route and CEC Substations will result from the change in regular geometric forms, horizontal and vertical lines associated with the substations, transmission line structures, and access roads contrasting with the irregular, organic forms and colors of the existing landform and vegetation (there will be no contrast in the vicinity of the De Moss Petrie Substation due to the existing development).

The structures, transmission lines, permanent access roads, and substations, will increase visual contrast during operation and maintenance of the proposed Project. Visual impacts will be most evident where cleared areas created scars, barren areas, or unnatural lines and contrast resulting from clearing which will remain for the life of the proposed Project (although, as noted in the Final EIS, some areas will be revegetated to reduce contrast resulting from landform and vegetation modification). The most evident and long-term visual contrasts result from the addition of transmission lines and facility structures within the landscape. These vertical structures (towers), conductors, lines, and access roads will produce long, linear contrast within the landscape, particularly in areas where no development or existing infrastructure exists. The CEC Proposed Route will repeat the basic visual elements of the existing roads and transmission lines, fences, and pipelines crossing the visual study area, which are similar in form, line, color, and texture.

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EXHIBIT E-2 – Cultural Resources (Historic Sites and Structures and Archaeological Sites)

The following analysis describes the historic sites and structures and archeological resources (historic properties) within the cultural study area and evaluates the CEC Proposed Route (CEC New Build Route and CEC Upgrade Route) and CEC Substations' impacts on these resources. The cultural study area includes the centerline of the CEC New Build Route and the CEC Upgrade Route and a 1-mile buffer, as well as five CEC Substations' locations and a 1-mile buffer around each substation location. Impacts to cultural resources were considered by evaluating the presence or absence of resources within the study area.

INTRODUCTION

The CEC Proposed Route involves the CEC New Build Route (*see* Exhibit A, Figures A-2a and A-2b) and the CEC Upgrade Route (*see* Exhibit A, Figures A-2c and A-2d) of the Southline Transmission Project. The CEC New Build Route consists of approximately 66 miles of new double-circuit 345-kV transmission line in a new 200-foot-wide ROW, which would terminate at a new substation to be owned by Southline near the existing AEPCO Apache Substation,[1] and less than 1 mile of 115-kV or 230-kV transmission line and associated facilities needed to connect the proposed Southline Apache Substation to the AEPCO Apache Substation.

The CEC Upgrade Route consists of approximately 5 miles of new non-WAPA owned 138-kV and 230-kV transmission lines and associated facilities that would interconnect the upgraded WAPA 230-kV Apache-Tucson and Tucson-Saguaro transmission lines to four existing substations owned and operated by other Arizona load-serving utilities: (a) approximately one mile of 230-kV transmission line and associated facilities to interconnect the AEPCO Pantano Substation, (b) approximately two miles of 230-kV transmission line and associated facilities to interconnect the TEP Vail Substation, (c)

[1] The existing Apache Substation is owned and operated by AEPCO. Southline proposes to construct a new substation ("Southline Apache Substation") located near the AEPCO Apache Substation that would connect the New Build Section of the Project to the AEPCO Apache Substation and to the Upgrade Section of the Project. See Application at Section 4.b.i.(3) for additional details.

less than one mile of 138-kV transmission line and associated facilities to interconnect the TEP DeMoss Petrie Substation, and (d) approximately 1.5 miles of 230-kV transmission line and associated facilities to interconnect the TEP Tortolita Substation.[2] The proposed ROW for the CEC Proposed Route crosses BLM and other federal lands; therefore, the proposed Project constitutes a federal undertaking subject to review under Section 106 of the National Historic Preservation Act and its implementing regulations (36 Code of Federal Regulations Part 800). As part of the Section 106 process, the determination of effect by the federal agency is reached in consultation with the State Historic Preservation Officer ("SHPO") and other interested parties. In addition, portions of the proposed Project that cross state land are subject to compliance with the Arizona State Historic Preservation Act of 1982 (ARS §§ 41-861 - 41-865).

Section 106 requires that all cultural resources within the Area of Potential Effect ("APE") be identified prior to any construction or other ground-disturbing activities through records searches and field surveys. For the CEC Proposed Route, the APE will be defined based on the granted ROW within the study area once the route has been finalized. Resources are evaluated for eligibility to the National Register of Historic Places ("NRHP"), based on the criteria set forth in 36 C.F.R. § 60.4, which states:

> The quality of significance in American history, architecture, archeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association and
> (a) that are associated with events that have made a significant contribution to the broad patterns of our history; or
> (b) that are associated with the lives of persons significant in our past; or
> (c) that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
> (d) that have yielded, or may be likely to yield, information important in prehistory or history.

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[2] *See* Application at Section 4.b.i.(3) for additional details on the Pantano, Vail, DeMoss Petrie, and Tortolita substations.

EXISTING CONDITIONS

A cultural resources records search was conducted to determine whether any historic sites and structures or archaeological sites (historic properties) are located within 1-mile of the CEC Proposed Route and how they might be affected by the construction and operation of the CEC Proposed Route. The goal of this study was to identify any prior cultural resource surveys and recorded archaeological and historical sites within the study area and to assess the potential for the CEC Proposed Route to affect cultural resources. Information was compiled by SWCA, as well as taken from a report titled "Southline Transmission Project Resource Report 2: Cultural Resources" (CH2M Hill 2013). Archaeological records were checked using the AZSITE database, which includes records from the Arizona State Museum ("ASM"), Arizona State University ("ASU"), and the Bureau of Land Management ("BLM"), for previous surveys and recorded sites within the study area. Data were also gathered from the Arizona's SHPO database, the Safford BLM Field Office, the Tucson BLM Field Office, and the NRHP database maintained by the NPS. In addition, the City of Tucson and Pima County provided information on State- and NRHP-listed properties in Tucson and Pima County.

Three NPS-certified local governments were contacted for information on local cultural resources: Pima County, Arizona; Tucson, Arizona; and Willcox, Arizona. Several museums, civic organization, historical societies, and individuals were also contacted for further information such as the Amerind Foundation, the Chiricahua Regional Museum and Research Center, the railroad historian Vernon J. Glover, and the Fort Bowie National Historic Site. Published maps consulted included General Land Office ("GLO") maps, USGS maps, and pre-1960 highway maps. No field survey was undertaken for this study.

Archaeological sites and historic built environment sites were classified as "Determined Eligible," "Determined Not Eligible," "Unevaluated," or "Unknown." Only properties evaluated by the SHPO were classified in the "Determined Eligible" and "Determined Not Eligible" categories. Properties that have been recommended eligible or recommended not eligible were classified as "Unevaluated."

I. PREVIOUS RESEARCH

An archaeological records search indicated that 40 archaeological surveys have been conducted within the study area for the CEC Proposed Route (Table E-1 below); 24 percent or 23,245 acres of the study area has been covered by those surveys. Thirty-

three archaeological sites have been identified within study area for the CEC Proposed Route (Table E-2 below). The majority of the sites are prehistoric Native American artifact scatters or artifact scatters with features. There is one rock shelter with prehistoric artifacts. Historic-age sites include roads, railroads, artifact scatters, a ranch, and utilities. Five sites have been determined eligible; the remaining sites are unknown or unevaluated.

One site, AZ T:15:32(ASM), is the Butterfield Overland Mail Route which is present throughout the Study Corridor.

Table E-1. Previously Conducted Archaeological Surveys within the Study Area

Agency Number	Project Name	Report Reference	Institution
11.270.SHPO	Red Rock Recycle Mill	None available	ASM
7.136.SHPO	Unknown	None available	Unknown
1955-3.ASM	Southern Pacific Pipeline Survey	None available	Unknown
1973-13.ASM	Salt-Gila Survey	Grady et al. (1973)	ASM
1977-6.ASM	AEPCO II, Dos Condados to Apache	None available	ASM
1979-37.ASM	Unknown	None available	Unknown
1979-39.ASM	TG+E Northern Tucson Transmission Line Survey	None available	ASM
1980-242.ASM	TEP Tortolita – South Utility Corridor and Alternate Routes	Wilson (1980)	John P. Wilson
1981-154.ASM	TEP Tortolita – South Realignment Survey	Wilson (1981)	John P. Wilson
1982-206.ASM	Petty-Ray Geophysical Seismic Lines	Frampton et al. (1982)	Powers Elevation
1982-207.ASM	Tucson-Apache 115 kV Transmission Line	None available	CASA
1983-198.ASM	Northern Tucson Basin Survey / Marana Phase II	Fish et al. (1992)	University of Arizona
1985-126.ASM	Archaeology of the Willcox Playa	Woosley et al. (1985)	Amerind Foundation
1985-167.ASM	Western Area Power Administration's Saguaro to Tucson Reconductoring	Effland and Green (1985)	Archaeological Consulting Services (ACS)
1985-213.ASM	AEPCO San Rafael Project	Dosh et al. (1985)	Museum of Northern Arizona
1985-226.ASM BLM 1985-48	All American Pipeline Right-of-Way	Batcho (1985) Higgins and Brunson (1985) Plot (1989)	New Mexico State University
1987-222.ASM	U.S. Telecom Buried Fiber Optic Cable	O'Brien et al. (1987)	Dames & Moore

1992-247.ASM	Pima County Landfill Survey	Slaughter and Roberts (1992)	SWCA
1992-289.ASM	Red Rock Loop	Crary and Macnider (1992)	ACS
1997-209.ASM	SFPP Arizona Reconditioning Project	William Self Associates (1997)	William Self Associates
1999-587.ASM	PBNS Level 3 Fiber Optic Line	Doak (1999a; 199b)	SWCA
2000-723.ASM	AT&T NexGen/Core Project Link 3 Class 3 Survey	Kearns et al. (2000)	Western Cultural Resource Management (WCRM)
2000-732.ASM	AEPCO Apache to Dos Condados Survey	Becker et al. (2001)	Statistical Research, Inc.
2000-826.ASM BLM 02-21 BLM 05-24 BLM 05-09	AT&T NexGen/Core Project Link 2 Class 3 Survey	Kearns et al. (2001) Baker and Jones (2004)	WCRM
2001-406.ASM	Surveys of Six Proposed Reroutes for a Proposed Fiber Optic Cable ROW	Baker and Webb (2001)	WCRM
2001-821.ASM	I-10 Bowie Survey	Shepard and Turner (2002)	Entranco
2002-153.ASM	Saguaro-Tortolita 500kV Intertie Project	Hill (2002)	Environmental Planning Group, Inc. (EPG)
2003-1070.ASM	EPNG Tucson Class III Survey	Hesse and Gutierrez (2003)	SWCA
2003-910.ASM	Cultural Resources Survey of the 360Networks Fiber Optics Lines	Railey et al. (2001)	TRC
2005-302.ASM	AT&T NexGen/Core Project	Baker (2004)	WCRM
2005-446.ASM	Tucson-Apache 115kV Transmission Line	Goldstein (2008)	Transcon Environmental
2006-1.ASM BLM 06-19	SFPP, LP, El Paso to Phoenix Expansion Project, Arizona Portion: Cochise and Pima Counties	Morgan et al. (2006) Rawson et al. (2006)	William Self Associates
2010-240.ASM	Tortolita Substation Survey	Jones (2010)	Tierra Right of Way
AMF Unpublished Survey	Amerind Foundation Survey	None available	Amerind Foundation
B 164/S# 210	AEPCO	None available	Unknown
B 196	Unknown	None available	Unknown
BLM 02-29	Unknown	None available	Unknown
BLM 03-2	Unknown	None available	Unknown
BLM S# 701	Unknown	None available	Unknown

None	Tucson to Saguaro Resurvey of Last 7 miles	None available	Western

Table E-2. Previously Recorded Archaeological Sites within the Study Area

Site Number	Site Description	NRHP* Eligibility†
AMF Survey: historic	Unknown	Unknown
AZ AA:11:240(ASM)	Unknown – no site card available	Unknown
AZ AA:12:875(ASM)	El Paso Natural Gas Pipeline No. 1007	Unevaluated
AZ AA:16:377(ASM)	State Route 86	Unevaluated
AZ AA:2:118(ASM)	State Route 84	Determined Eligible (Criteria A and D)
AZ BB:16:48(ASM)	El Paso Natural Gas Pipeline No. 1103	Unevaluated
AZ CC:3:91(ASM)	Historic United States (US) 191, US 71	Determined Eligible (Criteria A and D)
AZ CC:9:2(ASM)	Prehistoric artifact scatter	Unevaluated
AZ CC:10:12(BLM)	Prehistoric artifact scatter	Unevaluated
AZ CC:10:20(ASM)	Historic artifact scatter	Unevaluated
AZ CC:10:26(ASM)	Historic artifact scatter	Unevaluated
AZ CC:10:34(ASM)	Prehistoric artifact scatter	Unevaluated
AZ CC:10:41(ASM)	Prehistoric artifact scatter	Unevaluated
AZ CC:10:43(ASM)	Prehistoric structure and artifact scatter	Unknown
AZ CC:10:44(ASM)	Prehistoric artifact scatter with features	Unevaluated
AZ CC:10:107(ASM)	Prehistoric artifact scatter with features	Unevaluated
AZ CC:11:18(ASM) AR 544	Prehistoric artifact scatter	Unknown
AZ CC:11:48(ASM)	Canals	Unevaluated
AZ CC:11:49(ASM)	Prehistoric village with artifact scatter	Unevaluated
AZ CC:12:20(ASM)	Prehistoric artifact scatter	Unevaluated
AZ CC:12:22(ASM)	Prehistoric artifact scatter	Unknown
AZ CC:12:23(ASM)	Rock shelter with prehistoric artifact scatter	Unevaluated
AZ CC:12:24(ASM)	Historic artifact scatter	Unevaluated
AZ CC:12:25(ASM)	Prehistoric artifact scatter	Unevaluated
AZ CC:13:13(ASM)	Historic ranch	Unevaluated
AZ CC:13:14(ASM)	Prehistoric artifact scatter	Unevaluated
AZ CC:13:15(ASM)	Prehistoric artifact scatter	Unknown

AZ CC:13:70(ASM)	Prehistoric artifact scatter	Unevaluated
AZ CC:13:80(ASM)	Transmission line with artifact scatter	Unknown
AZ FF:1:33(ASM)	US666	Unevaluated
AZ FF:1:34(ASM)	Arizona & Colorado Railroad Company railroad	Determined Eligible (Criteria A and D)
AZ Z:2:40(ASM)	Southern Pacific Railroad Mainline – Southern route	Determined Eligible (Criterion A)
AZ T:15:32(ASM) *AZ T:14:61(ASM)* *AZ U:14:313(ASM)*	Butterfield Overland Stage Route	Listed in New Mexico Determined Eligible in Arizona (Criterion A)

* NRHP = National Register of Historic Places.

† Data were obtained from AZSITE and other sources and may represent agency determinations with SHPO concurrence or recorder recommendations.

Three NRHP-listed historic buildings or districts are also found within the study area: the Antonio Matus House and Property, the Pascua Cultural Plaza, and the Empirita Cattle Ranch Historic District #2.

GLO plat maps and historic USGS topographic maps for the study area were also examined. Ninety-four features were depicted within the study area: 80 roads, 2 fences, 3 pipelines, 3 railroad features, 1 stage route, 2 structures, 1 tank, and 2 telegraph lines. No field checks were conducted to verify the existence of these cultural features.

SUMMARY OF IMPACTS

A total of 33 archaeological sites, including the Butterfield Overland Stage Route, and three NRHP-listed historic buildings or districts are found within the study area. The majority of the sites are Native American artifact scatters and artifact scatters with features but several types of historic sites are present as well including the Butterfield Overland Stage Route. Of the archaeological sites, five sites have been determined eligible for the NRHP and 28 sites are of unknown or undetermined NRHP status; however, only 24 percent of the study area has been previously surveyed making the presence of undocumented archaeological sites or other historic properties likely.

As part of the Section 106 compliance process, the BLM has prepared a Programmatic Agreement ("PA") for the Project (*see* Exhibit B-1, Final EIS Appendix L), which stipulates that the area of potential effect for direct effects, including that for the CEC

Proposed Route, will be inventoried at the Class III level. Adverse effects to individual historic properties will then be assessed in consultation with the Arizona State Historic Preservation Office, the appropriate tribes, and other interested parties as stipulated in the executed PA. Measures to avoid, minimize, and/or mitigate any adverse effects on historic properties will then be developed by BLM in consultation with the Section 106 consulting parties. Avoidance of sites during final design is the preferred choice for impact reduction; impacts that cannot be avoided or minimized through design will be mitigated by other measures such as data recovery as outlined in an Historic Properties Treatment Plan ("HPTP").

CONCLUSION

Southline will make every effort to avoid historic properties in the study area, and will complete a Class III archaeological survey of the proposed route and assess the effect to historic properties in consultation with the Arizona State Historic Preservation Office, the appropriate tribes, and other interested parties. Avoidance can be accomplished by locating transmission structures, access roads, etc. outside the boundaries of known historic properties. When avoidance is not feasible adverse impacts will be mitigated through the implementation of an HPTP.

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EXHIBIT F

EXHIBIT F – RECREATIONAL PURPOSES AND ASPECTS

As stated in R14-3-219, Exhibits to Application, Exhibit F of the Rules of Practice and Procedure Before Power Plant and Transmission Line Siting Committee:

"State the extent, if any, the proposed site or route will be available to the public for recreational purposes, consistent with safety considerations and regulations and attach any plans the applicant may have concerning the development of the recreational aspects of the proposed site or route."

INTRODUCTION

Exhibit F includes a summary of existing recreation opportunities, as well as the potential impacts the Project may have on recreation. For further information on recreation, refer to Sections 3.14 and 4.14 in the Final EIS included as Exhibit B-1.

