U.S. Department of the Interior
Bureau of Land Management

Environmental Assessment

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Arizona Public Service (APS)
Komatke 69-kV to Willis Substation

File Number: AZA-36502

Lower Sonoran Field Office
21605 North 7th Avenue
Phoenix, AZ 85027
Phone: (623) 580-5500
Fax: (623) 580-5580

BLM

CONTENTS

Appendix

Figures

Tables

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Chapter 1

INTRODUCTION AND PURPOSE AND NEED

1.1 BACKGROUND

Arizona Public Service (APS) submitted a right-of-way (ROW) application (ROW case file number AZA-36502) to the Bureau of Land Management (BLM), Phoenix District, Lower Sonoran Field Office. The application requests authorization to construct, operate, and maintain the new Komatke to Willis 69,000-volt (69-kilovolt [kV]) transmission line in Maricopa County, Arizona (Figure 1-1, Project location).

This environmental assessment (EA) was prepared to analyze the potential environmental effects of the proposed transmission line and associated facilities, as described below. Portions of the proposed Komatke to Willis 69-kV transmission line would also be located on Arizona State Land Department (ASLD) trust lands and privately owned lands. In addition to the new, approximately 12-mile-long Komatke to Willis 69-kV transmission line, there are additional "connected actions" that would be required in support of the overall project, and thus are analyzed in this EA. APS would also construct a new substation adjacent to the existing Willis substation (located on private lands), construct a new switchyard within the existing Komatke switchyard (located on ASLD lands), remove 1.62 miles of the existing Rainbow Valley to Jojoba 69-kV transmission line (located on BLM lands), and upgrade 1 mile of the existing Robbins Butte Tap to Komatke 69-kV line (located on ASLD lands) (Figure 1-2, Project overview). The AZA-36502 ROW application would apply to the new Komatke to Willis 69-kV transmission line only. All of these actions taken together comprise the proposed Project, or Proposed Action, as described in detail in Chapter 2.

The proposed new Komatke to Willis 69-kV line, Willis substation, Komatke switchyard, Robbins Butte 69-kV tap rebuild, and Rainbow Valley 69-kV line removal would be conducted in support of APS's ongoing system reliability projects, as described below in Section 1.2.

A ROW grant for up to a 40-foot ROW (20 feet on each side of the centerline) for the portion of the transmission line that would cross federal lands administered by BLM has been requested for a period of 30 years. In addition, APS is requesting approximately 7.4 total acres of spur access roads on BLM land be included in the ROW grant. A temporary ROW of 80 feet (40 feet on each side of the centerline) would be required for construction. These ROW widths would apply to all lands included in the proposed project (i.e., federal, State, and private). BLM would receive ROW rental payments for those portions of the transmission line located on BLM-administered lands. In addition, grants for ROWs have been requested from the ASLD for those portions of the transmission lines that would cross State Trust land, and from private landowners for the portion of the transmission lines that would cross privately owned land.

For purposes of this analysis, the term "project area" refers collectively to the lands that would be required for the construction of a new, 12-mile-long Komatke to Willis 69-kV transmission line, the new substation adjacent to the existing Willis substation (located on private lands), the new switchyard within the existing Komatke switchyard (located on ASLD lands), the removal of 1.62 miles of the existing Rainbow Valley to Jojoba 69-kV transmission line (located on BLM lands), and the upgrade of 1 mile of the existing Robbins Butte Tap to Komatke 69-kV line (located on ASLD lands).

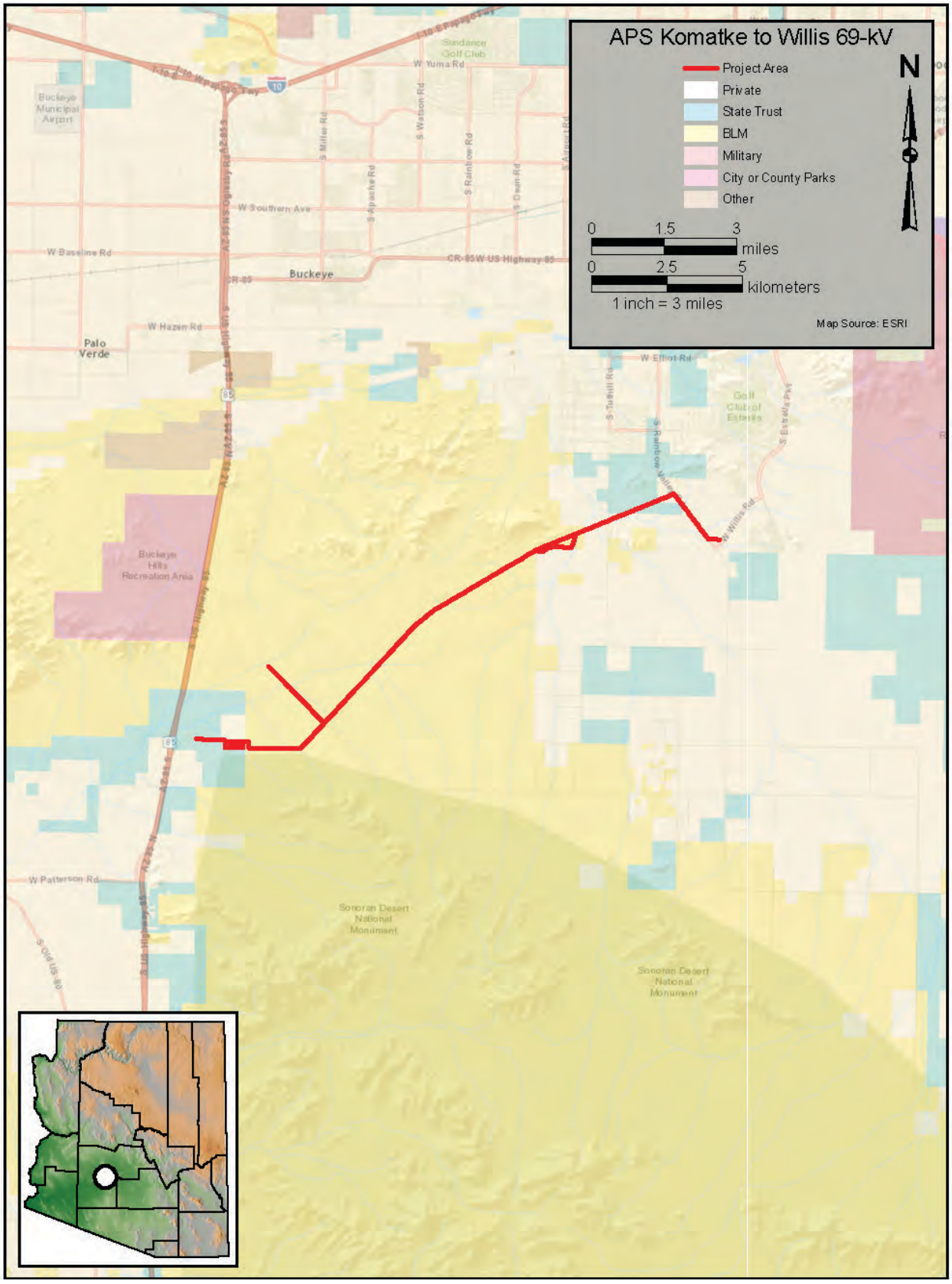

Figure 1-1. Project location.

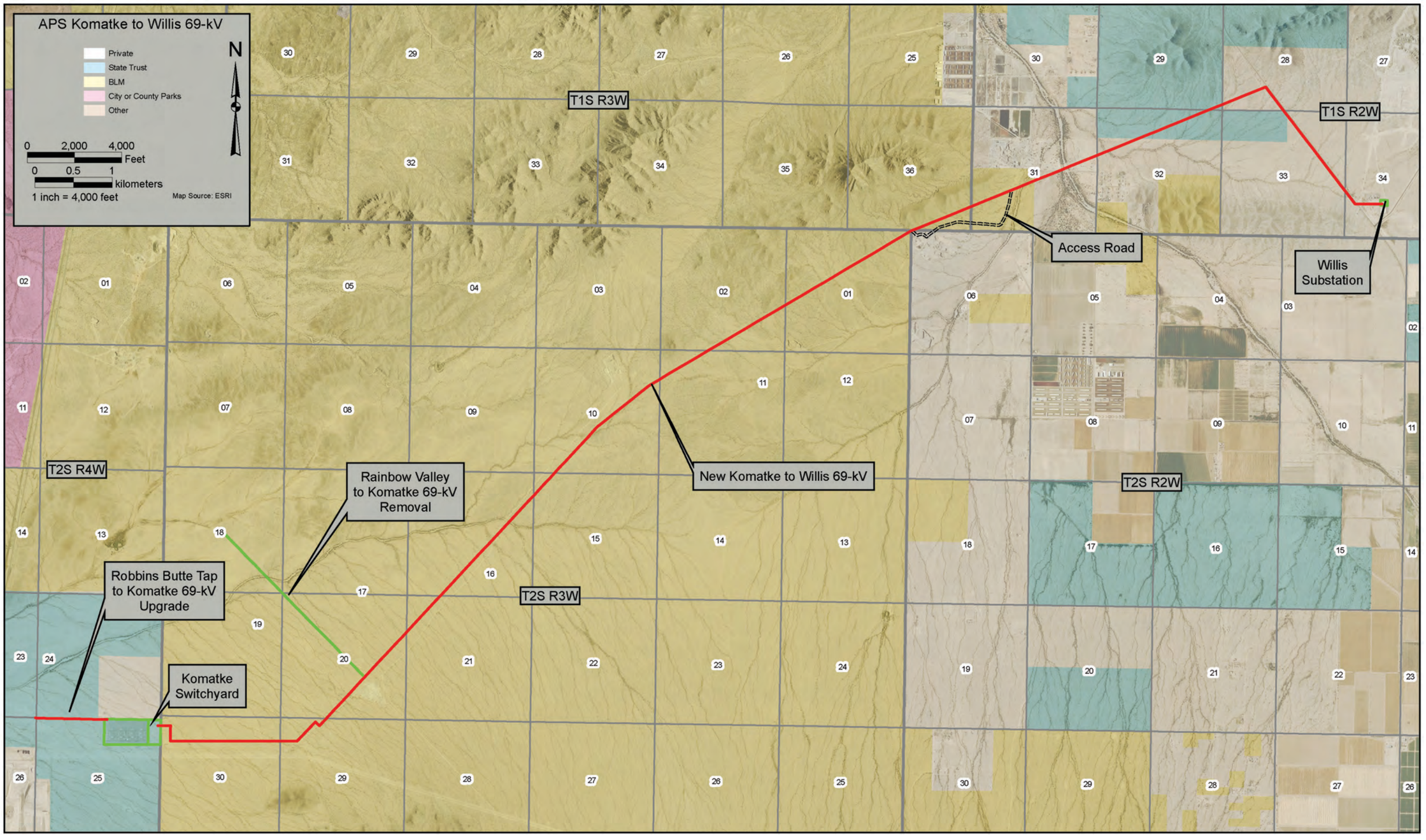

Figure 1-2. Project overview.

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1.2 PURPOSE AND NEED

1.2.1 Bureau of Land Management – Purpose and Need and Decision to be Made

The following section describes the purpose of and need for the proposed Project. In March 2014, the BLM received a ROW application from APS and must determine whether to allow the use of BLM-administered public lands for portions of the proposed project. In accordance with the Federal Land Policy and Management Act of 1976 (FLPMA) (43 United States Code [USC] 1761–1771), and the BLM's ROW regulations (43 Code of Federal Regulations [CFR] 2800), the BLM must manage public lands for multiple uses that take into account the long-term needs of future generations. The Secretary of the Interior is authorized to grant ROWs for "…roads, trails, highways, railroads, canals, tunnels, tramways, airways, livestock driveways, or other means of transportation…" Taking into account the BLM's multiple-use mandate, the need for the proposed project is established by the BLM Lower Sonoran Field Office's responsibility, under Title V of FLPMA (43 USC 1761), to respond to APS's request for a ROW on BLM-administered public land while avoiding or minimizing adverse impacts to other resource values and to locate the uses in conformance with land use plans. The BLM's purpose for the proposed project is to respond to a ROW application submitted by APS to construct, operate, and maintain a 69-kV electrical transmission line and remove 1.62 miles of the existing Rainbow Valley to Jojoba 69-kV transmission lines on public lands administered by the BLM in compliance with FLPMA, BLM ROW regulations, and other applicable federal laws and policies. As part of their purpose to respond to APS's ROW application, BLM must also consider the potential effects of the construction of the new substation, construction of the new switchyard, and the upgrade of the existing Robbins Butte Tap to Komatke 69-kV line, even though these activities are proposed on ASLD-administered and private lands. The underlying purposes for APS's application are to improve reliability of electrical delivery and provide another electrical transmission tie from the Phoenix Metro-Western area to the Buckeye area via improvements to existing facilities and the construction of a new 69-kV line.

In making its decision, the BLM must determine and consider the environmental impact on all lands crossed as a result of granting a ROW across BLM-administered public lands. The BLM must also consider other BLM land use plans in its decision to issue a ROW grant (43 CFR 1610.0-5(b)). The BLM's Lower Sonoran Resource Management Plan (RMP) provides specific Lands and Realty management actions for ROW grants (e.g., Management Actions LR-1, LR-1.2) and is discussed in more detail below in Section 1.3.1.

The BLM will decide whether to grant, grant with modifications, or deny the application. Modifications could include granting only a portion of the proposed project, modifying the proposed use, or changing the route or location of the proposed facilities if the BLM determines such terms, conditions, and stipulations are in the public interest (43 CFR 2805.10(a)(1)).

Pursuant to the National Environmental Policy Act (NEPA) (40 CFR 1502.13), this EA has been prepared to provide sufficient evidence and analysis for: 1) determining whether to prepare a more detailed environmental impact statement (EIS); or 2) issuing a Finding of No Significant Impact (FONSI). The BLM Lower Sonoran Field Office will decide whether to issue a FONSI or require additional environmental analysis. The BLM has prepared this EA to meet the disclosure requirements under NEPA, to facilitate public participation, to determine conformance with the Lower Sonoran RMP (BLM 2012), to assist the BLM decision makers in determining whether to issue a ROW grant, and to determine under what terms and conditions the ROW grant would be issued. The BLM Lower Sonoran Field Office Field Manager is the agency official who will be making the decision(s) in BLM's Decision Record.

The opportunity to appeal the BLM decision(s) in the Decision Record would be allowed as provided in 43 CFR 2801.10.

1.2.2 APS's Objectives

APS's objectives are to improve reliability of electrical delivery and provide another electrical transmission tie from the Phoenix Metro-Western area to the Buckeye area. Reliability of the electrical grid in the Phoenix Metro-Western area to the Buckeye area is affected by load growth, inadequate electrical transmission capacity, limited electrical connections in the area, and many older electrical transmission lines that are approaching the end of their useful lives.

The proposed project would improve system reliability in several ways. In particular, the project would add bulk electric infrastructure (i.e., the new Komatke to Willis 69-kV line) to the existing grid, which would build redundant systems to resolve and allow flexibility for unanticipated and scheduled grid outages, respectively. The new Willis Substation facilities, new Komatke Switchyard facilities, removal of the Rainbow Valley to Komatke 69-kV line, and upgrading of the existing Robbins Butte Tap to Komatke 69-kV line, would improve additional connections and would increase import capability for regional utilities. Upgrading the aging structures of the Robbins Butte Tap to Komatke 69-kV line with new structures would reduce the incidence of failures. The proposed project would also improve voltage limitations and reduce curtailment for local utilities.

1.3 RELATIONSHIP TO POLICIES, PLANS, AND PROGRAMS

The following section describes the project's relationship to BLM policies, plans, and programs. Where the project would cross federal lands, private, and State lands, it would be subject to applicable land use planning regulations, zoning ordinances, or other requirements enforced by the federal, State, County, or local jurisdictions. APS would need to secure necessary local permits and legal access, and ROW would also need to be obtained from private landowners where applicable.

1.3.1 Bureau of Land Management Resource Management Plan

FLPMA requires that the BLM "develop, maintain, and when appropriate, revise land use plans" (43 USC 1712). All actions approved or authorized by BLM must conform to the existing land use plan where one exists (43 CFR 1610.5-3). The proposed project would be located within the BLM Lower Sonoran Planning Area. The Lower Sonoran Planning Area is covered by the BLM Lower Sonoran RMP (BLM 2012).

The 2012 Lower Sonoran RMP identifies the project area as being within two designated 1-mile-wide, multi-use corridors: the Tucson Electric Power and Palo Verde-Kyrene corridors (BLM 2012). The RMP identifies electrical transmission as an authorized use of these multi-use corridors under Management Actions LR-1 and LR-1.2 (BLM 2012). The lands and realty goals, objectives, and management actions presented in the BLM Lower Sonoran Field Office's Lower Sonoran RMP guide the BLM to "manage lands and realty actions to effectively support public needs and resource management objectives (Management Action LR-1)." Applicable items included under LR-1 include LR-1.2, which guides the BLM to "authorize major linear land use authorizations (LUAs) in locations that utilize designated multiuse utility corridors effectively" (BLM 2012:2-72). Thus, the proposed project would conform to the management prescriptions provided in the RMP.

1.3.2 Local Jurisdictional Plans

Each of the jurisdictional plans reviewed for this EA are listed below. The proposed project would traverse land under the planning jurisdictions of Maricopa County, City of Goodyear, and City of Buckeye.

Maricopa County 2020, Eye to the Future, Comprehensive Plan, October 1997, revised August 2002 (Maricopa County 2002). The proposed project would be compatible with the Maricopa County 2020 Comprehensive Plan (Maricopa County 2002) because the plan does not specifically limit or restrict the location of transmission lines.

City of Goodyear 2025 General Plan, adopted November 2014 (City of Goodyear 2014). The existing Willis Substation is located within the planning limits of Goodyear. In addition, the proposed 69-kV line that runs adjacent to Rainbow Valley Road is also located within the planning limits of Goodyear. The proposed project would be compatible with the City of Goodyear 2025 General Plan. While the City's General Plan does not specifically identify the location of future utility corridors, it does recommend that known corridors be marked with signage to disclose their potential future use.

City of Buckeye General Plan Update, adopted January 2008 (City of Buckeye 2008). The proposed project would occur within both the City and Municipal planning limits of Buckeye. The proposed project would be compatible with the Town of Buckeye 2008 General Plan Update because the plan does not specifically limit or restrict the location of transmission lines. The plan recognizes the need for future transmission line improvements and the additional infrastructure that will be necessary to meet the energy demands of the Town (at full build-out), the region, and the Western Grid (City of Buckeye 2008).

1.4 FEDERAL AND STATE LAWS, EXECUTIVE ORDERS, REGULATIONS, AND POLICIES

The following is a summary of selected statutes, regulations, Executive Orders (EOs), and guidelines that provide the framework for analysis of resources as well as regulations that may support the need for energy generation and development of transmission infrastructure.

National Environmental Policy Act of 1969. Public Law 91-190, 42 USC 4321-4370(e), as amended. NEPA requires federal agencies to take into consideration the environmental consequences of proposed actions as well as input from state and local governments, Indian tribes, the public, and other federal agencies during their decision-making process. The Council on Environmental Quality (CEQ) was established under NEPA to ensure that all environmental, economic, and technical considerations are given appropriate consideration in this process. This EA complies with NEPA statutes and regulations and the BLM NEPA Handbook (H-1790-1) (BLM 2008).

Clean Water Act of 1977, as amended (CWA). Section 404 of this act identifies conditions under which a permit is required for construction projects that result in the discharge of dredged or fill material into waters of the U.S. (WUS).

EO 11988, Floodplain Management, May 24, 1977. EO 11988 requires avoiding or minimizing harm associated with the occupancy or modification of a floodplain.

EO 11990, Protection of Wetlands, May 24, 1977. EO 11990 requires federal agencies or federally funded projects to restrict uses of federal lands for the protection of wetlands through avoidance or minimization of adverse impacts. The order was issued to "avoid to the extent possible the long- and

short-term adverse impacts associated with the destruction or modification of wetlands and to avoid direct or indirect support of new construction in wetlands whenever there is a practicable alternative."

Fish and Wildlife Coordination Act of 1934, as amended. This act requires coordination with federal and State wildlife agencies (U.S. Fish and Wildlife Service [USFWS] and 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.

Endangered Species Act of 1973, as amended (ESA). Section 7 of the ESA requires federal agencies to consult with the 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 habitat are 1) within the geographic area, 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, essential to the conservation of the species.

The Bald and Golden Eagle Protection Act of 1940, as amended. This act prohibits anyone, without a permit issued by the Secretary of the Interior, from "taking" bald eagles, including their parts, nests, or eggs. 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 act defines "take" as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb."

Migratory Bird Treaty Act of 1918. This act prohibits anyone, unless permitted by regulations, 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."

Clean Air Act of 1963, as amended. This act requires any federal entity engaged in an activity that may result in the discharge of air pollutants to comply with all applicable air pollution control laws and regulations (federal, State, or local). This act directs the attainment and maintenance of the National Ambient Air Quality Standards (NAAQS) for six different criteria pollutants, including carbon dioxide (CO_2), ozone (O_3), particulate matter (PM), sulfur oxides, nitrogen oxides (NO_x), and lead.

EO 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, February 11, 1994. This order directs federal agencies to identify and address disproportionately high and adverse human health and environmental effects of their programs, policies, and activities on minority populations and low-income populations, as appropriate.

EO 13007, Indian Sacred Sites, 1996. EO 13007 requires that all Executive Branch agencies having responsibility for the management of federal lands will, where practicable, permitted by law, and not clearly inconsistent with essential agency functions, provide access to and ceremonial use of Indian sacred sites by Indian religious practitioners and will avoid adversely affecting the integrity of such sacred sites. The order also requires that federal agencies, when possible, maintain the confidentiality of sacred sites.

National Historic Preservation Act of 1966, as amended (NHPA). Federal undertakings must comply with Section 106 of NHPA, which mandates that potential effects on historic properties be considered prior to approval of such undertakings. Historic properties are defined as sites, districts, buildings,

structures, and objects eligible for or listed in the National Register of Historic Places (NRHP). Consideration of these resources is to be made in consultation with the State/Tribal Historic Preservation Office and other interested agencies and parties.

Native American Graves Protection and Repatriation Act (1990) (25 USC 3001-3013). This act requires protection and repatriation of Native American cultural items found on, or taken from, federal or tribal lands and requires repatriation of cultural items controlled by federal agencies or museums receiving federal funds. Should previously unidentified cultural resources, especially human remains, be encountered during construction, work will stop immediately at that location and the BLM's Lower Sonoran Field Office archaeological staff will be notified to ensure proper treatment of these resources.

EO 13212, Actions to Expedite Energy-Related Projects, May 18, 2001. This EO mandates that agencies act expediently and in a manner consistent with applicable laws to increase the "production and transmission of energy in a safe and environmentally sound manner." Furthermore, agencies are directed to expedite projects that would increase the transmission of energy and expedite their review of permits to accelerate the completion of such projects.

1.4.1 Permits Required or Potentially Required

Table 1-1 provides a list of major federal, State, and local permits and approvals that could be required for construction and operation of the proposed project. Note that this list is not exhaustive.

1.4.2 Right-of-Way Easement Acquisition Process from Non-Federal Owners

Although APS has applied for a ROW across BLM-administered public lands, this EA analyzes potential impacts on all lands potentially affected by the proposed project, including the construction of the new substation, construction of the new switchyard, and the upgrade of the existing Robbins Butte Tap to Komatke 69-kV line, even though these activities are proposed on ASLD and private lands. Fee ownership is not considered for this project. All land rights acquired would be easements or leases. Negotiations between the landowner and APS could include compensation for loss of use during and after construction, loss of nonrenewable or other resources, the restoration of unavoidable impacts, and unintended damages to property during construction. If APS would be acquiring the land rights, it would compensate the landowner based on an appraisal in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970. State statutes have been enacted that define the acquisition process on private and non-federal public lands for utilities. APS may impose stipulations in easements on private lands. Additionally, other regulatory authorities at the State and/or local level may have jurisdictions over private land and may elect to impose certain stipulations as part of their permitting approval process(es).

1.5 CONSULTATION AND COORDINATION

In recognition of the special relationship with the U.S. Government, the BLM will continue to consult with the appropriate tribal governments at an official, executive level (government-to-government), in accordance with the NHPA, EO 13175, the American Indian Religious Freedom Act, and NEPA.

The BLM is the lead federal agency for compliance with the NHPA. Section 106 of the NHPA (36 CFR 800) requires the federal agency to evaluate the potential effects of an undertaking on historic properties (cultural resources that have been determined to be eligible for or listed in the NRHP). This process may

require consultations with each Arizona's State Historic Preservation Officer (SHPO), tribes, State and local governments, and other parties that may have a concern with a project's effects on historic properties. Archaeological research (Class I) and a pedestrian survey (Class III) of the project area indicated that no archaeological sites, three historic roads, and 14 isolated occurrences (IOs) are present within the project area (SWCA Environmental Consultants 2014, 2015a), and no new potentially eligible properties were discovered, resulting in a recommendation of "no effect" on historic properties.

Consultation with the USFWS is required for compliance with Section 7 of the ESA (16 USC 1536(a)(2)), for species listed as threatened or endangered. The BLM must analyze the effects of the proposed project on the species and on their designated critical habitat, if present. A biological evaluation (BE) was prepared for this project to identify the nature and expected extent of impacts and recommend mitigation measures to reduce potential impacts (SWCA Environmental Consultants 2015b). In support of the BE, a pedestrian survey was conducted and the USFWS's Information for Planning and Conservation (IPaC) system and AGFD's Heritage Data Management System Online Review Tool were queried, resulting in a finding of no ESA-protected species or habitat present within the project area. The BLM concluded that there would be "no effect" on listed or candidate species; therefore, formal consultation under Section 7 is not required for this project.

1.6 SCOPE OF THE ANALYSIS

The following section describes the geographic and temporal bounds of the analysis in the following document, including a description of connections, if any.

1.6.1 Geographic Scope

The geographic scope of the analysis area is generally the 80-foot-wide temporary construction ROW, which encompasses the permanent, 40-foot-wide ROW APS requested under its original ROW application. The geographic scope of the analysis area is tied to the construction ROW rather than the permanent ROW to account for surface disturbance and potential resource impacts that may result from construction activities. However, the geographic scope may vary by resource. Each resource section provided in Chapter 3 provides a description of the geographic scope relevant to the analysis of that resource, if different from the 80-foot temporary construction ROW. At a minimum, the analysis area for the proposed project is a corridor along the proposed alignment that is a minimum of 40 feet wide.

1.6.2 Temporal Scope

The temporal scope of this analysis addresses both the short- and long-term effects of the proposed project, including the No Action Alternative. Short-term effects, like those associated with construction, would occur within a 5-year time frame from the beginning of the proposed project. Operation, maintenance, decommissioning, and abandonment effects are analyzed in the long term, which for transmission projects of this type is considered to be 30 years, coinciding with the life of the ROW grant (the ROW grant may or may not be renewed at the end of the 30-year term).

Table 1-1. List of Potentially Required Federal and State Permits and Approvals

Regulatory Authority/Agency	Permit/Approval	Project Trigger	Relevant Law/Regulation
Federal			
BLM	ROW grant	Request for ROW across BLM lands	43 USC 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, FLPMA
BLM *In consultation with Arizona SHPO, Advisory Council on Historic Preservation, tribes, other federal, State, and local agencies and consulting parties*	Compliance with Section 106 of the NHPA	Potential to disturb historic properties	NHPA (16 USC 470); 36 CFR 800
U.S. Army Corps of Engineers	Jurisdictional WUS investigation	Impacts to jurisdictional WUS	CWA, 33 USC 1251, *et seq.*
BLM	Compliance with Section 7 of the ESA	Potential impact to threatened or endangered species	ESA, 16 USC 1531–1544
State of Arizona			
ASLD	ROW/right-of-entry permit	Survey, construction, operation of a transmission line on State lands	Arizona Revised Statutes (ARS) 37-461
Arizona SHPO	Compliance with Section 106 of the NHPA	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
Arizona Department of Environmental Quality	Arizona Pollutant Discharge Elimination System	Stormwater management from potential discharges greater than 5 acres	ARS 49-255.01
AGFD	Heritage Data Management System Online Review Tool	Potential for impacts to wildlife and/or wildlife habitat impacts	ARS Title 17, Game and Fish
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 article 11 (R-3-110–R3-3-111 and Appendix A)
Local and County			
Maricopa County	Earth-moving permit; grading permit	Surface disturbance, earth moving	Planning Development Department, County Code
Maricopa County Air Quality Department	Dust control plan	Fugitive dust emissions	Rule 310

1.7 SCOPING AND PUBLIC INVOLVEMENT

As required under NEPA, the BLM conducted scoping during the EA preparation, to encourage public participation and solicit agency and public comments on the scope and significance of the proposed action (40 CFR 1501.7). The public was informed about the formal application for the project and public scoping period by an informational letter mailed to stakeholders and posted to the BLM website. This initiated the NEPA process for the proposed project and began a 30-day public scoping period, during which the public had the opportunity to provide input on potential issues to be addressed in the EA.

1.7.1 Public Scoping

The BLM has conducted internal, agency, and public scoping to solicit input and to identify the environmental concerns and issues associated with the proposed project. Internal public scoping was performed by the BLM on February 12, 2015. The BLM prepared scoping information materials and provided copies to federal, State, and local agencies; Native American tribes; and members of the general public on March 31, 2015. The scoping period lasted from March 31, 2015, to May 4, 2015. A Dear Interested Party letter was sent to 81 recipients. The scoping information materials provided opportunities for comments to be submitted through U.S. Postal Service mail and via email.

The purpose of the public participation (scoping) process is to provide an opportunity for members of the public to learn about the proposed project and to share any concerns or comments they may have. The scoping process helps identify any issues that are not considered major and that can therefore be eliminated from detailed analysis in the EA. The list of stakeholders and other interested parties is also updated and expanded if necessary during the scoping process.