AFFECTED ENVIRONMENT

Recreation activities occurring throughout southern Arizona involve a broad spectrum of pursuits, ranging from dispersed and casual recreation to organized, permitted group uses. Typical recreation in the Project study area includes: off-highway vehicle ("OHV") driving, scenic driving, hunting, hiking, wildlife viewing, horseback riding, camping, backpacking, mountain biking, geocaching, rock-hounding, picnicking, night-sky viewing, viewing cultural/historical sites, and photography. Southern Arizona, outside the Tucson-metro area, is known for its large-scale undeveloped areas and remoteness, which provide a wide variety of recreational opportunities for users who wish to experience undeveloped recreation, as well as those seeking more organized or packaged recreation experiences.

The Project study area includes a 200-foot wide right-of-way ("ROW") along the CEC New Build Route, 150-foot ROW along the CEC Upgrade Route, and five CEC Substation expansions Apache, Pantano, Vail, DeMoss Petrie, and Tortolita substations. Southline has no current plans to develop recreational facilities within the Project study area; however, as described in the "Future Recreation Planning" section below, the

Arizona Game and Fish Department ("AGFD") is planning to relocate their Crane Lake facility at Willcox Wildlife Area.

All other existing, designated, and dispersed recreation opportunities will remain available. Where the Project crosses existing roads or trails, permanent access to and along these features for recreation use will not be affected. The following discussion describes the recreation settings and features within the Project study area (federal, state, and local), beginning at the eastern county of the CEC Proposed Route, Cochise County, then Pima County, and ending at the western end at the CEC Tortolita Substation in Pinal County.

I. COCHISE COUNTY

Within the Project study area in Cochise County, there are two designated recreation sites or facilities intersected by the CEC New Build Route: the proposed Butterfield Trail and the Willcox Playa Wildlife Area. Elsewhere, Arizona State Land Department ("ASLD"), Bureau of Land Management ("BLM") and privately-managed lands provide dispersed recreation experiences and opportunities such as OHV driving, wildlife viewing, and hunting.

A. Federal

Proposed Butterfield Overland Trail National Historic Trail

The proposed Butterfield Trail commemorates the routes pioneered by John Butterfield and his Butterfield Overland Stage Company as its stages traveled over the "oxbow route" between the eastern termini of St. Louis and Memphis and the western terminus of San Francisco. Stages traveled over this route between 1858 and 1861. Where evidence of the trail is known, the trail can be hiked or traced on horseback. There are many areas where the exact location of the trail is unknown (National Park Service ("NPS") 2013). Near Willcox, Arizona, the trail location is known and includes access to the ruins of Fort Bowie. The trail location is also known to traverse south of the Willcox Playa, near the CEC New Build Route (*see* Figure F-1 below). The Butterfield Trail offers primitive, developed, and dispersed recreation opportunities and activities (NPS 2013). The trail is currently under study by the NPS to determine whether the trail should be designated under the National Trails System Act of 1968 as historic.

B. State

Willcox Playa Wildlife Area

The Willcox Playa Wildlife Area totals approximately 595 acres, including 120 acres of deeded land, 320 acres of land patented from the BLM, a 115-acre perpetual ROW from the ASLD, and a 40-acre donation from a private landowner. Management emphasis for the Willcox Playa Wildlife Area is to support the best wildlife habitat possible in the area for present and future generations. This emphasis includes keeping opportunities available for public hunting and other wildlife-oriented recreation. The AGFD manages the water levels of Crane Lake for wildlife habitat. Existing uses include bird watching, photography, and hunting. Willcox Playa was placed on the NPS National Natural Landmark list in 1966 (NPS 2012). The area is a roosting area for 4,000 to 8,000 sandhill cranes and contains the greatest diversity of tiger beetles (*Cicindela sperata*) in the United States (AGFD 2012). The CEC New Build Route crosses through the Willcox Playa Wildlife Area (*see* Figure F-1 below).

Future Recreation Planning

Crane Lake, located on Willcox Playa and partially within Willcox Playa Wildlife Area, is managed by the AGFD. As described in more detail in the Application, Southline worked with the AGFD to address concerns with potential Project impacts on Crane Lake. Specifically, Southline and the AGFD have negotiated but not yet executed, a September 1, 2015 Memorandum of Agreement outlining a mitigation plan for Crane Lake. The mitigation plan involves relocating the existing Crane Lake from the edge of the Willcox Playa to 120 acres of lands managed by the AGFD along Kansas Settlement Road, and within the Willcox Playa Wildlife Area. Additional facilities will be developed as part of the mitigation plan, including a native fish pond, ephemeral wetlands, and a visitors' area. The visitors' area will be equipped with a parking area, interpretive trails, informational kiosks, viewing platforms, and restrooms.

C. Local

There are no local designated recreation sites or facilities within the CEC Proposed Route or CEC Substations in Cochise County.

II. PIMA COUNTY

Within the portion of the Project study area in Pima County, dispersed recreation opportunities exist on ASLD, private, and BLM-managed lands, including dispersed recreation experiences and opportunities such as OHV driving, hiking, wildlife viewing, and hunting. No impacts to these dispersed recreation opportunities are expected from the Project.

A. Federal

There are no federally designated recreation sites or facilities within the CEC Proposed Route or CEC Substations in Pima County.

B. State

There are no state designated recreation sites or facilities within the CEC Proposed Route or CEC Substations in Pima County.

C. Local

There are no local designated recreation sites or facilities within the CEC Proposed Route or CEC Substations in Pima County.

III. PINAL COUNTY

Within the portion of the Project study area in Pinal County, dispersed recreation opportunities exist on ASLD, private, and BLM-managed lands, including dispersed recreation experiences and opportunities such as OHV driving, hiking, wildlife viewing, and hunting. No impacts to these dispersed recreation opportunities are expected from the Project.

A. Federal

There are no federally designated recreation sites or facilities within the CEC Proposed Route or CEC Substations in Pinal County.

B. State

There are no state designated recreation sites or facilities within the CEC Proposed Route or CEC Substations in Pinal County.

C. Local

There are no local designated recreation sites or facilities within the CEC Proposed Route or CEC Substations in Pinal County.

POTENTIAL EFFECTS

Construction of the Project is not expected to permanently preclude the use of or access to any existing recreation opportunities or activities, but some short-term impacts to these resources will occur during the construction phases of the Project. Dispersed recreation activities such as hiking, camping, bird watching, or equestrian use may be temporarily affected as construction noises, visual disturbances, and/or the presence of other humans could detract from these recreation opportunities and activities. Recreation users that seek opportunities for solitude commonly seek areas where they will be less likely to see other humans.

Hunting opportunities (both big- and small-game) that could be displaced by the construction of the transmission line, substations, and ancillary facilities will not represent a significant impact, since the areas within AGFD game management units that are outside of the Project footprint will remain available for hunting (AGFD 2106), subject to applicable laws and regulations.

Recreation opportunities and activities will continue during operation and maintenance since operation and maintenance will be temporary in terms of the amount of time activities will take place in a given area and the amount of time that passes between operation and maintenance activities, which may be many months to years in duration. Thus, since the potential for displacing recreation opportunity and activities may occur, there will be minor impacts to recreation. Further, unless specifically closed to public access, all areas within the ROW (i.e., beneath spans) will be accessible for recreational opportunity and activities. Near the Willcox Playa, recreation activities such as bird watching could be permanently affected by the addition of new transmission lines and towers; however, the future recreation planning for Crane Lake is intended to both

improve and maintain the existing recreation opportunities and experiences that are currently available at Willcox Play Wildlife Area.

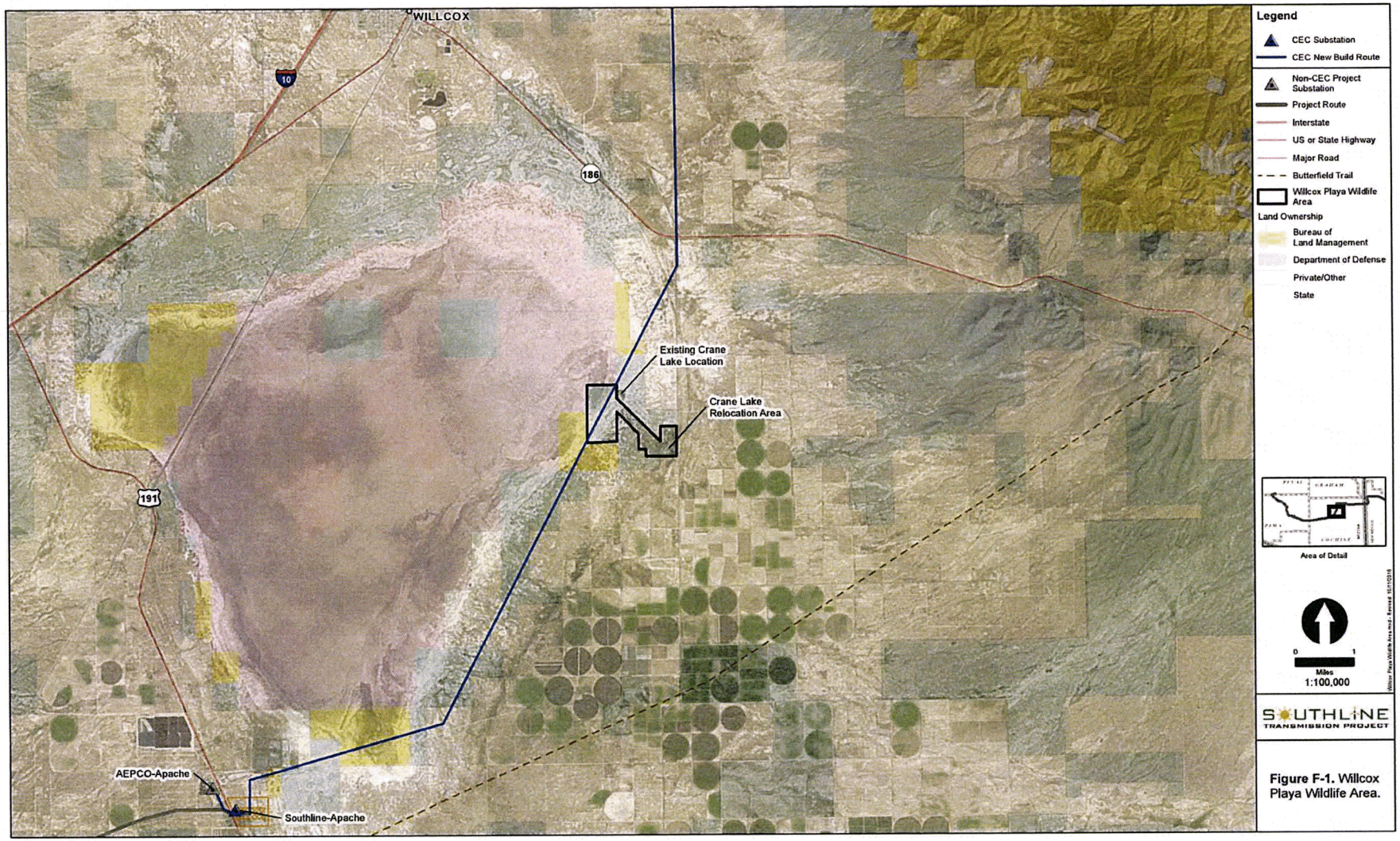

Figure F-1. Willcox Playa Wildlife Area.

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EXHIBIT G

EXHIBIT G – CONCEPTS OF PROPOSED FACILITIES

As stated in R14-3-219, Exhibits to Application, Exhibit G of the Rules of Practice and Procedure Before Power Plant and Transmission Line Siting Committee:

"Attach any artist's or architect's conception of the proposed plan or transmission line structures and switchyards, which applicant believes may be informative to the committee."

Set forth below is a list of attached sub-exhibits, which provide concepts of the proposed Project that Southline believes will be informative to the Siting Committee:

Exhibit G-1	Typical 345-kV tangent lattice structure diagram
Exhibit G-2	Typical 345-kV angle lattice structure diagram
Exhibit G-3	Typical 345-kV dead-end lattice structure diagram
Exhibit G-4	Typical 345-kV tangent tubular steel pole diagram
Exhibit G-5	Transposition tubular steel pole diagram
Exhibit G-6	Typical 230-kV direct embedded tangent tubular steel pole diagram
Exhibit G-7	Typical 230-kV Tangent tubular steel pole diagram
Exhibit G-8	Typical 230-kV suspension angular tubular steel pole diagram
Exhibit G-9	Typical 230-kV dead-end tubular steel pole diagram
Exhibit G-10	Comparison of typical existing and proposed structure types
Exhibit G-11	Example of a 230-kV substation
Exhibit G-12a	Typical ROW configuration, New Build Section
Exhibit G-12b	Typical ROW configuration (150-foot), Upgrade Section

TRANSMISSION LINE STRUCTURES

I. New Build Section 345-kV Structures

Two types of steel structures could potentially be used for the 345-kV transmission line: these include self-supporting lattice and monopole tubular structures, as shown in Exhibits G-1 through G-5.

II. Upgrade Section 230-kV Structures

The 230-kV double-circuit transmission line is proposed to be tubular steel structures (Exhibits G-1 through G-9). A comparison of structure types are shown in Exhibit G-10.

SUBSTATION FACILITIES: UPGRADE SECTION

Substation improvements, which are needed to accommodate the 230-kV transmission line upgrade as part of the CEC Upgrade Section, would generally include new yard expansions, line and/or bus compensation equipment, shunt reactor or shunt capacitors, switches and breakers, and installation of new transformers, in addition to construction laydown areas. See Exhibit G-11 for a representative photograph of a 230-kV substation.

RIGHT-OF-WAY

Finally, Exhibits G-12a and G-12b provide examples of typical right-of-way configuration for the New Build and Upgrade Sections of the Project.

EXHIBIT G-1: TYPICAL 345-KV TANGENT LATTICE

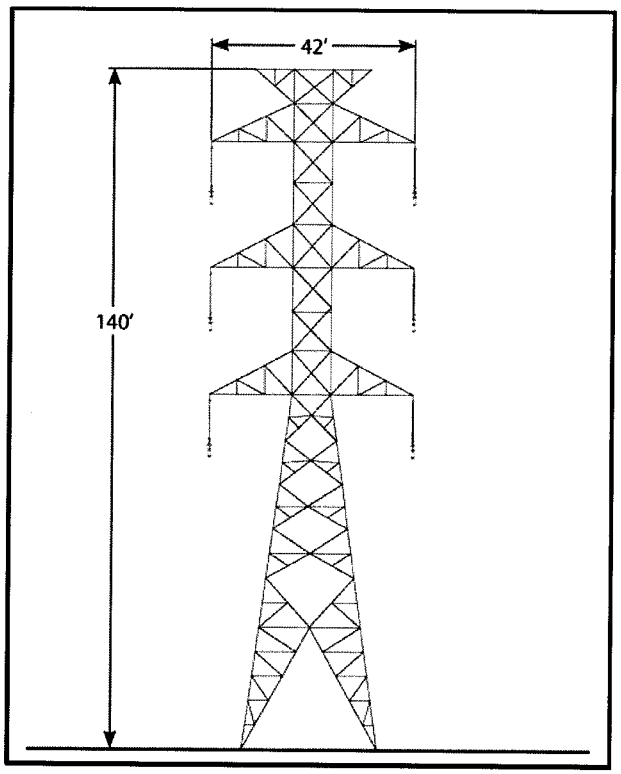

EXHIBIT G-2: TYPICAL 345-KV ANGLE LATTICE

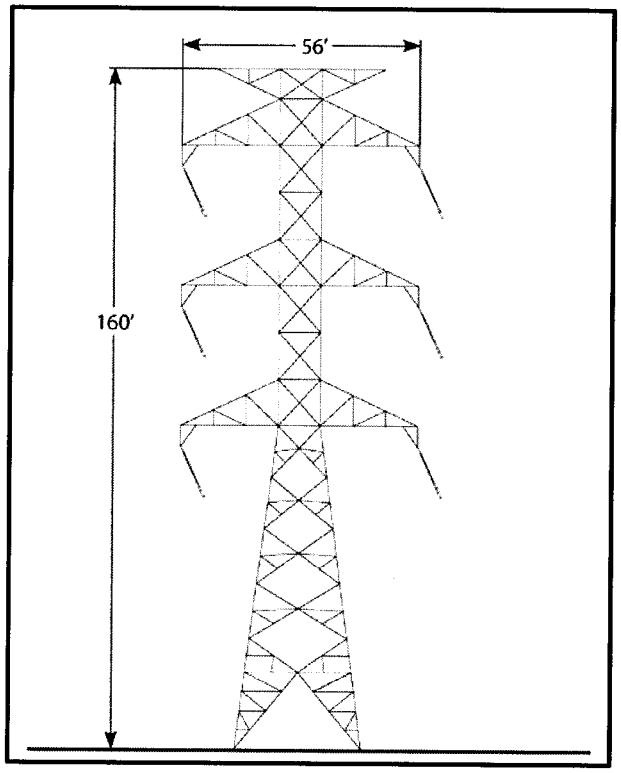

EXHIBIT G-3: TYPICAL 345-KV DEAD-END LATTICE

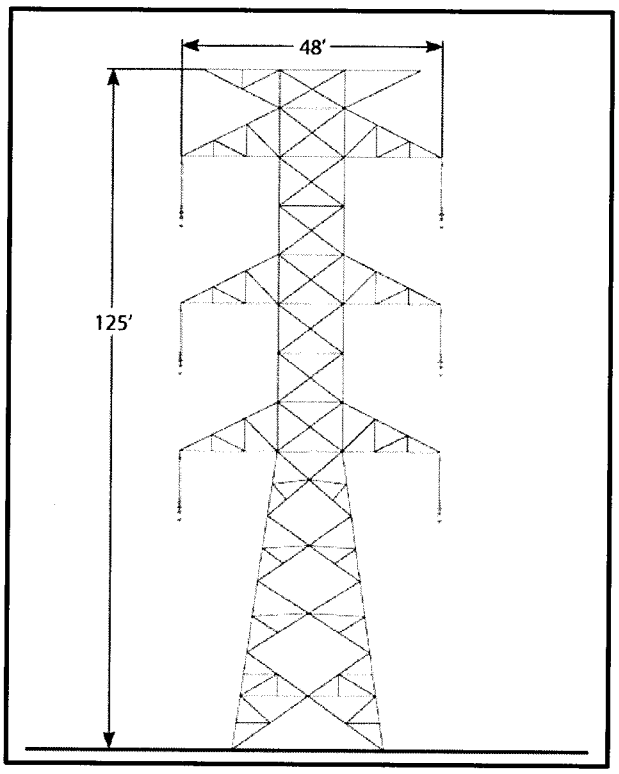

EXHIBIT G-4: TYPICAL 345-KV TANGENT TUBULAR STEEL POLE

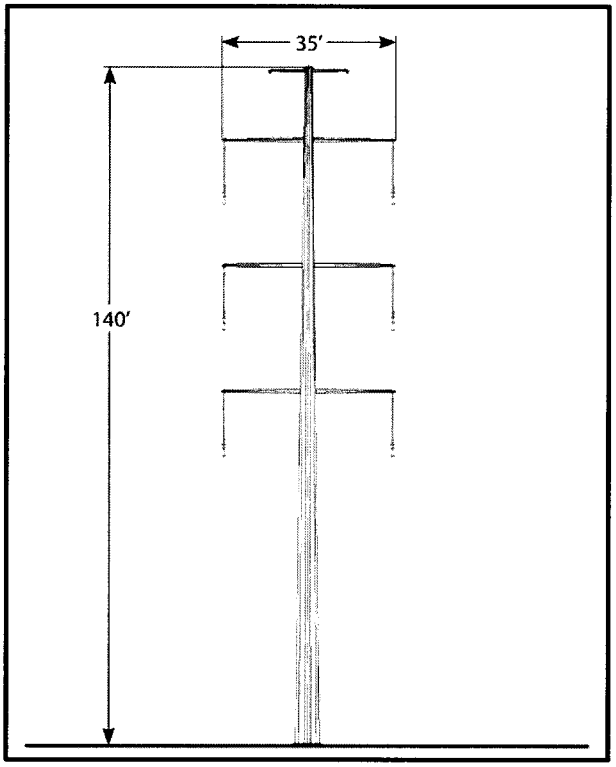

EXHIBIT G-5: TYPICAL 345-KV TRANSPOSITION TUBULAR STEEL POLE

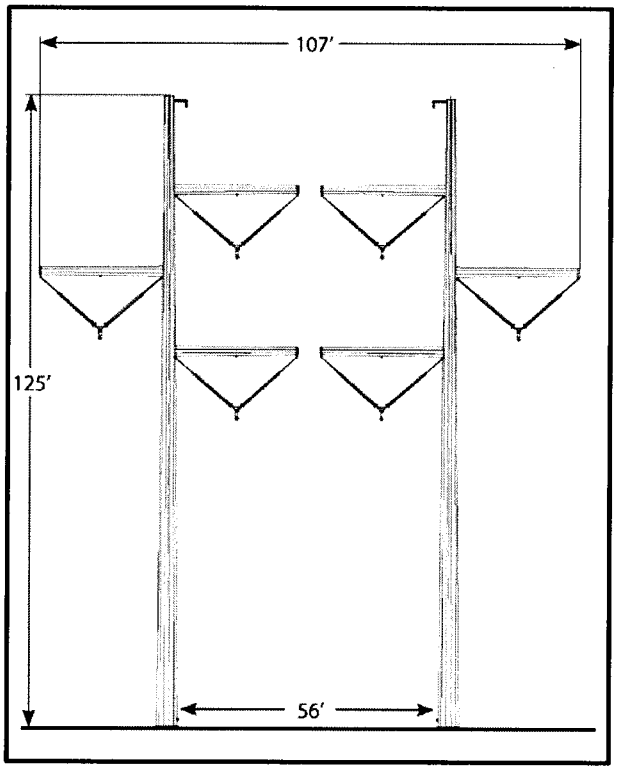

EXHIBIT G-6: TYPICAL 230-KV DIRECT EMBEDDED TANGENT TUBULAR STEEL POLE

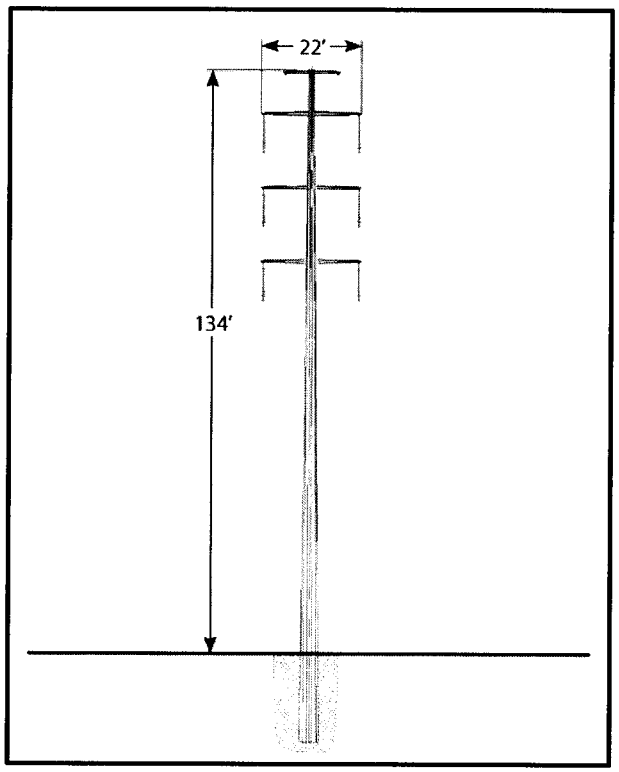

EXHIBIT G-7: TYPICAL 230-KV TANGENT TUBULAR STEEL POLE

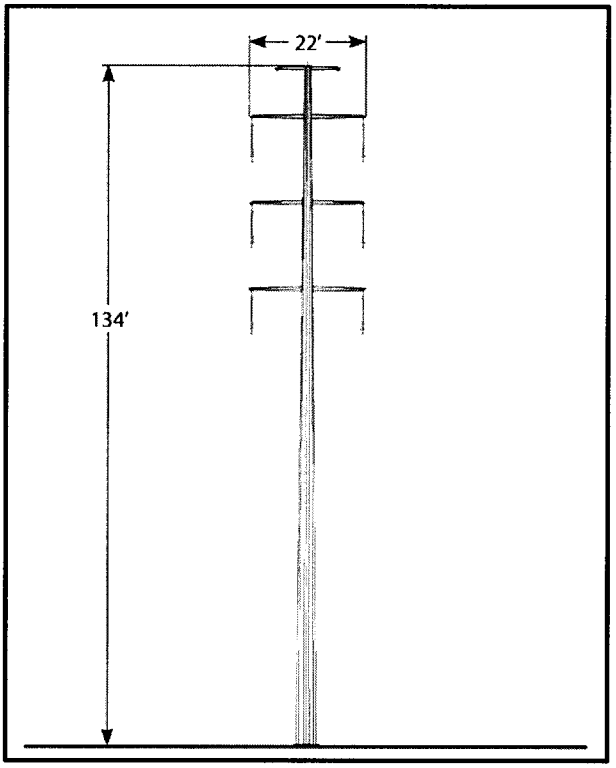

EXHIBIT G-8: TYPICAL 230-KV SUSPENSION ANGULAR TUBULAR STEEL POLE

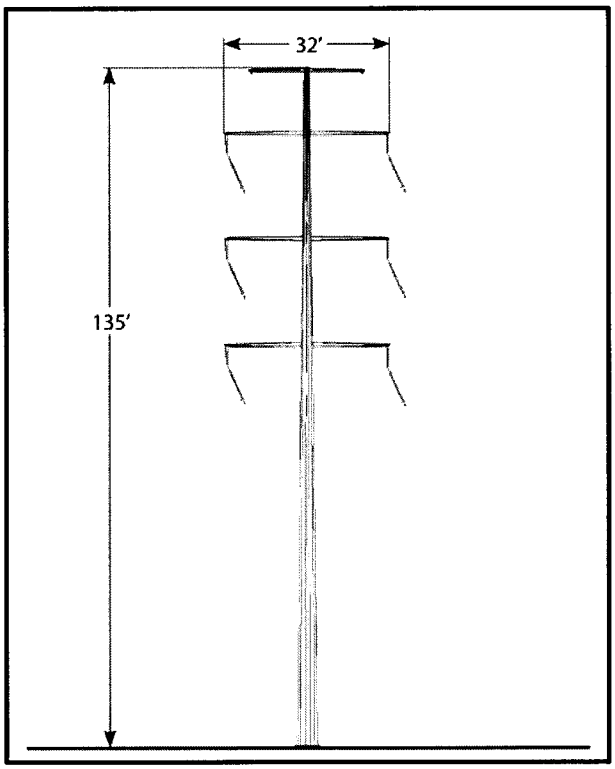

EXHIBIT G-9: TYPICAL 230-KV DEAD-END TUBULAR STEEL POLE

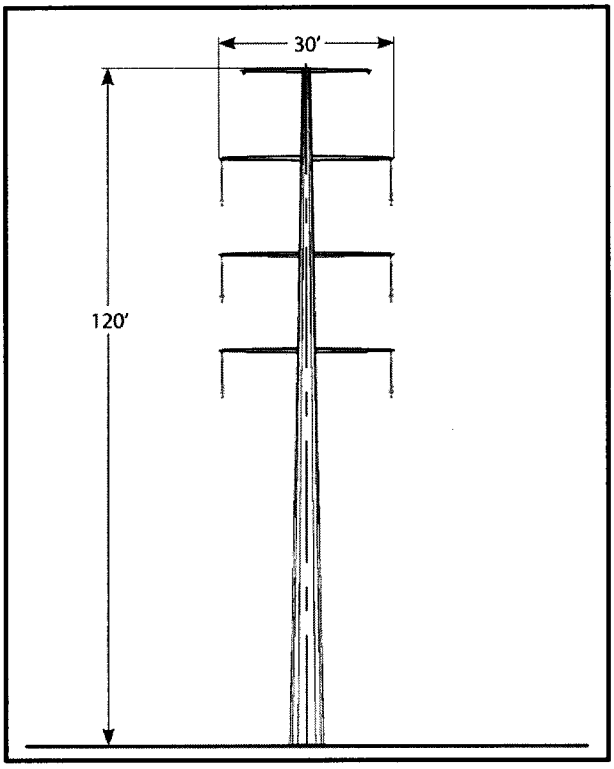

EXHIBIT G-10: COMPARISON OF TYPICAL EXISTING AND PROPOSED STRUCTURE TYPES

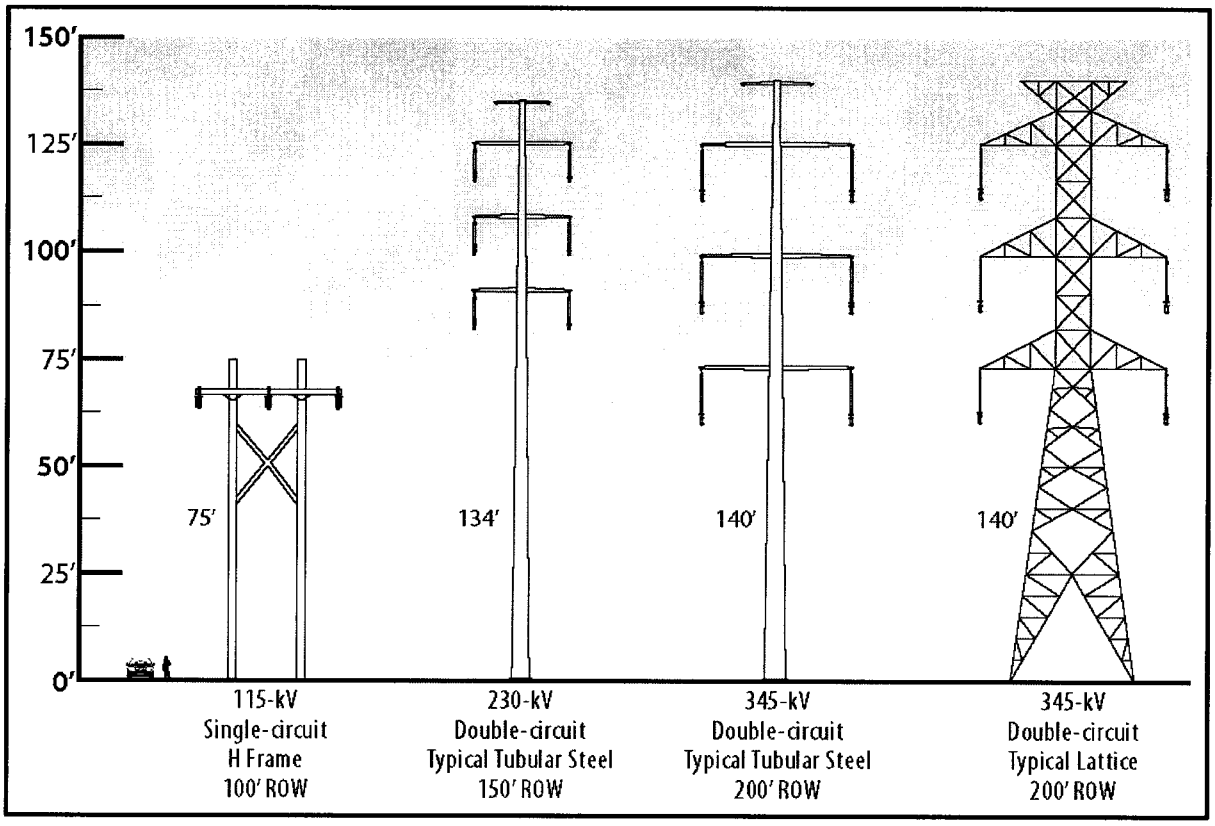

EXHIBIT G-11: EXAMPLE OF A 230-KV SUBSTATION

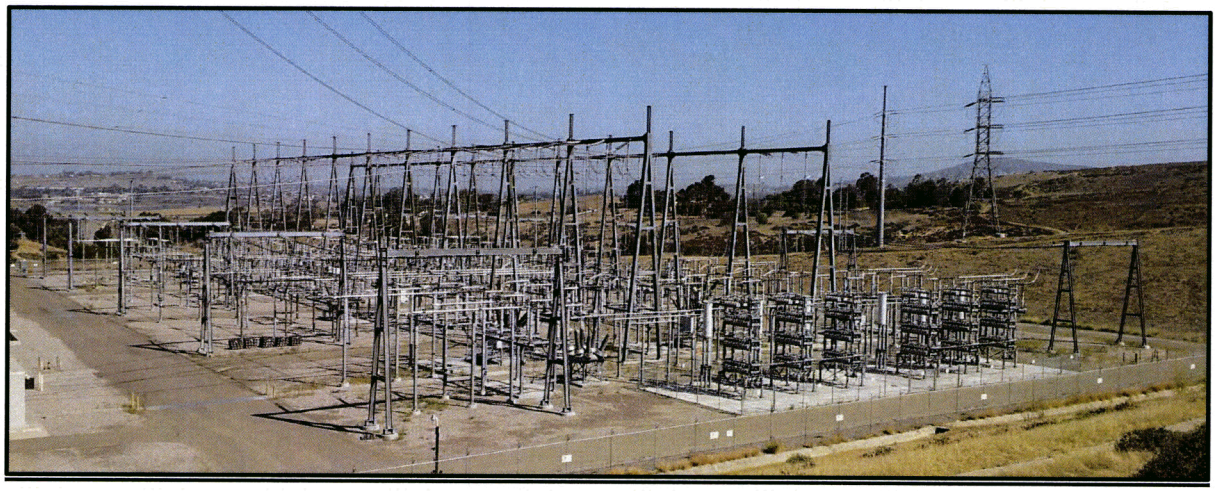

EXHIBIT G-12A: TYPICAL ROW CONFIGURATION, NEW BUILD SECTION

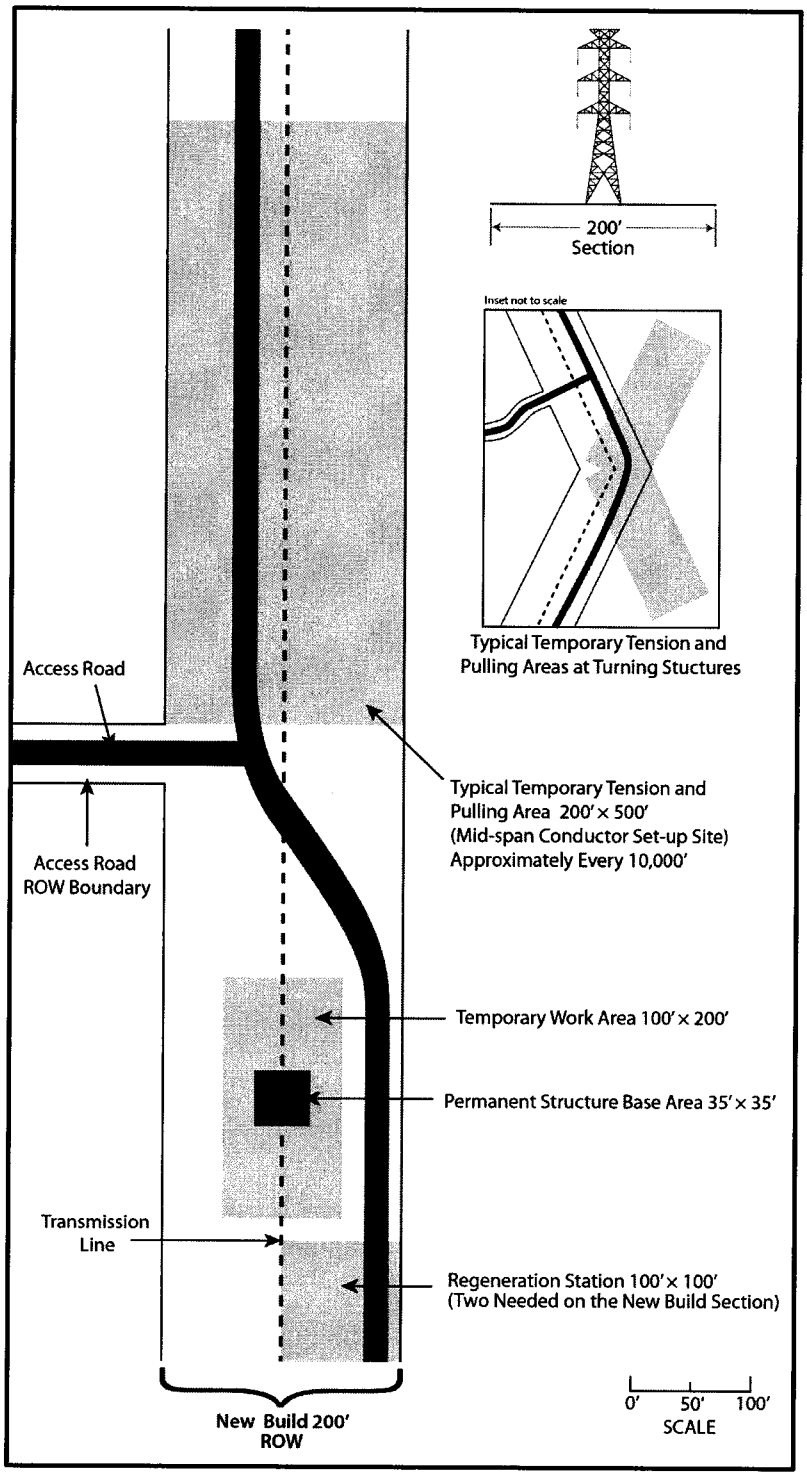

EXHIBIT G-12B: TYPICAL ROW CONFIGURATION (150-FOOT), UPGRADE SECTION

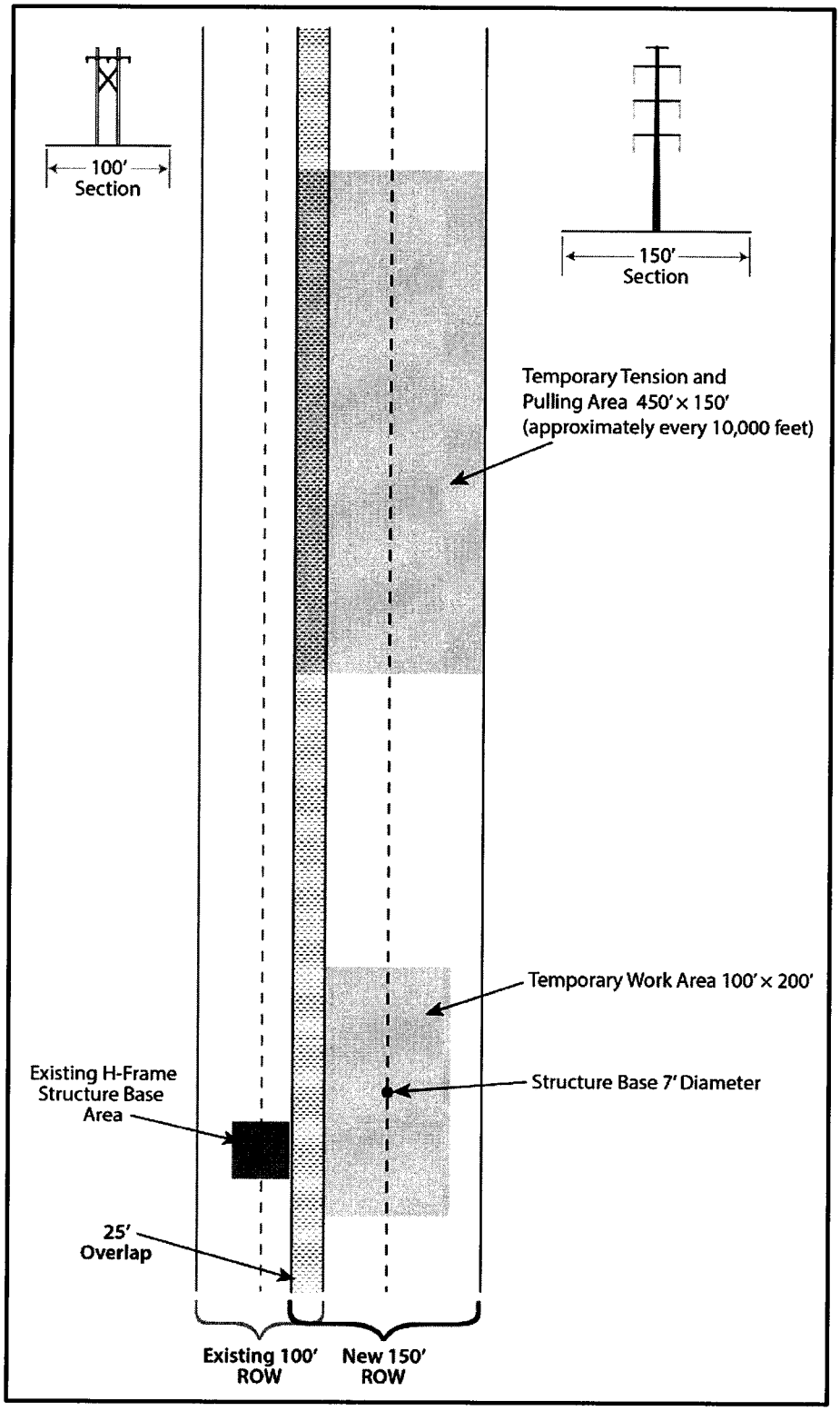

EXHIBIT H

EXHIBIT H – EXISTING PLANS

As stated in R14-3-219, Exhibits to Application, Exhibit H of the Rules of Practice and Procedure Before Power Plant and Transmission Line Siting Committee:

"To the extent applicant is able to determine, state the existing plans of the state, local government, and private entities for other developments at or in the vicinity of the proposed site or route."

The following sub-exhibits include information responsive to ACC Rules of Practice and Procedure R14-3-219, Exhibit H. Exhibit H-1 contains analysis of the existing land uses, land use plans, and any known development plans in the study area of the CEC Proposed Route and CEC Substations, as well as the anticipated impacts of the Project on those land uses and plans. Existing land uses are mapped in Exhibit A-3 and future land uses are mapped in Exhibit A-4.

Exhibit H-1	Existing Plan Analysis

EXHIBIT H-1 – Existing Plan Analysis

INTRODUCTION

The CEC Proposed Route is comprised of the CEC New Build Route and the CEC Upgrade Route. The CEC New Build Route consists of (i) approximately 66 miles of new double-circuit 345-kV transmission line in a new 200-foot-wide ROW, which would terminate at a new substation to be owned by Southline near the existing AEPCO Apache Substation,[1] and (ii) less than 1 mile of 115-kV or 230-kV transmission line and associated facilities needed to connect the proposed Southline Apache Substation to the AEPCO Apache Substation. The CEC New Build Route footprint includes a 200-foot right-of-way ("ROW") for the new line.

The CEC Upgrade Route consists of approximately 5 miles of new non-WAPA owned 138-kV and 230-kV transmission lines and associated facilities that would interconnect the upgraded WAPA 230-kV Apache-Tucson and Tucson-Saguaro transmission lines to four existing substations owned and operated by other Arizona load-serving utilities: (a) approximately one mile of 230-kV transmission line and associated facilities to interconnect the AEPCO Pantano Substation, (b) approximately two miles of 230-kV transmission line and associated facilities to interconnect the TEP Vail Substation, (c) less than one mile of 138-kV transmission line and associated facilities to interconnect the TEP DeMoss Petrie Substation, and (d) approximately 1.5 miles of 230-kV transmission line and associated facilities to interconnect the TEP Tortolita Substation.[2] The CEC Upgrade Route includes a 150-foot ROW the lines.

The geographic scope for the land use study area includes a 2-mile corridor around the CEC Proposed Route and CEC Substations, as well as access roads and staging areas that are proposed outside of the 2-mile corridor.

The Project will traverse federal, state, and local agency jurisdictions with existing land use plans and policies (*see* Exhibit A-2, Land Ownership and Jurisdiction). Private land will also be traversed by the Project. Various land management agencies in this region have jurisdiction over land development activities. Land use jurisdiction refers to the

[1] The existing Apache Substation is owned and operated by AEPCO. Southline proposes to construct a new substation ("Southline Apache Substation") located near the AEPCO Apache Substation that would connect the New Build Section of the Project to the AEPCO Apache Substation and to the Upgrade Section of the Project. See Application at Section 4.b.i.(3) for additional details.

[2] See Application at Section 4.b.i.(3) for additional details on the Pantano, Vail, DeMoss Petrie, and Tortolita substations.

limits of administrative authority maintained by federal, state, regional, or local government agencies responsible for land use planning and policies. A summary of surface management and land ownership in the study area is presented in Table H-1.

Table H-1. Surface Management and Land Ownership Within the Study Area

Entity	Acres
Bureau of Land Management	38,472
Department Of Defense	8,867
Bureau of Reclamation	1
State	77,367
County	2
Private	87,009

As stated in the Arizona ACC Rules of Practice and Procedure R14-3-219, the analysis in this Exhibit focuses on state, local, and private existing uses and land use plans; however, an extensive discussion of the federal jurisdictions land use regulations, policies, and plans in the study area can be found in Exhibit B-1, Final EIS Section 3.11.

Prior to and during the EIS process, the Southline team met with agencies, representatives, and local stakeholders. These outreach efforts are detailed in Exhibit J-2.

LAND USE PLANS; DEVELOPMENT PLANS

State and local agency jurisdictions that will be traversed by the Project have adopted land use plans and regulations that guide the type, time, and intensity of land use. An inventory of applicable land use plans was conducted to determine which land use plans may intersect with the Project. State and local jurisdictions with land use policies in the study area include Cochise, Pima, and Pinal counties, the cities of Wilcox and Tucson, and the Arizona State Lands Department ("ASLD").

I. LOCAL GOVERNMENT PLANS

A. Cochise County Comprehensive Plan

The Cochise County Comprehensive Plan, amended through 2015, sets forth goals, objectives, and policies to control development within the county. The plan includes growth area categories and other plan designations, as well as a land use element plan

map. The majority of the CEC New Build Route and Apache Substation study area lands are classified as Category D-Rural, with the exception of segments P6b and P7 study area lands classified as Category C-Rural Community outside of the communities of Bowie and Willcox (*see* Exhibit A-4). Category D-Rural lands are characterized by a "low rate of growth; unimproved roads; low density, large lot rural residential development; agricultural production; and large tracts of undeveloped private and public lands" and Category C-Rural Community areas are characterized by a "slow rate of growth and the desire to maintain the existing neighborhood or rural atmosphere" (Cochise County 2015a). As shown on Exhibit A-4, the CEC New Build and Apache Substation study area includes rural, low density residential, agricultural and/or green space, developing, neighborhood conservation, enterprise redevelopment, and neighborhood rehabilitation; however, the alignment of traverses lands in Cochise County designated as Rural.