A 30-day scoping comment period was provided to submit written comments related to the proposed project's potential for environmental issues. Members of the public were afforded opportunities to comment during the scoping period, including being given comment forms, a telephone number, and an email address. A total of three individuals and organizations had commented at the close of the scoping period.

1.7.2 Public Involvement

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 EA, updates to the Lower Sonoran Field Office website were made by the BLM to inform these groups of the process, project activities, and availability of the EA.

1.7.3 Tribal Consultation

Michael Rice, BLM Project Manager for this project, attended the Four Southern Tribes Cultural Working Group meeting on March 20, 2015, and presented a verbal update on the status of this project to tribal representatives. On April 1, 2015, notification letters were also sent to five Native American tribes—Gila River Indian Community, Hopi Tribe, Salt River Pima-Maricopa Indian Community, Tohono O'odham Nation, and Ak-Chin Indian Community. The letters provided information on the nature of the project and the need for an EA, as well as an invitation to schedule a meeting if desired, provide comments, or request any additional information.

The Gila River Indian Community, Ak-Chin Indian Community, and Hopi Tribe responded requesting copies of all cultural resource reports prepared for the project, consultation on any draft historic property treatment plans, and a copy of the EA when available. A copy of the draft cultural survey report was sent via email from BLM to the cultural staff at the Hopi Tribe, the Tohono O'odham Nation, and the Gila River Indian Community. A second letter was sent to Salt River Pima-Maricopa Indian Community and Ak-Chin Indian Community on July 2, 2015, in order to initiate consultation with two tribes who had not responded to the letter sent in April.

1.8 ISSUES TO BE ANALYZED

As a result of the scoping process, a number of issues to be analyzed were identified and served as the basis for the development of project alternatives. Table 1-2 provides a summary of the issues identified during the scoping process, as well as where the issues have been addressed in the EA. Issues for each resource are discussed in detail in Chapter 3, "Affected Environment," and in Chapter 4, "Environmental Consequences."

Table 1-2. Summary of Issues Identified during Scoping

Issues	Where Addressed in EA
• Project description	Chapter 2
• Alternatives	Chapter 2
• Air Resources and Climate Change	Chapter 3 Section 3.2 Chapter 4 Section 4.2
• Biological Resources (including vegetation, noxious weeds, and wildlife)	Chapter 3 Section 3.3 Chapter 4 Section 3.4
• Cultural and Heritage Resources	Chapter 3 Section 3.4 Chapter 4 Section 4.4
• Tribal Concerns	Chapter 3 Section 3.5 Chapter 4 Section 4.5
• Rangeland Resources	Chapter 3 Section 3.6 Chapter 4 Section 4.6
• Geology and Minerals	Chapter 3 Section 3.7 Chapter 4 Section 4.7
• Human Health and Safety	Chapter 3 Section 3.8 Chapter 4 Section 4.8
• Hazardous Materials	Chapter 3 Section 3.9 Chapter 4 Section 4.9
• Noise	Chapter 3 Section 3.10 Chapter 4 Section 4.10
• Land Use and Realty	Chapter 3 Section 3.11 Chapter 4 Section 4.11
• Socioeconomics and Environmental Justice	Chapter 3 Section 3.12 Chapter 4 Section 4.12
• Soils	Chapter 3 Section 3.13 Chapter 4 Section 4.13
• Travel Management	Chapter 3 Section 3.14 Chapter 4 Section 4.14
• Visual Resources	Chapter 3 Section 3.15 Chapter 4 Section 4.15
• Water Resources	Chapter 3 Section 3.16 Chapter 4 Section 4.16
• Cumulative Effects	Chapter 4 Section 4.17

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Chapter 2

PROPOSED ACTION AND ALTERNATIVES

2.1 INTRODUCTION

This chapter provides a description of the proposed project and includes information on alternatives evaluated within this EA, including the Proposed Action and No Action Alternative.

2.2 BACKGROUND

As described in Chapter 1, APS is proposing to construct an approximately 12-mile-long Komatke to Willis 69-kV transmission line (Komatke to Willis 69-kV). In addition to the new Komatke to Willis 69-kV, the proposed project also includes construction of a new substation adjacent to the existing Willis substation (located on private lands), construction of a new switchyard within the existing Komatke switchyard (located on ASLD lands), removal of 1.62 miles of the existing Rainbow Valley to Komatke 69-kV transmission line (located on BLM lands), and an upgrade to 1 mile of the existing Robbins Butte Tap to Komatke 69-kV line (located on ASLD lands) (refer to Figure 1-2). The Proposed Action is described in detail in Section 2.4 below.

The BLM is required to consider and analyze a range of alternatives that are considered "reasonable," usually defined as alternatives that are realistic (not speculative), technologically and economically feasible, and that respond to the purpose of and need for the project (BLM NEPA Handbook H-1790-1, 6.6.3 [BLM 2008]). This EA analyzes in detail the proposed project (Proposed Action) and the No Action Alternative. Three alternatives to the Proposed Action were eliminated from detailed analysis and are discussed below in Section 2.5.1.

The preliminary construction drawings show the location of each pole structure and equipment (Appendix A).

2.3 PROPOSED ACTION

As stated in Chapter 1, Section 1.2, the BLM's purpose and need is to respond to APS's request for a ROW grant for access across public lands. The proposed action includes a permanent, 40-foot ROW corridor and temporary, 80-foot construction ROW for the new 69-kV lines; new construction for connection to the existing Willis Substation, new construction for connection to the existing Komatke Switchyard, a 20-foot temporary ROW corridor on BLM-administered lands for the removal portion of the proposed action, and a permanent 35-foot ROW corridor for the upgrade 69-kV lines on ASLD lands. In addition, APS is requesting approximately 7.4 total acres of spur access roads on BLM land be included in the ROW grant. The ROW request for the project on federal lands would be for a period of 30 years. The proposed substation and switchyard would be located on private and ASLD lands, respectively. The construction and operation of the project would provide a source of electrical power to the Buckeye area in Maricopa County, Arizona. Elements included under the Proposed Action are described in detail below.

2.3.1 Komatke to Willis 69-kV Transmission Line

Under the Proposed Action, APS proposes to construct, operate, and maintain a 12-mile-long, 69-kV transmission line in a permanent 40-foot-wide ROW (20 feet on each side of the proposed centerline of the proposed transmission line). The proposed Komatke-Willis 69-kV would parallel the existing Salt River Project (SRP) Jojoba to Kyrene 500-kV transmission line for the majority of the 12 miles. Where the Komatke to Willis 69-kV would be located on BLM lands, the line would be wholly within the BLM's Palo-Verde to Kyrene multi-use utility corridor, as identified in the Lower Sonoran RMP (BLM 2012).

From the Willis substation (the new Willis substation is described further below), the Komatke to Willis 69-kV would exit on the western side of the substation, crossing Rainbow Valley Road, and then would turn northwest and parallel Rainbow Valley Road on the western side for approximately 1 mile, all upon privately owned lands. The route would then turn southwest at the existing SRP Jojoba to Kyrene 500-kV transmission line, paralleling the southern side of the SRP line. The Proposed Action would be located approximately 60 feet south of the existing SRP ROW. There is an existing access road associated with the SRP Jojoba to Kyrene 500-kV line, which would provide access to the proposed spur access road (described further below). The route would continue for approximately 2 miles, crossing Tuthill Road. The route would then continue in a southwesterly direction, paralleling the existing SRP Jojoba to Kyrene 500-kV line for approximately 7 miles before turning to the west at the existing SRP Palo Verde to Pinal West 500-kV line, and would cross beneath the existing SRP Jojoba to Kyrene 500-kV line, paralleling the north side of the existing SRP Jojoba to Kyrene 500-kV line to connect into the proposed Komatke switchyard (which would be adjacent to the existing Jojoba substation). Figures 2-1 through 2-5 illustrate the Proposed Action. See Table 2-1 for a detail of surface ownership

Table 2-1. Komatke to Willis 69-kV Transmission Line Land Ownership

Jurisdiction	Miles Crossed	Acres of 40-foot ROW
BLM	8.75	39.12
ASLD	0.85	3.66
Private	2.40	12.31
Total	**12**	**55.08**

The proposed Komatke to Willis 69-kV would be designed for double circuits and one static/fiber-optic wire. Single-pole (monopole), galvanized steel structures are proposed under the Proposed Action.

The 69-kV circuit would be installed for a proposed 2015 in-service date. The Proposed Action's Komatke to Willis 69-kV would be economically practical and feasible, with an overall cost estimate of $11 million (includes project construction and ROW/easement acquisition costs).

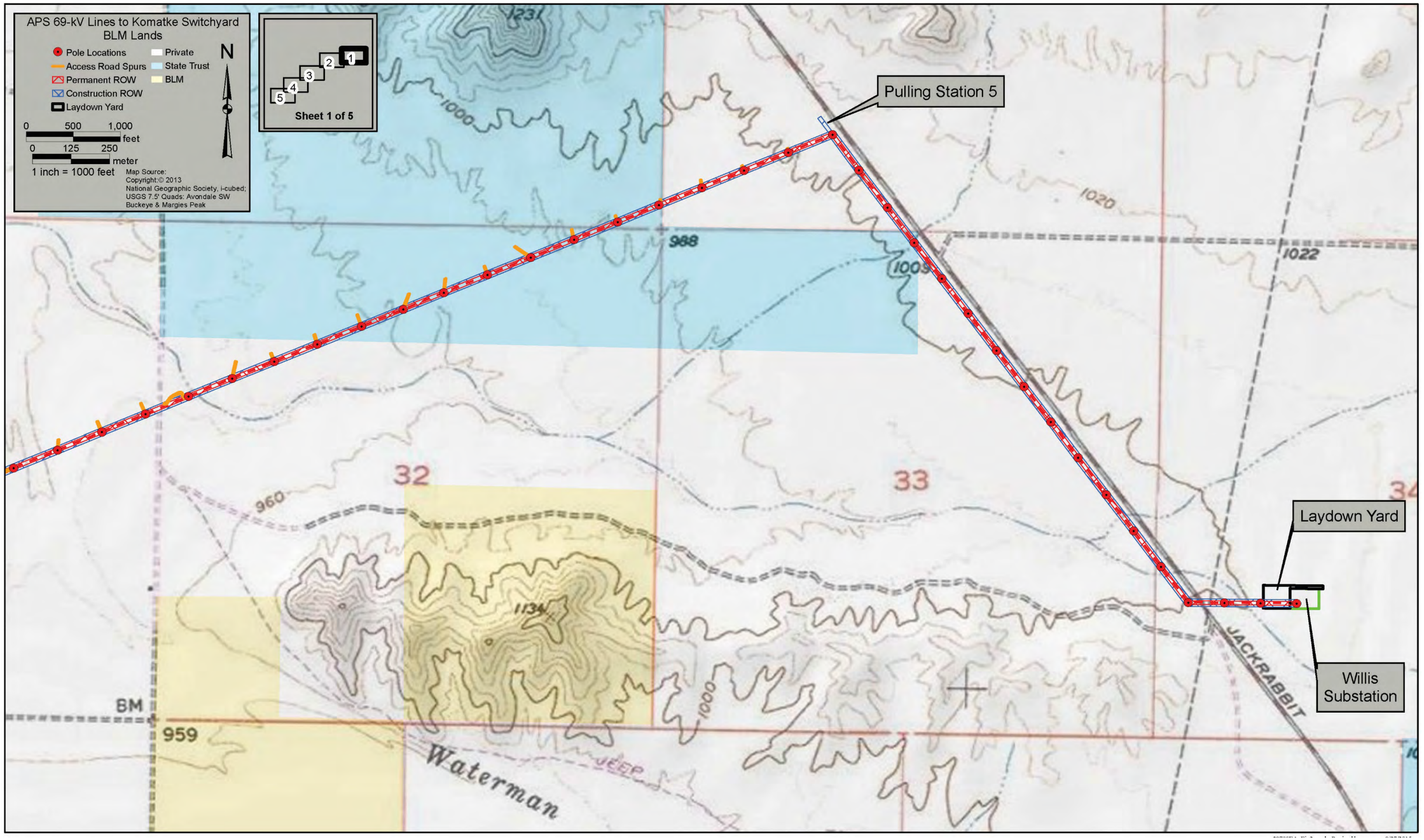

Figure 2-1. Project area (sheet 1 of 5).

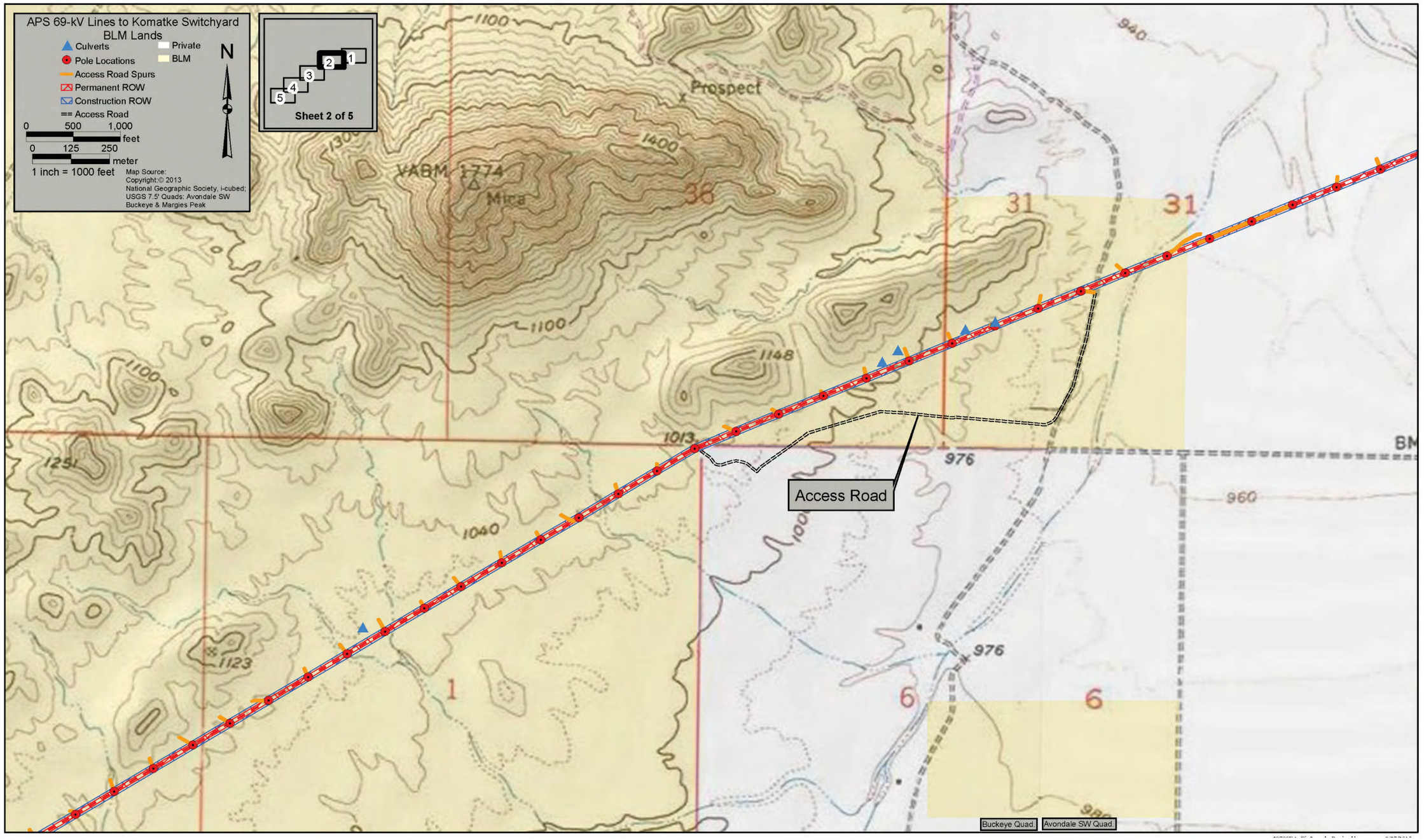

Figure 2-2. Project area (sheet 2 of 5).

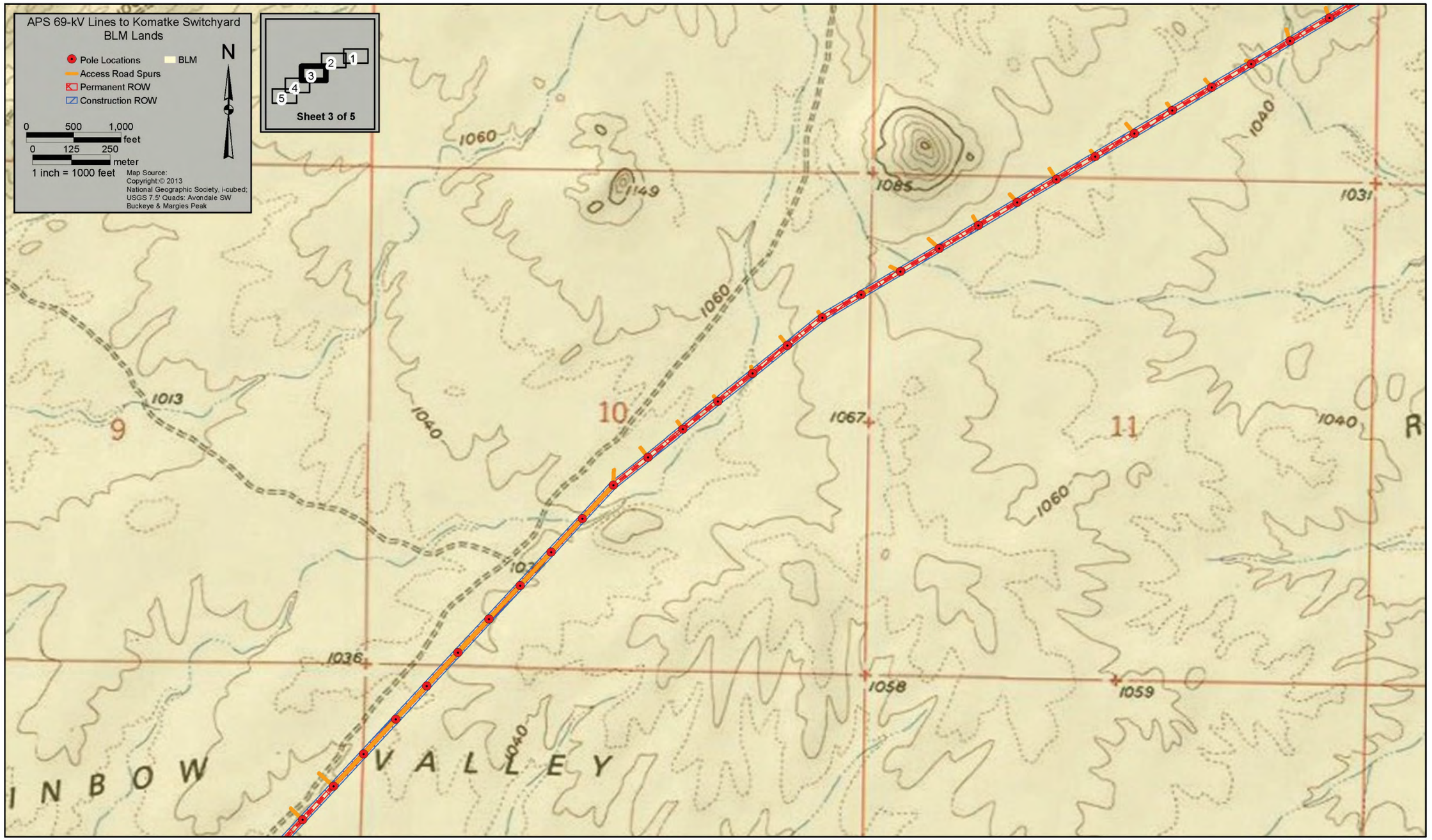

Figure 2-3. Project area (sheet 3 of 5).

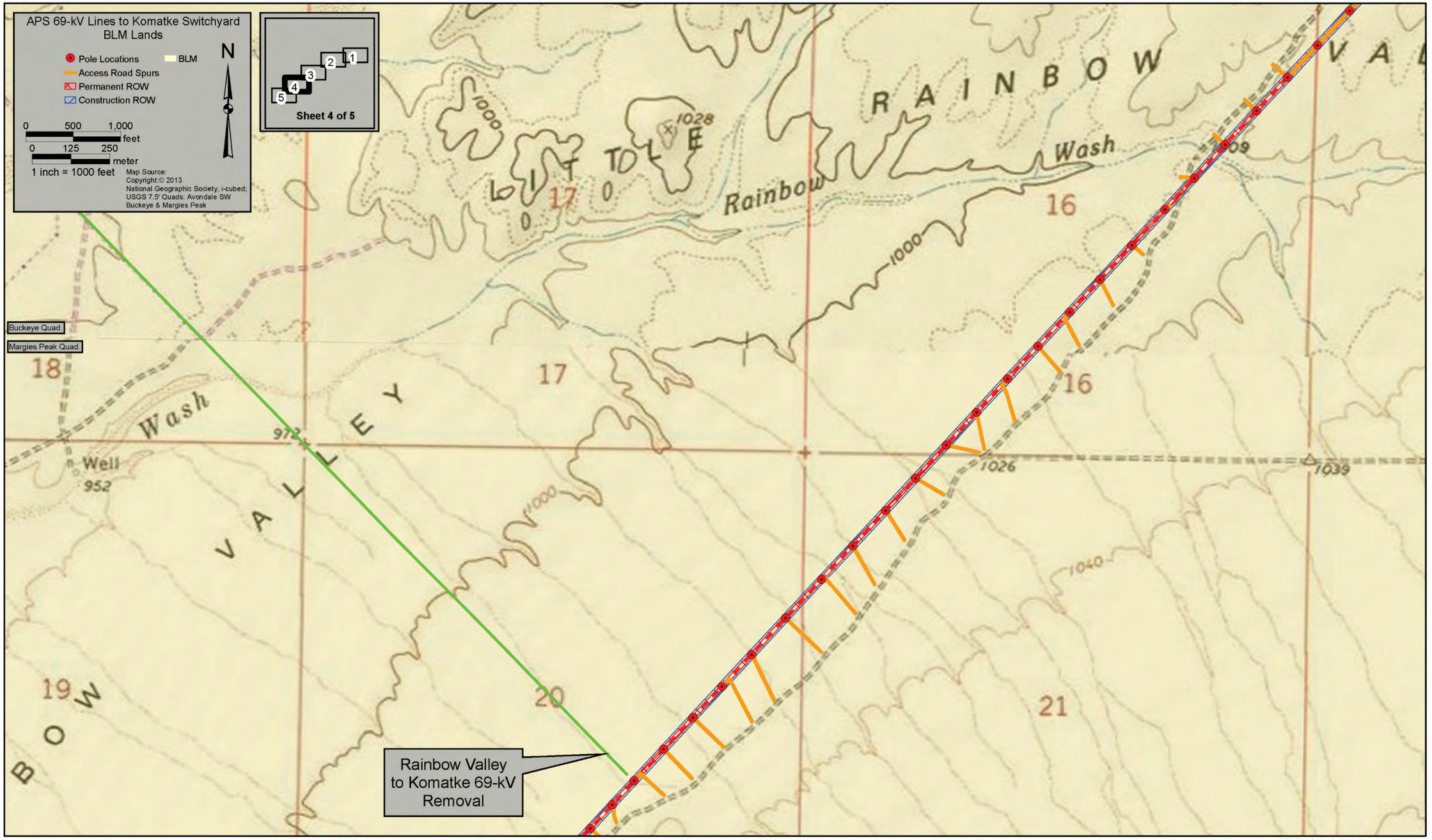

Figure 2-4. Project area (sheet 4 of 5).

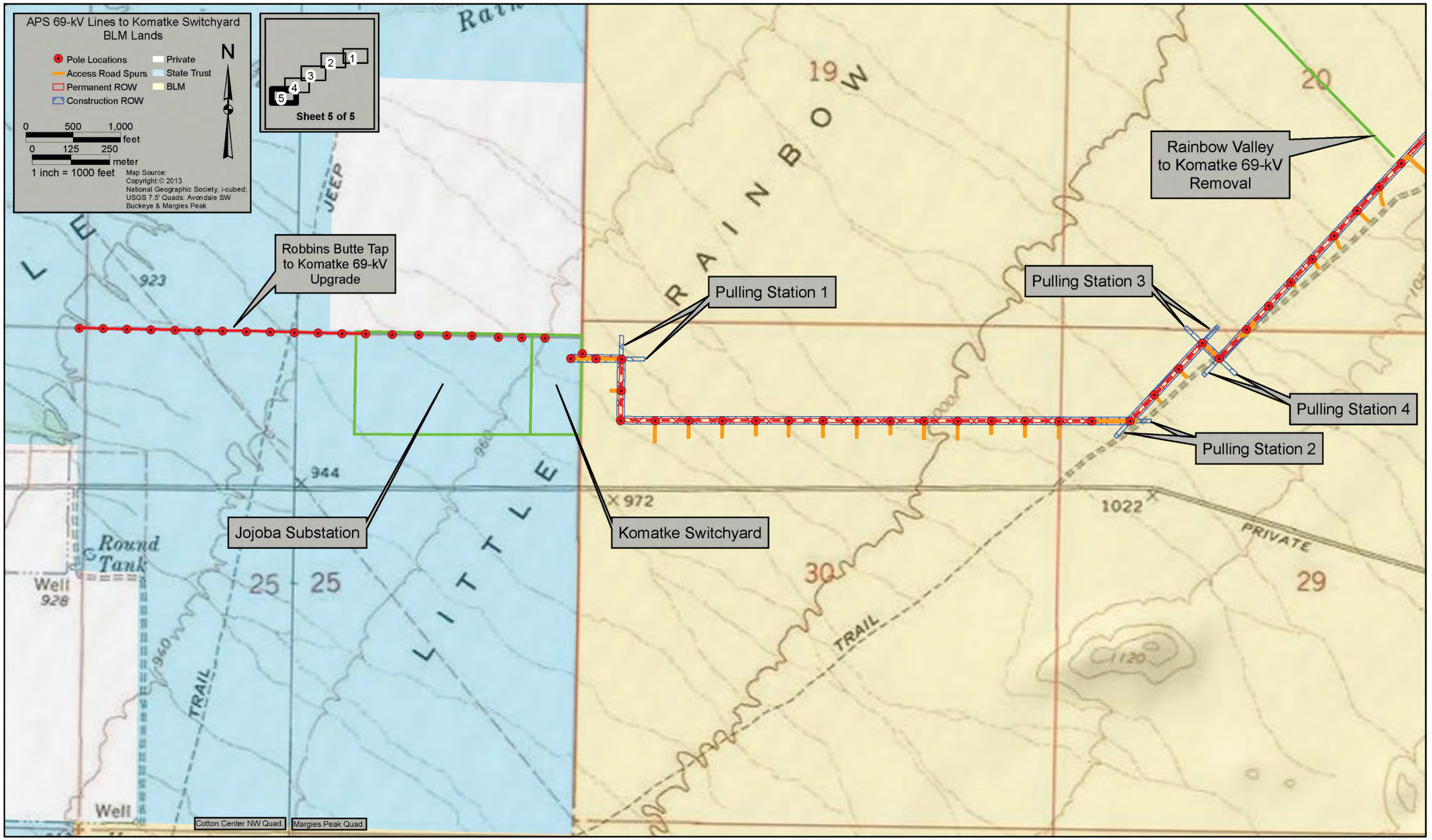

Figure 2-5. Project area (sheet 5 of 5).

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2.3.2 Proposed Facilities and Infrastructure

APS would ensure that the design, construction, operation, maintenance, and decommissioning of the transmission line would meet or exceed the requirements of the National Electrical Safety Code (NESC), U.S. Department of Labor, Occupational Safety and Health Standards, and APS requirements for safety and protection of landowners and their property. The design characteristics for the transmission line are summarized in Table 2-2 below and are discussed in detail along with construction methods in the following sections. Final design characteristics would be determined in the detailed design phase of the project.

Table 2-2. Typical Design Characteristics

Facility or Infrastructure Feature	Details
Line length	Approximately12 miles
Type of structure	Single-pole galvanized steel
Structure height	75–90 feet
Span length	Approximately 300–700 feet
Number of structures per mile	8–10 using 75-foot poles (63.5 feet out of ground)
Right-of-way width	Temporary Construction: 80 feet Permanent: 40 feet
Land disturbed (approximate):	
Temporary (including wire pulling, splicing sites)	An all-terrain vehicle would be used for wire pulling along the permanent ROW. Nine wire-pulling sites would require 40-foot by 225-foot pulling sites at certain angle poles on BLM lands (one wire-pulling site would be required on private lands); 1.86 acre total. At each pole site, a work area of approximately 6,400 square feet (less than 0.25 acre) within the ROW would be required; (approximately 151 sites = 22 acres)
Permanent (Structure)	Approximately 2 square feet at each tangent pole (approximately 151 sites = approximately 0.007 acres), and 3–5 feet at angle poles (approximately 4 sites = 0.0005 acres).
Access roads	See description below
Voltage	69,000
Circuit configuration	Single- and double-circuit 69-kV
Conductor size	R795X cable (1.03-inch)
Ground clearance of conductor	33.5 feet minimum
Pole foundation depth	11.5–27 feet

TRANSMISSION LINE SUPPORT STRUCTURES

The typical structures would vary in height from 75 to 90 feet tall, depending on the type of structure used, based on engineering considerations and site conditions. Dead-end or turning structure heights may be lower or higher depending on design constraints, but would remain less than 90 feet. The typical span length between monopole structures would generally vary between 300 and 700 feet, according to terrain conditions, and to achieve site-specific objectives.

The structures would be dulled galvanized steel or self-weathering steel; dulled structures would be finished using manufacturing techniques that would aim to approximate a gray color (i.e., “Shadow Gray”

as portrayed in the BLM color chart or similar color) approved by the BLM, to reduce visibility of the structures in the landscape. Paint or other finishes applied after manufacturing would not be used.