The plan contains no specific regulations governing transmission projects (Cochise County 2015a); however, the 2015 amendments specified a Renewable Energy Element, and identifies areas of the County that are suitable for utility-scale solar facilities. No proposed Project activities will conflict with other goals and objectives of the plan. Specific goals and policies that support the Renewable Energy Element include and are applicable to the CEC Proposed Route include:

Goal

1. Support the development of local renewable energy projects and technologies.

Policies

a. Encourage utility-scale renewable energy projects, using the University of Arizona's Renewable Energy Opportunity Analysis and other resources as a guide for determining the suitability of proposals in any one location.
b. Encourage renewable energy business development.
c. Support renewable energy employment training opportunities at local colleges.
d. Permit flexible site development standards.

The CEC New Build Route begins in Cochise County on BLM-managed lands, located parallel to existing utilities' ROW. The areas that are crossed by the CEC New Build Route and the Apache Substation have been identified in the Comprehensive Plan as 'Category D – Rural Areas' (Cochise County 2015b) (*see* Exhibit A-4). Category D – Rural Areas is defined as "the outlying rural areas between cities and unincorporated

communities and characterized by a low rate of growth; unimproved roads; low density, large lot rural residential development; agricultural production; and large tracts of undeveloped private and public lands. Non-residential development is geared toward providing local services, tourism or intensive uses that are not appropriate in more the densely populated parts of the county, such as power plants and feedlots," (Cochise County 2015a). Category D Rural Areas include those areas presently identified as "Category D" and all areas that do not meet the criteria for inclusion in either Category A, B or C.

Article 20, Section 2002.02 of the Cochise County Zoning Regulations specifically exempts transmission lines for the distribution of franchised public or private utilities from requirements for building or use permits. Only an informational permit is required, along with a ROW permit for encroachment on county-maintained roads and/or properties. A Franchise Utility Agreement may also be necessary, which is reviewed by the County Board of Supervisors. More substantial structures with a potential to impact the surrounding community, such as substations, are not exempt and must be located so as to minimize any adverse impacts generated by that structure. All such structures, however, are exempt from minimum site area requirements of the applicable zoning district, provided there is an adequate site area to minimize any adverse impacts of such use.

No proposed Project activities will conflict with other goals and objectives of the plan.

B. Pima County Comprehensive Plan

The Pima County Comprehensive Plan (2009, as amended 2015) is currently being updated via the "Pima Prospers: Pima County Comprehensive Plan Initiative." The Plan assigns special designations (including parks, open space, and scenic road designations) and lays out policies for land uses within those unincorporated areas of the County; for incorporated areas, land use planning as specified in the municipalities' general plan is applicable. The 2015 plan, as amended is the current guiding plan.

The Pima County Zoning Ordinance designates zoning districts and establishes a land use intensity map. The ordinance, however, does not specifically address transmission of electricity, although electrical transmission requires a Conditional Use Permit under some zoning districts (Pima County 1992, 2011). The CEC Proposed Route will require a conditional use permit for portions of the Project that occur on county lands, as appropriate. Modifications to existing permits or new permits as may be required for electrical substations over 115 kV will be coordinated by the Pima County Development

Services Department. All of the substations included in the CEC Proposed Route within Pima County are existing facilities that will be expanded. Southline will work with Pima County during the permitting phase of the Project to ensure compliance with applicable plans and zoning requirements of the Pima County Comprehensive Plan.

In the CEC Upgrade study area, the Vail interconnection and CEC substation expansions at DeMoss Petrie, Vail, and Pantano occur within the Pima County Comprehensive Plan planning area. Classification (*i.e.*, land use intensity) of Pima County planning area lands within the study area for the CEC Upgrade Route is City of Tucson; classification for the Pantano Substation is RS-Resource Sensitive; for the CEC Vail and DeMoss Petrie Substations, classification is City of Tucson (*see* Exhibit A-4).

The objective of RS-Resource Sensitive is to designate key larger parcels and land holdings with environmentally sensitive characteristics in close proximity to public preserves or other environmentally sensitive areas. Development of such land shall emphasize design that blends with the surrounding natural desert and provides connectivity to environmentally sensitive linkages in developing areas. The Pantano Substation is located approximately 1 mile southwest of Cienega Creek.

The objectives for City of Tucson classifications is to apply the City of Tucson's municipal planning land use classifications as provided in the City's General Plan. Generally, the objectives provide higher density residential neighborhoods, commercial services, and typically includes significant changes to the natural environment in terms of grading, drainage patterns, wildlife, and native vegetation; see below.

Zoning classification of the CEC Upgrade Route and CEC Substation expansions in Pima County include: Rural Homestead ("RH") and Heavy Industrial Zone ("I-2"). The objectives for RH are intended to preserve the character and encourage the orderly growth of rural areas. It is intended to encourage rural development in areas lacking facilities for urban development and to provide for agriculture, commercial, and industrial development only where appropriate and necessary to serve the needs of the rural area. The objectives for I-2 are to provide for industrial uses that are generally nuisances, making them incompatible with most other land use. These nuisances may be in the form of air pollutants; excessive noise, traffic, glare, or vibration; noxious odors; the use of hazardous materials; or unsightly appearance. Select other agriculture, civic, commercial, industrial, retail, storage, utility, and wholesaling uses may also be permitted (Pima County 2015).

C. Pima County Sonoran Desert Conservation Plan

Pima County maintains important biological, ecological, and natural resources under their 2012 Sonoran Desert Comprehensive Plan ("SDCP"). The 2012 SDCP is guiding regional efforts to conserve the best lands and most precious resources for future generations of Pima County residents to enjoy. As part of the SDCP, the associated Pima County Multi-species Conservation Plan ("MSCP") combine short-term actions with long-range land-use decisions in Pima County, to avoid, minimize, and mitigate impacts to species protected under the Endangered Species Act ("ESA") and their habitats. Pima County submitted the MSCP to the U.S. Fish and Wildlife Service ("FWS") for 44 species that may be impacted as a result of the otherwise lawful activities of Pima County and its development community (Pima County 2012). Further discussion of the SDCP and MSCP can be found in Exhibit B-1, Final EIS Section 3.8.