Structure selection and individual structure placement would be determined in the detailed design phase of the project to minimize potential impacts of the facility. The height of and spacing between each structure would be determined based on detailed engineering and be dependent on the type of structure used and the terrain. Transmission line structures would comply with Federal Aviation Administration (FAA) guidelines to minimize aircraft hazards (FAA 2007).

The typical structure foundation for monopoles would be 5 feet or less in diameter and approximately 11 to 27 feet deep. An area around each structure would be graded, as required, to provide a level pad for structure construction. The typical pad area would be approximately 20 square feet, excluding cut-and-fill slopes. Actual foundation size and depth may vary depending on soil, terrain, design, or other limitations.

Table 2-3 provides data on the single-pole galvanized steel poles that are being proposed under the Proposed Action's Komatke to Willis 69-kV.

Table 2-3. Komatke to Willis 69-kV Pole Data

Quantity	Pole	Description	Hole Diameter	Hole Depth
129	75H3 – Single Circuit	75-foot H3 steel (63.5 feet out of ground)	30 inches	11.5 feet
19	75H3 – Double Circuit	75-foot H3 steel (63.5 feet out of ground)	30 inches	11.5 feet
2	DCA90 – Double Circuit	90-foot DCA steel (63 feet out of ground)	5 feet	27 feet
1	DCA90 – Single Circuit	90-foot DCA steel (63 feet out of ground)	5 feet	27 feet
Total: 151				

TRANSMISSION LINE HARDWARE

Conductors would have a low-reflective (non-specular), dulled finish to reduce visibility of the transmission line in the landscape. The minimum height of the 69-kV conductor above the ground would be 33 feet 6 inches.

The Proposed Action's Komatke to Willis 69-kV would include a static/fiber-optic wire at the top of the structures that would serve the dual purpose of a static wire. Static wires would have a low-reflective (non-specular), dulled finish to reduce visibility. A static wire is a grounded wire at the very top of the structures intended to protect lower conductors from lightning, and is sometimes called a shield wire. These lines would provide data transfer for operation of the lines and substation equipment. The fiber-optic cables would be used solely by APS or other partners in the project. They would not be made available for any other commercial use. No special equipment or repeaters would be required for this project.

The fiber-optic cable requires splice points approximately every 2 to 4 miles along the transmission line route. At splice points, the fiber-optic cable would be terminated at the top of the structure and routed down the structure to a splice box approximately 15 feet above ground level.

ACCESS ROADS

The project would use existing access roads wherever practical, thus keeping new construction to the minimum practical. However, new access spur roads would be built where no existing access roads exist. Short spur roads would be constructed from existing access roads to structure sites, as required (see Figures 2-1 through 2-5). Transmission line construction would require the movement of trucks, large vehicles, and construction equipment along the ROW. Unpaved access roads would be used for construction, operation, maintenance, and decommissioning activities on the transmission line. Overland construction methods would be used when existing access is not available but would be limited to the permanent ROW. Graveling dirt access roads is not anticipated or proposed, although drainage crossings would likely use gravel and/or rock material at these locations. Existing access roads (e.g., access roads associated with the SRP Jojoba to Kyrene 500-kV line) would be used for construction, to the extent practicable, where they provide adequate access to the line. If required by the underlying landowner or if APS finds it to be warranted, access roads could be gated to prevent access by unauthorized personnel. Gates would only be installed after APS obtained any appropriate authorizations/permits/ROWs from the BLM, ASLD, or private landowners, as needed.

Multiple permanent access roads that would branch off the access road used for the existing SRP Jojoba to Kyrene 500-kV line (12 feet wide and averaging 75 feet long) would provide construction access (as shown in Figures 2-1 through 2-5). These access spur roads would be placed to avoid impacts to natural or cultural resources. Future authorized access, level of use, and the specific location would be in consultation and approval with the underlying landowner. Actual length of spur roads is dependent on terrain, engineering, and other conditions and may exceed 75 feet in some instances. Each spur road would lead to a construction pad for a support structure. Approximately 7.4 acres of spur access roads on BLM lands are included in the ROW grant request. The 7.4 acres of access roads are differentiated threefold according to their physical location (as illustrated in Figures 2-1 through 2-5): 1) located outside the ROW corridor; 2) located within the 80-foot ROW; and 3) located within the permanent 40-foot ROW. All 7.4 acres of access roads are included as part of the 30-year ROW grant request.

A standard crossing/ford on an ephemeral stream would be installed at drainages and wash crossings. The crossings may require grading to decrease bank angle, but the wash would not be graded or dredged. Depending on the condition of other existing roads that would be used for access, road improvements may be required. APS would minimize vegetation disturbance outside of the transmission line ROW, particularly in drainage channels and along stream banks, and would reseed native areas disturbed by construction outside of the transmission line ROW after construction has been completed.

Access road construction and improvement would include dust-control measures (e.g., watering roads) as required. All existing roads would be left in a condition at least equal to their condition prior to the construction of the transmission line. The exact location of all access roads would be further refined and specified once the project is approved, the final route selected, and engineering is finalized. This detailed information would be thoroughly described in the Implementation Plan of Development (POD) that would be finalized once the NEPA process is completed. A preliminary estimate of the location and extent of potential access roads to reach the ROW are provided and discussed in Table 2-4.

Table 2-4. Komatke to Willis 69-kV Transmission Line Access Roads (acres)

Access Road	BLM	ASLD	Private	Total
Access Roads Outside ROW Corridor	3.34	0.19	0.22	3.75
Access Roads Within 80-foot (Construction) ROW	0.59	0.05	0.07	0.71
Access Roads Within 40-foot ROW	3.49	0.18	0.52	4.18
Total	**7.42**	**0.42**	**0.81**	**8.64**

All roads would be constructed in accordance with the Travel Management prescriptions of the Lower Sonoran RMP and APS requirements for transmission line access roads based upon a Road Specification Plan that would be developed by APS specifically for this project and in compliance with local jurisdictional regulations. Construction access roads would be repaired, as necessary, but would not be routinely graded.

TEMPORARY LAYDOWN YARD AND TEMPORARY WORK AREAS

Adjacent to the existing Willis substation (outside the existing block wall that currently encloses Willis substation), a 1.79-acre temporary laydown yard would be needed to place materials and equipment used for construction. Laydown areas provide storage areas for the transmission line construction materials. The temporary laydown yard would be fenced with temporary 7-foot chain-link panels, with one access point. The access point will be gated, and the gate closed and locked when not in use. This temporary laydown yard would not impede existing or future access to adjacent properties.

At each proposed pole location along the Proposed Action's Komatke to Willis 69-kV, in order to facilitate the safe operation of equipment (such as construction cranes or line trucks), an approximately 80 × 80–foot temporary work area would be included. The area required for the location and safe operation of cranes and line construction equipment would be approximately 80 feet wide within the 80-foot construction ROW. At each pole site, this work area of approximately 6,400 square feet (less than 0.15 acre) within the ROW would be required for the location of structures, assembly, and positioning of the structures. Approximately every 2 to 3 miles, tensioning or pulling sites would be required and would remain within the 80-foot construction ROW. It is estimated that up to three of these tensioning or pulling sites could be situated on public lands within the ROW.

Eight temporary work areas ("Pulling Stations") for tensioning or pulling would be expanded beyond the 80-foot construction ROW on BLM-administered lands; one would be required on privately-owned lands. At specific locations where the Komatke to Willis 69-kV would make sharp turns, 40-foot × 225-foot pulling sites would be located at the corner poles for line-pulling activities (refer to Figures 2-1 and 2-5). The expanded construction ROW pulling sites would allow for the additional equipment required to pull the wiring at an angle at these locations. The total acreage of the nine pulling sites (8 on BLM-administered lands and one on private lands) is 1.86 acres and is included in the overall construction ROW acreages.

Construction

The following section generally describes the activities that are anticipated to occur before and during project construction.

OVERVIEW

Construction is anticipated to begin as soon as authorizations are granted, but is planned to begin no later than January 2016, and continue for approximately 1 year. Where the Komatke to Willis 69-kV would make sharp turns, 40-foot × 225-foot pulling sites outside the 80-foot construction ROW would be required for line-pulling activities. These areas would be located in previously disturbed areas where feasible. All construction activities would be conducted in a manner that would minimize disturbance to vegetation and desert washes.

Following preconstruction activities (described below), construction activities would include digging holes, assembling and erecting structures, wire stringing, cleanup, and site reclamation. Temporary

laydown construction yards would be located within the existing Willis substation at the eastern end of the project area, and within the existing Jojoba substation at the west end of the project area. For public protection during wire installation, guard structures would be erected over Rainbow Valley Road and Tuthill Road.

CONSTRUCTION REQUIREMENTS

Schedule

Upon obtaining all permits and ROW approvals, APS would commence construction activities. The schedule for construction of all elements included under the Proposed Action (i.e., the construction of the Komatke to Willis 69-kV, substation and switchyard, removal of the Rainbow Valley to Komatke 69-kV line, and upgrade to the Robbins Butte Tap to Komatke 69-kV line) would span approximately 12 months, although some of the phases would overlap. Table 2-5 below outlines the construction phase and anticipated duration.

Table 2-5. Construction Schedule

Phase	Duration
Access road construction	2 months
Foundation construction	4 months
Transmission line installation	4 months
Reclamation	2 months*

* Some items of reclamation, such as the establishment of vegetation from seeds, would exceed the duration listed, and some of the phases would overlap with each other.

Equipment and Workforce

The number of workers and type of equipment expected to be used to construct the transmission line are shown in Table 2-6. This information is typical construction practice for APS and is not project-specific at this point in the project.

Table 2-6. Typical Workforce and Equipment Required for New Komatke to Willis 69-kV Line

Activity	Number of Workers	Equipment Required
Access road blading	2 people	Equipment: 1 backhoe
Hole digging	2 people	Equipment:1 hole digger and 1 pickup truck
Pole haul	2 people	Equipment: 1 pole haul truck
Structure erection	4 people	Equipment: 1 line truck, 1 pickup truck and 1 crane (for larger self-supporting angle poles)
Conductoring	1 or 2 crews of 12 people (if enough crew members are available, 2 crews would work from each end simultaneously)	Equipment: 1 drum puller, 1 splicing truck, 1 double-wheeled tensioner, 1 wire reel trailer, 1 line truck, 1 sagging equipment, and 2 pickup trucks (double with 2 crews)
Clean-up	4 people	Equipment: 2 pickup trucks
Rehabilitation	2 people	Equipment: 1 pickup truck
Total approximate number of personnel required	**33–45 people**	

Construction Utilities

No new electric power distribution, temporary water, sewer, or communications would be required for construction of any of the elements included under the Proposed Action. Temporary construction power would be provided by portable on-site generators. Sewer would be provided by temporary portable facilities. Communications would be provided by existing cellular telephone providers and through existing 800-megahertz (MHz) radio communication facilities.

During construction, water would be necessary for transmission line structure foundations, dust control, grading and site work, and landscaping, where required. The water would be provided through available local and APS-approved sources. The water would be conveyed via water truck on a continuous basis in areas of construction and at least three to four times daily in non-active construction zones for dust-control purposes.

The temporary laydown yard adjacent to the existing Willis substation would require electric power distribution, water, sewer, and communications. The power would be available from the Willis substation, and water would be trucked in. The existing temporary portable facilities for sewer and sanitation as well as communications at the existing Willis substation would be used for the temporary laydown yard.

Dust Control

Dust-control measures would be utilized as necessary during construction in sensitive areas. Water from off-site, APS-approved sources may be used as needed to provide water for dust control. Water application by truck would be the primary means of dust control at areas impacted by construction and near sensitive receptors, and would typically require an average of 48,000 gallons of water per day during construction activities, although the actual amounts of water used on any given day would vary, potentially greatly, over the project construction period in response to the activities being performed. Areas of higher erosion or poor soils, outside of desert tortoise habitat, may require application of a palliative dust-reducing agent. Any application of palliatives or other dust-reducing agents other than water (potential options could include calcium chloride, dust oils, bentonite, etc.) must first be approved by the BLM. Speed limits on designated access roads would be set and strictly enforced. Gravel or other similar material would be used where dirt access roads intersect paved roadways to prevent mud and dirt track-out. All paved roads would be kept clean of objectionable amounts of mud, dirt, or debris, as necessary.

Stormwater/Wastewater and Erosion Control

A Stormwater Pollution Prevention Plan (SWPPP), including spill prevention, would be prepared for construction of the Proposed Action in compliance with the Arizona Pollutant Discharge Elimination System (AZPDES) requirements. In accordance with the best management practices in the SWPPP, totally enclosed containment would be provided for all hazardous materials (if needed) and trash. All construction waste including trash, litter, garbage, other solid waste, petroleum products, and other potentially hazardous materials would be removed to a disposal facility authorized to accept such materials.

In general, construction erosion control would consist of Best Management Practices (BMPs), including techniques such as hay bales, silt fences, and revegetation, to minimize or prevent soils exposed during construction from becoming sediment carried off the site.

Wastewater would be generated during construction from concrete loads emptied from trucks and washing of exteriors of construction equipment and vehicles to remove accumulated dirt (which, if required, would be performed in approved locations off-site). Wastewater from concrete truck wash-down

and cleaning of construction equipment would be managed such that there would be no discharge off-site or discharge to surface waters.

Rangeland/Livestock Fence Crossings

The new Komatke to Willis 69-kV would cross two BLM livestock grazing allotments managed by the Lower Sonoran Field Office: the Beloat and Arnold allotments. Subsequently, there would be existing livestock fencing that would be crossed, and in some cases, fence cuts would be required to facilitate the access spur roads, construction vehicles, and equipment. All fence cuts would be conducted in coordination with the Lower Sonoran Field Office rangeland specialist and as approved by the Lower Sonoran Field Office Field Manager. Preliminary engineering designs indicate that approximately 25 locations along the Arnold allotment fencing would require cutting to facilitate the location, construction, and operation of the access spur roads. Permanent gates (4-strand, wildlife-friendly, barbed-wire gate) would be installed at each access spur road to facilitate access during operation and maintenance of the Komatke to Willis 69-kV. These gates may or may not require locks; the BLM rangeland specialist would work with the allotment permittee during final design to identify where locks may be required.

PRECONSTRUCTION ACTIVITIES

Survey and Marking the Right-of-Way

New land ROWs would be required from the BLM, ASLD, and private landowners for the transmission line to be obtained in the name of APS. BLM receives ROW rental payments for those portions of the transmission line located on federal lands. In addition, grants for ROWs have been requested from the ASLD for the portion of the distribution line that would cross State Trust land, and from private landowners for the portion of the transmission line that would cross privately owned land.

Land surveying on public and private lands would occur across the entire project area in advance of construction. These surveys would mark authorized boundaries for all project components including the transmission line ROW boundaries, angle points, individual transmission structures, guard structures and splice sites, access roads, etc.

Prior to any construction activities, the ROW and access roads would be flagged or staked to indicate approved activity areas, to minimize impacts to surrounding areas. Preconstruction surveys (biological, cultural, etc.) would be used to identify areas to avoid during construction. Colored plastic ribbon (flagging) would be used to distinguish between areas that can be used and areas to be avoided. Flagging would provide a ground reference for construction crews, equipment operators, environmental monitors, and inspectors to use to make decisions in the field. No paint or permanent markings would be used on rocks or plants to indicate the ROW. Construction fencing would also be used to indicate areas to avoid. Flagging, fencing, and other markings would be maintained until final cleanup and/or reclamation is completed, after which they would be removed.

Preliminary engineering plans and construction surveying were completed in 2014 (see Appendix A). The centerline and pole locations would be flagged and staked in accordance with these plans.

Clearing and Grading

Trees and small shrubs within the proposed ROW may be cleared or trimmed. The clearing of some natural vegetation may be required; however, selective clearing would be performed only when necessary to provide for surveying, electrical clearance, line reliability, and construction and maintenance operations. In construction areas where recontouring is not required, vegetation would be left in place

wherever possible to avoid excessive root damage and allow for resprouting. Pruning or removal of mature vegetation under or near the conductors would be done as needed to provide adequate electrical clearance as required by the NESC and North American Electric Reliability Corporation (NERC) standards. For more information on vegetation management, refer to the "Operation and Maintenance" section below.

All activities would be conducted in accordance with the Arizona Native Plant Law. APS would comply with the notice and salvage requirements of the Arizona Native Plant Law and shall, to the extent feasible, minimize the destruction of native plants during project construction. Nursery locations for salvaged plants would be identified after the plant salvage process begins and prior to construction. After line construction, all disturbed areas not needed for normal transmission line maintenance would be graded to blend, as near as possible, with the natural contours, and revegetated where required.

CULVERT INSTALLATION

To facilitate the movement of trucks required for the Komatke to Willis 69-kV construction, up to five wash crossings would require the installation of a culvert and fill material, as shown in Figure 3-2. The culvert would be between 6 and 18 inches in diameter, depending upon the flow capacity of the wash being crossed. The culverts would only be used during construction; upon completion of construction activities, the culvert and fill material would be removed at each wash crossing, and the area re-graded and recontoured to pre-construction conditions.

TRANSMISSION LINE CONSTRUCTION

Construct Structure Foundations

Excavations for poles would be made with power equipment. Area of disturbance associated with each pole would be less than 20 square feet, and varies with each pole type as shown in Table 2-3 (hole diameter). Where the soil permits, a vehicle-mounted power auger or backhoe would be used. In rocky areas, the foundation holes may be excavated by drilling and blasting, or special rock anchors may be installed. Blasting would require drilling holes in the area to be excavated. Conventional or plastic explosives would be used, as approved by BLM. Safeguards such as blasting mats may be used as necessary to protect adjacent property. Construction holes left open overnight would be covered to prevent livestock or wildlife from damage.

After the hole is augured, poles would be set, backfilled, and tamped using existing spoils. Remaining spoils material would be spread on the ground. The concrete backfill would be finished no more than 6 inches above natural ground with a slight slope away from the poles and does not require additional disturbance area.

Erect Support Structures

Poles and associated hardware would be transported from the temporary laydown yard to each structure site by truck. Structure assembly and mounting of associated line hardware takes place at each site, within the 80-foot construction ROW. The assembled structure is then raised and placed in the pre-dug holes. Safety measures such as barriers, flagmen, or other traffic control are used as needed during construction.

String Conductors

Following structure assembly, a pilot line would be pulled from structure to structure (or strung) by a vehicle and threaded through the stringing sheaves at each tower. Then a larger-diameter, stronger line

(the pulling line) is attached to the pilot line and strung. This process is repeated until the ground wire or conductor is pulled through all sheaves. The ground wire and conductor are strung using power pulling equipment at one end and power braking or tensioning equipment at the other end.

The proposed hardware and conductor would limit the audible noise, radio interference (RI), and television interference (TVI), due to corona. Tension would be maintained on all insulator assemblies to assure positive contact between insulators, thereby avoiding sparking. Caution would be exercised during construction to avoid scratching or nicking the conductor surface, which may provide points for corona to occur.

Where the Komatke to Wills 69-kV would make sharp turns, 40-foot × 225-foot pulling areas outside the 80-foot ROW would be required for line-pulling activities. These areas would be located in previously disturbed areas where feasible.

SAFETY REQUIRMENTS DURING CONSTRUCTION

APS is committed to safety for its workers and contractors and thus has established policies, procedures, practices, and rules to manage safety, work practices, and conditions to reduce injuries and illnesses. APS implements safety practices for employees and contractors through its *Accident Prevention Manual and Safe Working Rules* (APS 2013). The manual is routinely updated and provides safety requirements, instructions, and guidelines for various work situations and practices that APS employees and APS contractors are likely to encounter, including field practices pertaining to the proposed fiber-optic installation, access roads, and related project features. During construction, safety measures would include the use of risk management, fire protection measures, emergency response procedures, barriers, flagmen, or other traffic control as necessary.

CLEANUP AND SITE RECLAMATION

Cleanup

Construction sites, material storage yards, and access roads would be kept in an orderly condition throughout the construction period. Refuse and trash, including stakes and flagging, would be removed from the sites and disposed of in an approved manner. No construction equipment oil or fuel would be drained on the ground. Oils or chemicals would be hauled to an approved site for disposal. No open burning of construction trash would be conducted as part of this project.

Soil Stabilization

Following construction and cleanup, reclamation of disturbed areas would be completed. Graded or disturbed surfaces would be restored to the original contour of the land surface and scarifying would be conducted in compacted areas to promote vegetation regrowth. Seeding would be used where appropriate to reestablish soil stability.

Revegetation

Appropriate site-specific seed mixes for revegetation would be used where conditions vary. Salvaged native plants would be used for revegetation, if appropriate, along with seeding using BLM-recommended and approved seed mixes. Preferably, seed would be planted during the months from November to January following construction activities. Seed would be planted as directed by the BLM. Specific details for revegetation activities would be described in the approved POD prepared for this project.

TEMPORARY DISTURBANCE ESTIMATES

The estimated acreage of temporary disturbance required for construction of the Proposed Action is detailed in Table 2-7 below. Temporary disturbance areas would only be used during the project construction phase and the areas would be immediately reclaimed following termination of their use. Where there would be overlap of temporary and permanent disturbance, the areas of disturbance are included in the permanent disturbance acreages presented in Table 2-8 (presented farther below in this section). Potential impacts associated with temporary disturbance are discussed in Chapter 4 of this EA.

Table 2-7. Komatke to Willis 69-kV Temporary Disturbance Estimates (acres)

Activity	BLM	ASLD	Private	Total
Construction ROW (80-foot temporary ROW grant)	81.08	7.45	25.08	**113.60**
Pulling Stations (included in temporary ROW grant)	1.65	0	0.21	**1.86**
Temporary Laydown Yard (included in temporary ROW grant)	0	0	1.79	**1.79**

Operation and Maintenance

The APS mission is to provide their customers with a reliable supply of electricity while maintaining the overall integrity of the regional electrical grid. Additionally, APS must comply with industry standard codes and practices such as the NESC (American National Standards Institute [ANSI] C2) (ANSI 2012), which governs the design and operation of high-voltage electric utility systems, while also complying with the BLM's Lower Sonoran RMP.

Operation and maintenance activities would include transmission line inspections, climbing inspections of support structures, support-structure maintenance, wire maintenance, insulator inspections as needed, access road maintenance and repairs, signage, vegetation management, emergency response and fire protection, and termination and restoration. APS would keep necessary work areas around all structures clear of vegetation and would limit the height of vegetation along the ROW. All operation and maintenance activities would be conducted in a manner that would minimize disturbance to vegetation and desert washes. The following sections provide details on the anticipated operation and maintenance activities.

RIGHT-OF-WAY SAFETY REQUIREMENTS

Land uses that comply with local regulations would be permitted adjacent to and within the project ROW (e.g., livestock grazing, dispersed recreation). Compatible uses of the ROW on public lands (e.g., off-highway vehicle [OHV] use, etc.) would continue once construction is complete, as allowed by the BLM Lower Sonoran RMP.

Licenses or permits would be obtained as required by local laws and regulations when users cross State Trust lands or other entities' facilities or land rights.

TRANSMISSION LINE INSPECTIONS AND MAINTENANCE

Ground maintenance patrols would review the line periodically in accordance with APS's established policies and procedures for transmission line inspection and maintenance. All ground maintenance patrols would be conducted by certified APS staff. The transmission lines would be inspected for corrosion, equipment misalignment, loose fittings, vandalism, and other mechanical problems. The need for vegetation management also would be determined during inspection patrols.

Routine maintenance would include replacing damaged insulators as needed and tightening nuts and bolts, as well as vegetation maintenance (described below). Typical maintenance vehicles include standard pickup trucks, medium-sized bucket trucks (two-axle, six tires), and very large bucket trucks (three-axle, 10 tires). Maintenance visits are anticipated to occur twice per year with a standard pickup truck, and twice per year with a medium-sized bucket truck.

Emergency maintenance would involve prompt response by repair crews to repair or replace damaged equipment. When emergency repair work is required, every attempt would be made to contact the landowner (e.g., BLM Lower Sonoran Field Office, ASLD, or private landowners) and notify them of the work. In the event notification is not successful, repair operations would proceed. Contact efforts to the landowner would continue during and following any emergency repairs until contact has been made. Although restoration of the line would have priority under emergency conditions, all efforts would be made to protect the environment and other resources. Restoration and reclamation procedures following completion of repair work would be similar to those used during construction.

Storm damage repair can require the same types of equipment used during construction, including power augers for hole boring, backhoes for excavation, and/or concrete trucks and cranes for structure erection. Other required equipment may include power tensioners, pullers, wire trailers, crawler tractors, and trucks and pickups for hauling materials, tools, and work crews. Site and access road disturbance such as ruts created during storm damage operations would be restored to original condition following rehabilitation procedures.

PERMANENT ACCESS ROADS ALONG THE ROW

APS, in coordination with SRP, would maintain approved access roads adjacent to transmission structures and along the ROW for vehicle and equipment access necessary for operations, maintenance, and repair. Permanent ROW access roads would be allowed to naturally revegetate (e.g., grasses and forbs), but would be maintained, as needed, by APS to ensure safe and usable conditions. A regular maintenance program may include but is not limited to grading, ditching, culvert installation, and surfacing.

VEGETATION MANGEMENT

For public safety and service reliability, APS is required to control vegetation growing in proximity to high-voltage transmission lines in conformance with NESC and NERC guidelines. APS has in place a Transmission Vegetation Management Program with the primary objective of improving the reliability of the transmission system by minimizing risks of vegetation-caused power outages to the greatest extent permissible. It is APS's goal to accomplish the work in compliance with all applicable regulations, including ANSI A300 (Part-1)-2001 Pruning, industry safety standards, and using science-based BMPs.

Vegetation maintenance would include vehicle access to and within the distribution line corridor and the pruning and removal of vegetation. Vegetation would be pruned and removed by hand tools (chain saws, hand saws, rope) to cut branches and trunks of vegetation and then lop and scatter the limbs and logs

within the corridor, or vegetation would be removed by mechanical methods using a mower to cut and masticate vegetation. During operation of the distribution line, the ROW would be maintained free of construction-related non-biodegradable debris.

PERMANENT DISTURBANCE FOR ACCESS ROADS AND AROUND STRUCTURES

Shrubs, trees, large cactus, and other obstructions would be regularly removed near transmission line structures to facilitate inspection and maintenance of equipment and to ensure system reliability. All woody vegetation, including shrubs and trees, would be cut down and treated with herbicides underneath each structure for a 20-square-foot area at each pole location. The estimated acreage of permanent disturbance required for construction of the Proposed Action's Komatke to Willis 69-kV is detailed in Table 2-8 below. Permanent disturbance areas would only be used during the project operation and maintenance phase. Where there would be overlap of temporary and permanent disturbance, the areas of disturbance are included in the permanent disturbance acreages presented in Table 2-8. Potential impacts associated with temporary and permanent disturbance are discussed in Chapter 4 of this EA.

Table 2-8. Komatke to Willis 69-kV Permanent Disturbance Estimates (acres)

Activity	BLM	ASLD	Private	Total
Permanent Disturbance Around Structures*	0.05	0.005	0.01	**0.076**
Access Roads†	7.42	0.42	0.81	**8.64**

* Note: The permanent disturbance acreages for disturbance around structures assume a 20-square-foot permanent disturbance for each pole.

† Note: Access roads disturbance acreages apply to APS's proposed access spur roads only; disturbance acreages for the existing access road (e.g., SRP 500-kV line) are not included.

EMERGENCY RESPONSE AND FIRE PROTECTION

Emergency response and fire protection protocol would be contained in the approved POD.

All on-site employees for both construction and operations would receive annual fire prevention and response training by a professional fire safety training firm. The appropriate fire departments would be asked to participate in this training. Employees would be prohibited from smoking outside of company vehicles during dry summer months. The details of the POD would be provided as final engineering and design is completed.

Termination, Decommissioning, and Reclamation

REMOVAL OF CONDUCTOR AND STRUCTURES

First, the conductors, insulators, and hardware would be dismantled from the transmission line structures and removed from the ROW. The decommissioning activity most noticeable to the general public would be the removal of the transmission poles and towers. The disassembly and removal of this equipment would essentially be the same as its installation, but in reverse order.

OBLITERATION OF STRUCTURE FOUNDATIONS

Once the structures have been removed, the foundations would be removed to below ground surface. The concrete and steel within the deeper transmission pole foundations would be broken up and removed to a depth of 36 inches below grade (industry standard). Fully removing the transmission pole foundations

would require major excavation/disturbance at each tower site, as well as additional truck haul-away traffic. These factors could contribute to an unnecessary negative environmental impact to native plants and wildlife, increase soil compaction, as well as contribute to a potential reduction in air quality resulting from additional dust and truck emissions. The foundation sections below 36 inches, that are proposed to remain, are composed of non-leaching/natural elements (concrete, rock, and steel) that should not present a hazard to the environment. All concrete and steel debris from foundation demolition would be removed from the site and be disposed of at an approved landfill facility. Voids left by the removed concrete foundations would be filled with native material and restored to original grade.

RECLAMATION OF ROADS

When the project is decommissioned, the landowner would have the choice as to which project access roads are to be removed. If any roads are left, maintenance of the roads would become the responsibility of the landowner. Once all the necessary equipment and materials have been removed from an area and the road to that area is no longer needed, it can be removed. The road surface and any bed materials (i.e., gravel or rock for drainage crossings) would be removed down to its original grade if any cut-and-fill activities were required in originally constructing the road. Any materials native to the site would be scattered across the site, and foreign materials would be removed. Removed roads would be regraded to original contours if cuts and fills make such regrading practical.

STABILIZATION AND REVEGETATION OF DISTURBED AREAS

The area around transmission line towers and abandoned access roads would be reclaimed according to BLM stipulations in the ROW grant and the final POD. Where facilities or materials are removed, the land would be regraded back to preconstruction contours or as close as possible. Reclamation practices would incorporate soil stabilization measures to prevent erosion and sedimentation and revegetation as described above.

2.3.3 Willis Substation

Proposed Facilities

The new Willis substation construction would be located immediately adjacent to the existing Willis substation. The new substation included under the Proposed Action would be a wholly separate operation from the existing substation, constructed to accommodate the new Willis to Komatke 69-kV; however, if the new substation is constructed next to the existing substation, both would together be known as the Willis substation.