The SDCP designates a Conservation Lands System ("CLS"), which identifies lands within Pima County necessary to achieve the SDCP goals, while delineating areas suitable for development. The CLS land-use policies apply only to discretionary actions of and lands owned and/or managed by the Pima County and the Pima County Regional Flood Control District Boards. CLS policies do not apply to privately owned lands unless the landowner takes it upon themselves to adopt CLS land-use policies. CLS lands include important riparian areas, biological core management areas, special species management areas, multiple use management areas, scientific research areas, agricultural inholdings, and critical landscape connection corridors. The Pantano Substation expansion area occurs within the CLS lands on state lands. CLS lands are further discussed in Exhibit B-1, Final EIS Section 3.12.

The study area for the Pantano Substation expansion includes a small portion of the Pima County Cienega Creek Natural Preserve and the Bar V Ranch property. The 1994 Cienega Creek Natural Preserve Management Plan was drafted by the Pima County Regional Flood Control District to manage the 3,979-acre Cienega Creek Natural Preserve, located along Cienega Creek in eastern Pima County. The principal management objectives are to preserve and protect perennial stream flow in Cienega Creek, preserve and protect the existing natural riparian community along the stream corridor, and to provide opportunities for the public use of the preserve (McGann and Associates 1994).

The Bar V Ranch property, which includes 14,400 acres of fee and grazing lease lands acquired by Pima County in 2005, includes a significant portion of Davidson Canyon—a

rare confluence of desert and riparian habitat that contains a stretch of perennial water and provides habitat for numerous vulnerable species (Pima County 2004). The northernmost fee parcel connects to the Cienega Creek Natural Preserve, under I-10, and state lease land extends north of I-10 bordering the Cienega Creek Natural Preserve. Portions of the Bar V Ranch are managed by Pima County as part of their CLS. While the study area for the Project includes a small portion of the Cienega Creek Natural Preserve and Bar V Ranch property, the Project footprint is outside of these planning areas.

D. Pinal County Comprehensive Plan

The 2009 Pinal County Comprehensive Plan, as amended through 2015, guides and manages the County's future growth, quality of life, and sustainability. The 2015 amended plan is the current guiding Plan. Policy 7.6.1.6 and Goal 7.7 of the plan directly address transmission of electricity: "Support the transmission of renewable energy from sources within and outside of Pinal County," and "support the provision of adequate energy for the future while protecting the natural environment and resources" (Pinal County 2015). The Pinal County Zoning Ordinance provides rules, regulations, and plans by which the future growth and development in the county may be directed in accordance with the Pinal County Comprehensive Plan and ordinance, as provided in the County Planning and Zoning Act of 1949. Section 2.150.010 states that transmission lines for the distribution of electricity and power substations shall be permitted in any zoning district and not be subject to the minimum lot area requirement (Pinal County 2015).

In the CEC Upgrade study area, the Tortolita interconnection and Tortolita Substation expansion occur within the Pinal County Comprehensive Plan planning area. The study area includes portions of the Red Rock growth area. The Red Rock growth area is a mixed use residential and employment area that will link Southern Pinal County and Northern Pima County (Pima County 2015). Pinal County Comprehensive Plan Land Use Categories present within the study area include Airport Reserve, Employment, General Public Facilities/Services, High Intensity Activity Center, Moderate Low Density Residential, Very Low Density Residential, and Open Space. The Tortolita interconnection intersects with the Employment and General Public Facilities/Services categories; the Tortolita Substation occurs within the Employment category (*see* Exhibit A-4).

The Employment category is defined as areas that can support a variety of employment-generating business activities such as industrial, office, business park, and warehousing and distribution. Power plants are also included in this category.

The General Public Facilities/Services category is defined as areas that include large public facilities that require significant space such as landfills, wastewater facilities, water campuses, and concentrations of public buildings.

Southline will work with Pinal County during the permitting phase of the Project to ensure compliance with applicable plans and zoning requirements of the Pinal County Comprehensive Plan.

E. City of Willcox General Plan

The General Plan for the City of Willcox, as updated through 2009, includes the following elements: citizen participation, land use, transportation/circulation, housing, growth, cost of development, environmental planning, open space, and water resources. The overriding goal of the General Plan is to protect and preserve the city's heritage and to ensure compatible and managed growth for its citizens (City of Willcox 2009). The plan does not include management prescriptions for transmission line construction. No proposed Project activities conflict with other goals and objectives of the Plan. Study area lands are zoned R-1: Residential single family; however, none of the CEC Project footprint crosses into the city's planning area (*see* Exhibit A-4).

F. City of Tucson General Plan

Plan Tucson, the City of Tucson's General Plan, developed in December 2013, presents a series of policies and recommendations for Tucson and, in some cases, all of eastern Pima County. It is in effect only within the corporate limits of the city of Tucson. The policies establish a basic direction and approach to guide the future growth and development of Tucson. The plan does not include management prescriptions for transmission line construction. No proposed Project activities conflict with other goals and objectives of the plan.

The policies also provide guidance for the preparation of more detailed environmental, land use, and transportation proposals; the refinement of community facility and service plans; and the development or amendment of subregional, area, neighborhood, and other specific plans. The City of Tucson Land Use Code was published on July 1, 1995 to protect and promote the general health, safety, and welfare of all present and

future residents of Tucson. More specifically, the Land Use Code implements the City's General Plan. It guides new growth and redevelopment in accordance with the policies of the City of Tucson Land Use Code, encourages the most efficient use of land through site-sensitive design. It also reduces potential hazards to individuals and neighborhoods resulting from incompatible land uses or from the development of environmentally hazardous or sensitive lands; protects and enhances the city's natural, cultural, historical, and scenic resources; and promotes the economic stability of the community (City of Tucson 1995, 2001). The City of Tucson is currently updating its General Plan. Southline will work with the City of Tucson during the permitting phase of the Project to ensure compliance with applicable plans and zoning requirements of the City of Tucson General Plan.

Within the CEC Upgrade study area, the Vail interconnection and the Vail and DeMoss Petrie Substation expansion areas occur within the city limits of Tucson on state and private land. The Vail interconnection and the Vail Substation expansion area lands are zoned RH: Rural Homestead. Lands within the study area are primarily zoned RX-1: Residence Zone. Additional zoning includes R-1: Residence Zone, C-2: Commercial Zone, I-1: Light Industrial, and I-2: Heavy Industrial. The DeMoss Petrie Substation expansion area land is zoned I-2: Heavy Industrial.

II. STATE GOVERNMENT PLANS

A. Arizona State Land Department

ASLD-owned lands are not public lands, but are instead the subject of a public Trust created to support the education of Arizona children. The Trust accomplishes this mission in a number of ways, including through its sale and lease of Trust lands for grazing, agriculture, municipal, school site, residential, commercial, and open space purposes. The ASLD lands included in the study area are nearly all managed for recreation, grazing, rangeland management, and commercial and open space purposes. To cross ASLD lands, Southline must acquire a ROW. ROWs are granted across ASLD lands for a variety of uses, such as access roads, infrastructure, and power lines.

B. Arizona State Land Department Conceptual Land Use Plans

ARS § 37-331.03 directs the ASLD to create conceptual land use plans for urban state trust lands as appropriate. These plans are to identify appropriate land uses, transportation corridors, and infrastructure requirements, and natural and artificial constraints and opportunities associated with the land. Two ASLD conceptual land use

plans will be adjacent to the proposed Project: Rincon Posta Quemada (ASLD 2007), and Houghton Road Corridor Conceptual Plans (ASLD 2004).

III. FEDERAL GOVERNMENT PLANS

The CEC Proposed Route study area includes lands managed by the Bureau of Land Management ("BLM"), Department of Defense ("DOD"), and Bureau of Reclamation ("BR") (*see* Table H-1 and Exhibit A-2, Land Ownership and Jurisdiction). The analysis in this exhibit focuses on state, local, and private existing uses and land use plans; however, an extensive discussion of the federal land use regulations, policies, and plans in the study area can be found in Exhibit B-1, Final EIS Section 3.11.

IV. PRIVATE ENTITY PLANS

No private entity plans were identified on private lands in the CEC Proposed Route and CEC Substation study area. Although the CEC Upgrade Route and CEC Substation expansions at Vail and DeMoss Petrie are located within the city limits of Tucson, they are located in non-residential areas. No new planned residential subdivisions are identified in the study area.

V. FARM AND RANGELANDS PLANS

Farm and rangeland plans are implemented at the federal and state levels. Relevant management plans were reviewed to identify potential conflicts between the existing resource management objectives and the CEC Proposed Route. A summary of federal farm and rangeland laws, programs, and policies is located in Exhibit B-1, Final EIS Section 3.11.

The ASLD administers grazing on state lands. The ASLD issues grazing leases to ranchers following protocol issued in the "Arizona Standards for Rangeland Health and Guidelines for Grazing Administration" (University of Arizona 2012). The intent is to provide standards to ensure healthy rangelands, with management coordinated between the state and federal agencies.

VI. MILITARY

The CEC Proposed Route is located on, or in the vicinity of DOD Lands, Military Training Routes ("MTR"), and Military Operations Areas ("MOA"). Federal policies

relating to the CEC Proposed Route and military land uses are summarized in Exhibit B-1, Final EIS Section 3.11.

Arizona Senate Bill 1387 was signed into law in 2007 by Governor Jan Brewer, which requires that Fort Huachuca be notified and consulted with for projects with potential impacts to the Fort or the Buffalo Solider Electronic Testing Range ("BSETR"). Senate Bill 1387 was enacted to protect the unique electromagnetic conditions of the BSETR. The BSETR is not within the study area of the CEC Proposed Route and CEC Substations.

EXISTING LAND USE

The following land use discussion is described in general characterization of land use areas, using the available data as described by the National Land Cover Database categories (DOI, USGS 2015). Existing land uses in the study area are summarized in Table H-3 below and mapped in Exhibit A-2. Existing farm and rangeland uses are described further below, and in Exhibit B-1, Final EIS Section 3.11. Existing military uses are also described further below, and in Exhibit B-1, Final EIS Section 3.11. Detailed discussions of minerals and mining uses are discussed in Exhibit B-1, Final EIS Section 3.4. Detailed discussions of the special land use designations (federal, state, county, city, and tribal), are discussed in Exhibit B-1, Final EIS Section 3.12. Recreational uses are discussed in Exhibit F and Exhibit B-1, Final EIS Section 3.14.

Table H-3. Existing Land Uses in the Study Area.

Land Use	Acreage
Barren Land (Rock/Sand/Clay)	11,898
Cultivated Crops	14,133
Deciduous Forest	4
Developed, High Intensity	930
Developed, Low Intensity	4,305
Developed, Medium Intensity	2,858
Developed, Open Space	5,617
Emergent Herbaceous Wetlands	15
Evergreen Forest	259
Grassland/Herbaceous	13,409
Mixed Forest	8
Open Water	274
Pasture/Hay	583
Shrub/Scrub	157,203

Woody Wetlands	224

The CEC New Build study area is located in open range-type land uses, crossing mountain ranges and valley/basins. In the CEC Upgrade study area, the distance between the valley/basins and mountain ranges becomes less, and urban populations surround the Tucson metropolitan area. Much of the land in the study area is managed by federal agencies, which generally provide for multiple use management or preservation of natural resources. Major portions of the CEC Proposed Route parallel existing linear facilities in disturbed corridors, including transmission and distribution lines, and roads ROWs. Some of the lands are also used for livestock grazing. The primary transportation facilities in the CEC Proposed Route and CEC Substation study area are Interstate 10, U.S. Route 191, and State Route 77.

The CEC New Build Route and Apache CEC Substation expansion study area is primarily undeveloped land with pockets of heavy to moderate land uses surrounding the municipal areas and industrial use. The study area can be characterized as open desert with some agriculture and widely dispersed, low-density residential uses on private parcels. In Cochise County, some of the agricultural land is used for viticulture. Although the CEC New Build Route will be new construction, the majority of the route would parallel existing ROWs and disturbance.

The CEC Upgrade Route and CEC Upgrade Substation expansions (Pantano, Vail, DeMoss Petrie, and Tortolita) mainly traverse areas of desert landscape, rural-residential, and commercial development. The Project also crosses urban and suburban areas, including the Tucson metropolitan area. The study area includes primarily undeveloped land with pockets of heavy to moderate land uses surrounding the municipal areas and industrial use. The undeveloped, more rural area of this study area can be characterized as open desert with some agriculture and widely dispersed, low-density residential uses on private parcels. The more developed urban and suburban areas in the CEC Upgrade study area include the city of Tucson and the areas surrounding the community of Vail. Residents in these areas currently experience the land uses associated with the existing transmission lines or substations.

I. FARM AND RANGELANDS

Despite the arid climate, farmlands do exist in the CEC New Build study area, aided by irrigation where more permanent water sources are present from groundwater pumping. The CEC Proposed Route study area contains cultivated crops, pasture/hay

fields, and grassland/herbaceous rangelands used for grazing (*see* Table H-3). Southeast of the Willcox Playa, traditional agricultural land use has shifted to include small vineyards (domestic farm wineries) since the mid-1980s. Since around 2005 there has been an increase in this shift in land use. Almost all of the land in the study area is designated as grazing land, with the exception of active farmland and other urban and developed areas. The CEC Upgrade study area generally consists of urban and suburban areas, including the city of Tucson, with minimal farmland. Most of the farmlands are playas that would require seasonal flooding to be agriculturally productive. The majority of the rangeland within the CEC Upgrade study area consists of grazing lands managed by the State of Arizona on ASLD lands.

II. MILITARY

The military study area for the CEC Proposed Route includes any MOAs, MTRs, and military installation that may intersect with the Project footprint. This study area is used to identify military resources that could be directly, indirectly, or cumulatively impacted by surface disturbance, above-surface facilities (*i.e.*, structures, spans) and where construction materials, equipment, and workers may be present. The following is a summary of existing military resources in the study area. Detailed descriptions of military operations and federal plans pertaining to military operations are contained in Exhibit B-1, Final EIS Section 3.11.

A. CEC New Build Route

A small portion of the CEC New Build Route (0.5 acres of segment P7) crosses lands owned by the DOD in Willcox Playa. The Willcox Playa was formerly used as a bombing range around World War II, but is no longer used as an active bombing range. The Willcox Playa is under a perpetual lease to the Fort Huachuca's Electronic Proving Ground ("EPG") operations by DOD and is currently used for aerial training by the EPG. The Playa falls outside the BSETR, but is still a key location for Fort Huachuca's overall electronic testing mission in Arizona.

There are multiple MTRs within the CEC New Build study area. Transmission line structures built along training routes will need to be limited in height to less than 200 feet, and consultation with military authorities is advised. Building to the floor of the airspace will require separate operational clearance requirements for safety because the MTR above ground level minimum applies to not just the terrain, but also human-made obstructions.

Tucson International Airport is home to the U.S. Air Force 162nd Fighter Wing ("FW"), which trains pilots in the F-16 Falcon fighter aircraft. Specific military airspace operations categories that intersect the CEC Proposed Route study area include Low Altitude Step Down Training, Low-Altitude Navigation, Low-Altitude Tactical Formation, and Low-Altitude Awareness Training.

B. CEC Upgrade Route

No DOD lands are crossed by the CEC Upgrade study area. Several military installations, MTAs, and MOAs are located in the vicinity of the CEC Upgrade Route; however, they are outside of the study area.

The 162nd Wing of the Arizona Air National Guard is located at the Tucson International Airport in Tucson. The 162nd Wing has scheduling responsibility and operational control of the Special Use Airspace for seven MOAs, three low-level MTRs and one Air-to-Air Refueling Anchor. The 162nd Wing also regularly uses the Goldwater Range Complex and the Sells MOA.

The Arizona Army National Guard, Silver Bell Army Heliport, is located about 30 miles northwest of Tucson in Marana, Arizona, in the Pinal Airpark Area. The Army National Guard trains helicopter pilots near the Tortolita Substation. Military training flights occur between 1,000 and 10,999 feet above mean sea level. The CEC Upgrade Tortolita interconnection (segment U3l) will introduce changes to the existing airspace obstructions on approach and departure of the Silver Bell Army Heliport; see discussion below and in Exhibit B-1, Final EIS. Pinal Airpark is also the home to DOD Parachute Training and Testing Facility at the West Drop Zone of Pinal Airpark. The CEC Upgrade Route segment U3l might conflict with their training and testing. Pinal Airpark is currently updating the Master Airport Plan.

III. PROPOSED LAND USES AND DEVELOPMENTS

For those municipalities that do have relevant land use management plans (*i.e.*, Willcox and Tucson), a review of local plans did not identify any anticipated activities within the study area that would substantially or substantively differ from current land uses (*see* Exhibit A-4, Future Land Use). Therefore, planned land uses are assumed to be the same as existing land uses.

Future development on privately owned lands under county or municipality planning jurisdiction will require approval by the respective jurisdiction's planning and

development departments. Development of subdivisions and master planned communities in the Tucson metropolitan area or elsewhere will require extensive planning and coordination with the county and city Development Services Departments (*e.g.,* subdivision plat approval, substantive review by applicable departments of all onsite and offsite infrastructure needs). Final subdivision plats are approved by the municipal City Council or County Board of Supervisors after a public hearing.

Development on state lands will occur through a lease or sale of state Trust properties by ASLD. During the micro-siting of the CEC Proposed Route every effort will be made to avoid creation of remnant parcels and work with ASLD to consider future development opportunities.

For the CEC Proposed Route, ROWs for the transmission line facilities on private lands will be obtained as easements. Land for CEC Substation expansions will be obtained in fee simple where located on private land. A good-faith effort will be made to purchase the land and/or obtain easements on private lands through reasonable negotiations with the landowners. The landowners will be compensated based on market value for the land that may be acquired for the Project.

POTENTIAL EFFECTS

The impact intensity of the CEC Proposed Route and CEC Substations on land use, including farm and range resources and military operations will be minor. All negotiations with landowners (including state, county, and private) will be conducted in good faith, and the Project's effect on the parcel or other landowner concerns will be addressed.

I. LAND USE

The primary land use change associated with the CEC Proposed Route and CEC Substations is the development of currently natural or undeveloped land for a new and/or upgraded transmission line and ancillary facilities (*e.g.,* substations, access roads). The total ROW and substation expansion acreage in the CEC New Build Section is approximately 1,653 acres; the total ROW and substation expansion acreage in the CEC Upgrade Section is approximately 137 acres, comprised of federal, state, and private land. No change in federal, state, or local municipality land ownership will result.

In general, land use impacts will be minimized where linear utilities will be constructed parallel to established or designated corridors and substation expansion will be located adjacent to existing substations. For all segments, impacts to land uses will occur in some form along any portions of the route that cross undeveloped lands, irrigated agricultural lands, residential subdivisions, and areas used for industrial or military testing and training. Proponent Committed Environmental Measures ("PCEMs") will be effective in avoiding or minimizing direct impacts with land uses in most conditions. There will be no direct displacement of existing land use authorizations or ROWs, residential, business, or industrial structures.

All state lands will be used by the CEC Proposed Route and CEC Substations in accordance with ASLD ROW granting procedures. Since the CEC Upgrade Route uses existing access roads, the impacts to land management by the state will be minor and localized impacts. Most uses of state lands (*e.g.*, dispersed recreation) will still be allowed within the ROW. Refer to Exhibit F for further discussion of potential effects to recreation resources.

CEC Substations will be upgrades to existing facilities with existing zoning regulations and subsequent compliance already in place; therefore, the CEC Substations will not require any rezoning or land reclassification. The CEC New Build and Upgrade Routes will be constructed in new ROWs; however, will not require any rezoning or land reclassification or plan amendments. No new access roads will be developed in the residential areas of Tucson, Willcox, or other municipalities that occur within the study area. Southline will coordinate with local municipalities to obtain applicable land use permits or permit updates where applicable.

Private land owners may experience minor, temporary nuisance impacts in residential areas where the temporary activities involved with construction (*i.e.*, noise, dust, and heavy equipment) will typically be incompatible with local zoning restrictions. Where private lands will be intersected, easements will be negotiated with the landowner. The temporary impacts will be short-term and will cease once construction activities are completed at a particular segment.

Potential effects on future or planned land use are generally associated with Project construction rather than operation because once the ROW grant has been made and construction is completed, no further changes to future or planned land use patterns are expected.

II. FARM AND RANGELANDS

Construction of the CEC Proposed Route and CEC Substation expansions will have minor direct effects on farmlands and rangeland by removing land acreage from productivity. Except under extraordinary circumstances, all operation and maintenance activities will occur within the transmission line and access road ROWs. These activities will not directly or indirectly impact adjacent farmlands or rangelands. No direct effect will occur on farmlands and rangelands during the operations and maintenance phase of the Project beyond the long-term loss of lands resulting from Project construction. The CEC Proposed Route and CEC Substations will not significantly reduce farmlands or rangelands in the study area because farming and ranching operations are still allowable uses within the transmission line ROW. While permanent disturbance will result in a conversion of farmland to non-farmable land, temporary disturbance along the Project ROW will be returned to farmland. Much of the CEC Proposed Route parallels existing linear facilities, which have already resulted in a conversion of land to non-farmable land.

III. MILITARY

Impacts to military operations could occur from construction, operations, and maintenance of the CEC Proposed Route and CEC Substations where the transmission line, substations, and ancillary facilities intersect with military facilities. This could include MTRs or areas where training is for electronics and communications. Ground disturbance-based impacts on military uses will not be significant, as all operations/training occurring in visual routes is aerial in nature. These impacts will be below the above-ground-level thresholds since the areas that may intersect military training visual routes include existing transmission line facilities that are already below above-ground-level thresholds, and the military operations have operated in conjunction with these facilities previously.

Additionally, in accordance with PCEMs noted in Exhibit B-1, Final EIS Table 2-8, the Project will include the optional structure heights in areas intersecting some MTRs. Towers crossing the MTRs will also have anti-collision lighting to the maximum extent possible in order to make the hazard of transmission lines more apparent to pilots flying low altitude at night. These measures will mitigate impacts to military training and airspace usage, as well as contribute to the safe conduct of missions.

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EXHIBIT I

EXHIBIT I – ANTICIPATED NOISE AND INTERFERENCE WITH COMMUNICATION SIGNALS

As stated in R14-3-219, Exhibits to Application, Exhibit I of the Rules of Practice and Procedure Before Power Plant and Transmission Line Siting Committee:

"Describe the anticipated noise emission levels and any interference with communication signals which will emanate from the proposed facilities."

NOISE

The proposed Project will generate noise during the construction and operation phases. Construction will result in audible noise from Project equipment and vehicles. Operation and maintenance activities will be similar in terms of the activities that will cause noise. However, during operation and maintenance these activities will occur much less frequently, include fewer individual noise point sources such as pieces of equipment and vehicles, and be of much shorter duration. Additionally, during operation corona noise may occur.

Noise sensitive receptors, including any residential areas, schools and day care facilities, hospitals, long-term care facilities, places of worship, libraries, parks, and recreational areas specifically known for their solitude and tranquility (such as wilderness areas) were identified. Unmitigated noise levels could result as high as 83 A-weighted decibels (dBA) to sensitive receptors near proposed Project construction activities (within 100 feet); however, construction noise will be short-term, temporary, limited to daytime hours and intermittent. The majority of the proposed Project will pass through rural and open areas as well as around a number of small cities and communities including San Simon and Willcox. As a result, a minimal number of receptors will be located along the proposed Project. Corona noise for the CEC Proposed Route facilities will be highest in areas where the new lines are constructed in close proximity to existing transmission lines. Project corona noise was modeled using the Electric Power Research Institute ("EPRI") ENVIRO computer model. The maximum corona noise for all modeled scenarios for the proposed Project on the edge of the right-of-way will be 52.4 dBA (in foul weather for two double-circuit transmission lines separated by a distance of 200 feet). This value is lower than the exterior noise level guidelines of the Noise Control Act of 1972 and the proposed Project is not expected to cause a significant impact with respect to corona noise.

Overall, because of the relatively dry nature of the area crossed by the proposed Project, the overall level of operational noise will be minimal and will therefore represent a minor, but long-term, impact to ambient soundscapes. Operational noise will decrease rapidly with distance from the transmission line.

Additional information concerning noise impacts can be found in Exhibit B-1, the Final EIS (Section 4.3.2 and Appendix C).

COMMUNICATIONS INTERFERENCE

Electric fields from electric power transmission lines can interfere with radio signals, although the effect may only be experienced for systems located beneath or in close proximity to the power line, with the interference dissipating rapidly as distance from the line increases. The potential for electromagnetic fields ("EMF") created by the flow of electricity associated with the proposed Project to interfere with radio signals is classified as broadband interference since it occurs over a wide range of electromagnetic spectrum and may be difficult to avoid. The potential for radio interference from the proposed Project is consistent with other transmission facilities of similar voltage and configuration and is not anticipated to produce significant interference to nearby radio and television receivers.

Potential communications impacts to nearby military facilities have been evaluated, and include changes to the "zero point" level for electronics and communications testing purposes on the Buffalo Soldier Electronic Testing Range ("BSETR"), which will require Fort Huachuca to revise its radio frequency emitter inventory for this area to account for the new design and operation of the line. Revisions to radio frequency emitter inventories will be a moderate impact, since the inventories will not need to be relocated, but will need to be adjusted where an intersection of military operations with the proposed Project will occur. This moderate impact will require advanced planning and coordination among the military operations command and planning documents/procedures.

To date, the only guidelines established for EMF exposure by the Federal Communications Commission ("FCC"), the Institute of Electrical and Electronics Engineers ("IEEE"), and the American Conference of Governmental Industrial Hygienists ("ACGIH") are related to human health. No EMF regulations have been established by the Federal Government or by the Arizona State government related to exposure and human health. Nor have any guidelines been established or evaluations

completed of the impact of EMF on interference with radio signals of the type that might be employed by local farmers.

EXHIBIT J

EXHIBIT J – SPECIAL FACTORS

As stated in R14-3-219, Exhibits to Application, Exhibit J of the Rules of Practice and Procedure Before Power Plant and Transmission Line Siting Committee:

"Describe any special factors not previously covered herein, which Applicant believes to be relevant to an informed decision on its application."

The following sub-exhibits include information related to special factors Southline believes relevant to an informed decision on its Application:

Exhibit J-1	Design Philosophy
Exhibit J-2	Public Involvement
Exhibit J-3	Relocation of Crane Lake

As summarized herein, from the outset, Southline worked to minimize environmental impacts through its design philosophy (Exhibit J-1) and extensive public outreach, consultation, and coordination activities (Exhibit J-2). The Bureau of Land Management ("BLM"), Western Area Power Administration ("WAPA"), and Southline Transmission, L.L.C. ("Southline") conducted formal and informal efforts to involve federal, state, and local agencies; private and public organizations; tribes; and stakeholders. These efforts resulted in a mitigation plan for Crane Lake described in Exhibit J-3.

EXHIBIT J-1 – Design Philosophy

The Project was designed from the outset to parallel linear infrastructure features, thus minimizing its environmental impact. Consistent with that design philosophy, virtually all of the CEC Proposed Route parallels existing linear infrastructure.

Southline began working with regional planning groups in 2009 to analyze transmission needs in southern New Mexico and Arizona. Over the next two years Southline developed preliminary line design informed by those regional plans and preliminary routing possibilities. The Project was designed to minimize land and resource impacts by developing a route along existing corridors and by upgrading existing transmission lines where feasible—an innovative approach that respects the region's communities and natural and cultural resources. Because of that design philosophy, more than 85% of the overall Project route, and 98% of the Arizona portion of the Project parallels or upgrades existing corridors.

EXHIBIT J-2 – Public Involvement

SCOPING PROCESS

I. PRE-NEPA OUTREACH

Southline conducted a series of informal stakeholder meetings and workshops in 2011 prior to the formal National Environmental Policy Act ("NEPA") scoping period. The goals of these meetings were to give the public early notification and to solicit public input from interested stakeholders that would help Southline develop a proposed Project that could be presented to the BLM in a formal ROW application.

Southline met with local jurisdictions such as city administrators, county commissioners and supervisors, as well as Arizona state officials and representatives from local community organizations and agencies within the Project area. The following table lists these pre-NEPA stakeholder meetings.

Table J-1. Locations of Pre-NEPA Meetings Conducted in Arizona with Jurisdictions and Agencies

Date	Jurisdiction/Agency
July 18, 2011	Southwest Transmission Cooperative
July 18, 2011	Fort Huachuca
July 19, 2011	Cascabel Working Group Tucson Audubon Community Watershed Alliance Empire-Fagan Organization
July 20, 2011	City of Willcox
August 2, 2011	Arizona State Land Department
August 2, 2011	Tucson Metropolitan Chamber of Commerce
August 3, 2011	Cochise County
August 4, 2011	Arizona Non-governmental Organizations
August 5, 2011	Arizona Department of Environmental Quality
August 22, 2011	Natural Resource Defense Council
September 12, 2011	Pima County

Southline also hosted pre-NEPA public meetings in Willcox, Tucson, and Marana, Arizona (September 27–29, 2011) and Benson, Arizona (November 10, 2011). Southline also held a routing workshop in Tucson on September 28, 2011.

As a result of this public outreach, the public was informed about the proposed Project and participated in the preliminary routing process prior to the formal public scoping process. These meetings helped identify stakeholder concerns and resulted in the collection of important information used to develop Project routing alternatives.

II. NEPA OUTREACH

Scoping was conducted in the early stages of EIS preparation, to encourage public participation and solicit agency and public comments on the scope and significance of the proposed Project (40 C.F.R. § 1501.7). On April 4, 2012, a Notice of Intent ("NOI") published in the Federal Register initiated the NEPA process for the Project and began a 60-day public scoping period, during which the public had the opportunity to provide input on potential issues to be addressed in the EIS. Thereafter, the scoping comment period was extended by 30 days until July 5, 2012. Notification of the 30-day extension was disseminated via Internet news release and email. NEPA scoping was particularly effective since agencies and the public were already familiar with the proposed Project and had actively been engaged in formulating routing alternatives during Southline's pre-NEPA public outreach.

A Notice of Availability ("NOA") for the Draft EIS/Draft RMPA published in the Federal Register on April 11, 2014 announced the release of the Draft EIS and the beginning of a 90-day comment period. Members of the public had several methods for providing comments during the NEPA scoping period:

- Comments could be handwritten on comment forms at the scoping meetings. Comment forms were provided to all meeting attendees and were also available throughout the meeting room.
- Emailed comments could be sent to a dedicated email address: BLM_NM_Southline@blm.gov.
- Individual letters and comment forms could be mailed via U.S. Postal Service to the BLM Las Cruces District Office.

All comments were given equal consideration, regardless of method of transmittal.

Three public open houses/hearings and one agency meeting were held in Arizona. These meetings were widely advertised, beginning at least two weeks prior to their scheduled dates. A summary of the advertisements can be found in Section 2.1 of the Final Scoping Report (Exhibit B-2).

The scoping meetings provided information on project planning activities and gave agency personnel and the public the opportunity to ask questions or make comments. Presentations were given at each meeting by the BLM National Project Manager and a Southline representative. WAPA, the BLM, and Southline representatives were available at the meetings for questions. Meeting attendees were encouraged to ask questions and were allowed to provide oral and written comments after the presentation.

Table J-2. Public and Agency Scoping Meetings Held in Arizona (2012)

Date	Time	City/State	Address	No. of Attendees
Public Meetings				
May 15, 2012	5:30 p.m.	Willcox, Arizona	Quality Inn 1100 West Rex Allen Drive	20
May 16, 2012	5:30 p.m.	Benson, Arizona	Benson Unified High School 360 South Patagonia Street	22
May 17, 2012	5:30 p.m.	Tucson, Arizona	Palo Verde High Magnet School 1302 South Avenida Vega	31
Agency Meetings				
May 17, 2012	10:00 a.m.	Tucson, Arizona	National Advanced Fire and Resource Institute 3265 East Universal Way	31

Comments received before the July 5, 2012 deadline were used to help formally scope the proposed Project.

CONSULTATION AND COORDINATION

Agencies, tribes, and organizations that have jurisdiction or a specific interest in the Project were contacted at the beginning of scoping to inform them of the Project, verify

the status and availability of existing environmental data, request data and comments, and solicit their input. Additional contact was made throughout the scoping process to clarify or update information provided by the agencies and organizations. This section describes in more detail the consolation and coordination efforts that have occurred throughout the entire process.

I. COOPERATING AGENCIES

A cooperating agency is an agency that has special expertise with respect to an environmental issue and/or has jurisdiction by law. Federal, state, and local agencies that have clear jurisdiction over portions of the proposed project routes were invited to become a cooperator in the preparation of the EIS. Tribal governments were also invited to participate in the Project as a cooperating agency and to provide special expertise with respect to environmental issues. The following entities were invited to be cooperators:

- Arizona Air National Guard
- ADOT
- AGFD
- ASLD
- City of Sierra Vista, AZ
- Cochise County, AZ
- Doña Ana County, NM
- Graham County, AZ
- Grant County, NM
- Greenlee County, AZ
- Hidalgo County, NM
- Luna County, NM
- NMDGF
- NMDOT
- NMSLO
- Pima County, AZ
- Pima County Department of Environmental Quality
- Pinal County, AZ
- U.S. Air Force Davis-Monthan Air Force Base
- USACE
- U.S. Army Fort Huachuca
- U.S. Border Patrol
- BIA
- Reclamation
- DOD
- EPA
- FAA
- FHWA
- FRA
- FWS
- Forest Service
- NPS
- Ak-Chin Indian Community
- Comanche Nation

- Fort Sill Apache Tribe of Oklahoma
- Gila River Indian Community
- Kiowa Tribe of Oklahoma
- Mescalero Apache Tribe
- Navajo Nation
- Pascua Yaqui Tribe
- Pueblo of Acoma
- Pueblo of Isleta
- Pueblo of Laguna
- Pueblo of Tesuque
- Pueblo of Zuni
- Salt River Pima-Maricopa Indian Community
- San Carlos Apache Tribe
- The Hopi Tribe
- Tohono O'odham Nation
- Tonto Apache Tribe
- White Mountain Apache Tribe
- Yavapai-Apache Nation
- Ysleta del Sur Pueblo

Seventeen agencies accepted invitations to participate; the following federal, state, and local agencies signed on and consulted as cooperating agencies during preparation of the EIS.

- Bureau of Indian Affairs (Western Regional Office)
- USACE (Albuquerque District)
- Reclamation (Phoenix Area Office)
- DOD Clearinghouse
- EPA
- DOD Fort Huachuca
- NPS
- Forest Service (Coronado National Forest)
- FWS (Region 2)
- AGFD
- ASLD
- NMDGF
- NMSLO
- Cochise County, Arizona
- Greenlee County, Arizona
- Graham County, Arizona
- City of Sierra Vista, Arizona

On October 4, 2012 and December 12, 2012, the BLM and WAPA conducted webinars for the cooperating agencies to participate in the alternatives development process for the proposed Project. The agency alternatives developed, as presented in Section 2.7 of the Final EIS, were based in part on input from cooperating agency staff attending these webinars.

On August 24, 2012 and April 13, 2013, the BLM and WAPA conducted Tumamoc Hill outreach meetings in Tucson, Arizona. A follow-up webinar was hosted on November 7, 2013 to update workshop attendees on proposed Project alternatives and present visual simulations of the proposed Project alternatives around Tumamoc Hill. These meetings and webinars were stakeholder workshops designed to gain input on proposed Project alignments and resource sensitivities around the sensitive Tumamoc Hill area. Attendees at these workshops included agencies and local officials. Coordination with Tucson Ward 1 and their participation in these meetings specifically reached out to neighborhoods surrounding Tumamoc Hill.