The proposed Willis substation new construction would be developed per APS standards within 1.47 acres of private lands, located in the SW ¼ of Section 34, Township 1 South, Range 2 West, Gila and Salt River Baseline and Meridian, immediately adjacent to the existing APS-owned and -operated Willis substation (see Figure 3-1). A 69-kV transformer would be installed within the substation to accommodate the four 69-kV circuits. Other facilities include a 69-kV transformer, a metering station, concrete slabs, various support columns, insulators, and distribution bays. All permanent aboveground substation facilities would be constructed with galvanized steel. The 1.47 acres has previously been bladed, graveled, and enclosed by a 12-foot-high concrete block fence and no vegetation is present within the area proposed for the new Willis substation.

2.3.4 Komatke Switchyard

Proposed Facilities

Similar to the Willis Substation described above in Section 2.3.2, the new Komatke switchyard construction would be located immediately adjacent to the existing Jojoba substation. The new switchyard included under the Proposed Action would be a wholly separate operation from the existing Jojoba substation, constructed to accommodate the new Willis to Komatke 69-kV.

The proposed Komatke Switchyard would be developed per APS standards within 12.59 acres of ASLD lands, currently granted under permit number 14-106487, located in NE ¼ of Section 25, Township 2 South, Range 4 West, Gila and Salt River Baseline and Meridian, adjacent to the existing Jojoba substation (see Figure 3-5). A 69-kV transformer would be installed within the switchyard to accommodate the four 69-kV circuits. Other facilities include a 69-kV transformer, a metering station, concrete slabs, various support columns, insulators, and distribution bays. The Proposed Action's Komatke switchyard construction would be integrated into the existing operations of the current Komatke switchyard and Jojoba substation. All permanent aboveground switchyard facilities would be constructed with galvanized steel. The 12.59 acres has previously been bladed, graveled, and enclosed by a 12-foot-high chain-link fence, and no vegetation is present within the area proposed for the new Komatke switchyard.

2.3.5 Rainbow Valley to Komatke 69-kV Removal

In addition to the 12 miles of new 69-kV lines and 1 mile of rebuilt 69-kV lines described below, the Proposed Action includes the removal of 1.62 miles of 69-kV lines located northwest of the new Komatke to Willis 69-kV. The existing line would be rerouted as an additional 69-kV circuit to the new Komatke to Willis 69-kV, continuing in a southwesterly direction 2 miles to the new Komatke 69-kV switchyard (see Figure 3-4). The removal of 1.62 miles of Rainbow Valley to Komatke 69-kV lines would all be located on BLM lands.

Nineteen poles would be removed from the current location within Sections 18 and 20, Township 2 South, Range 3 West, Gila and Salt River Baseline and Meridian (see Figure 3-4). Pole access would use the existing 20-foot-wide ROW, and all equipment used to remove the existing line would remain within said ROW. Reclamation of the removed line would follow the same procedures described in Section 2.3.1.4. Table 2-9 provides the estimated personnel and equipment that would be required to remove the 1.62 miles of 69-kV lines.

Table 2-9. Typical Workforce and Equipment Required for Rainbow Valley to Komatke 69-kV Line Removal

Activity	Number of Workers	Equipment Required
Pole/conductor removal	4–6 people	Equipment: 1 line truck and 1 backhoe and 1 pickup truck with power wheel (reel in existing line)
Total approximate number of personnel required	4–6 people	

Removal of Conductor, Structures, and Obliteration of Foundations

First, using trucks equipped with an extender arm and worker bucket, the conductors, insulators, and hardware would be dismantled from the transmission line structures and removed from the 20-foot ROW. All activity would remain within the 20-foot ROW; no activity is planned outside of the 20-foot ROW.

The structure is cut approximately 36 inches below grade and lowered using a truck-mounted crane. Safety measures such as barriers, flagmen, or other traffic control are used as needed during removal of the structures. Structure disassembly and unmounting of associated line hardware takes place at each site, within the 20-foot construction ROW. The removed poles and associated hardware would be transported from the 20-foot ROW to the temporary laydown yard by truck via the existing SRP 500-kV access road.

Once the structures have been removed from the 1.62-mile-long alignment, the foundations would be removed to below ground surface. The concrete and steel within the deeper transmission pole foundations would be broken up and removed to a depth of 36 inches below grade (industry standard). Fully removing the transmission pole foundations would require major excavation/disturbance at each tower site, as well as additional truck haul-away traffic. The foundation sections below 36 inches, that are proposed to remain, are composed of non-leaching/natural elements (concrete, rock, and steel) that should not present a hazard to the environment. All concrete and steel debris from foundation demolition would be removed from the site and be disposed of at an approved landfill facility. Voids left by the removed concrete foundations would be filled with native material and restored to original grade.

2.3.6 Robbins Butte Tap to Komatke 69-kV Upgrade

Approximately 1 mile of 69-kV double-circuit lines would be rebuilt from the proposed new Komatke switchyard west to the existing Patterson to Robbins Butte 69-kV line. The 1 mile of rebuilt 69-kV line would all be located on ASLD lands. Construction, operation, and maintenance procedures would be the same as described above for the Komatke to Willis 69-kV.

The estimated acreage of permanent disturbance required for construction of the Proposed Action's Robbins Butte to Komatke 69-kV line is detailed in Table 2-10 below.

Construction methods (e.g., pole installation, and wire stringing) would be the same as described for the Komatke to Willis 69-kV. Operation and maintenance would also be the same as described for the Komatke to Willis 69-kV.

Table 2-10. Robbins Butte Tap to Komatke 69-kV Permanent Disturbance Estimates (acres)

Activity	BLM	ASLD	Private	Total
Permanent Disturbance Around Structures*	0	0.009	0	**0.009**
Access Roads†	0	1.45	0	**1.45**

* Note: The permanent disturbance acreages for disturbance around structures assume a 20-square-foot permanent disturbance for each pole.

† Note: Access roads disturbance acreages assume 1 mile long × 12 feet wide.

2.3.7 Applicant-Committed Environmental Protection Measures and Best Management Practices

As part of standard operating procedures, the following applicant-committed environmental protection measures and BMPs (Table 2-11) would be implemented throughout the project. Project design measures would minimize the effect of the project where the potential for long-term adverse impacts may occur.

2.4 NO ACTION ALTERNATIVE

In addition to considering the Proposed Action, the No Action Alternative "provides a benchmark, enabling decision makers to compare the magnitude of environmental effects of the action alternatives" (CEQ 1981:question 3). The No Action Alternative provides the environmental baseline against which the other alternatives are compared.

Under the No Action Alternative, the BLM would not grant the ROW for construction and operation of the proposed project. The project would not be granted a ROW for the new Komatke to Willis 69-kV line, the substation and switchyard would not be constructed, the Rainbow Valley to Komatke 69-kV line would not be removed, and the Robbins Butte Tap to Komatke 69-kV line would not be upgraded.

The No Action Alternative would not add bulk electric infrastructure to the existing grid, which would not allow APS needed flexibility for unanticipated and scheduled grid outages. The No Action Alternative would not improve additional connections and would not increase import capability for regional utilities. The aging structures of the Robbins Butte Tap to Komatke 69-kV line would not be upgraded and would continue the current risk for incidences of failures. The No Action Alternative would not improve voltage limitations and would not reduce curtailment for local utilities.

Present activities in the area would continue.

2.4.1 Alternative Considered but Eliminated from Detailed Analysis

This section describes the alternatives to the Proposed Action that were considered but not carried forward in the detailed analysis for various reasons. Routing options were eliminated from consideration for detailed analysis because they would not meet the purpose and need for the project or the project objectives; or because they were not found to be technically or economically practical and feasible; or environmentally reasonable. These alternatives were generated and derived from discussions and alternative identification exercises that occurred from internal scoping on May 1, 2014.

Only alternatives to the new Komatke to Willis 69-kV element of the Proposed Action were suggested. Alternatives to the other elements of the Proposed Action (i.e., construction of the new Willis substation and Komatke switchyard, removal of the Rainbow Valley to Komatke 69-kV line, and upgrade to the Robbins Butte Tap to Komatke 69-kV) were not proposed.

2.5 KOMATKE TO WILLIS 69-KV NORTH OF EXISTING SRP 500-KV LINE (NEW ACCESS ROAD ALTERNATIVE)

An alternative that would place the Komatke to Willis 69-kV north of the existing SRP Jojoba to Kyrene 500-kV transmission was considered. This alignment would require extensive excavation and slope-cutting to accommodate access roads and structures as the terrain and topography north of the existing SRP transmission line is much steeper than would be found south of the existing SRP line. This alternative would also require a new access road that would parallel the entire 12-mile long transmission line. Therefore, the estimated surface disturbance would be far greater than the Proposed Action. In addition, the new access road would be redundant with the existing SRP access and would likely lead to route proliferation between the two access roads, which would also increase the surface disturbance. Therefore, this alternative was found to be economically impractical and environmentally unreasonable.

2.6 KOMATKE TO WILLIS 69-KV ALONG EXISTING SRP ACCESS ROAD (NO SPUR ROAD ALTERNATIVE)

An alternative that would place the Komatke to Willis 69-kV along the SRP Jojoba to Kyrene 500-kV existing access road was considered. This alignment would require extensive engineering and design to accommodate the multiple crossings of the 500-kV line. Though this alternative would not require new access roads, it would require multiple tensioning and pulling sites at each and every turn of the alignment, potentially resulting in surface disturbance in areas that are currently undeveloped. Further, the risks of human health and safety during construction would be increased due to the risk management, coordination, and safety measures APS would be required to conduct with SRP, including potential powering down of the existing 500-kV line during construction. Thus, this alternative would not be technically feasible or economically practical due to the amounts of turns and crossings of the 500-kV line that would be required.

2.7 KOMATKE TO WILLIS 69-KV WITH 3-ACRE STAGING AREAS

An alternative that would include multiple, 3-acre staging areas located outside the 80-foot construction ROW at various points along the 12-mile Proposed Action alignment was considered. This alternative was found not to be environmentally reasonable because it would not accomplish anything the Proposed Action would not already accomplish, and would result in additional environmental impacts due to the required vegetation clearing and blading needed to accommodate materials and equipment.

Table 2-11. Design Features for Environmental Protection by Resource

Feature by Resource	ROW	Construction	Operation and Maintenance
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
BLM road construction specifications would be followed during road construction.		X	
All construction vehicle movement would be restricted to predesignated access, contractor-acquired access, and public roads.		X	
APS would protect all survey monuments found within the ROW. Survey monuments include but are not limited to General Land Office and BLM Cadastral Survey Corners, reference corners, witness points, U.S. Coastal and Geodetic benchmarks and triangulation stations, military control monuments, and recognizable civil (both public and private) survey monuments. In the event of obliteration or disturbance of any of the above, APS would immediately report the incident, in writing, to the authorized officer and the respective installing authority, if known. Where General Land Office or BLM ROW monuments or references are obliterated during operations, APS shall secure the services of a registered land surveyor or a BLM cadastral surveyor to restore the disturbed monuments and references using surveying procedures found in the *Manual of Surveying Instructions for the Survey of the Public Lands of the United States*, latest edition (BLM 2009a). APS would record such survey in the appropriate county and send a copy to the authorized officer. If the BLM cadastral surveyors or other federal surveyors are used to restore the disturbed survey monument, APS would be responsible for the survey cost.	X	X	
Reclamation			
A reclamation, vegetation, and monitoring plan would be developed and implemented.		X	X
Reclamation would be accomplished with native species, unless otherwise approved.		X	X
Seeding would occur between November and March to ensure a greater chance of success.		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
The erosion, dust control, and air quality plan framework plan prepared as part of the Final POD would be developed and implemented to minimize and mitigate potential air quality and climate change impacts.	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		

Table 2-11. Design Features for Environmental Protection by Resource (Continued)

Feature by Resource	ROW	Construction	Operation and Maintenance
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 4) treatment of actively disturbed areas with BLM approved dust palliatives.		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	
Cultural Resources			
Prior to construction, all construction personnel would be instructed on the protection of cultural, paleontological, and ecological resources. To assist in this effort, the construction contract would address (a) federal and State laws regarding antiquities, fossils, and plants and wildlife, including collection and removal; and (b) the importance of these resources and the purpose and necessity of protecting them.	X	X	
If previously unrecorded cultural or paleontological resources are encountered during ground-disturbing activities, these activities would be discontinued in the immediate vicinity of the discovery, and the landowner notified. APS would suspend operations in the area until an evaluation is completed to prevent the loss of cultural or scientific values.	X	X	X
Hazardous Materials and Waste			
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 Arizona Department of Environmental Quality in Arizona.	X	X	X
Health and Human Safety			
APS would inform the authorized officer within 48 hours of any accidents on federal lands that require reporting to the Department of Transportation as required by 49 CFR Part 195.	X	X	X
Farmlands and Grazing			
Grazing allotments fencing and other livestock improvements would be maintained to their current conditions. Where fence cutting may be required, APS would coordinate with the BLM to ensure pasture fencing remains enclosed.	X	X	X
Noise			
If blasting would be required, blast mats would be used in sensitive noise areas (e.g., within 1 mile of residential areas).		X	
Paleontology			
If significant fossils are encountered during construction, construction activities would be temporarily diverted 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	

Table 2-11. Design Features for Environmental Protection by Resource (Continued)

Feature by Resource	ROW	Construction	Operation and Maintenance
Soils			
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 aces by project construction equipment.	X	X	X
Transportation			
APS would inform the authorized officer within 48 hours of any accidents on federal lands that require reporting to the Department of Transportation as required by 49 CFR Part 195.	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 the project centerline has been located.			
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	
APS would clean off-road equipment (power or high-pressure cleaning) of all mud, dirt, and plant parts prior to moving equipment onto public land to minimize the potential for introduction of non-native species.	X	X	X
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 any CWA Section 404 permit terms and conditions, 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.	X	X	

Table 2-11. Design Features for Environmental Protection by Resource (Continued)

Feature by Resource	ROW	Construction	Operation and Maintenance
Culverts or temporary bridges would be installed where necessary. 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	
Wildlife			
Guidelines for Handling Sonoran Desert Tortoises Encountered on Development Projects (AGFD 2007) would be followed.	X	X	X
The APS avian protocol would be followed to search for nests prior to construction to avoid impacts to active nests. In compliance with the Migratory Bird Treaty Act, if an active nest is found, BLM or the appropriate landowner would be contacted immediately to determine a course of action.		X	X
Structures would be constructed to conform to *Suggested Practices for Avian Protection on Power Lines: State of the Art in 2006* (Avian Power Line Interaction Committee).			X

2.8 SUMMARY OF IMPACTS

Minimal environmental impacts to the natural and human environments are anticipated from the Proposed Action or No Action Alternative. Table 2-12 presents a summary of potential impacts to elements of the natural and human environment.

Table 2-12. Summary of Impacts

Resource	Proposed Action	No Action
Air Resources and Climate Change	Short term impacts to air quality from fugitive dust and equipment emissions. Negligible impacts to climate change.	No impact.
Biological Resources	Short term impacts to vegetation from construction activities and permanent loss of vegetation and habitat on 0.076 acre and 8.71 acres for transmission line poles and access roads, respectively. Short-term, minor impacts to wildlife, migratory birds, and special status species from construction.	No impact.
Cultural and Heritage Resources	Of the fourteen individual occurrences and 3 historic roads, no cultural resources will be impacted, and no treatment is recommended for the project to proceed. Direct impacts include disruption of each resource and the disturbance of the physical remains if it is not avoided or mitigated. In the event of an unanticipated discovery of cultural material during project activities, all work would stop at that location until the find is evaluated by a professional archaeologist.	No impact.
Tribal Concerns	No impact.	No impact.
Rangeland Resources	Construction of the transmission line may impact up to 117.25 acres of vegetation, which represents 0.12% of the BLM grazing allotments intersected by the Proposed Action. Approximately 8.71 acres would be permanently removed from grazing.	No impact.
Geology and Minerals	The Proposed Action would have a negligible effect on geology and minerals. The occupancy of BLM lands by the permanent, 40-foot ROW (if a ROW were granted by the BLM) would preclude mineral exploration and development on up to 117.25 acres.	No impact.
Human Health and Safety	The construction of the Proposed Action is temporary and would be confined to the footprint of the transmission lines, access roads, switchyard, and substation; thus the increase of potential risk to human health and safety associated with construction activities would be short term and minor.	No impact.
Hazardous Materials	During construction, operation, and maintenance, there is a potential risk of contamination to soil through leaks from equipment or accidental releases along the construction ROW (up to approximately 40 acres [permanent ROW]). A SWPPP will be developed to minimize the risk of an accidental release. If previously unidentified hazardous materials are encountered during construction or operation and maintenance, work would stop at that location until the material was investigated and proper action implemented. No adverse direct or indirect effects from hazardous materials are expected.	No impact.
Noise	Short-term, minor impacts resultant from temporary increase in noise levels during daytime hours may cause localized impacts in the immediate vicinity of the project during construction only.	No impact.

Table 2-12. Summary of Impacts (Continued)

Resource	Proposed Action	No Action
Land Use and Realty	There would be no change in land ownership under the Proposed Action. Existing land uses would continue, and access to all authorized users would be maintained during construction and operation. Temporary, minor impacts to recreation would occur during construction on up to 117.25 acres, but would cease during operation and maintenance.	No impact.
Socioeconomics and Environmental Justice	Construction could result in a minor, short-term increase in local economic output as workers purchase food and supplies from area businesses. However, due to the small anticipated workforce, these impacts are likely to be limited to a few local businesses. No impact to environmental justice.	No impact.
Soils	Construction of the Proposed Action could temporarily impact up to 117.25 acres of soil resources within the 80-foot construction ROW, temporary laydown yard, and pulling sites. Permanent impacts to 8.72 acres would result from the construction of the transmission towers and access roads. Direct impacts to the soils include erosion from the removal of vegetative cover and compaction from heavy equipment resulting in the loss of soil structure and porosity.	No impact.
Travel Management	The Proposed Action operation would not result in an increase of traffic on any roads and no delays in traffic would result during construction. Road fill required at the culvert locations along the SRP access road would result in short-term (less than 1 day), minor impacts to travel management due to the temporary access restrictions that would result during the filling of the roadbed. The Proposed Action would add 7.42 acres of new access roads to the Lower Sonoran Field Office route inventory. During operation and maintenance, no impacts to travel management along existing access roads would occur.	No impact.
Visual Resources	The Proposed Action would result in an alteration of the existing landscape. The Proposed Action would not dominate the view of the casual observer; the alteration would be consistent with Class IV Visual Resource Management objectives.	No impact.
Water Resources	Construction of the Proposed Action would result in no direct impacts to Waterman Wash since no activities would be required within the wash. Some short-term, temporary disturbances to ephemeral washes at the culvert locations (along the existing SRP access road) would occur during construction. Culvert installation would prevent these disturbances from altering flow and channel dynamics, and would not disturb riparian vegetation in the immediate vicinity of each wash crossing.	No impact.

2.9 MONITORING AND MITIGATION

Table 2-13 below describes the mitigation measures and best management practices that are included as part of the Proposed Action.

Table 2-13. Mitigation Measures and Best Management Practices

AIR QUALITY	
Dust abatement	Dust abatement using an approved dust suppression coating and other air quality protection measures would be implemented during construction, according to BLM, the City, and County Air Quality Control Districts, to ensure compliance with federal and regional air quality standards.
CULTURAL RESOURCES	
Cultural and/or historic sites	Measures will be incorporated to avoid sites through project design.
TOPOGRAPHY AND SOILS	
Soils	According to the Natural Resources Conservation Service (2014), soils within the project area limits have a low to medium shrink-swell potential; therefore, no special design considerations would be needed to stabilize the subgrade. Subgrade stabilization would consist of over-excavating 14 inches measured from rough grade, adding water, and compacting the soil. Erosion control on slopes would be achieved by "cat tracking." This process would be conducted by driving a bulldozer perpendicular to the slope, leaving track impressions in the soil; impressions would fill with water and reduce stormwater runoff and erosion. Cat tracks would be treated to prevent the spread of noxious weeds in accordance with BLM and state policy, as they are known vectors for noxious weeds since they are disturbed soils that hold water and attract vehicles as pull-offs. Other erosion and sediment control activities can include use of straw wattles, silt fences, or similar methods to prevent erosion and sediment loading, as necessary. The BLM would be consulted and have final approval on the specific techniques and materials to be used for soil stabilization. Many of these controls would likely be left in place until full stabilization of the Parkway is complete. A SWPPP would be developed prior to construction and would more fully elaborate erosion, sediment control, and stabilization methods and would be included in the POD. A variety of safety-related plans and programs would be developed and implemented to ensure safe handling, storage, and use of hazardous materials (e.g., Hazardous Material Business Plan). Project personnel would be supplied with appropriate personal protective equipment (PPE) and would be properly trained in the use of PPE and the handling, use, and cleanup of hazardous materials used during the project, as well as procedures to be followed in the event of a leak or spill. Adequate supplies of appropriate cleanup materials would be stored on-site.
WATER RESOURCES	
Clean-up and site reclamation	Construction sites, material storage yards, and access roads would be kept in an orderly condition throughout the construction period. Approved enclosed refuse containers would be used throughout the project area. Refuse and trash would be removed from the sites and disposed of in an approved manner. Oils or chemicals would be hauled to a disposal facility authorized to accept such materials. Open burning of construction trash would not be acceptable. All post-construction ROWs would be restored, as required by the BLM. All practical means would be made to restore the land to its original natural drainage patterns. Since revegetation would be difficult in many areas of the project area because of low amounts of precipitation, all practicable measures would be taken to minimize disturbance during construction.
Reclamation of temporary disturbance	All temporarily disturbed areas would be reclaimed to as close to their pre-construction conditions as possible, as required by the BLM. BLM-approved seed mixes and/or transplants would be applied to temporarily disturbed areas, as required. No fertilizer would be used during stabilization or rehabilitation activities unless authorized by the BLM. When construction of stormwater management structures is complete, contours would be carefully restored to the extent feasible.
HAZARDOUS MATERIALS	
Hazardous materials	All hazardous materials used during construction and operation would be stored on-site in storage tanks/vessels/containers that are specifically designed for the characteristics of the materials to be stored; as appropriate, the storage facilities would include the needed secondary containment in case of tank/vessel failure. All secondary containment would meet OSHA requirements and would be sized to contain 110% of full tank/vessel volume.
Hazardous waste recycling	To the extent possible, construction-phase hazardous wastes would be recycled (oil and grease). Transport of the wastes and contaminated containers would be contracted to a qualified waste transporter, and the wastes would be taken, under manifest, to a permitted local landfill or treatment and disposal facility.

Chapter 3

AFFECTED ENVIRONMENT

3.1 INTRODUCTION

This chapter identifies the affected environment and focuses on the existing resources and uses that have the potential to be affected by the proposed project. The affected environment is the baseline against which each project alternative is evaluated in terms of impacts to the human environment that would result from its implementation (see Chapter 4, "Environmental Consequences"). The following sections describe the human environment that may potentially be affected by the proposed project and alternatives, including both natural and physical resources in the area and the relationships of people to these resources (40 CFR 1508.14).

Relevant environmental conditions and human uses within the analysis area have been identified and described using geographic information system (GIS) data, literature searches, electronic searches, interviews, detailed field surveys, and information from BLM resource specialists.

3.1.1 General Setting

The Proposed Action is completely within Maricopa County on approximately 42 acres of BLM land. As described in Table 2.1 in Chapter 2, ASLD and private lands are also included. The Proposed Action stretches between Rainbow Valley Road on the east and SR 85 on the west. The Sonoran Desert National Monument is directly south of the west end of the Proposed Action. The Proposed Action is an unpopulated, lightly developed expanse of open desert land. Lands in the immediate vicinity of the Proposed Action are composed of a developed, relatively disturbed ROW across a flat desert, alluvial plain that is dissected by several drainages. Lands within the ROW are dominated by creosote flats. There are several existing uses within the designated BLM multi-use utility corridors, which include authorizations such as transmission lines, gas lines, and associated access roads.

3.1.2 Resource Values and Uses Brought Forward for Analysis

Based on internal and external (public) scoping, or issue identification, a number of issues and concerns were identified for analysis in this EA (see Chapter 1, Section 1.8). In order to analyze and respond to the issues and concerns, the resource values and uses of the affected environment must be identified and described. For this EA analysis, the following resources and uses are brought forward for analysis and are presented in this chapter.

- Air Resources and Climate Change
- Biological Resources (including vegetation, noxious weeds, and wildlife)
- Cultural and Heritage Resources
- Tribal Concerns
- Rangeland Resources
- Geology and Minerals
- Human Health and Safety
- Hazardous Materials
- Noise
- Lands and Realty
- Socioeconomics and Environmental Justice
- Soils
- Travel Management
- Visual Resources
- Water Resources

3.1.3 Resource Values and Uses Considered but not Carried Forward for Analysis

Because the intent of a NEPA document is to concentrate on the issues that are truly significant to the action in question, rather than amassing needless detail (40 CFR 1500.1(b)), elements that are not present or would not be affected are not carried forward for detailed analysis in this EA. Internal scoping conducted by the BLM determined the following resources will not be analyzed in detail:

- Cave Resources
- Paleontological Resources
- Wild Horse and Burro Management
- Wilderness Characteristics
- Wildland Fire Management
- Special Designations

3.1.4 Analysis Area

The analysis area varies by resource value or use, depending on the geographic extent of the resource or use and the extent of the effects of the proposed action alternatives on a resource or use. Under every resource described below, the analysis area includes at a minimum the project footprint (Proposed Action). The project footprint includes the construction ROW for the new substation adjacent to the existing Willis substation; new switchyard within the existing Komatke switchyard; 1.62 miles of the existing Rainbow Valley to Komatke 69-kV transmission line; and the existing Robbins Butte Tap to Komatke 69-kV line (refer to Figure 1-2). The analysis area for each resource value or use is defined at the beginning of each of the following sections.

3.2 AIR RESOURCES AND CLIMATE CHANGE

Air quality generally refers to the amount or level of pollutants found in the ambient air. Air pollution is defined as the presence in the atmosphere of natural and artificial substances that affect human health or well-being, or the well-being of any other specific organism. Air pollution also applies to situations in which contaminants impact structures and artifacts or esthetic sensibilities (such as visibility or smell). Pollutants are further defined as primary (emitted directly from a source) or secondary (formed in the atmosphere by reactions of primary pollutants). Activities within the air quality analysis area that may generate emissions of climate changing pollutants (i.e., CO_2, methane [CH_4], and nitrous oxide [N_2O]) include, as examples, urban development, agricultural activities, large wildfires, and the use of internal-combustion engines (e.g., recreational use, transportation use, or commuter use).

3.2.1 Applicable Laws, Regulations, and Policies

The Clean Air Act of 1963 (CAA) (Public Law 88-206) requires any federal entity engaged in an activity that may result in the discharge of air pollutants to comply with all applicable air pollution control laws and regulations (federal, State, or local).

The Arizona Administrative Code (AAC) Title 18, Environmental Quality, Chapter 2, Department of Environmental Quality, Air Pollution Control, Section R18-2-614, effective July 18, 2005, prohibits visible dust emissions with opacity greater than 40% from any non-point source measured in accordance with the Arizona Testing Manual, Reference Method 9.

Maricopa County has outlined measures in the Maricopa County Air Quality Rules (MCAQR) to be incorporated into construction specifications to minimize potential dust emissions. Rules 310 and 310.01 (both revised in January 2010) of the MCAQR include work practice standards to ensure that emissions from fugitive dust sources, such as open areas, vacant lots, unpaved parking lots, and unpaved roadways, are minimized to the extent practicable. Under MCAQR Rule 310, the owner and/or operator of any dust-generating operation is required to conduct the following:

- Obtain a Maricopa County Air Quality Division (MCAQD) Dust Control Permit for all projects that will disturb more than 0.1 acre (4,356 square feet) of soil prior to beginning construction (Rule 310, Section 401).
- Submit to the Control Officer a dust control plan for approval with any application for a Dust Control Permit. Applicants shall describe, in a dust control plan, all control measures to be implemented before, after, and while conducting any dust-generating operation, including on weekends, after work hours, and on holidays (Rule 310, Section 402).
- For all areas with a Dust Control Permit that are larger than 5 acres, the owner and/or operator shall erect and maintain a project information sign (Rule 310, Section 308).
- Comply with the Dust Control Training Requirements (Rule 310, Section 309).
- For any site of 5 acres or more of disturbed surface area, at least one Dust Control Coordinator must be present at all times during primary dust-generating operations (Rule 310, Section 310).
- Implement contingency dust control measures when primary control measures are ineffective (Rule 310, Section 305).
- Require the owner/operator to maintain a daily written log recording the actual application or implementation of the control measures described in the approved dust control plan (Rule 310, Section 502).

3.2.2 Analysis area

The analysis area for air resources and climate change is the Maricopa County particulate matter 10 (PM_{10}) nonattainment area. This nonattainment area covers approximately 54 × 60 miles in Maricopa County and Pinal County (Arizona Department of Environmental Quality [ADEQ] 2015).

The primary factors that influence regional air quality in the area of analysis are the locations of air pollution sources, the amounts and chemical characteristics of the pollutants emitted, the topography of the region, and local meteorological conditions.

3.2.3 Air Quality Standards

Based on the adopted NAAQS (Table 3-1), the CAA requires that U.S. Environmental Protection Agency (EPA) classify air basins (or portions thereof) as either *attainment* or *nonattainment* with respect to the criteria pollutants. The classifications are defined below.

- **Attainment Area:** This is a geographic or politically delineated air basin that meets the NAAQS for criteria pollutants.
- **Nonattainment Area:** This is a geographic or politically delineated air basin that does **not** meet the NAAQS for one or more pollutants. Nonattainment areas/states are required to formulate and submit State Implementation Plans to the EPA that outline the measures the State will implement to attain and maintain the NAAQS.

- **Unclassifiable:** This is an area that lacks sufficient monitoring data. Unclassifiable areas are conservatively managed as though they are in attainment in order to maintain or improve existing air quality.
- **Maintenance Area:** This is an area that was previously classified as a nonattainment area and that has been demonstrated with recent data to have achieved attainment of the NAAQS.

Table 3-1. National Ambient Air Quality Standards

Pollutant	Averaging Time	Primary Standard	Secondary Standard
CO (Carbon Monoxide)	1-hour	**35 ppm**	**N/A**
	8-hour	**9 ppm**	**N/A**
NO_2 (Nitrogen Dioxide)	1-hour	**100 ppb**	**N/A**
	Annual	**53 ppb**	**53 ppb**
O_3 (Ozone)	1-hour*	**0.12 ppm**	**0.12 ppm**
	8-hour	**0.075 ppm**	**0.075 ppm**
PM_{10} (Particulate Matter greater than 10 microns)	24-hour	**150 µg/m^3**	**150 µg/m^3**
	Annual†	**50 µg/m^3**	**50 µg/m^3**
$PM_{2.5}$ (Particulate Matter greater than 2.5 microns)	24-hour	**35 µg/m^3**	**35 µg/m^3**
	Annual	**12 µg/m^3**	**15 µg/m^3**
SO_2 (Sulfur Dioxide)	1-hour	**75 ppb**	**N/A**
	3-hour	**N/A**	**0.5 ppm**
Lead	Calendar quarter	**0.15 µg/m^3**	**0.15 µg/m^3**

Source: 40 CFR 50.
Notes: ppm = parts per million; ppb = parts per billion; µg/m^3 = micrograms per cubic meter; N/A = not applicable.
* 1-hour standard revoked on June 15, 2005, in Arizona.
† Annual standard eliminated in January 2006.

A particular geographic region may be classified as an attainment area for some pollutants and as a nonattainment area for others. The EPA has designated all of Maricopa County as being either in attainment or unclassifiable with respect to the NAAQS for sulfur dioxide (SO_2), nitrogen dioxide (NO_2), and particulate matter 2.5 ($PM_{2.5}$). Progress in regional air quality improvement in recent years has allowed the county to be designated a maintenance area with respect to CO and 1-hour O_3 NAAQS. In contrast, most of Maricopa County is a serious nonattainment area for PM_{10}. Further, the EPA has designated a large portion of Maricopa County to be a marginal nonattainment area for the more recent NAAQS for 8-hour average O_3 (Figure 3-1).

The Maricopa County PM_{10} nonattainment area is an approximately 48 × 60–mile rectangular section of eastern Maricopa County plus a 6 × 6–mile section of Pinal County that includes the city of Apache Junction. Most of the Proposed Action lies within the boundaries of the nonattainment area (see Figure 3-1). PM_{10} exceedances within the designated area occur primarily during stagnant, wintertime, morning conditions.

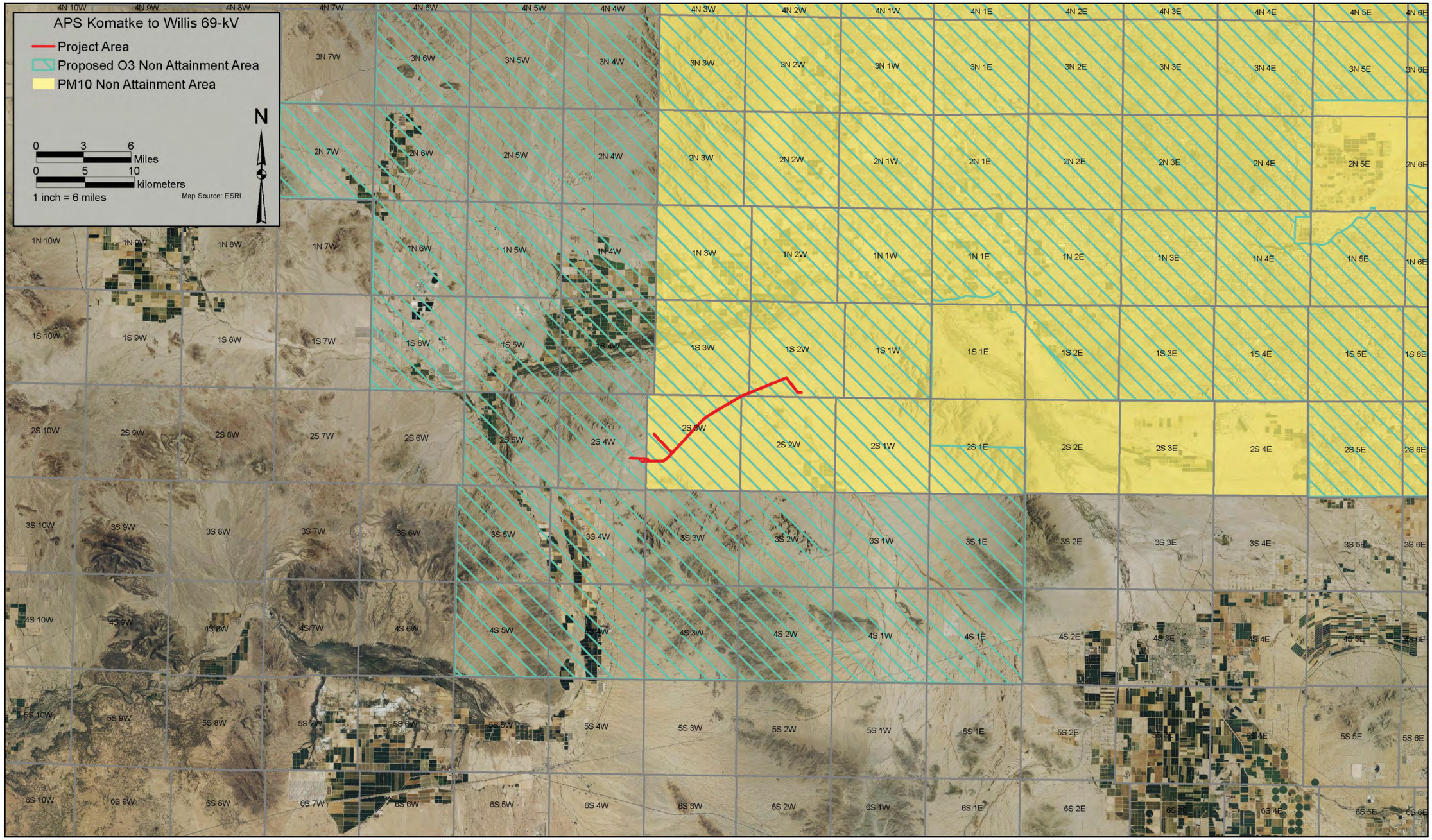

Figure 3-1. Air resources.

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Control measures such as Rules 310 and 310.01 of the MCAQR mainly target construction and maintenance operations known to generate particulates, although primary (freeway and major arterial) and secondary (collector) paved roads are included in the measures. On August 14, 2008, the EPA published in the *Federal Register* (72:47542) a Final Rule effective September 15, 2008, approving 77 Maricopa County rules and measures as best available control measures and most stringent measures. Efforts to reduce dust re-suspended from paved roads have concentrated on eliminating trackout from construction sites, curbing and stabilizing road shoulders, and investigating more efficient street sweepers. Secondary fine particulates have been reduced by vehicular emission controls, which have reduced their precursor gases, and by diesel engine replacement and retirement programs.

3.2.4 Air Quality Conditions

Temperature and Precipitation Data

A summary of historical temperature and precipitation data collected by the National Climatic Data Center weather station near the Proposed Action (Station #021026 in Buckeye, Arizona) is presented in Table 3-2. The historical average monthly temperature varies from a maximum of 107 degrees Fahrenheit (°F) in July to a minimum of 35°F in January. Precipitation averages approximately 8 inches per year. From November through March, storm systems from the Pacific Ocean cross the state. In the summer, the rainy monsoon season begins in July and lasts until mid-September as a result of moisture-bearing winds from the Gulf of Mexico. Snowfall in the area is extremely rare, with most accumulation occurring in higher mountains of the central and northern parts of the state.

Table 3-2. Summary of Climatology Data for Buckeye, Arizona

Month	Temperature (°F)			Precipitation (inches)	
	Average*	Average Monthly Maximum*	Average Monthly Minimum*	Average*	Historical Monthly Maximum*
January	51.22	67.8	34.6	0.82	4.30
February	55.45	72.5	38.4	0.78	6.46
March	60.43	78.4	42.4	0.75	3.88
April	67.50	86.6	48.4	0.28	2.07
May	75.45	95.0	55.8	0.10	1.34
June	84.15	104.2	64.0	0.07	1.45
July	90.74	107.1	74.4	0.87	4.10
August	89.39	105.2	73.6	1.13	6.89
September	83.04	100.8	65.3	0.77	5.00
October	70.94	89.9	52.0	0.50	3.10
November	58.83	76.9	40.9	0.62	5.01
December	51.56	68.1	35.0	0.90	4.68
Annual	70.08	87.7	52.1	7.70	21.80

Source: Western Regional Climate Center (2013).

* National Climatic Data Center period of record for Buckeye, Arizona: 1893–2013.

Meteorology directly affects air quality through the transport and dispersion of pollutants. Important factors include the speed and direction of surface winds, atmospheric stability, temperature inversion, solar insolation, and mixing depth.

For the Phoenix metropolitan area, the historical average wind speed recorded during this period is 5.21 knots (6 miles per hour), and prevailing winds are to the east between January to August and to the west between September and December (Western Regional Climate Center 2014).

3.2.5 Climate Change

Climate change is a global phenomenon that results from global greenhouse gas (GHG) emissions. GHGs are chemical compounds in the Earth's atmosphere that allow incoming short-wave solar radiation but absorb long-wave infrared radiation re-emitted from the Earth's surface, trapping heat. Most studies indicate that the Earth's climate has warmed over the past century due to increased emissions of GHGs and that human activities affecting emissions to the atmosphere are likely an important contributing factor (BLM 2012).

Climate change may be affected by numerous other factors, including solar radiation, ocean circulation, and human activities such as burning fossil fuels or altering the Earth's surface through deforestation or urbanization (EPA 2015). There are more sources and actions emitting GHGs (in terms of both absolute numbers and types) than are typically encountered when evaluating the emissions of other pollutants. These emissions are often categorized as either anthropogenic (human-caused) or nonanthropogenic (naturally occurring). From a quantitative perspective, there is no single dominating anthropogenic source and fewer sources that would even be close to dominating total GHG emissions. Global climate change is much more the result of numerous and varied sources, each of which might seem to make a relatively small addition to global atmospheric GHG concentrations.

Global climate change models project impacts to include air temperature increases; sea level rise; changes in the timing, location, and quantity of precipitation; and increased frequency of extreme weather events such as heat waves, droughts, and floods. These changes vary regionally and may affect renewable resources, aquatic and terrestrial ecosystems, and agriculture. Although uncertainties remain regarding the timing and magnitude of climate change impacts, the scientific evidence predicts that continued increases in GHG emissions will lead to increased climate change. According to the Intergovernmental Panel on Climate Change (IPCC), increased atmospheric levels of CO_2 are correlated with rising temperatures. Climate models indicate that temperatures will likely increase by 1.1 to 6.4 degrees Celsius (°C) (2.0°F to 11.5°F) by 2100 (IPCC 2014). However, the Nongovernmental International Panel on Climate Change concluded that models are not the best predictors of climate change (Idso 2013).

The BLM recognizes the importance of global climate change and the potential effects it may have on the local environment. Activities within the air quality analysis area that may generate emissions of climate changing pollutants (i.e., CO_2, CH_4, and N_2O) include, as examples, urban development, agricultural activities, large wildfires, and the use of internal-combustion engines (e.g., recreational use, transportation use, or commuter use). Other activities may sequester CO, such as managing vegetation and riparian areas, which may function as carbon sinks (BLM 2009b).

Preliminary GHG emissions inventories have been prepared for each state in a cooperative effort between the Center for Climate Strategies (CCS) and the environmental departments for each state. According to the inventory for Arizona, the GHG emissions for reporting year 2000 were 89 million metric tons of carbon dioxide equivalent (CO_2e). The reference case GHG emissions for year 2020 were estimated at 153.5 million metric tons of CO_2e (CCS 2005).

3.3 BIOLOGICAL RESOURCES (INCLUDING VEGETATION, NOXIOUS WEEDS, AND WILDLIFE)

This section describes the dominant vegetation communities, noxious weeds, and the occurrence and distribution of wildlife species within the Proposed Action, as well as special status species, including federally and State-protected species.

The Proposed Action is in an area mapped as the Lower Colorado River subdivision of Sonoran Desertscrub (Brown 1994). The Proposed Action is located at elevations ranging between 950 and 1,050 feet above mean sea level (amsl). The topography of the Proposed Action is primarily flat, with some slopes along the southern edge of the Buckeye Hills, and contains numerous ephemeral drainages. Ephemeral drainages in the Proposed Action are generally small, with minimal xeroriparian vegetation. The exception is Waterman Wash, which intersects the east end of the Proposed Action and then flows into the Gila River approximately 4 miles north of the Proposed Action. No aquatic habitats, water features, broadleaf deciduous riparian vegetation communities, stock ponds, or potential bat roost sites (e.g., natural caves or mine features) occur in the Proposed Action.

3.3.1 Applicable Laws, Regulations, and Policies

Developments that include ground-disturbing activities or placement of structures may impact special-status species or their habitats. As such, laws have been developed for their protection, and where applicable, are considered during project resource reviews. The following laws are applicable to the vegetation resources and wildlife related aspects of the Proposed Action.

Endangered Species Act Section 7

The Endangered Species Act (ESA) was passed by Congress in 1973. The ESA directs all federal agencies to work toward conserving endangered and threatened species and to use their authority to further the purposes of the act. Section 7 of the ESA is the mechanism by which federal agencies ensure the actions they take, including those they fund or authorize, do not jeopardize the continued existence of listed species or result in the destruction or adverse modification of critical habitat of any listed species. Only species listed by the U.S. Fish and Wildlife Service (USFWS) are afforded protection under the ESA.

BLM Sensitive Species

BLM Manual Section 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 those species. BLM sensitive species are species that the USFWS currently has 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. Additionally, Instruction Memorandum No. AZ-2006-002, Change 1, dated September 30, 2006, provides a current updated list of the species designated as sensitive by the BLM in Arizona.

Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act prohibits any form of possession or taking of bald eagles (*Haliaeetus leucocephalus*) or golden eagles (*Aquila chrysaetos*). A 1962 amendment to the Migratory Bird Treaty Act created a specific exemption for possession of an eagle or eagle parts (e.g., feathers) for

religious purposes of Indian tribes. The amendment provided for not only the preservation of the golden eagle, but also the preservation of Native American cultural practices.

AGFD Wildlife of Special Concern

ARS Title 17 directs the responsibility for maintaining and managing the state's wildlife resources to the AGFD and Commission. According to ARS 17-102, most wildlife in Arizona is the property of the state. ARS 17-231: Allows the commission, among other things, to 1) establish policies and programs for the management, preservation and harvest of wildlife; 2) establish hunting, trapping and fishing rules and prescribe the manner and methods that may be used in taking wildlife; 3) enforce laws for the protection of wildlife and wildlife habitat; and 4) develop and distribute information about wildlife and activities of the Department.

Migratory Bird Treaty Act

The federal Migratory Bird Treaty Act of 1918 (MBTA) provides protection for a majority of migratory bird species present in the United States. The MBTA makes it unlawful to pursue, hunt, take, capture, kill, or sell most birds listed under the act. The legal take of game bird species is allowed.

Arizona Native Plant Law

The Arizona Department of Agriculture (ADA) oversees native plant resources in the state of Arizona, and impacts to native plants are regulated under applicable State of Arizona Revised Statutes and Administrative Codes (AAC Article 11: Arizona Native Plants; R3-3-1101 through R3-3-1111; and ARS 3-901 through 3-916) (ADA 2009). These laws state that protected plants cannot be removed from any lands, including private lands, without permission and a permit from the ADA. Proponents of projects that would impact 40 acres or more must notify the ADA 60 days prior to removal of plants. Landowners may sell or give away native plants on their land, but plants may not be legally possessed, taken, or transported from the growing site without a permit from the ADA. The ADA classifies protected native plant species into four categories: 1) highly safeguarded, 2) salvage restricted, 3) salvage assessed, and 4) harvest restricted.

Plants in the highly safeguarded category are those species that are in danger of extinction or whose prospects for survival in Arizona are in jeopardy. No collection is allowed for highly safeguarded plant species; however, salvage may be allowed for conservation or scientific purposes. Salvage restricted plant species are those that are subject to damage by theft or vandalism, and include most native Arizona cacti species and other specimen plants such as ocotillo (*Fouquieria splendens*). Salvage assessed plant species are those species that have sufficient value if salvaged, such as common desert trees. Harvest restricted plant species are those that tend to be subject to locally excessive harvesting or overcutting because of their intrinsic value, but may not be considered threatened range wide.

Invasive and Noxious Plant Species Regulations

Federal agencies are directed by EO 13112, Invasive Species, to expand and coordinate efforts to prevent the introduction and spread of invasive plant species and minimize the economic, ecological, and human health impacts that invasive species may cause.

The Plant Protection Act of 2000 (Public Law 106-224) replaced the Federal Noxious Weed Act of 1975 (Public Law 93-629) and is administered by the Animal and Plant Health Inspection Service of the U.S. Department of Agriculture. This federal program was enacted to protect the health and value of American agriculture and natural resources.

3.3.2 Analysis Area

The analysis area for biological resources includes the Little Rainbow Valley, bounded by Sonoran Desert National Monument to the south, SR 85 to the west, the Buckeye Hills to the north, and the Sierra Estrella Mountains to the west (Figure 3-2).

3.3.3 Vegetation and Noxious Weeds

Vegetation Communities

Vegetation in the analysis area is dominated by plants typical of the Lower Colorado River subdivision of the Sonoran Desertscrub biotic community, such as creosote bush (*Larrea tridentata*), burrobush (*Ambrosia dumosa*), triangle bur ragweed (*A. deltoidea*), desert globemallow (*Sphaeralcea ambigua*), and numerous annual plants, including annual buckwheat (*Eriogonum* sp.), bladderpod (*Lesquerella* sp.), and desert Indianwheat (*Plantago ovata*). Waterman Wash contains velvet mesquite (*Prosopis velutina*) and blue paloverde (*Parkinsonia florida*) along the banks. Non-native species identified in the Proposed Action include common fiddleneck (*Amsinckia menziesii*), Mediterranean grass (*Schismus* sp.), redstem stork's bill (*Erodium cicutarium*), and prickly Russian thistle (*Salsola tragus*).

Saguaros (*Carnegiea gigantea*), foothills paloverde (*Parkinsonia microphylla*), catclaw acacia (*Acacia greggii*), and littleleaf ratany (*Krameria erecta*) were found along the smaller xeroriparian washes in and adjacent to the Proposed Action (SWCA Environmental Consultants 2015b).

Noxious Weeds

Federal regulations, including the EO on Invasive Species and the Plant Protection Act, plus State regulations, including the ADA regulations on noxious weeds, require that the BLM address proposed actions on BLM land throughout the Lower Sonoran Field Office with respect to noxious weeds and the potential effects (Harper-Lore n.d. [2007]).

While no species included on the list of "Prohibited Noxious Weeds" administered by the ADA were observed along the construction ROW, four non-native species—prickly Russian thistle, redstem stork's bill, Mediterranean grass, and Asian mustard (*Brassica tournefortii*)—have been documented. Though not observed, the noxious weeds buffelgrass (*Pennisetum ciliare*), red brome (*Bromus rubens*), and puncturevine (*Tribulus terrestris*) have the potential to occur. Although not all of these species are listed as noxious weeds, all are non-native and invasive plant species that could have deleterious effects on the environment; hence, measures should be taken to prevent their introduction and establishment.

3.3.4 Wildlife

General Wildlife

MAMMALS

The analysis area support habitat for a variety of mammal species, including small and medium-sized mammals, carnivores, bats, and big-game species. Small and medium-sized mammals that are likely present in the analysis area include black-tailed jackrabbit (*Lepus californicus*), antelope jackrabbit (*L. alleni*), desert cottontail (*Sylvilagus audubonii*), desert pocket mouse (*Chaetodipus penicillatus*), Arizona pocket mouse (*Perognathus amplus*), little pocket mouse (*P. longimembris*), cactus mouse (*Peromyscus eremicus*), house mouse (*Mus musculus*), round-tailed ground squirrel (*Spermophilus*

tereticaudus), Harris' antelope squirrel (*Ammospermophilus harrisii*), badger (*Taxidea taxus*), raccoon (*Procyon lotor*), and various species of skunk. Carnivore species include mountain lion (*Puma concolor*), coyote (*Canis latrans*), bobcat (*Lynx rufus*), gray fox (*Urocyon cinereoargenteus*), and kit fox (*Vulpes macrotis*).

Common bat species that may be found in the desertscrub and wash habitats throughout the analysis area include the pallid bat (*Antrozous pallidus*), Western yellow bat (*Lasiurus xanthinus*), Yuma myotis (*Myotis yumanensis*), Mexican free-tailed bat (*Tadarida brasiliensis*), and western small-footed myotis (*Myotis ciliolabrum*).

Big-game species within the analysis area include desert bighorn sheep (*Ovis canadensis nelsoni*), mule deer (*Odocoileus hemionus*), and collared peccary, or javelina (*Tayassu pecari*).

BIRDS

Desertscrub, riparian habitats, and agricultural areas throughout and adjacent to the analysis area provide a variety of habitat for bird species. Common bird species that are associated with desertscrub habitat include greater roadrunner (*Geococcyx californianus*), horned lark (*Eremophila alpestris*), scrub jay (*Aphelocoma coerulescens*), common raven (*Corvus corax*), turkey vulture (*Cathartes aura*), red-tailed hawk (*Buteo jamaicensis*), black-throated sparrow (*Amphispiza bilineata*), and sage sparrow (*Amphispiza belli*). Game birds that use desert habitats include mourning dove (*Zenaida macroura*), white-winged dove (*Z. asiatica*), and Gambel's quail (*Callipepla gambelii*) (BLM 1988). Common bird species typically found in desert riparian habitat include yellow-rumped warbler (*Dendroica coronata*), verdin (*Auriparus flaviceps*), black-tailed gnatcatcher (*Poliptila melanura*), red-winged blackbird (*Agelaius phoeniceus*), mourning dove, and common yellowthroat (*Geothlypis trichas*). Numerous other species are thought to occur in the area, including house finch (*Carpodacus mexicanus*), house sparrow (*Passer domesticus*), cactus wren (*Campylorhynchus brunneicapillus*), and various flycatchers, kingbirds, thrashers, and sparrows.

REPTILES

All reptile species with potential to occur in the analysis area are managed by the AGFD as nongame species, and may be taken, with the exception of the Gila monster (*Heloderma suspectum*) and the Sonoran desert tortoise (*Gopherus morafkai*).

Snakes that may occur in the analysis area include Sonoran whipsnake (*Coluber bilineatus*), red racer coachwhip (*Coluber flagellum piceus*), desert nightsnake (*Hypsiglena chlorophaea*), California kingsnake (*Lampropeltis getula californiae*), spotted leaf-nosed snake (*Phyllorhynchus decurtatus*), saddled leaf-nosed snake (*P. brownii*), Sonoran gophersnake (*Pituophis catenifer affinis*), long-nosed snake (*Rhinocheilus lecontei*), desert patch-nosed snake (*Salvadora hexalepis hexalepis*), Smith's black-headed snake (*Tantilla hobartsmithi*), western diamond-backed rattlesnake (*Crotalus atrox*), Sonoran sidewinder (*C. cerastes cercobombus*), speckled rattlesnake (*C. mitchellii*), black-tailed rattlesnake (*C. molossus*), Mohave rattlesnake (*C. scutulatus*), and tiger rattlesnake (*C. tigris*) (Arizona Partners in Amphibian and Reptile Conservation [AZPARC] 2008).

Lizards that may occur in the analysis area include Gila monster, western banded gecko (*Coleonyx variegatus*), Sonoran collared lizard (*Crotaphytus nebrius*), long-nosed leopard lizard (*Gambelia wislizenii*), desert iguana (*Dipsosaurus dorsalis*), zebra-tailed lizard (*Callisaurus draconoides*), Goode's horned lizard (*Phrynosoma goodei*), desert horned lizard (*P. platyrhinos*), regal horned lizard (*P. solare*), desert spiny lizard (*Sceloporus magister*), long-tailed brush lizard (*Urosaurus graciosus*), ornate tree lizard (*U. ornatus*), common side-blotched lizard (*Uta stansburiana*), tiger whiptail (*Aspidoscelis tigris*), red-backed whiptail (*A. xanthonota*), and desert night lizard (*Xantusia vigilis*) (AZPARC 2008).

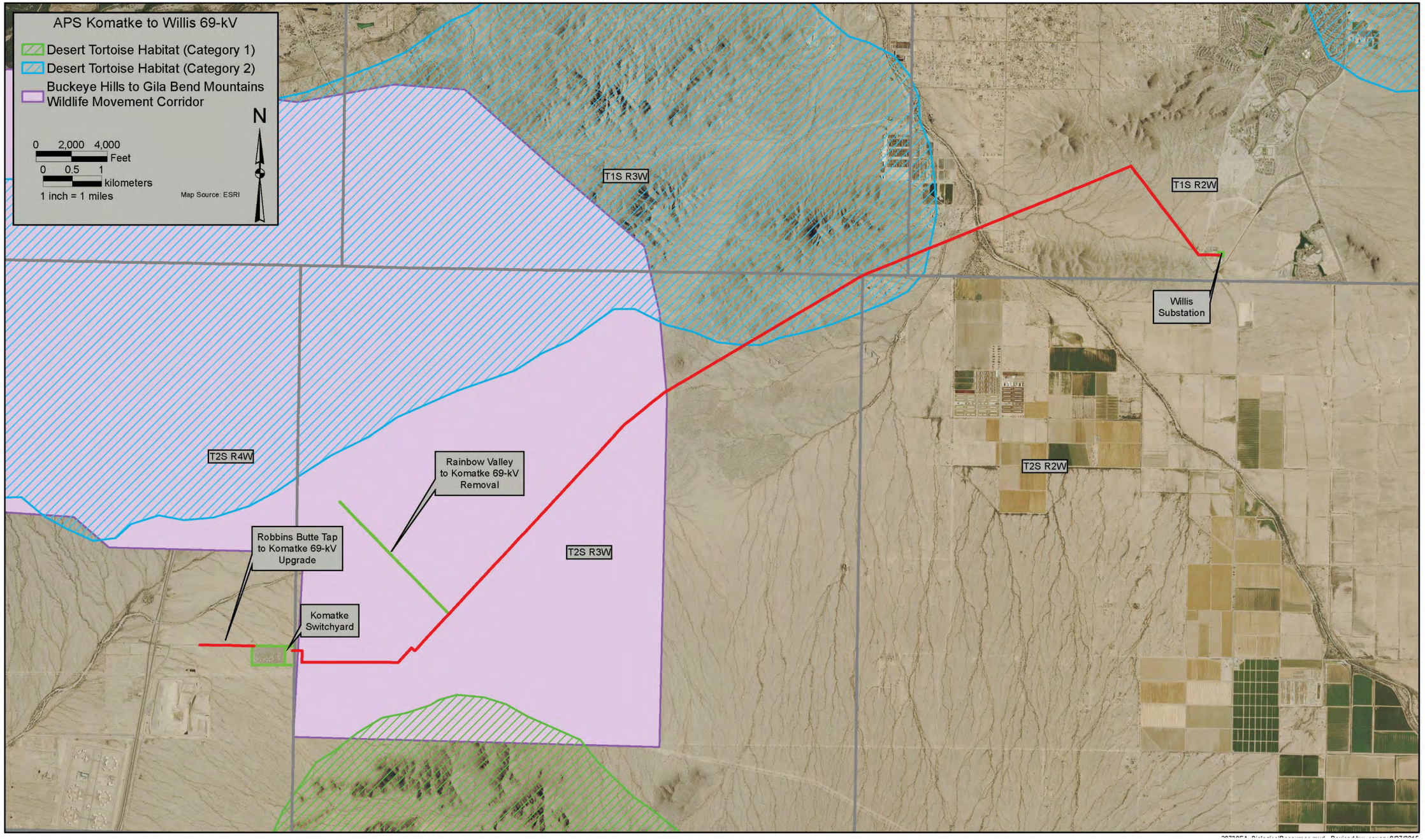

Figure 3-2. Biological resources.

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3.3.5 Special Status Species

Threatened, endangered, and special-status plant and wildlife species were reviewed for the potential to occur in the analysis area.

Federally Listed Wildlife Species

Out of the 21 species listed as threatened, endangered, proposed threatened, non-essential experimental populations, and candidate for Maricopa County by USFWS, one species, Sonoran desert tortoise, may occur in the analysis area. For the remaining 20 species, the analysis area is clearly beyond the known geographic or elevational range of these species, or it does not contain vegetation or landscape features known to support these species, or both (SWCA Environmental Consultants 2015b).

BLM Special Status Species

Within the Lower Sonoran Field Office the BLM lists 40 species as BLM Sensitive. This includes nine mammal species, 14 bird species, three fish species, three reptile species, four amphibian species, two invertebrate species, and five plant species. Of these 40 species, five are listed as Endangered under the ESA, and an additional four species are listed as Candidate or Proposed Threatened under the ESA.

Ten of the 40 BLM Sensitive Species may occur in the Proposed Action: bald eagle (*Haliaeetus leucocephalus*), desert purple martin (*Progne subis hesperia*), gilded flicker (*Colaptes chrysoides*), LeConte's thrasher (*Toxostoma lecontei*), western burrowing owl (*Athene cunicularia hypugaea*), California leaf-nosed bat (*Macrotus californicus*), cave myotis (*Myotis velifer*), greater western mastiff bat (*Eumops perotis californicus*), Sonoran desert tortoise, and Tucson shovel-nosed snake (*Chionactis occipitalis klauberi*) (SWCA Environmental Consultants 2015b).