Additionally, on June 13, 2013, the BLM and WAPA met with representatives from Department of Defense Fort Huachuca to discuss potential issues with potential alignment alternatives. Representatives from Fort Huachuca expressed concerns regarding impacts from the proposed Project on the Buffalo Soldier Electronic Testing Range ("BSETR"). Meeting notes are included as part of the Final EIS (Exhibit B-1).

The cooperating agencies reviewed the Draft EIS in October and November 2013, and the Final EIS in February 2015.

The FWS and the AGFD conducted a site visit to the Willcox Playa with the BLM and WAPA in January 2014. The goal of the site visit was to discuss routing options near the playa and to allow the FWS and the AGFD to discuss their concerns regarding potential impacts near the Willcox Playa. See Chapter 2 of the Final EIS (Exhibit B-1) for route variations included as a result of FWS and AGFD outreach.

On December 16, 2014, the BLM and WAPA conducted a webinar for the cooperating agencies to summarize feedback received on the Draft EIS, describe the new route variations, and notify the cooperating agencies that the Agency Preferred Alternative in the Final EIS had changed since the Draft EIS. The cooperating agencies reviewed the Final EIS in January 2015.

On May 6, 2015, representatives from the AGFD and the FWS met with the BLM and WAPA to discuss their concerns regarding Project alternatives in the vicinity of the

Willcox Playa Wildlife Area. A follow-up meeting was held with Jim DeVos (Assistant Director, Wildlife Management Division) of the AGFD on June 10, 2015. On June 24, 2015, the AGFD provided a letter outlining their mitigation requests to offset impacts to the Willcox Playa Wildlife Area; this mitigation includes relocating Crane Lake and has been incorporated into the Proponent committed environmental measures presented in Section 2.4.6 of the Final EIS (Exhibit B-1). Meeting notes and the AGFD letter are included as part of the Final EIS.

II. TRIBAL CONSULTATION AND COORDINATION

In 2012, in compliance with the NEPA, the National Historic Preservation Act (NHPA) (as amended), and Executive Order 13175, the BLM initiated government-to-government consultation with 21 federally recognized tribes. The initial notification letters provided information about the proposed project, initiated government-to-government consultation, invited the tribes to participate as a cooperating agency in the preparation of the EIS, and invited them to participate in NHPA Section 106 process. This initial outreach and follow-up correspondence resulted in several face-to-face consultation meetings, which are listed below in Table J-4. Table J-4 also includes letter and email correspondences with the tribes.

Although no tribes requested cooperating agency status for the preparation of the EIS, several tribes are participating in Section 106 consultation. The tribes that have been actively participating in government-to-government and Section 106 consultations include the Tohono O'odham Nation, the Gila River Indian Community, the Salt River Pima-Maricopa Indian Community, the Ak-Chin Indian Community, the San Carlos Apache Tribe, the Mescalero Apache Tribe, the Fort Sill Apache Tribe, the White Mountain Apache Tribe, the Hopi Tribe, the Pueblo of Isleta, the Pueblo of Ysleta del Sur, and the Pueblo of Zuni.

Table J-4. Correspondence and Meetings with Tribes

Date	Native American Tribe/ Tribal Organization	Description
10/4/2011	San Carlos Apache Tribe	BLM Meeting with San Carlos Apache and White Mountain Apache, which included an overview of the Southline Project. Additional BLM staff present: Connie Stone, Dan McGrew, Amy Sobiech, Joan Galanis, Mike Johnson, Tom Dabbs, and Scott Cooke. Ms. Grant expressed concern about springs and plant resources near Lordsburg and wondered whether there were plans to establish a utility corridor in the area.
10/4/2011	White Mountain Apache Tribe	BLM Meeting with San Carlos Apache and White Mountain Apache, which included an overview of the Southline Project. Additional BLM staff present: Connie Stone, Dan McGrew, Amy Sobiech, Joan Galanis, Mike Johnson, Tom Dabbs, and Scott Cooke.
4/23/2012	Ak-Chin Indian Community	Tribal consultation initiation and cooperating agency invitation letter from BLM.
4/23/2012	Comanche Nation	Tribal consultation initiation and cooperating agency invitation letter from BLM.
4/23/2012	Fort Sill Apache Tribe of Oklahoma	Tribal consultation initiation and cooperating agency invitation letter from BLM.
4/23/2012	Gila River Indian Community	Tribal consultation initiation and cooperating agency invitation letter from BLM.
4/23/2012	Kiowa Tribe of Oklahoma	Tribal consultation initiation and cooperating agency invitation letter from BLM.
4/23/2012	Mescalero Apache Tribe	Tribal consultation initiation and cooperating agency invitation letter from BLM.
4/23/2012	Pascua Yaqui Tribe	Tribal consultation initiation and cooperating agency invitation letter from BLM.
4/23/2012	Pueblo of Acoma	Tribal consultation initiation and cooperating agency invitation letter from BLM.
4/23/2012	Pueblo of Isleta	Tribal consultation initiation and cooperating agency invitation letter from BLM.
4/23/2012	Pueblo of Laguna	Tribal consultation initiation and cooperating agency invitation letter from BLM.
4/23/2012	Pueblo of Tesuque	Tribal consultation initiation and cooperating agency invitation letter from BLM.

Date	Native American Tribe/ Tribal Organization	Description
4/23/2012	Pueblo of Zuni	Tribal consultation initiation and cooperating agency invitation letter from BLM.
4/23/2012	Salt River Pima-Maricopa Indian Community	Tribal consultation initiation and project introduction letter from BLM.
4/23/2012	San Carlos Apache Tribe	Tribal consultation initiation and project introduction letter from BLM.
4/23/2012	The Hopi Tribe	Tribal consultation initiation and project introduction letter from BLM.
4/23/2012	The Navajo Nation	Tribal consultation initiation and project introduction letter from BLM.
4/23/2012	Tohono O'odham Nation	Tribal consultation initiation and project introduction letter from BLM.
4/23/2012	Tonto Apache	Tribal consultation initiation and project introduction letter from BLM.
4/23/2012	White Mountain Apache Tribe	Tribal consultation initiation and project introduction letter from BLM.
4/23/2012	Yavapai-Apache Nation	Tribal consultation initiation and project introduction letter from BLM.
4/23/2012	Ysleta del Sur Pueblo	Tribal consultation initiation and project introduction letter from BLM.
5/2/2012	The Hopi Tribe	Hopi response letter to BLM, interested in consulting on any proposal that has the potential to adversely affect NRHP-eligible properties.
5/4/2012	White Mountain Apache Tribe	Response letter thanking BLM for the April 23 letter regarding the Southline Project and stating that there is no need to send additional information unless project planning or implementation results in the discovery of sites and/or items having known or suspected Apache Cultural affiliation.
5/7/2012	Ysleta del Sur Pueblo	Ysleta del Sur Pueblo response to BLM consultation initiation letter. The Pueblo currently does not have any comments and believes the project will not adversely affect traditional, religious, or culturally significant sites of Pueblo and does not have any opposition to the Project. Request consultation if any remains or artifacts are found that fall under NAGPRA guidelines.
5/22/2012	Pascua Yaqui Tribe	Email from BLM (Jane Childress) with response to questions from the Pascua Yaqui Tribe.

Date	Native American Tribe/ Tribal Organization	Description
7/3/2012	Tohono O'odham Nation	Email from BLM with copy of tribal consultation initiation and Project introduction letter.
7/18/2012	Tohono O'odham Nation	Meeting at San Xavier with BLM (Amy Sobiech and Karen Simms also present), WAPA (Mark Wieringa), San Xavier District Tohono O'odham, Galileo Project (Meredith Griffin). Project Overview and discussion with handouts of Project presentation, maps, and timeline. Tribal concerns with ROW across their lands.
7/20/2012	Four Southern Tribes	Meeting with BLM and 4 Southern Tribes. Sign-In sheet (21 attendees) attached to meeting notes. Southline Project update with PowerPoint presentation and handouts (newsletter and map).
8/28/2012	Pueblo of Zuni	Introductory presentation on the Southline Project, including PowerPoint presentation.
10/15/2012	Ysleta del Sur Pueblo	Introductory presentation on the Southline Project, including PowerPoint presentation and handouts of project area map and PowerPoint presentation.
10/18/2012	San Carlos Apache Tribe	Introductory presentation on the Southline Project, including PowerPoint presentation and handouts of project area map and PowerPoint presentation.
11/9/2012	Pueblo of Isleta	Introductory presentation on the Southline Project, including PowerPoint presentation and handouts of project area map and PowerPoint presentation. Tribe had questions about whether Southline and SunZia would be in the same corridor. That has not yet been determined but is possible in some places.
4/23/2013	Tohono O'odham Nation	Meeting to discuss issues related to Tumamoc Hill. Tribal representatives expressed concerns regarding any routing of the proposed Project that includes Tumamoc Hill.
9/23/2013	The Hopi Tribe	Letter from the Hopi Tribe indicating that they have reviewed the materials sent to them on 9/23/2013 and would like to continue consultation on the project, including reviewing cultural resources survey information and proposed treatment plans.
1/15/2014	The Hopi Tribe	Southline presentation included reviewing maps and discussing cultural issues, including trails, crossing of San Xavier District land, and Tumamoc Hill.

Date	Native American Tribe/ Tribal Organization	Description
3/27/2014	Ak-Chin Indian Community	Letter from BLM transmitting a CD and hard copy of the Southline Draft EIS. The letter also summarizes the project, lists cooperating agencies, provides email and physical addresses for comments, outlines the length of the comment period, provides locations for public hearings, and extends the offer to arrange consultation meetings and provide additional information.
3/27/2014	Comanche Nation	Letter from BLM transmitting a CD copy of the Southline Draft EIS. The letter also summarizes the project, lists cooperating agencies, provides email and physical addresses for comments, outlines the length of the comment period, provides locations for public hearings, and extends the offer to arrange consultation meetings and provide additional information.
3/27/2014	Fort Sill Apache Tribe of Oklahoma	Letter from BLM transmitting a CD and hard copy of the Southline Draft EIS. The letter also summarizes the project, lists cooperating agencies, provides email and physical addresses for comments, outlines the length of the comment period, provides locations for public hearings, and extends the offer to arrange consultation meetings and provide additional information.
3/27/2014	Gila River Indian Community	Letter from BLM transmitting a CD and hard copy of the Southline Draft EIS. The letter also summarizes the project, lists cooperating agencies, provides email and physical addresses for comments, outlines the length of the comment period, provides locations for public hearings, and extends the offer to arrange consultation meetings and provide additional information.
3/27/2014	Kiowa Tribe of Oklahoma	Letter from BLM transmitting a CD copy of the Southline Draft EIS. The letter also summarizes the project, lists cooperating agencies, provides email and physical addresses for comments, outlines the length of the comment period, provides locations for public hearings, and extends the offer to arrange consultation meetings and provide additional information.

Date	Native American Tribe/ Tribal Organization	Description
3/27/2014	Mescalero Apache Tribe	Letter from BLM transmitting a CD and hard copy of the Southline Draft EIS. The letter also summarizes the project, lists cooperating agencies, provides email and physical addresses for comments, outlines the length of the comment period, provides locations for public hearings, and extends the offer to arrange consultation meetings and provide additional information.
3/27/2014	Pascua Yaqui Tribe	Letter from BLM transmitting a CD copy of the Southline Draft EIS. The letter also summarizes the project, lists cooperating agencies, provides email and physical addresses for comments, outlines the length of the comment period, provides locations for public hearings, and extends the offer to arrange consultation meetings and provide additional information.
3/27/2014	Pueblo of Acoma	Letter from BLM transmitting a CD copy of the Southline Draft EIS. The letter also summarizes the project, lists cooperating agencies, provides email and physical addresses for comments, outlines the length of the comment period, provides locations for public hearings, and extends the offer to arrange consultation meetings and provide additional information.
3/27/2014	Pueblo of Laguna	Letter from BLM transmitting a CD copy of the Southline Draft EIS. The letter also summarizes the project, lists cooperating agencies, provides email and physical addresses for comments, outlines the length of the comment period, provides locations for public hearings, and extends the offer to arrange consultation meetings and provide additional information.
3/27/2014	Pueblo of Tesuque	Letter from BLM transmitting a CD copy of the Southline Draft EIS. The letter also summarizes the project, lists cooperating agencies, provides email and physical addresses for comments, outlines the length of the comment period, provides locations for public hearings, and extends the offer to arrange consultation meetings and provide additional information.

Date	Native American Tribe/ Tribal Organization	Description
3/27/2014	Pueblo of Zuni	Letter from BLM transmitting a CD and hard copy of the Southline Draft EIS. The letter also summarizes the project, lists cooperating agencies, provides email and physical addresses for comments, outlines the length of the comment period, provides locations for public hearings, and extends the offer to arrange consultation meetings and provide additional information.
3/27/2014	Salt River Pima-Maricopa Indian Community	Letter from BLM transmitting a CD and hard copy of the Southline Draft EIS. The letter also summarizes the project, lists cooperating agencies, provides email and physical addresses for comments, outlines the length of the comment period, provides locations for public hearings, and extends the offer to arrange consultation meetings and provide additional information.
3/27/2014	San Carlos Apache Tribe	Letter from BLM transmitting a CD copy of the Southline Draft EIS. The letter also summarizes the project, lists cooperating agencies, provides email and physical addresses for comments, outlines the length of the comment period, provides locations for public hearings, and extends the offer to arrange consultation meetings and provide additional information.
3/27/2014	The Hopi Tribe	Letter from BLM transmitting a CD copy of the Southline Draft EIS. The letter also summarizes the project, lists cooperating agencies, provides email and physical addresses for comments, outlines the length of the comment period, provides locations for public hearings, and extends the offer to arrange consultation meetings and provide additional information.
3/27/2014	The Navajo Nation	Letter from BLM transmitting a CD copy of the Southline Draft EIS. The letter also summarizes the project, lists cooperating agencies, provides email and physical addresses for comments, outlines the length of the comment period, provides locations for public hearings, and extends the offer to arrange consultation meetings and provide additional information.

Date	Native American Tribe/ Tribal Organization	Description
3/27/2014	Tohono O'odham Nation	Letter from BLM transmitting a CD and hard copy of the Southline Draft EIS. The letter also summarizes the project, lists cooperating agencies, provides email and physical addresses for comments, outlines the length of the comment period, provides locations for public hearings, and extends the offer to arrange consultation meetings and provide additional information.
3/27/2014	Tohono O'odham Nation	Letter from BLM transmitting a CD and hard copy of the Southline Draft EIS. The letter also summarizes the project, lists cooperating agencies, provides email and physical addresses for comments, outlines the length of the comment period, provides locations for public hearings, and extends the offer to arrange consultation meetings and provide additional information.
3/27/2014	Tonto Apache	Letter from BLM transmitting a CD copy of the Southline Draft EIS. The letter also summarizes the project, lists cooperating agencies, provides email and physical addresses for comments, outlines the length of the comment period, provides locations for public hearings, and extends the offer to arrange consultation meetings and provide additional information.
3/27/2014	Ysleta del Sur Pueblo	Letter from BLM transmitting a CD and hard copy of the Southline Draft EIS. The letter also summarizes the project, lists cooperating agencies, provides email and physical addresses for comments, outlines the length of the comment period, provides locations for public hearings, and extends the offer to arrange consultation meetings and provide additional information.
4/17/2014	Ak-Chin Indian Community	Invitation letter from BLM to agency only and public Draft EIS meetings.
4/17/2014	Comanche Nation	Invitation letter from BLM to agency only and public Draft EIS meetings.
4/17/2014	Fort Sill Apache Tribe of Oklahoma	Invitation letter from BLM to agency only and public Draft EIS meetings.
4/17/2014	Gila River Indian Community	Invitation letter from BLM to agency only and public Draft EIS meetings.
4/17/2014	Kiowa Tribe of Oklahoma	Invitation letter from BLM to agency only and public Draft EIS meetings.

Date	Native American Tribe/ Tribal Organization	Description
4/17/2014	Mescalero Apache Tribe	Invitation letter from BLM to agency only and public Draft EIS meetings.
4/17/2014	Pascua Yaqui Tribe	Invitation letter from BLM to agency only and public Draft EIS meetings.
4/17/2014	Pueblo of Acoma	Invitation letter from BLM to agency only and public Draft EIS meetings.
4/17/2014	Pueblo of Laguna	Invitation letter from BLM to agency only and public Draft EIS meetings.
4/17/2014	Pueblo of Tesuque	Invitation letter from BLM to agency only and public Draft EIS meetings.
4/17/2014	Pueblo of Zuni	Invitation letter from BLM to agency only and public Draft EIS meetings.
4/17/2014	Salt River Pima-Maricopa Indian Community	Invitation letter from BLM to agency only and public Draft EIS meetings.
4/17/2014	San Carlos Apache Tribe	Invitation letter from BLM to agency only and public Draft EIS meetings.
4/17/2014	The Hopi Tribe	Invitation letter from BLM to agency only and public Draft EIS meetings.
4/17/2014	The Navajo Nation	Invitation letter from BLM to agency only and public Draft EIS meetings.
4/17/2014	Tohono O'odham Nation	Invitation letter from BLM to agency only and public Draft EIS meetings.
4/17/2014	Tohono O'odham Nation	Invitation letter from BLM to agency only and public Draft EIS meetings.
4/17/2014	Tonto Apache	Invitation letter from BLM to agency only and public Draft EIS meetings.
4/17/2014	Ysleta del Sur Pueblo	Invitation letter from BLM to agency only and public Draft EIS meetings.

Date	Native American Tribe/ Tribal Organization	Description
5/5/2014	The Hopi Tribe	Letter from the Hopi Cultural Preservation Office concurring that this proposal is likely to adversely affect numerous prehistoric cultural resources significant to the Hopi Tribe but that effects cannot be determined until the alignment is determined. They have reviewed the Draft EIS/RMPA and understand that only 7% of the analysis area has been previously surveyed. They also understand that BLM is attempting to develop a PA to address cultural resource identification for the areas still to be surveyed. They request continuing consultation on the proposal and to be provided with copies of the cultural resources survey and treatment plan for review and comment.
5/13/2014	San Carlos Apache Tribe	Tribal consultation response letter to BLM indicating concurrence with Draft EIS/RMPA report findings.
6/17/2014	Tohono O'odham Nation	Also present: BLM: Mark Mackiewicz, WAPA: Mark Wieringa, Galileo Project: Ellen Carr, Maria Martin. Meeting at San Xavier with San Xavier District Tohono O'odham to provide Project update and seek comments on the Draft EIS. Meeting included a PowerPoint presentation. Handouts included maps and the May 2014 Project newsletter. Tribal representatives expressed concerns regarding erosion of access roads.
7/25/2014	Fort Sill Apache Tribe of Oklahoma	Letter to BLM requesting detailed information on the footprint of the Southline Project and the Apache and proposed Midpoint substations. A meeting with BLM to review the footprint information is also requested.
7/31/2014	Fort Sill Apache Tribe of Oklahoma	Mr. Thompson called to request a meeting with BLM and also maps of the proposed Southline Project showing the location of the Akela Flats Reservation.
8/4/2014	Fort Sill Apache Tribe of Oklahoma	Email from BLM providing maps for Cochise County and the Akela Flats Reservation.
8/7/2014	Fort Sill Apache Tribe of Oklahoma	Response from BLM to July 25 letter informing Mr. Thompson that no decision has yet been made on the Southline Project and so there are no exact routes yet determined and asking for the locations of Fort Sill Apache trust/fee lands so that BLM can provide a map of the Midpoint and Apache substations in relation to tribal land. The letter also re-invites the Fort Sill Apache Tribe to be a cooperating agency on the Southline Project (original invitation letter from 4/23/12 enclosed) and mentions that Jane Childress will be contacting Chairman Haozous to arrange a meeting.

Date	Native American Tribe/ Tribal Organization	Description
8/25/2014	Fort Sill Apache Tribe of Oklahoma	Ms. Childress contacted Mr. Haozous to follow up on the request for a meeting.
10/6/2014	Pueblo of Isleta	Meeting to provide update on Southline Project.
2/17/2015	Tohono O'odham Nation	Meeting to provide updates on Southline Project and to present the completed PA.

III. INTEREST GROUPS AND OTHER STAKEHOLDERS

Over 100 organizations and special interest groups in Arizona and New Mexico were notified and coordinated with for this Project and were placed on the Project mailing list. A list of these organizations can be found in Chapter 5 (Table 5-13) of the Final EIS (Exhibit B-1).

DRAFT EIS PUBLIC INVOLVEMENT

The BLM and WAPA each distributed press releases on April 11, 2014, and paid notices were published in newspapers of record regarding the Draft EIS. Both the press release and notices informed the public of the availability of the Draft EIS, the beginning of the 90-day comment period, and public open house/hearing dates, times, and locations. The open houses were held to provide information on the proposed Project, answer questions about the analysis in the Draft EIS, and encourage public comments on the Draft EIS. Dates and locations of the Arizona open houses/hearings were:

Table J-5. Locations of Public Open House/Hearings and Agency Meetings Held in Arizona for Draft EIS (2014)

Date	Time	City/State	Address	No. of Attendees
Public Open House/Hearings				
May 20, 2014	5:30 p.m.	Benson, Arizona	Benson Community Center 705 West Union Street	27
May 21, 2014	5:30 p.m.	Willcox, Arizona	Willcox Community Center 312 West Stewart Street	13
May 22, 2014	5:30 p.m.	Tucson, Arizona	El Rio Neighborhood Center 1390 West Speedway Boulevard	31

Date	Time	City/State	Address	No. of Attendees
Agency Meetings				
May 22, 2014	1:00 p.m.	Tucson, Arizona	El Rio Neighborhood Center 1390 West Speedway Boulevard	30

A total of 87 comment submittals (letters, emails, commenters at hearings) were provided to the BLM and WAPA during the 90-day Draft EIS comment period; within the 87 letters, there were 797 individual comments. Chapter 8 of the Final EIS includes all Draft EIS comments and agency responses to these comments in tabular format (*see* Exhibit B-1).

Table J-6. Summary of Substantive Draft EIS Comments Received by Issue

Issue Category	Comments Received	Percentage of Total
Air Quality	37	4.7%
Biological Resources	73	9.2%
Cultural Resources	36	4.5%
Hazardous Materials	0	0.0%
Intentional Destructive Acts	0	0.0%
Land Use/Military/Farm and Range	114	14.3%
Noise	1	0.1%
Public Health and Safety	6	0.8%
Recreation	1	0.1%
Socioeconomics	27	3.4%
Soils and Geology	2	0.3%
Special Designations	10	1.3%
Transportation	3	0.4%
Trails	11	1.4%
Visual Resources	62	7.8%
Water Resources	22	2.8%
Wilderness	5	0.6%

Issue Category	Comments Received	Percentage of Total
Miscellaneous	31	3.9%
NEPA/Process	333	41.9%
Requests for information–not substantive	21	2.6%
Total	**795**	100%

ROUTE VARIATION OUTREACH

In December 2014, the BLM and WAPA sent outreach letters to property owners in the vicinity east of Willcox Playa in Cochise County. The purpose of these letters was to notify the property owners of the new route variations that were added to this EIS analysis. These comments and agency responses to those outreach letters are included in Table 8-1 and were considered in the Final EIS, along with all the comments received on the Draft EIS. A total of 35 inquiries and comment submittals (letters, emails, phone calls) were submitted.

PROJECT STATUS

The Project website as well as email was used to provide information regarding Project status to agencies, stakeholders, and other interested parties. There were no direct mailings; however, a copy of the Project newsletter with flyers advertising scoping meetings was sent to libraries, community centers, city and town halls, and senior centers, as well as to the BLM State, District, and Field Offices.

In addition, a toll-free information line (800-356-0805) was provided on written Project material. The information line was maintained and updated by the BLM with deadlines, important comment dates, and publication notification information. Also included were meeting details of upcoming meetings and Project contacts.

RECORDS OF DECISION

The BLM and WAPA each issued separate decisions. The BLM issued a Record of Decision ("ROD") approving the issuance of a ROW grant for the construction, operation, maintenance, and decommission of the Project on public land administered by the BLM with all terms and conditions deemed appropriate by the BLM (see Exhibit B-3) .

The BLM ROD was issued and distributed to cooperating agencies, tribes, interested organizations, and individuals. An NOA was published in the Federal Register on May 6, 2016 and advertised in the newspapers used to advertise public meetings. The ROD was also made available to everyone who requested a copy of the Final EIS and was posted on the Project website.

WAPA issued a ROD on April 5, 2016 to announce its decision pursuant to Section 1222 of the EPAct of 2005 (*see* Exhibit B-4). The ROD described WAPA's decision on selecting the Agency Preferred Alternative as described in the Final EIS as the route for the proposed Project and described any conditions, such as mitigation commitments, that would need to be met. A subsequent ROD by WAPA will determine the nature and extent of its participation in the Project.

EXHIBIT J-3 – Relocation of Crane Lake

A portion of the CEC New Build Route east of Willcox Playa (Segment P7) will pass northwest of Crane Lake and through the AGFD-managed Willcox Playa Wildlife Area (*see* Exhibit F, Figure F-1). As described in Exhibit J-2 above (Consultation and Coordination), during the EIS process the AGFD provided mitigation requests to offset impacts to the Willcox Playa Wildlife Area. Their requested mitigation includes (1) funding the relocation of Crane Lake away from P7, (2) funding riparian emergent wetlands along Kansas Settlement Road, and (3) funding the management of non-native vegetation. This mitigation was incorporated into the Proponent committed environmental measures outlined in the Final EIS and is a condition of the BLM and WAPA RODs.

Southline and the AGFD negotiated a September 1, 2015 Memorandum of Agreement[1] under which Southline agreed to relocate the lake and make other improvements. Southline agreed to present the Work Plan included in the Memorandum of Agreement to the Siting Committee as the joint recommendation of Southline and the AGFD as conditions to the CEC requested by this Application. Southline has also agreed to address concerns by a group of Arizona wine producers that would have been impacted by Crane Lake mitigation routing adjustments. A final plan addressing these concerns is expected to be completed by the end of this year

[1] The draft Memorandum of Agreement is attached hereto as Exhibit J-3a. As agreed therein, Southline recommends the Work Plan be included as conditions to its CEC. While the parties are still negotiating the Work Plan, it will be finalized prior to the hearing on November 29, 2016, so the Siting Committee can incorporate the Work Plan as conditions to Southline's CEC.

EXHIBIT J-3a

EXHIBIT J-3a - MEMORANDUM OF AGREEMENT BETWEEN THE ARIZONA GAME AND FISH COMMISSION AND SOUTHLINE TRANSMISSION, L.L.C.

This Memorandum of Agreement (MOA) is entered into between the Arizona Game and Fish Commission ("Commission") and Southline Transmission, L.L.C. ("Southline") (collectively "Parties" and singularly "Party").

WHEREAS, the Commission is authorized to enter into this MOA pursuant A.R.S. § 17-231(B)(7);

WHEREAS, the Commission has statewide responsibility for wildlife management;

WHEREAS, the Arizona Game and Fish Department ("Department") acts under the authority of the Commission;

WHEREAS, Southline is developing the Southline Transmission Project, a proposed transmission line designed to collect and transmit electricity across southern New Mexico and southern Arizona which would enable the bidirectional use of power both west and east along its route, relieve congestion, strengthen the existing electrical system, and improve transmission access for local renewable and other energy sources;

WHEREAS, the Commission owns the Willcox Playa Wildlife Area (WPWA) as identified in Exhibit A through special warranty deed recorded December 18, 1969; Land Patent docketed as Patent No. 02-72-0039 on December 15, 1971 pursuant to the Recreation and Public Purposes ("R&PP") Act of June 14, 1926 ("R&PP Patent"), and a Right of Way Lease No. 16-26101 issued by the State Land Department July 26, 1977;

WHEREAS, Southline, proposes to install a section of the 345-kilovolt (kV) double-circuit electric transmission lines on a single set of structures ("Southline Transmission Project" or "Project") across the R&PP patented portion of the WPWA in the vicinity of Crane Lake;

WHEREAS, the Commission believes the placement of the Project will cause adverse impacts to wildlife and habitat in Arizona;

WHEREAS, mitigation measures to be implemented by Southline for federally-protected species and habitat are identified within the Bureau of Land Management and Western Area Power Administration Southline Transmission Project Final Environmental Impact Statement (FEIS) and Record of Decision (ROD);

WHEREAS, the Parties commit to implementing the plans, deliverables, activities and funding identified in the attached work plan, attached as Exhibit B to this MOA (the

"Work Plan") [1] to further enhance state trust wildlife species and habitat as compensation for identified impacts from the Southline Transmission Line Project.

NOW THEREFORE, THE PARTIES AGREE AS FOLLOWS:

I. The Commission agrees to:

A. Secure the written consent of the Secretary of the Interior or his delegate to the Commission's grant of a license to Southline to construct and maintain a portion of the Project on and across the R&PP Patent portion of the WPWA.

B. Grant to Southline, subject to all existing easements, rights-of-way, restrictions, conditions, covenants and liabilities as may appear of record, a non-exclusive Right-of-Way License, with Terms and Conditions to be set forth in a Work Plan as an exhibit to the License, and a License to construct and maintain the Project on and across the R&PP Patent portion of the WPWA for a term of not less than 50 years.

C. Authorize Southline to conduct limited vegetation management on the R&PP Patent portion of the WPWA consistent with good utility practice and all applicable Federal Energy Regulatory Commission, Western Electric Coordinating Council, and North American Electric Reliability Corporation requirements.

D. Secure any necessary special land use permits or other authorizations from the State Land Department as necessary to implement the Work Plan.

E. Work cooperatively with Southline in developing and implementing the Work Plan.

F. Coordinate any media inquiries or press statements regarding the activities contained in the Work Plan with Southline.

II. Southline agrees to:

A. Work with the Department to develop a final Work Plan. The final Work Plan shall be attached as an exhibit to the license issued by the Commission to Southline.

[1] While the parties are still negotiating the Work Plan, it will be finalized prior to the hearing on November 29, 2016.

B. Fully fund and implement the Work Plan in accordance with its terms and conditions, including the construction of a comparable replacement lake for migratory cranes, and other elements described in the attached Work Plan. Completion of construction of the replacement lake will take place prior to the decommissioning of the existing lake, and as a condition precedent to commencement of construction of transmission line facilities on the R&PP portion of the WPWA.

C. Fund projected operation and maintenance of all constructed improvements for the 50-year term of the license as set forth in the final Work Plan.

D. Comply with all Arizona laws protecting archeological, paleontological, and cultural resources as directed by the Department's Cultural Resources Compliance Manager. All reasonably and necessary costs of cultural compliance, including costs of surveying, identification and protection of cultural resources, including the Department's costs of review and oversight, shall be the responsibility of Southline as defined in the final Work Plan.

E. Seek review of all plans, specifications and on-site construction by the Department's Development Branch Engineering Section. Review shall be conducted to determine compliance with state laws, standard specifications, applicable building codes, local ordinances and federal guidelines such as the Americans with Disabilities Act. The Department's review shall not supersede or conflict with federally-mandated requirements applicable to the construction or operation of interstate transmission line facilities. With the exception of the Project facilities (including tower, conductors and any related equipment), which shall remain the property of Southline, all improvements placed or affixed upon the Special Warranty deed portion of the WPWA shall become the property of the Commission.

F. Comply with all applicable federal, state, and local environmental laws during the term of the license.

G. Obtain the prior written permission of the Arizona Commission of Agriculture and Horticulture for the removal of any plants protected by the Arizona Native Plant Law.

H. Assume liability for all injury, loss, or damage, including fire suppression, prevention and control of invasive species, releases or threatened releases of hazardous materials, pollutants or contaminants or other costs arising directly out of the construction and operation of the Project on the WPWA, during the term of the license.

I. Procure and maintain in full force and effect for the duration of the license commercial general liability, business automobile liability, and Workers' Compensation and Employers' liability insurance for the construction and operation of the Project as reasonably directed by the Arizona Department of Administration, Risk Management Division.

J. Indemnify, save and hold harmless the State of Arizona, and its departments, agencies, boards, commissions, universities, officers, officials, agents, and employees (hereinafter referred to as "Indemnitee") from and against any and all claims, actions, liabilities, damages, losses, or expenses for bodily injury or personal injury or loss or damage to tangible or intangible property of the Commission caused, or alleged to be caused directly by the negligent or willful acts or omissions of Southline or any of its owners, officers, directors, agents, employees, contractors subcontractors, heirs, successors and assigns.

K. Furnish a surety bond or other form of financial assurance in a form acceptable to the Department to ensure performance of any long-term obligation of the Southline as identified by the Department. The nature of the surety bond or other form of financial assurance will be defined in the final Work Plan.

L. The requirements described in this Section II shall be more fully described as Terms and Conditions in the Right-of-Way license issued to Southline.

III. The Parties mutually agree:

A. The License shall be binding and enforceable upon Southline and its heirs, successors, and assigns. Any change in ownership or corporate or other legal status of Southline including, but not limited to, any transfer of assets or real or personal property shall in no way alter Southline's responsibilities under the License. The laws of the State of Arizona will govern its enforcement and interpretation. Venue shall be Maricopa County, State of Arizona.

B. The Work Plan in draft or final form shall be submitted to the Bureau of Land Management as determined necessary to facilitate the Southline Transmission Project Record of Decision (ROD), and made a term and condition of BLM's Right-of-Way grant to Southline Transmission, LLC.

C. The Work Plan shall be submitted to the Arizona Line Siting Committee as the joint recommendation of the Parties as conditions to a Certificate of Environmental Compatibility to be issued by the Arizona Corporation Commission, as required. In the event the Department is required to intervene as a party to the proceedings before the Arizona Line Siting Committee, the

Department's legal costs, not to exceed the sum of $5000 shall be assumed by Southline.

D. To cooperate with each other to ensure the successful implementation of the agreed-upon responsibilities as set forth in this MOA.

E. Effective Date and Duration. This MOA is effective as of the last signature date and expires upon the date of issuance of a Right-of-Way licensee to Southline or unless mutually agreed to terminate in writing by both parties..

F. All terms of this MOA are contingent upon Southline obtaining all necessary federal, state and local permits, licenses, agreements for the construction of the Project and actually constructing the Project on the WPWA.

G. Termination for Conflict of Interest. This MOA is subject to termination pursuant to A.R.S. § 38-511.

H. Notices. All written notices concerning this MOA shall be delivered in person or sent by certified mail, return receipt requested, to the Parties as follows:

1. For the Commission:
   Joyce Francis
   5000 W Carefree Highway
   Phoenix, Arizona 85086
   jfrancis@azgfd.gov
2. For Southline :
   Enrique J. Marroquin
   1900 North Akard Street
   Dallas, TX 75201
   emarroquin@huntpower.com

IN WITNESS WHEREOF, the Parties hereto have executed this Agreement as of the date below:

SOUTHLINE TRANSMISSION, L.L.C.

_____ _____

Enrique J. Marroquin Date
Sr. Vice President, Southline Transmission, L.L.C.

ARIZONA GAME AND FISH COMMISSION

_____ _____

Larry D. Voyles
Secretary to the Commission
Director, Arizona Game and Fish Department

Date