Based on the biological surveys, seven special status species have the potential to occur in the analysis area (Table 3-3). See the *Biological Evaluation of the Komatke to Willis 69-kV Project, Maricopa County, Arizona* (SWCA Environmental Consultants 2015b) for the full list of species evaluated for the proposed project.

Table 3-3. Special Status Species with the Potential to Occur in the Analysis Area

Common Name (Species Name)	Status*	Range or Habitat Requirements	Potential for Occurrence
Reptiles			
Sonoran desert tortoise (*Gopherus morafkai*)	USFWS C	Occurs on primarily rocky, and often steep, hillsides and bajadas of Mohave and Sonoran desertscrub, typically at elevations below 7,800 feet amsl. May occur, but is less likely to occur, in desert grassland, juniper woodland, and interior chaparral habitats and even pine communities.	May occur. Habitats in the analysis area are similar to those used by this species for dispersal, though there have been no sightings within 3 miles of the Proposed Action.
Tucson shovel-nosed snake (*Chionactis occipitalis klauberi*)	BLM Sensitive	Historically occurred in Pima County, western Pinal County, and eastern Maricopa County. Current range primarily the area between Tucson and Phoenix metropolitan areas. Occurs in creosote-mesquite floodplain habitats with soft, sandy loams with sparse gravel.	May occur. The analysis area contains creosote-mesquite floodplain habitats with suitable soils where it crosses Waterman Wash.

Table 3-3. Special Status Species with the Potential to Occur in the Analysis Area (Continued)

Common Name (Species Name)	Status*	Range or Habitat Requirements	Potential for Occurrence
Birds			
Bald eagle (*Haliaeetus leucocephalus*)	BLM Sensitive	Range is restricted to North America. A small resident population occupies Central Arizona, with a wintering population occurring in both Central and Northern Arizona. Occurs in areas with open water and unimpeded views. Nesting occurs on tall trees or cliff faces, generally located near water.	May occur. Species has been recorded at the confluence of the Salt and Gila Rivers, approximately 10 miles northeast of the Proposed Action. Foraging habitat for the species is found along the Gila River, which at its nearest point is 3.5 miles north of the Proposed Action. No breeding habitat is present in the requested ROW.
Desert purple martin (*Progne subis hesperia*)	BLM Sensitive	In the Sonoran Desert, closely associated with saguaro forests where the species often uses cavities in saguaros for nesting.	May occur. Habitat is present, and the analysis area is within the species' range.
Gilded flicker (*Colaptes chrysoides*)	BLM Sensitive	Range extends from the southeast corner of California and southern Arizona south to northwest Mexico. Strong affinity to saguaro forests where it nests in cavities in saguaros.	May occur. Habitat is present, and the analysis area is within the species' range.
LeConte's thrasher (*Toxostoma lecontei*)	BLM Sensitive	Prefers open desert scrub habitat. Found in desertscrub and riparian areas where it nests in shrubs.	May occur. Habitat is present, and the analysis area is within the species' range.
Western burrowing owl (*Athene cunicularia hypugaea*)	BLM Sensitive	Occurs in open areas, generally year-round in Arizona. Usually associated with borrowing mammals, found in variable habitat such as grasslands, steppes, deserts, and agricultural lands.	May occur. There is no evidence of use of the analysis area by the species during site evaluations. However, habitat for the species is present, and the species has been recorded within 3 miles of the Proposed Action.
Mammals			
California leaf-nosed bat (*Macrotus californicus*)	BLM Sensitive	Range in Arizona is primarily south of Mogollon Plateau year-round. Roosts in mines, rock shelters, and human-made structures. Found mostly in Sonoran desertscrub.	May occur. Habitat for the species is present and there are records of the species in the analysis area. No roost sites are present in the Proposed Action.
Cave myotis (*Myotis velifer*)	BLM Sensitive	In Arizona occurs south of Mogollon Plateau. Roosts in mines, caves, tunnels, mineshafts, under bridges, and at times in buildings within a few miles of water. Occurs in desertscrub of creosote, brittlebush, palo verde, and cacti.	May occur. Habitat for the species is present, and there are records of the species in the analysis area. No roost sites are present in the Proposed Action.
Greater western mastiff bat (*Eumops perotis californicus*)	BLM Sensitive	Year-round resident of Arizona occurring in all counties except Yavapai, Navajo, Apache, and Santa Cruz. Occurs in lower and upper Sonoran desertscrub near cliffs, preferring rugged rocky canyons with abundant crevices for roosting.	May occur. The Proposed Action is within the foraging distance (15 miles) from cliffs and rocky canyons in the Sonoran Desert National Monument. No cliffs or rocky canyons with crevices are present. The nearest record is more than 20 miles to the northeast of the Proposed Action.

Range or habitat information is from Heritage Data Management System (2014); USFWS IPaC (USFWS 2014); *Arizona Rare Plant Field Guide* (Arizona Rare Plant Committee n.d.); Brennan and Holycross (2006); and Corman and Wise-Gervais (2005).

* BLM Status Definition

Sensitive = Sensitive species must be native species found on BLM-administrated land for which BLM may significantly affect its status through conservation; information is available on the downward trend; habitat must be threatened; and all federally designated species in the 5 years following their delisting are considered sensitive.

USFWS Status Definition

C = Candidate. Candidate species are those for which USFWS has sufficient information on biological vulnerability and threats to support proposals to list as endangered or threatened under the ESA. However, proposed rules have not yet been issued because such actions are precluded at present by other listing activity.

Arizona Native Plant Law Protected Species

SWCA identified seven plant species in the survey areas that are Arizona Protected Native Plants: saguaro (*Carnegiea gigantea*), Christmas cactus (*Cylindropuntia leptocaulis*), candy barrelcactus (*Ferocactus wislizeni*), ironwood (*Olneya tesota*), blue paloverde (*Parkinsonia florida*), yellow paloverde (*P. microphylla*), and catclaw acacia (*Acacia greggii*).

Wildlife Connectivity/Linkages

BLM and other agencies have established wildlife connectivity linkages in order to reduce the impacts of habitat fragmentation. A 2008 wildlife linkage study (Beier et al. 2008) analyzed potential wildlife habitat linkages on BLM land between wildland blocks in the Gila Bend, Sierra Estrella, and North Maricopa Mountains. The study used a species-level (focal species) approach, which means certain species were selected and information was obtained to better predict the movements of these selected wildlife species through an area. The primary goal of the Beier study (Beier et al. 2008) was to identify linkage configurations that would provide routes suitable for focal wildlife species movements between wildland blocks and adequate live-in habitat for less mobile species. Wildland blocks are large areas of public lands that are anticipated to remain in a relatively natural state for an extended period of time, typically at least 50 years. An assumption was made that the species selected for modeling would be broad enough in their needs to provide adequate representation of connectivity requirements suitable for most mobile Sonoran Desert wildlife species.

The Proposed Action intersects 5.28 miles of the Buckeye Hills to Gila Bend Mountains Wildlife Movement Corridor, which allows for movement between the Gila Bend Mountains through Buckeye Hills, and into the North Maricopa Mountains and Sonoran Desert National Monument.

3.4 CULTURAL AND HERITAGE RESOURCES

Cultural and heritage resources are defined as specific locations of human activity, occupation, or use identifiable through field inventory, historical documentation, or oral evidence. The term includes archaeological, historic, and architectural sites and structures, as well as places with traditional cultural or religious importance within a social or cultural group.

3.4.1 Applicable Laws, Regulations, and Policies

The proposed project is subject to a number of laws, regulations, and/or policies implemented by the federal government. As discussed in Chapter 1, decisions on the use and management of BLM lands is guided by FLPMA (43 USC 1701–1784), which requires that "public lands be managed in a manner that will protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archaeological values." Therefore, protection of cultural resources on public lands, which includes BLM land, is to be considered by the BLM for most proposed projects. Several acts and policies specific to cultural resources must also be taken into account for the proposed project. These include the following:

- American Antiquities Act of 1906, which protects archaeological sites and objects of antiquity on federal lands;
- Historic Sites Act of 1935, which created a national policy for the protection of "historic sites, buildings, and objects of national significance;"

- National Historic Preservation Act, as amended, which created policies for the preservation of historic properties throughout the nation, put in place the Section 106 review process (see below), and established the NRHP and the State Historic Preservation Officers;
- American Indian Religious Freedom Act of 1978, which, among other things, protects Native American access to sacred sites;
- Archaeological Resources Protection Act of 1979, which was designed to protect archaeological resources on federal and Indian lands;
- Native American Graves Protection and Repatriation Act of 1990, which "gives ownership and control" of Native American human remains and associated objects excavated on federal and Indian lands to Native Americans; and
- Executive Order 13007, Indian Sacred Sites, which was designed to protect, when practical, access to Native American sacred sites on federal land.

Most pertinent to the proposed project is Section 106 of the NHPA, which requires federal agencies to take into account the effects of their undertakings on historic properties, defined in 36 CFR 800.16(l) as any district, site, building, structure, or object that is included in or eligible for inclusion in the NRHP.

3.4.2 Analysis Area

The cultural and heritage resources analysis area for direct effects for this project consists of the Proposed Action construction footprint, and the area of potential effects (APE) considers cultural and heritage resources within 1-mile of the Proposed Action construction footprint.

3.4.3 Cultural History

The following is a summary from the Cultural Report (SWCA Environmental Consultants 2015a). The project area lies in the west-central portion of the Phoenix Basin. Paleoindian (10,000–8000 B.C.), Archaic (8000 B.C.–A.D. 1), and Early Formative period (A.D. 1–700) sites are scarce in the Phoenix Basin (Huckell 1982). The general lack of Paleoindian remains in and near the Phoenix Basin suggests limited, transitory use by highly mobile hunting specialists. Archaic period base camps and hunting loci are better documented in the Phoenix Basin and Maricopa County (Mabry 1998). Archaic use of the area appears to have occurred on a seasonal basis by small groups who traveled widely in search of plant and animal foods. The Early Formative period is represented by the cultivation of maize, the introduction of ceramics, and increased sedentism throughout central and southern Arizona.

The Late Pioneer period (A.D. 650–750) saw the appearance of decorated pottery in southern Arizona. Hohokam decorated pottery has red painted designs on a light-colored buff or brown background (Abbott 2001; Haury 1976). The earliest decorated pottery types include Estrella, Sweetwater, and Snaketown Red-on-buff (Wallace 2001).

The Gila Butte and Santa Cruz phases make up the Colonial period (A.D. 750–950). This was a time of expansion and elaboration of the Hohokam culture, where the number and distribution of sites across the landscape increased considerably. Colonial period Hohokam artifacts have been found as far north as Prescott in north-central Arizona and as far south as northern Mexico, extending to the west of Gila Bend in southwestern Arizona and into New Mexico to the east (Haury 1976). Abbott (1994, 2001) argues that the center for most of the decorated buff ware vessels produced during this time was the middle Gila River valley.

The post-Classic period (A.D. 1450–1540) in the Phoenix Basin, referred to by some as the Polvorón phase, constitutes a somewhat hazy gap in occupation between the Late Classic period Hohokam and the first Europeans to arrive in the area (e.g., Bayman 2001; Chenault 2000; Henderson and Hackbarth 2000).

Following the collapse of the Hohokam regional system, Akimel O'odham (Pima) and Tohono O'odham (Papago) groups lived in the middle Gila River valley. For unknown reasons, the Salt River valley was either used sparingly or was abandoned following the Hohokam collapse.

The Spanish were the first Europeans to enter what is now Arizona. Most of these early expeditions followed either the Santa Cruz or San Pedro Rivers up to the Gila River before turning westward. In 1826, Sylvester Pattie and James Ohio Pattie were the first Euro-Americans to pass through the Phoenix Basin. The early development and growth of central Arizona during the late 1800s and early 1900s was a direct response to national economic stimuli. The discovery of gold in the Bradshaw Mountains in 1863 drew miners, the military, ranchers, and entrepreneurs to the region (Mawn 1977; Zarbin 1978). In 1899, Phoenix became the permanent capital, and in 1912, Arizona became a state (Luckingham 1989).

Increased agricultural production and industrialization led to a significant and ongoing increase in the valley's population. Ironically, much of the agricultural land has been lost to residential development, and much of the water for agriculture has been usurped for domestic, recreational, and industrial purposes. The Native Americans of the area, displaced and marginalized by the influx of Europeans and Euro-Americans, have in recent years regained some economic leverage through agriculture, water settlements, and the operation of casinos.

3.4.4 Known Cultural Resources

In accordance with Section 106 of the NHPA, cultural resources were identified and evaluated within a 1-mile radius surround the Proposed Action. An archaeological records search indicates that 35 archaeological surveys have been conducted within 1 mile of the analysis area for direct effects. While 10 previously recorded archaeological sites have been identified within a 1-mile radius of the analysis area for direct effects, no sites have been documented within the project footprint.

The archaeological survey of the analysis area resulted in the identification of no archaeological sites, three historic roads, and 14 IOs (SWCA Environmental Consultants 2014, 2015a).

Historic Roads

Based on the General Land Office (GLO) map (BLM 1930), three historic roads intersect the project footprint in various places along the proposed ROW. All of the GLO roads and more recent roads depicted on historic topographic maps are still in use. These roads appear to have been heavily modified during the modern era, and have been bulldozed, widened, and otherwise disturbed from their original form. Roads such as this are common in the area and in the state as a whole, are not significant historic transportation routes, and do not meet the criteria of significance for historic roads as described in Keane and Bruder (2004).

Isolated Occurrences

Fourteen IOs were recorded during the cultural resources survey of the project footprint (e.g., survey marker, pots, bottle, can, pit). The IOs are not eligible for listing in the NRHP (SWCA Environmental Consultants 2014, 2015a).

3.5 TRIBAL CONCERNS

Tribal consultation is ongoing. During scoping, the Gila River Indian Community Members identified a sensitive sites of traditional and religion importance: a traditional travel corridor and its related songscape.

Because of the culturally sensitive nature of the travel corridor, it is not depicted in this EA. According to research and consultation conducted for an Arizona Department of Transportation (ADOT) project along State Route (SR) 85, the Komatke Trail is a travel corridor between the historical Piman villages of Oxibahibuiss and Comac/Komatke (Darling and Eiselt 2009). The corridor traverses across the bend in the Gila River around the Estrella Mountains to the east and the Buckeye Hills to the north. Segments and offshoots of the physical trail have been documented to the west of the project area along SR 85 (Darling and Eiselt 2009); however, no physical remnants have been documented along the Proposed Action.

This corridor is also one of several trail routes described by the Oriole Song Series of the Akimel O'odham of the Gila River Indian Community (Darling 2009). The Oriole Song Series creates a songscape by detailing the travel routes from east to west and then back from west to east following the movement of the sun in the sky during the day and through the underworld at night or fire below. The Oriole Song Series describes moving from South Mountain to the Estrella Mountains just east of the project area (Darling 2009). The songs then describe travels to the east beyond the Estrella Mountains all the way to the Gulf of California.

3.6 RANGELAND RESOURCES

3.6.1 Applicable Laws, Regulations, and Policies

Grazing Administration (43 CFR 4100) is the current guidance for administration of grazing on public lands, exclusive of Alaska.

The Taylor Grazing Act of 1934, as amended, was passed to protect public grazing land from overgrazing and soil deteriorating; "to provide for the orderly use, improvement, and development of public lands; and to stabilize the livestock industry dependent on the public range" (43 USC 315–315r).

FLPMA requires that public lands be managed in a manner that will protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archaeological values and that, where appropriate, will preserve and protect certain public lands in their natural condition. It was passed to establish policy for managing BLM-administered public lands. To ensure long-term stability and use of BLM-administered public lands by the livestock industry, FLPMA authorized 10-year grazing permits and required a 2-year notice of cancellation. The act also directed grazing advisory boards (formed under the Taylor Grazing Act) to guide the BLM in developing allotment management plans and allocating range betterment funds.

The Public Rangelands Improvement Act of 1978 (43 USC 1901 *et seq*.) establishes and reaffirms the national policy and commitment to inventory and identify current public rangeland conditions and trends; manage, maintain, and improve the condition of public rangelands so that they become as productive as feasible for all rangeland values, in accordance with management objectives and the land use planning process; charge a fee that is equitable for public grazing use.

The Standards for Healthy Rangelands and Guidelines for Livestock Grazing Management were developed to achieve the four fundamentals of rangeland health outlined in the grazing regulations

(43 CFR 4180.1). Those fundamentals are 1) properly functioning watersheds; 2) properly cycling water, nutrients, and energy; 3) State-met water quality standards; and 4) protection of habitat for special-status species.

3.6.2 Analysis Area

The analysis area for grazing management consists of those portions of the Arnold and Beloat grazing allotments that would be crossed by the Proposed Action (80-foot construction ROW). The Komatke Switchyard and Willis substation are closed to grazing.

3.6.3 Grazing Allotments

Two BLM grazing allotments intersect the Proposed Action. The western portion of the Proposed Action crosses 52 acres of the Arnold grazing allotment, and the eastern portion of the Proposed Action crosses 33 acres of the Beloat grazing allotment.

An animal-unit month (AUM) refers to the amount of forage necessary to feed one animal unit for a period of 1 month. An animal unit is defined as one mature cow weighing approximately 1,000 pounds and one calf up to weaning age, usually 6 months, or their equivalent of other animals. In the Beloat allotment 2,988 AUMs of grazing use are currently authorized on BLM-managed lands (BLM 2015). The Arnold allotment is managed for ephemeral grazing by livestock, meaning that grazing occurs only when there is sufficient annual forage growth to support grazing. The number of animals authorized for ephemeral use varies greatly between years, depending on forage production, market conditions, and availability of steers.

3.6.4 Range Improvements

Within the analysis area, livestock fencing is the only range improvement with the potential to be impacted. Fencing along pasture and allotment boundaries intersects the Proposed Action. In some cases, fence cuts would be required to facilitate the access spur roads, construction vehicles, and equipment. All fence cuts would be conducted in coordination with the Lower Sonoran Field Office rangeland specialist and as approved by the Lower Sonoran Field Office Field Manager.

3.7 GEOLOGY AND MINERALS

Unique or sensitive geological features and locatable and leasable minerals that could be affected by the construction or operation of the transmission line are identified, along with geological hazards that could result in potential risks to project construction or operation.

3.7.1 Applicable Laws, Regulations, and Policies

The Mining Law [30 USC 22–54] authorizes citizens to enter federal lands open to location and stake or "locate" mining claims upon discovery of a valuable mineral deposit and compliance with all other applicable statutory or regulatory requirements. A mining claim gives the claimant a possessory interest against the government and rival claimants. Mineral exploration and development conducted under the Mining Law must be performed in compliance with federal and State statutes and regulations.

Mineral deposits that are subject to appropriation under the Mining Law are termed "locatable" and include most metallic mineral deposits, such as uranium, and certain nonmetallic and industrial minerals, such as specialty building stone. Locatable minerals do not include minerals such as coal or oil and gas,

which are classified as "leasable." Deposits of sand and gravel are termed "salable" and may be available for purchase from the land managing agency.

The ability of a claimant to locate new mining claims under the Mining Law is terminated if the lands are withdrawn from location and entry under the Mining Law.

Due to the proximity of the Proposed Action to existing materials operations, including access roads and materials extraction, as well as the fact that the Proposed Action would cross Federal Mineral Estate that is classified as "open" (BLM 2012), the geology and minerals resource is analyzed in detail.

3.7.2 Analysis Area

The analysis area for geology and minerals includes the construction ROW.

3.7.3 Local Geology

The analysis area is located in the Little Rainbow Valley between the Buckeye Hills and Maricopa Mountains. It is located in the Margie's Peak 7.5-minute quadrangle map. Little Rainbow Valley is a small valley that lies between the Buckeye Hills to the north and the Maricopa Mountains to the south, and connects the much larger Rainbow Valley to the east with the Gila Bend area to the west. The analysis area is situated on alluvial fan deposits that are characteristic of Little Rainbow Valley.

3.7.4 Geological Hazards

There are no recorded earthquakes or active faults in the analysis area, which is reflected in the low frequency or magnitude of earthquake activity (seismicity) of the area. Therefore, earthquakes, general seismicity, landslides, and active faulting are unlikely to occur (BLM 2012).

3.7.5 Mineral Resources

The potential for locatable and leasable mineral resources, such as metallic resources, petroleum, or geothermal deposits, is low to none in or near the Proposed Action (BLM 2012). Salable sand and gravel deposits are available south of the Proposed Action, currently being quarried from a sand-and-gravel pit by Wesco Minerals, LLC. This operation extracts feldspathic white silica sand for use in various construction applications such as cement and playground sand.

The BLM-administered lands and those surface and sub-surface mineral estates surrounding the analysis area are open to locatable minerals with standard mitigation and are available for leasable minerals (BLM 2012), subject to existing valid rights.

The BLM database for mining claims on BLM-administered property indicates numerous current mineral claims in the northern and southwestern sections of the analysis area. North of the analysis area, Wesco Minerals, LLC, is quarrying sand and gravel deposits in Sections 12 and 21, Township 2 South, Range 3 West. The Wesco granite mine is located to the north, and a processing plant is located to the west of the analysis area (BLM 2005b).

The surface and mineral estates on the analysis area are owned by the federal government and are administered by the BLM Lower Sonoran Field Office. The lands are open to mineral entry under the Mining Law and are open to mineral material sales under 43 CFR 3602. There are no pre-1955 claims, oil and gas leases, or mineral activity occurring in the area.

The current mineral claims are in conformance with the Lower Sonoran RMP, approved September 2012.

A review of the Arizona Department of Mines and Mineral Resources Land and Mineral Use records indicates that there are no current land claims besides the current transmission and pipeline corridors that encompass the analysis area (Arizona Department of Mines and Mineral Resources 2007).

3.8 HUMAN HEALTH AND SAFETY

The health and safety concerns present within the Proposed Action are both natural and human-caused and may pose risks for individuals visiting or working within the area. Many of these topics, such as air quality, soils, and transportation, have been described more fully in the other sections.

3.8.1 Applicable Laws, Regulations, and Policies

The construction of the transmission line must be in conformance with Occupational Safety and Health Administration (OSHA) regulations set forth in 29 CFR 1926. The Occupational Safety and Health Act of 1970 (Public Law 91-596) created OSHA. The act requires employers to do the following:

- maintain conditions or adopt practices reasonably necessary and appropriate to protect workers on the job;
- be familiar with and comply with standards applicable to their establishments; and
- ensure that employees have and use personal protective equipment when required for safety and health.

The Emergency Planning and Community Right-to-Know Act of 1986 (42 USC 11001–11050) requires the private sector to inventory chemicals and chemical products, report those in excess of threshold planning quantities, inventory emergency response equipment, provide annual reports and support to local and state emergency response organizations, and maintain a liaison with the local and State emergency response organizations and the public.

The Pollution Prevention Act of 1990 (42 USC 13101–13109) requires and encourages prevention and reduction of waste streams and other pollution through minimization, process change, and recycling. It encourages and requires development of new technology and markets to meet the objectives.

3.8.2 Analysis Area

The human health and safety analysis area for this project is the project's construction ROW (80-foot buffer). This analysis area represents the area in which human health and safety may be at risk during construction and operation and maintenance of the proposed project.

3.8.3 Area Hazards

Area hazards to human health and safety are dominated by the presence of construction equipment and electrical transmission lines and facilities (i.e., the existing SRP 500-kV line, Komatke Switchyard, and Willis Substation), as well as the potential hazards associated with undeveloped desert lands in the region.

Electromagnetic frequencies (EMFs) are phenomena that occur both naturally and as a result of human activity. Naturally occurring EMFs are caused by the weather and Earth's geomagnetic field. In the case of a transmission line, magnetic fields are created when current flows through power lines. The strength of the fields is determined mainly by line current, line height, and distance. EMFs occur within the

analysis area from existing transmission lines, namely the existing SRP 500-kV, as well as the existing portions of the Willis Substation and the Komatke Switchyard.

Recreation Safety

The analysis area consists of hundreds of acres of natural desert, areas that are typically exposed to OHV traffic. OHV use can pose potential safety concerns for those using the vehicles in remote areas.

OHV traffic can also contribute to potential air quality issues in the immediate area of use as a result of increased particulate matter, particularly PM_{10} and O_3. As was discussed in more detail in Section 3.2, PM_{10} and O_3 can be inhaled into the lungs and cause health problems, including asthma. Gun safety is also a concern in the analysis area, as this area is a popular place for target shootings, subject to existing laws and regulations.

3.9 HAZARDOUS MATERIALS

3.9.1 Applicable Laws, Regulations, and Policies

In 2005, the EPA issued its final rule defining the scope of "all appropriate inquiry" to be conducted prior to property acquisition in order to qualify for certain defenses under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (or "Superfund"). The EPA's rule increased the burdens on prospective purchasers of property to investigate past uses and possible releases of hazardous substances. The EPA allows for the requirements of the rule to be satisfied by compliance with American Society for Testing and Materials (ASTM) Standard E 1527- 05.

The Resource Conservation and Recovery Act, as amended by Federal Facility Compliance Act of 1992 (42 USC 6901–6992) (RCRA), authorizes the EPA to manage, by regulation, hazardous wastes on active disposal operations. It waives sovereign immunity for federal agencies with respect to all federal, State, and local solid and hazardous waste laws and regulations, and makes federal agencies subject to civil and administrative penalties for violations, and to cost assessments for the administration of the enforcement.

The Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended by the Superfund Amendments and Reauthorization Act of 1986 (42 USC 9601–9673) (CERCLA), provides for liability, risk assessment, compensation, emergency response, and cleanup (including the cleanup of inactive sites) for hazardous substances. It requires federal agencies to report sites where hazardous wastes are or have been stored, treated, or disposed of and requires responsible parties, including federal agencies, to clean up releases of hazardous substances.

The Community Environmental Response Facilitations Act of 1992 (42 USC 9620(h)) is an amendment to CERCLA. The 1992 act expands on the risk assessment requirements for land transfers and disposal.

The Emergency Planning and Community Right-to-Know Act of 1986 (42 USC 11001–11050) (EPCRA) requires the private sector to inventory chemicals and chemical products, to report those in excess of threshold planning quantities, to inventory emergency response equipment, to provide annual reports and support to local and State emergency response organizations, and to maintain a liaison with the local and state emergency response organizations and the public.

The Pollution Prevention Act of 1990 (42 USC 13101–13109) requires and encourages prevention and reduction of waste streams and other pollution through minimization, process change, and recycling. It encourages and requires development of new technology and markets to meet the objectives.

Under ARS 49-99, 49-929, and 49-930, the State refers to the requirements to establish a hazardous waste program equivalent to and consistent with the federal hazardous waste program promulgated under RCRA Subtitle C. This subtitle establishes reporting requirements for the generation, storage, handling, transport, and disposal of hazardous waste. Certain waste materials generated at mining sites, however, are excluded from Subtitle C under the Bevill Amendment of 1980. Although the Bevill Amendment exempts much of the waste generated at mining facilities, hazardous waste generators activities that are "not unique" to the mining industry are subject to RCRA Subtitle C, such as hazardous waste generated from equipment servicing and repair and laboratory wastes that meet the criteria for hazardous waste under 40 CFR 262. On-site accumulation in excess of the requirements under 40 CFR 262.34 would require a storage permit. In some cases, on-site treatment or disposal would require a hazardous waste permit.

3.9.2 Analysis Area

The hazardous materials analysis area for this project is the 80-foot construction ROW.

3.9.3 Existing Conditions

The requested 80-foot construction ROW is almost entirely undeveloped; however, it would be located immediately adjacent to land that has been extensively developed, such as the Willis Substation, Rainbow Valley Road, the SRP 500-kV line, and the Komatke Switchyard.

Isolated instances of refuse dumping, to the extent found in the analysis area, are household trash, rather than industrial wastes that would be more likely to contain hazardous materials.

Construction of the proposed project would require small quantities of household-hazardous materials during construction that would require disposal (as described in Chapter 2). Surface contamination could occur, resulting from accidental spills of petroleum and other potentially hazardous materials used in construction activities. The potential for soil contamination is reduced by requiring prompt removal of hazardous materials.

3.10 NOISE

3.10.1 Applicable Laws, Regulations, and Policies

Local ordinances primarily address noise generated by motor vehicles, animals, and radios and sound amplification devices. Maricopa County Noise Ordinance P-23 (adopted February 15, 2006) states that noise at and above certain levels is detrimental to the health and welfare of Maricopa County citizens. The ordinance declares that it is the policy of Maricopa County to prohibit excessive, unnecessary, disruptive, and annoying noise from all sources. The ordinance also regulates public disturbances from commercial interests, unless produced in the normal conduct of business within the normal and customary hours of operation and by individuals on public streets and in public places.

Ordinance P-23 allows for exemptions of 18 source categories of noise, P-23, Section VI, Paragraph 9, states that "noise emanating from construction and repair equipment when used in compliance with existing Maricopa County rules and regulations" is exempt (Maricopa County 2006).

3.10.2 Analysis Area

The analysis area for noise is the 80-foot construction ROW. Elevations in and adjacent to the Proposed Action range from approximately 950 to 1,050 feet amsl.

3.10.3 Existing noise sources

Common noise sources in the analysis area include intermittent vehicles and OHVs, rustling vegetation, birds, insects, high-altitude aircraft, and localized equipment. The noise environment of the Proposed Action is considered to be extremely quiet, elevated primarily when an operating vehicle is present.

The Sonoran Desert National Monument and the North Maricopa Mountains Wilderness are located south of the analysis area and are composed of undeveloped desert areas with dirt roads for access. There are few daytime noise sources in proximity to the analysis area. Traffic on the paved Rainbow Valley Road and SR 85 1 mile west of and adjacent to the Willis Substation, respectively, are the primary traffic-related and OHV noise sources. All other roads in the vicinity of the analysis area are dirt roads that are generally flat and well maintained and have sporadic traffic.

3.11 LAND USE AND REALTY

The following section discusses current conditions in terms of land ownership, land use planning, and current land uses, including existing ROWs.

3.11.1 Applicable Laws, Regulations, and Policies

The primary legal basis for authorizing a ROW grant on BLM land is Section 501 of the FLPMA. Under FLPMA, the Secretary of the Interior is authorized to grant, issue, or renew ROWs over, on, or through such land for utilities, roads, trails, highways, railroads, canals, etc. FLPMA provides the BLM with authority to issue ROW grants for the use, occupancy, and development of the public lands. The regulations establishing procedures for the processing of these grants are found in 43 CFR 2800.

According to the ARS Title 14 Public Service Corporations; Corporations; Securities Regulation, Chapter 3 Corporation Commission Rules of Practice and Procedure, the Arizona Corporation Commission requires review of the general land use plans within 2 miles of the Proposed Action. In its review of siting factors, the Power Plant and Transmission Line Siting Committee must consider potential impacts to the existing plans of the State, local government, and private entities for other developments.

Federal, State, and local land-use planning data were obtained from planning documents in addition to the plans provided in Chapter 2. These plans consist of the following:

- *Lower Sonoran RMP* (BLM 2012). This plan was developed to ensure that public lands are managed on a multiple-use and sustained-yield basis and that the quality of natural resources is preserved.
- ADOT. This department is responsible for planning, building, and operating the highway system throughout the state. No specific plan applies to the Proposed Action; however, specific proposed projects near or proximate to the Proposed Action were reviewed.
- *Maricopa County 2020: Eye to the Future Comprehensive Plan* (Maricopa County 2002). This plan was developed for controlled development with an effort to conserve resources and protect the environment while still providing an efficient transportation system. It is intended as a guide

for decisions concerning growth and development and contains goals, policies, and standards to meet the plan.

- *Maricopa County SR-85 Corridor Area Plan* (2003). This plan was developed for the expansion of infrastructure and services, public recreation, water supply, protection of historic and cultural resources, and preservation of endangered and sensitive species and habitat for the immediate area around the SR 85 corridor and to be used in conjunction with the Maricopa County Comprehensive Plan.
- Maricopa Association of Governments (MAG) *2035 Regional Transportation Plan* (MAG 2014). These MAG plans were reviewed to assess the potential for the proposed project to intersect with any roadways planned in the vicinity of this proposed project. The proposed project would not intersect any of these planned roadways.
- *Interstate 11 (I-11) and Intermountain West Corridor Study, Technical Memorandum: Level 2 Evaluation Results* (Nevada Department of Transportation and ADOT 2014). This study was reviewed to assess the potential for the proposed project to intersect with the I-11 corridor. The I-11 corridor study identifies SR 85 as a potential corridor for I-11, which is outside the Proposed Action. The study also identifies the BLM El Paso Natural Gas multi-use corridor as a potential corridor for I-11, which is located south of the Proposed Action. The proposed project would not intersect any of the potential corridors for I-11.
- *City of Goodyear 2025 General Plan* (2014).
- *Town of Buckeye General Plan* (2007).

3.11.2 Analysis Area

The analysis area for existing lands and realty includes the construction ROW and connected actions (i.e., proposed substation and switchyard expansion).

3.11.3 Jurisdiction and Ownership

Land jurisdiction refers to the limits of administrative authority maintained by a federal, State, or local governmental agency or organization. Jurisdiction does not necessarily imply land ownership; however, in some cases the authority that has jurisdiction may also own the land. Three categories of land jurisdiction or ownership, described below, are found in the analysis area (Table 3-4, Figure 3-3).

Table 3-4. Jurisdictions

Entity	Miles Crossed	Acres of 40-ROW
BLM	8.75	42.42
ASLD	0.85	4.12
Private	2.40	11.64

Bureau of Land Management

The Lower Sonoran Field Office manages 1.4 million acres of public land in south-central Arizona for multiple uses and provides opportunities for recreation, mining, wildlife habitat, grazing, and wilderness preservation, in addition to other resource values and activities. The *Lower Sonoran RMP* applies to the analysis area. The plan is designed to guide future management of public lands in the Lower Sonoran Field Office. A variety of land actions (e.g., ROWs, easements, and permits) is evaluated on a case-by-case basis. The RMP provides opportunities for multiple land uses in the Proposed Action, and the

proposed transmission line project conforms to the intent of the plan. The majority of the analysis area (approximately 42 acres) are located on public land administered by the BLM Lower Sonoran Field Office.

There are two 1-mile-wide, BLM-designated utility corridors that contain existing transmission and pipeline facilities within or adjacent to the analysis area, as described below under "Utilities." Land-use demands for areas managed under the *Lower Sonoran RMP* are mainly for road and utility ROWs. With increased population growth and development, additional uses in the designated utility corridors are expected.

Arizona State Land Department

Approximately 4 acres of non-contiguous State land parcels are located in the analysis area. Most of these sections are located in the western portion of the analysis area to the west of the Komatke Switchyard. A ROW would be needed from ASLD for the portion of the transmission line crossing State land.

Private Lands

Approximately 12 acres of private owned lands are located in the analysis area, on the west and east banks of Waterman Wash. These areas were primarily used for agriculture and dirt/gravel storage. The agricultural fields have not been producing or used for many years, and are mainly overgrown with non-native grasses and vegetation.

3.11.4 Existing Land Use

Land in the analysis area is largely undeveloped but is crossed in multiple locations by the SRP 500-kV line access road. Where there is no access road, the land is characterized by vacant open desert by areas used for grazing, OHV use, and dispersed recreation. The analysis area does not include any residential areas or structures.

Two grazing allotments overlay the Proposed Action. Please refer to Section 3.6 ("Rangeland Resources") for more information on this land use.

On Arizona State lands, existing ROWs consist of transmission lines and the Komatke Switchyard.

Recreation

OHV use occurs throughout the analysis area, mostly on existing, unimproved roads and utility corridors. The Buckeye Hills Recreation Area and Sonoran Desert National Monument are outside the Proposed Action. However, OHV users and dispersed recreation users (e.g., hunters, equestrian use) may cross the analysis area when travelling to or from Buckeye Hills Recreation Area and/or Sonoran Desert National Monument.

Cross-country travel is not permitted.

Utilities

Electric power lines and natural gas pipelines are located within two BLM-designated multi-use utility corridors (Palo Verde to Kyrene and El Paso Natural Gas) that intersect the analysis area. The existing Komatke 500-kV Switchyard is located on the Komatke Road alignment, on the western edge of the analysis area. As described in Chapter 2, the Proposed Action includes expanding the existing Komatke Switchyard. The existing Willis 69-kV Substation is located on the east end of the analysis area.

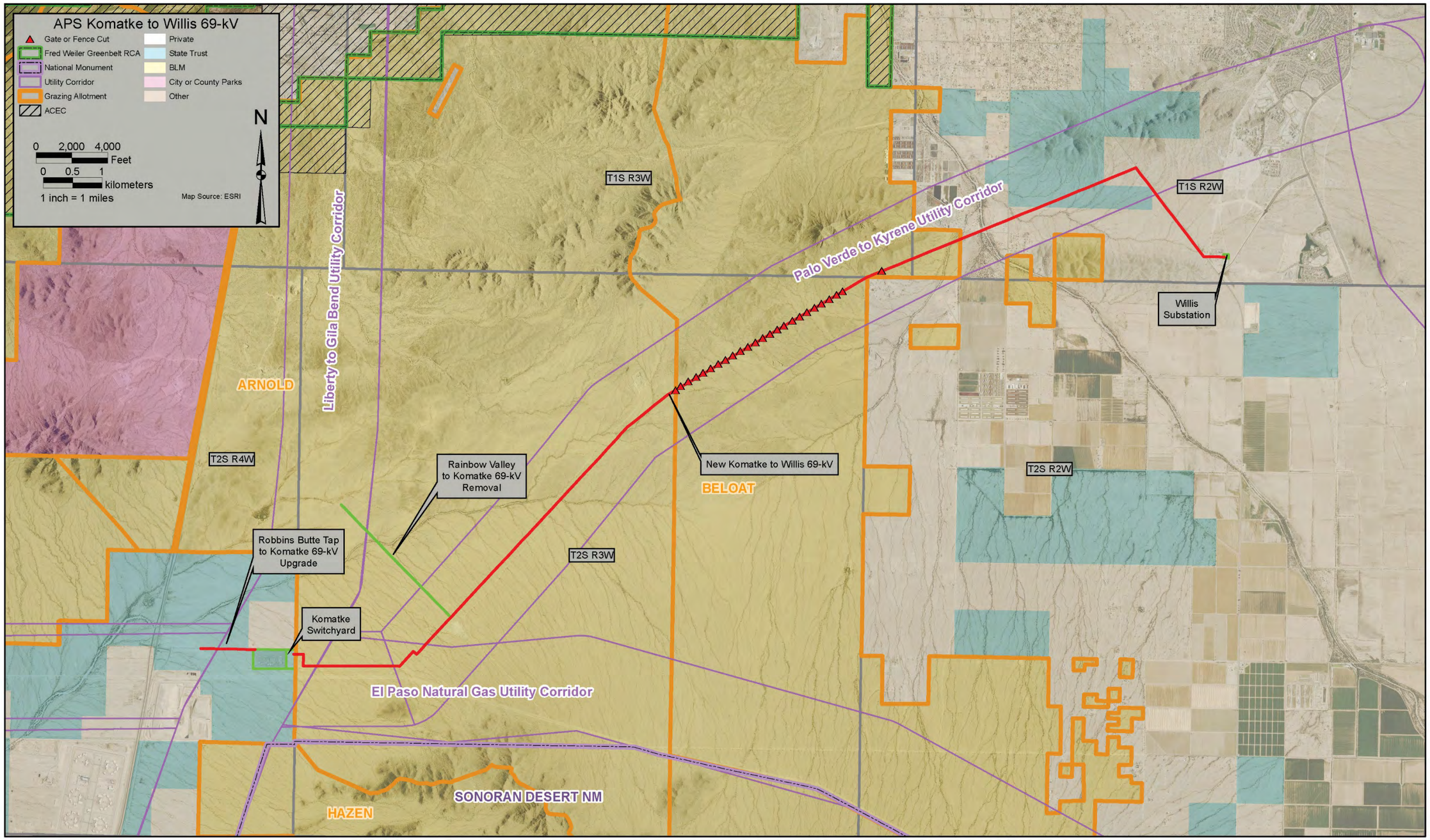

Figure 3-3. Land use.

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Existing power lines in the analysis area include the 1) Hassayampa to Kyrene 500-kV transmission line, owned by SRP; 2) the Palo Verde to Pinal West 500-kV transmission line, owned by SRP, APS, Santa Cruz Water and Power Districts, and Tucson Electric Power; 3) Rainbow Valley to Komatke 69-kV, owned by APS; and 4) the Robbins Butte Tap to Jojoba 69-kV transmission line, also owned by APS. The BLM-designated Palo Verde to Kyrene multi-use utility corridor is 1 mile wide (0.5 mile on either side of the existing SRP 500-kV transmission line). The proposed Project would be wholly located within this multi-use utility corridor, where it would cross BLM-administered land.

The BLM-designated El Paso Natural Gas multi-use utility corridor is also 1 mile wide, and is located south of the analysis area adjacent to the Sonoran Desert National Monument. Four El Paso Natural Gas pipelines and one Transwestern Pipeline are located in the BLM-designated El Paso Natural Gas Corridor along the Komatke Road alignment in the Proposed Action (see Figure 3-3).

3.12 SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE

The following section discusses current conditions in terms of social and economic conditions. Information in this section was obtained from various sources, including the general plans for the Cities of Buckeye and Goodyear, as well as from MAG.

3.12.1 Applicable Laws, Regulations, and Policies

The BLM (2005a) *Land Use Planning Handbook* (H-1601-1) specifies that the social and economic environment must be considered for all BLM land use planning decisions. Further, as noted in the BLM (2008) NEPA Handbook (H-1790-1), socioeconomic issues typically occur within communities located outside BLM-managed lands. Nevertheless, the BLM must analyze the impacts of a given decision or project on the social and economic resources of a community or region.

Section 202(c)(2) of FLPMA requires BLM to integrate physical, biological, economic, and other sciences in developing land use plans (43 USC 1712(c)(2)). FLPMA regulations 43 CFR 1610.4-3 and 4-6 also require BLM to analyze social, economic, and institutional information. Section 102(2)(A) of NEPA requires federal agencies to "insure the integrated use of the natural and social sciences . . . in planning and decision making" (42 USC 4332(2)(A)).

Federal agencies are also required to "identify and address . . . disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the United States" in accordance with EO 12898 on environmental justice. EO 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations, was signed by President Clinton in 1994.

The Lower Sonoran RMP (BLM 2012) provides information on and analyzes the social and economic conditions of the planning area where this project would be located. As discussed in the 2012 RMP, BLM management decisions have the potential to affect the social and economic conditions of communities and individuals.

3.12.2 Analysis Area

The Proposed Action would be located within the municipal planning limits of the city of Buckeye and city of Goodyear, in Maricopa County, Arizona. These municipal planning limits form the analysis area for socioeconomics and environmental justice.

3.12.3 Current Conditions

Lands in the vicinity of the project are categorized as open space in Buckeye's and Goodyear's General Plans (City of Goodyear 2014; Town of Buckeye 2007). The analysis area is composed of a mixture of BLM and State lands. Buckeye's planning area encompasses over 167 square miles, while Goodyear's encompasses 250 square miles. In 2010, there were over 22,000 and 26,500 housing units in the Buckeye and Goodyear planning areas, respectively, with an approximately 60% increase in units expected through 2020 (MAG 2013) (Table 3-5). Because the proposed project would be located on State and federal lands, and also set aside as open space, none of this growth is anticipated in the immediate vicinity of the project.

Table 3-5. Total Housing Units by Planning Area

	2010	2020
Buckeye	22,500	35,800
Goodyear	26,000	41,700
Maricopa County	1,640,700	1,816,200

The overall demographics, economy, and quality of life in the analysis area have changed dramatically in the past 15 years. Between 2000 and 2010, population in the Buckeye and Goodyear planning areas grew by 860% and 260%, respectively (MAG 2013). Population forecasts by MAG suggest another 65% (Buckeye) and 69% (Goodyear) increase in these two municipal planning areas through 2020 (MAG 2013) (Table 3-6).

Table 3-6. Total Resident Population by Planning Area

	2000	2010	2020
Buckeye	6,537	62,800	103,600
Goodyear	18,911	68,000	115,300
Maricopa County	3,072,149	3,889,161	4,507,200

The EPA defines a community with potential environmental justice populations as one that has a greater percentage of minority or low-income populations than does an identified reference community. Minority populations are those populations having 1) 50% minority population in the affected area, or 2) a significantly greater minority population than the reference area (EPA 1994). For this analysis, Maricopa County is the reference area; considering these criteria, there are no environmental justice populations in the analysis area (MAG 2013) (Table 3-7).

Table 3-7. Poverty and Race by Planning Area in 2010

	Percent Minority*	Percent Below Poverty Level
Buckeye	23.7	14.3
Goodyear	19.2	7.0
Maricopa County†	19.3	16.7

* All non–"white alone."

† Reference population.

3.13 SOILS

3.13.1 Analysis Area

The analysis area for soils consists of the 80-foot construction ROW in the Proposed Action where soils would be directly impacted by construction and maintenance of the transmission line.

3.13.2 Overview

According to the Natural Resources Conservation Service (2014), 23 soil types are mapped within the Proposed Action. Descriptions of all soils types within the analysis area shown in Figure 3-4 are found in Table 3-8.

Table 3-8. Soils in the Proposed Action

Map Unit	Description	Acres Occurring in the Proposed Action
Antho-Brios sandy loams	Somewhat excessively to excessively well-drained, very deep soils formed in recent mixed alluvium on alluvial fans and channels.	0.91
Antho sandy loam, 0% to 1% slopes	Somewhat excessively drained, very deep soils formed in recent mixed alluvium on alluvial fans and stream terraces.	2.47
Cherioni-Rock outcrop complex	Well-drained, shallow soils formed in alluvium and/or colluvium derived from andesite on hills and mountain slopes.	3.56
Coolidge gravelly sandy loam, 1% to 3% slopes	Well-drained, very deep soils formed in mixed alluvium on ridges and alluvial fans.	2.47
Dateland-Cuerda complex, 0% to 3% slopes	Well-drained, very deep soils formed in mixed alluvium and mixed stratified alluvium on fan terraces and floodplains.	1.93
Denure-Rillito-Why complex, 1% to 5% slopes	Somewhat excessively drained, very deep soils formed in mixed alluvium and mixed stratified alluvium on fan terraces and floodplains.	48.53
Estrella loam	Well-drained, very deep soils formed in recent medium textured alluvium over older mixed alluvium on alluvial fans and plains.	0.12
Gilman-Laveen association	Well-drained, very deep soils formed in recent mixed alluvium and mixed alluvium on alluvial fans and plains.	0.13
Gilman loam 1% to 3% slopes	Well-drained, very deep soils formed in recent mixed alluvium on stream terraces and alluvial fans.	1.42
Gilman loam, 0% to 1% slopes	Well-drained, very deep soils formed in recent mixed alluvium on alluvial fans, plains and stream terraces.	15.79
Gunsight-Rillito-Carrizo complex, 1% to 15% slopes	Somewhat excessively drained to excessively drained, very deep soils in mixed alluvium and recent mixed alluvium on fan terraces and floodplains.	15.10
Gunsight-Rillito complex, 0% to 10% slopes	Well-drained to somewhat excessively drained, very deep soils in mixed alluvium on alluvial fans.	0.27
Harqua-Gunsight complex, 0% to 5% slopes	Well-drained to somewhat excessively drained, very deep soils in mixed alluvium on alluvial fans.	4.93
Laveen loam, saline-alkali	Well-drained, very deep soils in mixed alluvium on alluvial fans and plains.	1.77
Pinal loam, 1% to 3% slopes	Well-drained, shallow soils in old gravelly and cobbly mixed valley fill alluvium on alluvial fans.	0.55

Table 3-8. Soils in the Proposed Action (Continued)

Map Unit	Description	Acres Occurring in the Proposed Action
Quilotosa-Momoli-Carrizo complex, 1% to 15% slopes	Somewhat excessively drained to excessively drained, shallow to very deep soils in alluvium derived from gneiss or granite and/or colluvium derived from granite or gneiss on hills, fan terraces, and floodplains.	9.00
Quilotosa-Rock outcrop complex, 15% to 55% slopes	Somewhat excessively drained, shallow soils in alluvium derived from gneiss or granite and/or colluvium derived from gneiss or granite.	0.11
Rillito loam, 0% to 1% slopes	Well-drained, very deep soils in mixed alluvium on alluvial fans.	0.36
Torripsamments and Torrifluvents, frequently flooded	Stratified sediment alluvium on floodplains.	0.76
Tremant-Rillito complex, 1% to 3% slopes	Well-drained, very deep soils in gravelly mixed alluvium and mixed alluvium on alluvial fans.	3.54
Tremant gravelly loam, 1% to 3% slopes	Well-drained, very deep soils in gravelly mixed alluvium on stream terraces and alluvial fans.	3.17
Tremant loam	Well-drained, very deep soils in gravelly mixed alluvium on alluvial fans and stream terraces.	0.88
Total		**117.77**

3.13.3 Prime and Unique Farmlands

Soils may be classified as prime or unique farmlands based on the physical, chemical, climatological, and sociological characteristics of the soil and land. Prime farmland is land that has physical and chemical properties that best support the production of food, feed, forage, fiber, and oilseed crops with minimal input of fuel, fertilizer, and pesticides. Unique farmland is land other than prime farmland used for producing specific high-value food or fiber crops. These lands have the special combination of soil quality, location, growing season, and moisture supply needed to produce economically sustainable high quality and high yields when acceptable farming methods are implemented. Soil units may be classified as prime farmland under current conditions or as prime farmland if certain qualifying conditions exist on the site (e.g., “prime farmland if irrigated,” “prime farmland when protected from flooding,” “prime farmland when irrigated and protected from flooding,” etc.).

Within the Proposed Action there are 7.36 acres of prime farmland if irrigated, 19.77 acres of prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season, and 1.77 acres of farmland of unique importance.

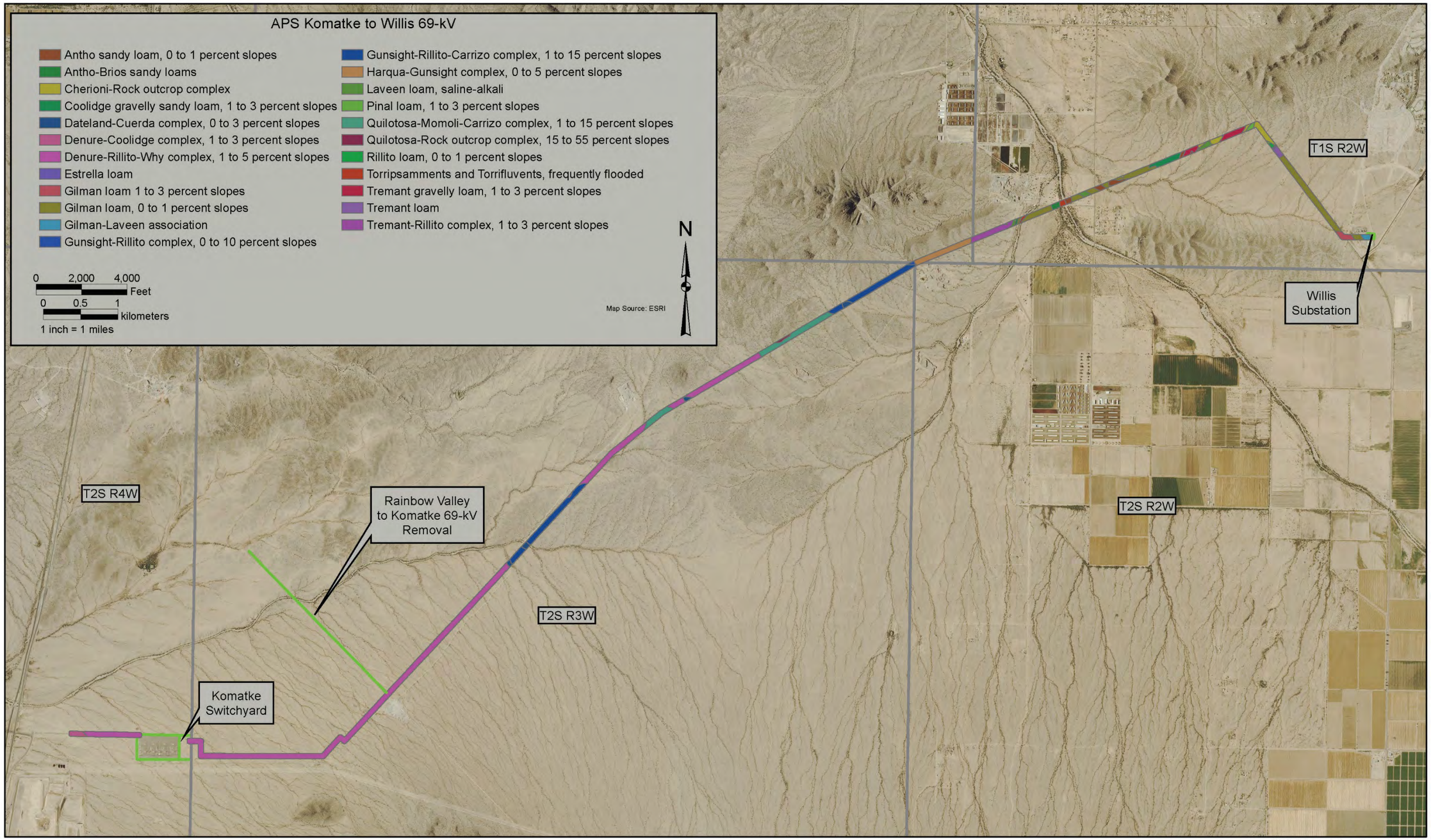

Figure 3-4. Soils.

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3.14 TRAVEL MANAGEMENT

3.14.1 Applicable Laws, Regulations, and Policies

BLM manages travel and transportation on BLM-administered lands in accordance with existing laws, regulations, and policies. FLPMA establishes the BLM's multiple-use mandate to serve present and future generations. Specific sections that pertain to BLM's travel management responsibilities include 43 USC 1701(a)(8); 43 USC 1701(a)(h); and 43 USC 1732(a).

3.14.2 Analysis Area

The analysis area for travel management is the construction ROW.

Access and Transportation

Access to the Proposed Action is via SR 85, which runs north and south approximately 1 mile west of the western end of the analysis area. SR 85 begins at the U.S.–Mexico border and terminates at I-10 in Buckeye. SR 85 is classified as a rural arterial highway in the Arizona State Highway System and a principal arterial highway on the National Highway System. There are no major roads in the Proposed Action; however, Rainbow Valley Road is an important arterial connector road and would be spanned by the Proposed Action (Figure 3-5).

Komatke Road and Haul Road are primitive roads used to access the existing Komatke Switchyard and the Wesco mining facility. Several primitive roads provide access from the Komatke Road to the Sonoran Desert National Monument. OHV trails are located along the BLM-designated utility corridors. The existing access road for the SRP 500-kV line is used for maintenance by SRP as well as recreation and OHV use. The BLM Lower Sonoran RMP designates the analysis area as "limited" to OHVs. OHVs are limited to existing and/or designated roads and vehicle routes. No cross-country vehicle travel is permitted (BLM 2012). The nearest lands managed to maintain wilderness characteristics are located over 1 mile south of the analysis area, within the Sonoran Desert National Monument.

3.15 VISUAL RESOURCES

Methods of analysis for this evaluation were based on BLM Visual Resource Management (VRM) guidance. The planning-level Visual Resource Inventory (VRI) reported herein provides the BLM's inventory of visual resources as identified and reported in the Lower Sonoran RMP.

The elements of the landscape are described in terms of form, line, color, and texture. Typically, the more variety in terms of these elements a landscape has, the more interesting or scenic the landscape becomes if the elements coexist harmoniously. The BLM manages landscapes that require varying levels of protection and modification, giving consideration to the uses and values of other resources and the scenic quality of the landscape.

The Lower Sonoran RMP analysis included an evaluation of scenic quality, sensitivity, and distance zones as well as VRM classes. A project-level analysis, or site analysis was performed and included an inventory of scenery, viewing locations, and associated Key Observation Points (KOPs) or critical views (SWCA Environmental Consultants 2015c). Critical viewpoints or KOPs were selected to represent critical viewing locations within the viewshed and are used to further assess the visual impacts to the viewing public from the construction and operation of the proposed transmission line. After the contrast rating evaluation and assessment of visual contrast were completed, the impacts to visual resource values

were assessed. The visual resource values (e.g., scenic quality, sensitivity, and distance zones) were used to characterize and inventory the visual landscape and serve as the baseline for resource impact assessment and are further detailed in this section.

3.15.1 Applicable Laws, Regulations, and Policies

NEPA and FLPMA are the primary laws that require the BLM to address potential effects on visual resources. BLM has developed a system of evaluation specific to visual resources and uses a VRI system to inventory visual resources on public lands. VRI classes are visual ratings that describe an area in terms of visual or scenic quality and viewer sensitivity to the landscape (the degree of public concern for an area's scenic quality). The VRI system uses four classes to summarize the full range of visual values assigned to the landscape: Classes I and II are the most valued, Class III represents moderate value, and Class IV represents the least value. The VRI provides the basis for considering visual values in the resource management planning process (BLM 1992). VRM class designations are legally binding land use plan decisions under FLPMA and 43 CFR 1600.

3.15.2 Analysis Area

The visual resources analysis area extends approximately 1 mile from the centerline of the proposed 69-kV line, in order to represent a reasonable viewshed from which the Proposed Action would be seen. This analysis area was determined through the use of BLM VRM guidance for visual analyses as well as a project-level GIS delineation of the geographic area visibility, referred to as a viewshed delineation. For this evaluation, a viewshed analysis, selection of KOPs, and subsequent visual contrast assessment from each KOP was conducted. An inventory and characterization of the affected environment for all alternatives was completed through the documentation of landform, vegetation, and water features (scenery), identification of KOPs and critical viewing locations, and identification of BLM VRI and VRM classifications.

3.15.3 Visual Resource Management

VRM classes are established through the resource management planning process. During the resource management planning process, the VRI class boundaries and assignments may be adjusted to reflect resource allocation decisions made in the RMPs. The BLM sets objectives for the management of landscape preservation and change. All lands are placed into one of four classes that identify the degree of acceptable landscape change or alteration, giving consideration to the scenic value of the landscape and other resource values and uses of the land, as described in Table 3-9. Class I objectives are established in areas where no landscape change is desired. Class IV objectives are set for landscapes where BLM manages for uses that will result in substantial landscape changes (e.g., mining, energy development, wind farms). Classes II and III allow for varying degrees of landscape preservation and change in between Classes I and IV. The VRM objectives can then be used to analyze and determine the visual impacts of proposed activities and to gauge the amount of disturbance an area can tolerate before it exceeds the visual management objectives of its VRM class (BLM 1992).

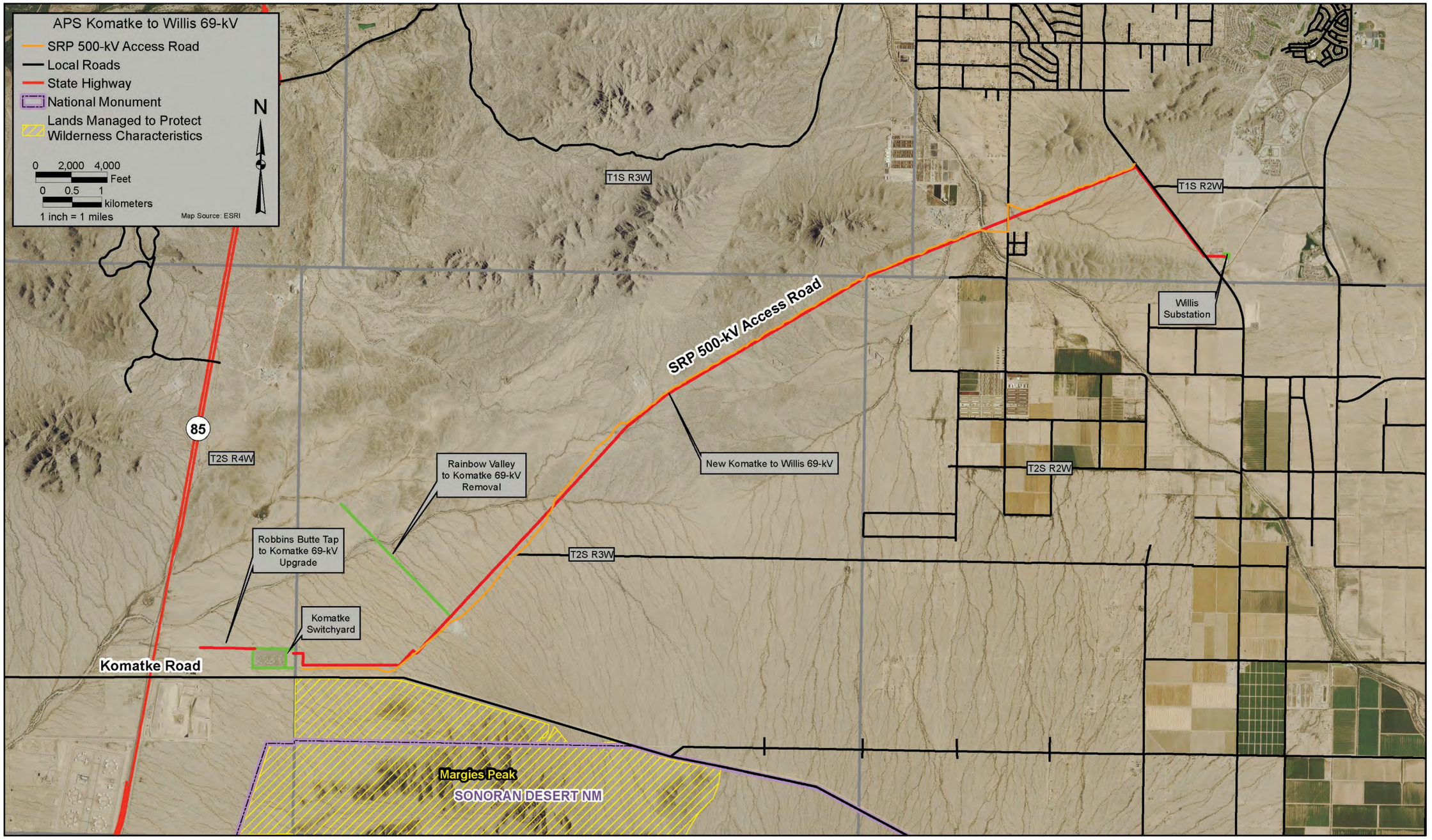

Figure 3-5. Travel management.

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Table 3-9. VRM Classes Defined

VRM Class	Definition
Class I Objective	The objective of this class is to preserve the existing character of the landscape. This class provides for natural ecological changes; however, it does not preclude very limited management activity. The level of change to the characteristic landscape should be very low and must not attract attention.
Class II Objective	The objective of this class is to retain the existing character of the landscape. The level of change to the characteristic landscape should be very low. Management activities may be seen, but should not attract attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.
Class III Objective	The objective of this class is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention, but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.
Class IV Objective	The objective of this class is to provide for management activities that require major modifications of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating of the basic elements.

Since the overall VRM goal is to minimize visual impacts, mitigating measures should be prepared for all adverse visual contrasts that can be reduced. This requirement also includes reduction of visual contrast within projects that have met the VRM class objectives (BLM 1986).

VRM analysis involves determining whether the visual impacts of the elements of the proposed project would meet the management objectives established in the RMP. The BLM has established a visual contrast rating process to complete this analysis (BLM 1986). The VRM class objectives for the analysis area were established in the Lower Sonoran RMP (BLM 2012). During this resource management planning process, the final VRM classes were adopted, indicating the amount of acceptable disturbance for BLM-administered lands.

All BLM lands within the analysis area are identified as VRM Class IV, which provides for management activities that require major modifications to the existing character of the landscape. These activities may dominate the view and may be the major focus of viewer attention. The Proposed Action would also be located on private and State lands, which are not subject to BLM VRM classifications or requirements for land modification.

3.15.4 Characteristic Landscape

The analysis area is located in the Basin and Range Province (Fenneman 1931), distinguished by isolated, roughly parallel mountain ranges separated by closed desert basins.

The analysis area is located in a basin loosely surrounded by the Buckeye Hills to the north, the Estrella Mountains to the east, the Maricopa Mountains to the south, and the Gila Bend Mountains to the west. The landscape is characterized by flat to low desert hills and plains with low vegetative diversity typical of creosote flats. Adjacent landscapes include agricultural land, the Buckeye Hills, and the mountain ranges of the Sonoran Desert National Monument. The landscape types in the Buckeye Hills and Sonoran Desert National Monument areas have more visual interest, with increased landform and vegetative diversity, saguaro cacti, and boulder outcroppings.

Cultural modifications contribute to the overall visual character of the analysis area. Conditions range from natural to completely modified and include pipelines, transmission lines, transportation routes, and other structural features that modify the natural setting. Modifications are limited to dirt surface tracks

and roads, transmission line structures, and fences. Modifications that directly modify the local project setting are located within the BLM-designated utility corridors. The El Paso Natural Gas utility corridor, which borders the Sonoran Desert National Monument, contains two parallel 500-kV transmission lines and four parallel natural gas pipelines adjacent to Komatke Road. The Komatke Switchyard is located within this utility corridor and connects two 500-kV transmission lines that cross SR 85 from the west and two additional 500-kV transmission lines that approach from the south. The second utility corridor, which includes a 500-kV transmission line, diverges to the northeast at the junction of Haul Road.

The results of the VRI process indicate that based on the combination of scenic quality rating units, sensitivity level rating units, and distance zones; the Proposed Action is in VRI Class IV. This VRI classification is consistent with the current RMP VRM objectives for the Proposed Action (BLM 1985). VRI Class IV encompasses approximately 39 acres of the requested 40-foot ROW.

3.16 WATER RESOURCES

3.16.1 Applicable Laws, Regulations, and Policies

The CWA (33 USC 1251–1376), as amended by the Water Quality Act of 1987, is the major federal legislation governing water quality. The objective of the CWA is "to restore and maintain the chemical, physical, and biological integrity of the nation's waters." Important sections of the CWA are as follows:

- Sections 303 and 304 provide for water quality standards, criteria, and guidelines.
- Section 401 (Water Quality Certification) requires an applicant for any federal permit that proposes an activity that may result in a discharge to WUS to obtain certification from the State that the discharge will comply with other provisions of the act.
- Section 402 establishes the National Pollutant Discharge Elimination System, a permitting system for the discharge of any pollutant (except for dredged or fill material) into WUS.
- Section 404 establishes a permit program for the discharge of dredged or fill material into WUS. This permit program is jointly administered by the U.S. Army Corps of Engineers and EPA.

In Arizona, the National Pollutant Discharge Elimination System program is administered by the ADEQ under the AZPDES program. The ADEQ issues permits on behalf of the EPA for activities in Arizona, except on Indian lands, that could cause impacts to surface water and groundwater sources, including construction activities. The ADEQ also administers water pollution control programs and water quality functions throughout the state. As part of the AZPDES program, projects that would disturb more than 1 acre of land are required to obtain coverage under Construction General Permit No. AZG2013-001. Construction activity subject to this permit includes clearing, grading, and disturbances to the ground, such as stockpiling or excavation.

As part of project implementation, a SWPPP must be developed and implemented to comply with conditions of the Construction General Permit. The SWPPP must include site-specific information on erosion and sediment controls and must list BMPs that will be installed to reduce pollutants and meet water quality standards. As part of the SWPPP, the applicant must implement BMPs to reduce or eliminate stormwater pollution. Dischargers must also comply with state water quality objectives, as defined in AAC Title 18, Chapter 11, Article 1.

ADEQ has developed surface water quality standards, including narrative limitations, to define water quality goals for Arizona's streams and lakes and provide the basis for controlling discharge of pollutants to surface waters. Beneficial uses for water bodies are identified in State water quality standards (AAC Title 18, Chapter 11, Article 1) and must be achieved and maintained as required under the CWA. Beneficial uses can include support of aquatic life, fish consumption, public water supply, and irrigation. The 303(d) list, as required by Section 303(d) of the CWA, is a list of water bodies that have a designated beneficial use that is impaired by one or more pollutants. Water bodies included on this list are referred to as "impaired waters." The State must take appropriate action to improve impaired water bodies by establishing total maximum daily loads and reducing or eliminating pollutant discharges.

The Arizona Department of Water Resources implements the Groundwater Management Code of 1980 and manages groundwater supplies throughout the state. The goal of the Groundwater Management Code is to control groundwater depletion and provide a means for allocation. Areas of heavy reliance on groundwater have been identified and designated Active Management Areas (AMAs). Pursuant to the Groundwater Management Code, the five designated AMAs are required to comply with regulations and remain the primary focus of Arizona Department of Water Resources' long-term groundwater management and conservation efforts. The Proposed Action is in the Phoenix AMA.

3.16.2 Analysis Area

The analysis area for water resources is the construction ROW.

3.16.3 Existing Conditions

The analysis area is in the southern part of the Phoenix AMA in the Little Rainbow Valley basin. The valley is bounded on the west by the Gila Mountains and on the east by the Sierra Estrella Mountains, and it is characterized by flat terrain that slopes gently to the northeast. The area consists primarily of undeveloped, creosote-dominated alluvial plains with unpaved roads near and intersecting the Proposed Action. Waterman Wash, an ephemeral wash that joins the Gila River near Buckeye, is in the northeast portion of the analysis area and is the primary drainage for Rainbow Valley. Agricultural fields are located within this area, mainly adjacent to Waterman Wash. There are no seeps, springs, riparian zones, or wetlands within the analysis area. No perennial surface water is present within the analysis area; however, numerous unnamed ephemeral washes that flow in response to rainfall form the Waterman Wash drainage basin. Waterman Wash is a relatively straight channel that becomes incised along its upper reaches (URS Corporation 2011a) in the vicinity of the Proposed Action.

A complete jurisdictional delineation will conducted prior to construction to support CWA Section 404 permitting, to minimize surface water impacts and to evaluate the extent to which washes within the analysis area exhibit characteristics the U.S. Army Corps of Engineers may consider indicators of potentially jurisdictional WUS, thus requiring a permit under Section 404 of the CWA. The delineation would identify WUS that would be affected by the Proposed Action. Section 404 permitting, if required, would be conducted by the APS, prior to construction.

Sheet flow is overland flow of water that is not concentrated into channels. Rain that is not absorbed in the soil will remain on the ground surface and can quickly run downstream as sheet flow with the potential to generate flooding. This flow process occurs in the Rainbow Valley, as wide shallow flow (URS Corporation 2011b) and large sheet flow areas were identified in the vicinity and within the Proposed Action (Kellogg 2011).

The analysis area receives both shallow sheet flow and channelized flow during large storm events. The Federal Emergency Management Agency Flood Insurance Rate Maps for the analysis area (panels 4013C2935L, 04013C2955L, 04013C2595L, and 04013C2625L) show that portions of the Proposed Action are located in 100-year and 500-year floodplains as designated by the Federal Emergency Management Act (Flood Control District of Maricopa County 2015) and in pending floodplains. These floodplain areas occur where the analysis area crosses larger washes such as Waterman Wash.

No groundwater use or extraction on BLM-administered lands would be required.

Chapter 4

ENVIRONMENTAL CONSEQUENCES

4.1 INTRODUCTION

Chapter 4 discusses the environmental impacts that the implementation of the Proposed Action and No Action Alternative may have on the existing environmental conditions. The impact analysis is based on the resources presented in Chapter 3 and the potential effect of the Proposed Action, as outlined in Chapter 2, combined with the professional judgments of the BLM.

The terms "effect" and "impact" are synonymous under NEPA. Actions that could impact the human environment (i.e., the natural and physical environment and the relationship of people with that environment) have been analyzed, and the conclusions drawn from analysis are described under the appropriate resource sections. Effects may be direct, indirect, or cumulative in nature. Cumulative effects are analyzed at the end of this chapter. Effects, or impacts, can be beneficial or adverse, can result from the action directly or indirectly, and can be long term, short term, temporary, or cumulative in nature. A direct effect occurs at the same time and place as the action. Indirect effects are reasonably foreseeable effects that occur later in time or are removed in distance from the action. Direct and indirect effects are discussed in combination under each affected resource.

Unless specifically stated otherwise under each resource impact analysis herein, impacts that could result if the "Proposed Action" were implemented refers to all elements which comprise the Proposed Action (and their associated temporary and permanent disturbances, if any), as described in Chapter 2: new ROW grant, new 69-kV line; new substation; new switchyard; removal of 1.62 miles of existing 69-kV line, and upgrade to 1 mile of 69-kV line. Impacts that may have the potential at only specific locations of the Proposed Action (e.g., the new 69-kV line) are described in a site-specific context. Further, references to the "ROW application" assume that all elements of the Proposed Action would be included in the ROW application, and if approved by the BLM, would be included in the ROW grant.

Significance is defined by the CEQ as a measure of the intensity and context of the effects of an action on, or the importance of that action to, the human environment. Significance is a function of the beneficial and adverse effects of an action on the environment.

Intensity refers to the severity or level of magnitude of impact. Proximity to sensitive areas or protected resources, public health and safety, level of controversy, unique risks, or potentially precedent-setting results are all factors considered in determining the intensity of the effect. This EA uses the terms major, moderate, or minor/negligible in describing the intensity of effects (Table 4-1).

Context means that the effect(s) of an action must be analyzed within a framework or within physical or conceptual limits. Resource disciplines, location, type, or size of area affected (e.g., local, regional, national), and affected interests are all elements of context that ultimately determine significance. For this EA, both short- and long-term impacts are relevant.

Short-term effects, or impacts, result in changes to the environment that are stabilized or mitigated rapidly and without long-term effects; these changes typically occur during construction, or may be sporadic maintenance events during the life of the Proposed Action (less than 1 year). Long-term impacts are defined as those that would remain substantially for the life of the Proposed Action, or beyond short-term impacts (more than 1 year; or, beyond the life of the project [30 years]).

Table 4-1. Standard Resource Impact Descriptions for Magnitude and Duration

	Description Relative to Resource
Magnitude	
No Impact	Would not produce obvious changes in baseline condition of the resource.
Minor/ Negligible	Impacts would occur, but resource would retain existing character and overall baseline conditions.
Moderate	Impacts would occur, but resource would partially retain existing character, and mitigation measures would be required. Some baseline conditions would remain unchanged.
Major	Impacts would occur that would create a high degree of change within the existing resource character and overall condition of resource; mitigation would not decrease magnitude.
Duration	
Short term	During construction and up to 1 year (from when ground-disturbing activities begin, through reclamation when vegetation has been reestablished in construction areas).
Long term	More than 1 year, life of the Project and beyond (30 years+).

4.2 AIR RESOURCES AND CLIMATE CHANGE

This section describes the impacts to air quality and climate change associated with the construction, operation, and maintenance of the proposed transmission line, switchyard, substation, line removal, and line expansion. Impacts to air quality are discussed in terms of Proposed Action emissions of criteria air pollutants and GHGs. A general screening-level impact analysis has been conducted to predict ambient concentrations of air pollutants for Proposed Action–related activities that have the greatest potential to affect applicable ambient air quality standards.

4.2.1 Proposed Action

The Proposed Action would be required to comply with all applicable air quality regulations associated with sources of emissions and to obtain all required air quality permits from the appropriate regulatory authorities. Since the project is located in the Maricopa County PM_{10} nonattainment area, APS would coordinate all air quality permitting with the Maricopa County Air Quality Department.

Construction activities would result in short-term air pollutant emissions from equipment exhaust, vehicle exhaust from travel to and from the project staging areas and along the Proposed Action, and fugitive dust from soil disturbance. Activities required during construction of the Proposed Action (e.g., use of combustible engines, equipment, vehicles) would emit low levels of NO_X and SO_2, which are the potential acid-producing pollutants emitted from mobile sources during construction and operation and maintenance. Emissions from vehicle travel during operation and maintenance would be minimal, and mileage for vehicle travel to substations and the transmission line for routine inspection would be much less than during construction.

The environmental protection and mitigation measures for the project (see Chapter 2) would include fugitive dust controls, mobile and stationary source controls, and administrative controls to minimize construction-based emissions. Operational emissions would be minor and substantially lower than those of construction emissions. The emissions are not anticipated to significantly contribute to climate change on a regional or global scale.

4.2.2 No Action

Under the No Action Alternative, the ROW request would not be granted and the Proposed Action (i.e., new substation; new switchyard; removal of 1.62 miles of existing 69-kV line, and upgrade to 1 mile of 69-kV line) would not be constructed. The ground disturbance associated with access road construction would remain at existing levels. There would be no project-related emissions or impacts to air quality.

The No Action Alternative would not impact climate change since no GHGs would be emitted under the No Action Alternative.

4.3 BIOLOGICAL RESOURCES (INCLUDING SPECIAL STATUS SPECIES, VEGETATION, NOXIOUS WEEDS, WILDLIFE)

This section describes the impacts to biological resources associated with the construction, operation, and maintenance of the proposed transmission line, switchyard, substation, line removal, and line expansion.

4.3.1 Proposed Action

Vegetation

Construction of the Proposed Action would impact vegetation where clearing and trimming of trees and shrubs would occur as needed to remove vegetation that would interfere with the construction, operation, and maintenance of the Proposed Action. Vegetation impacts could occur within the 113.6 acres of the construction ROW, and 3.65 acres of other temporary work areas (laydown yard and pulling sites). In construction areas where recontouring is not required, vegetation would be left in place wherever possible to avoid excessive root damage and allow for resprouting. After construction, the construction ROW would be reclaimed using a BLM-approved seed mix and salvaged native plants, where appropriate.

Long-term, permanent impacts from the operation and maintenance of the Proposed Action would include vegetation maintenance within a 20-square-foot area at each pole location, resulting in 0.076 acre of vegetation loss, and access roads, resulting in 8.64 acres of vegetation loss. No vegetation would be lost at the Robbins Butte 69-kV line, Komatke switchyard, or Willis substation since these area has been previously disturbed. Approximately 4 acres would be available for revegetation when the 1.62-mile long Rainbow Valley 69-kV line is removed and reclamation is implemented.

Noxious Weeds

Construction, operation and maintenance of the Proposed Action would not contribute to the spread of invasive species or noxious weeds with implementation of the following BMPs:

- Construction and maintenance equipment would be kept free of invasive species by washing the equipment prior to entering the construction site, prior to moving equipment from infested to non-infested areas of the project, and prior to departing the site.
- Any fill, seed, or mulch material brought in from off-site would be fee of invasive and non-native species seed.

- Equipment and tools used in routine maintenance should be cleaned when moving from an infested area to an uninfested area to prevent spread of weeds along the corridor.

Wildlife

Short-term impacts to wildlife, migratory birds, and special status species include removal or crushing of existing vegetation and compaction of soils from construction. Species could also be disturbed by construction noise and human activity. The construction ROW is 117.25 acres, where site-specific locations may disturb or remove vegetation and potential habitat during construction. Approximately 8.72 acres would be permanently removed for the pole structures and access roads, thereby permanently removing potential habitat. In general, no long-term effects on wildlife are anticipated from the implementation of the Proposed Action. No habitat would be lost at the Komatke switchyard, or Willis substation since the area has been previously graded and graveled, and each is enclosed by a fence. Approximately 4 acres of potential wildlife habitat could be created when the 1.62-mile-long Rainbow Valley 69-kV line is removed and reclamation is completed.

In general, no short- or long-term effects on migratory birds are anticipated from the implementation of the Proposed Action. Prior to vegetation clearing during the bird breeding season (March–August), pre-clearing nesting bird surveys would be conducted to ensure avoidance of any occupied nests; however, incidental mortality or displacement is possible on a local scale. Plant communities present in and along the Proposed Action are widespread elsewhere, and many birds occurring locally would likely move into adjacent habitats in response to temporary habitat disturbance of up 117.25 acres of construction-related surface disturbance and 8.72 acres of permanent upland vegetation loss.

Special Status Species

Special status species with the potential to occur on lands included in the Proposed Action were evaluated for possible impacts from the Proposed Action. Ten special status species were identified as likely to occur within the construction ROW.

SONORAN DESERT TORTOISE

The Sonoran desert tortoise is federally listed as a candidate species, as well as a BLM sensitive species.

Threats to the Sonoran desert tortoise include habitat loss from urban and agricultural development, invasive species, and roads and highways, as well as barriers to dispersal and genetic exchange (USFWS 2012).

Certain lands that would be crossed by the Proposed Action may be used by Sonoran desert tortoise for dispersal between nearby mountain ranges (namely on BLM-administered lands along the new 69-kV ROW). The Proposed Action would pass through 2.2 miles of BLM Designated Category 3 Desert Tortoise habitat (refer to Figure 3-2). There are no known occurrences of this species within 3 miles of the Proposed Action (Arizona Heritage Geographic Information System 2014; SWCA Environmental Consultants 2015b). Direct impacts to Sonoran desert tortoise potentially present in the Proposed Action could result from construction, operation, and maintenance activities, and include habitat loss (up to approximately 9 acres would be permanently lost), potential for collisions with construction and maintenance equipment, and noise-related impacts. Indirect impacts include the increased potential for the area to be invaded by non-native weedy species, altering the composition of vegetation in tortoise dispersal habitat.

The following BMPs would mitigate impacts to Sonoran desert tortoise:

- Preconstruction surveys for desert tortoise would be conducted in suitable habitat. A worker environmental awareness 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).
- 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. 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.
- Off-road equipment would be cleaned of all mud, dirt, and plant parts prior to moving equipment onto public land to minimize the potential for introduction of non-native species.

With the implementation of avoidance and mitigation measures the project may impact individuals through loss of habitat, but it is unlikely to lead to federal listing of the species or loss of population viability.

Bald eagle

Habitat within the Proposed Action could be used by bald eagles as foraging habitat; however, as the species generally forages near water, it is unlikely to be an important foraging resource for the species. As the foraging habitat is abundant north along the Gila River, it is unlikely that the Proposed Action would have a significant impact to bald eagle foraging habitat in the area. There would 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.

Desert purple martin

The desert purple martin is a small passerine bird that nests in cavities. In the Sonoran Desert, the species often uses cavities in saguaros for nesting. There are saguaros present in and along the Proposed Action; however, they are present at a low density. While some saguaros may need to be removed from certain areas of the Proposed Action, all cavities would be investigated to verify that there are no nesting birds present in cavities prior to removal. The species arrives in the Sonoran Desert during late May/early June and begins breeding in July. The species departs the Sonoran Desert in September or October. Based on the amount of available bird nesting habitat in the surrounding areas and the results of preconstruction surveys for nesting birds, construction-related activities would have no detectable effect on the viability of this species, nor would they contribute to a downward population trend or listing of the species as threatened or endangered.

Gilded flicker

The gilded flicker is a medium-sized bird that nests in cavities in saguaros. There are saguaros present in and along the Proposed Action; however, they are present at a low density. While some saguaros may need to be removed from certain areas of the Proposed Action, all cavities would be investigated to verify that there are no nesting birds present in cavities prior to removal. Based on the amount of available bird nesting habitat in the surrounding areas and the results of preconstruction surveys for nesting birds, construction-related activities would have no detectable effect on the viability of this species, nor would they contribute to a downward population trend or listing of the species as threatened or endangered.

LeConte's thrasher

The LeConte's thrasher is a medium-sized bird found in the southwestern deserts of the United States. The species is found in desertscrub and riparian areas, where it nests in shrubs. There is abundant habitat for the species in and along the Proposed Action and vicinity. Based on the amount of available habitat in the surrounding areas and the results of preconstruction surveys for nesting birds, construction-related activities would have no detectable effect on the viability of this species, nor would they contribute to a downward population trend or listing of the species as threatened or endangered.

Western burrowing owl

The western burrowing owl is a small owl that uses the burrows of other species for nesting. They occur in open areas, where they hunt insects and small mammals. There is habitat for the species throughout the Proposed Action and vicinity. No evidence of nesting burrowing owls was identified during field reconnaissance. Based on the amount of available habitat for the western burrowing owl in the surrounding areas and preconstruction nesting bird surveys, including for western burrowing owl, construction-related activities would have no detectable effect on the viability of this species, nor would they contribute to a downward population trend or listing of the species as threatened or endangered.

California leaf-nosed bat

The California leaf-nosed bat roosts in mines, rock shelters, and human-made structures. No roosts for the species are present in the lands that comprise the Proposed Action. However, the certain areas of the Proposed Action may be used by the species for foraging activities. Based on the amount of available foraging habitat for the species in the project vicinity, the loss of habitat from construction-related activities would have no detectable effect on the viability of the species, nor would it contribute to a downward population trend or listing of the species as threatened or endangered.

Cave myotis

The cave myotis roosts in mines, caves, tunnels, mine shafts, and under bridges, and, at times, in buildings within a few miles of water. No roosts for the species are present in the Proposed Action; however, certain areas of the Proposed Action may be used by the species for foraging. Based on the amount of available foraging habitat for the species in the project vicinity, the loss of habitat from construction-related activities would have no detectable effect on the viability of the species, nor would it contribute to a downward population trend or listing of the species as threatened or endangered.

Greater western mastiff bat

The greater western mastiff bat roosts in cliffs and crevices in rocky canyons. There is no suitable roosting habitat for the species in the Proposed Action. However, suitable roosting habitat for the species is present in the Sonoran Desert National Monument, south of the Proposed Action. The Proposed Action is within the foraging range of the species (15 miles from the roost) and may be used by the species for foraging. Based on the lack of roosting habitat and the amount of available foraging habitat in the Proposed Action, the loss of foraging habitat from construction-related activities would have no detectable effect on the viability of the species, nor would it contribute to a downward population trend or listing of the species as threatened or endangered.

Tucson shovel-nosed snake

The Tucson shovel-nosed snake occurs at elevations between 785 and 1,662 feet amsl and has historically occurred at elevations to 2,300 feet amsl in creosote-mesquite floodplains with soft, sandy soils. The species moves by swimming through sand or loose soils and is most active at dawn and dusk. It may rest under a shrub during daytime hours (AGFD 2010; USFWS 2013). Within the proposed ROW, habitat for the Tucson shovel-nosed snake is located along Waterman Wash. The sandy soils used by the species are present outside the wash banks for approximately 300 feet from the east bank of the wash and approximately 500 feet from the west bank of the wash. No other creosote-mesquite floodplains are present in the Proposed Action.

Potential direct impacts from the Proposed Action on the Tucson shovel-nosed snake would include crushing by construction and maintenance vehicles; habitat loss and degradation; noise-related impacts; and changes to prey populations from habitat impacts. Based on the limited available foraging habitat for the species in the Proposed Action and the availability of habitat in the vicinity, the impacts from construction-related activities would have no detectable effect on the viability of the species, nor would they contribute to a downward population trend or listing of the species as threatened or endangered.

Wildlife Connectivity/Linkages

The Proposed Action intersects approximately 5 miles of the Buckeye Hills to Gila Bend Mountains Wildlife Movement Corridor, which allows for movement between the Gila Bend Mountains through Buckeye Hills, and into the North Maricopa Mountains and Sonoran Desert National Monument. Potential impacts from the Proposed Action on the wildlife linkage would include temporary increases in noise and vehicle traffic, as well as removal of some vegetation within the corridor during construction and removal activities. Impacts on the linkage may include temporary avoidance of areas near ongoing construction by wildlife species as a result of noise and the presence of workers. The removal of vegetation during construction would remove some wildlife dispersal habitat. However, impacts of noise and workers present would be temporary and localized and would cease with the completion of construction and removal activities. Areas where noise impacts and vegetation removal would occur would be a very small portion of the overall movement corridor and would be unlikely to create any significant barriers to wildlife movement in the area.

A standard crossing/ford on an ephemeral stream would be installed at drainages and wash crossings. The crossings may require grading to decrease bank angle, but the wash would not be graded or dredged; washes/drainages would continue to be available for small terrestrial wildlife as movement corridors/migration routes.

4.3.2 No Action

Under the No Action Alternative, the ROW application would not be approved, and no construction would take place. Thus, no adverse direct or indirect impacts to biological resources would occur.

4.4 CULTURAL AND HERITAGE RESOURCES

This section describes the impacts to cultural and heritage resources associated with the construction, operation, and maintenance of the proposed transmission line, switchyard, substation, line removal, and line expansion.

4.4.1 Proposed Action

The primary impact indicator for cultural resources is the number of eligible cultural resource sites to be disturbed within the analysis area. Fourteen IOs and three historic roads may be affected by this project. Up to approximately 9 acres would be permanently disturbed. No other cultural resources will be impacted, and no treatment is recommended for the project to proceed.

Mitigation measures are designed to reduce, minimize, or negate impacts of the Proposed Action on important resources. In accordance with the measures detailed in Section 2.6, in the event of an unanticipated discovery of cultural material during project activities, all work would stop at that location until the find is evaluated by a professional archaeologist. The BLM Lower Sonoran Field Office would be notified, and work would not begin again in the area until clearance is obtained. No additional mitigation measures have been recommended.

4.4.2 No Action

Under the No Action alternative, the ROW application would not be approved, and no construction would take place. Thus, no adverse direct or indirect impacts to cultural resources would occur.

4.5 TRIBAL CONCERNS

Tribal consultation is ongoing. The Gila River Indian Community, Tohono O'odham Nation, and Hopi Tribe responded with letters indicating interest in the consultation process and were sent copies of the draft cultural report.

The Gila River Indian Community has a continuing concern about a traditional travel corridor, called the Komatke Trail. This travel corridor, according to tradition, crosses Rainbow Valley several miles south and east of the proposed project. No direct impacts to this traditional travel corridor or songscapes have been identified.

4.6 RANGELAND RESOURCES

This section describes the impacts to rangeland resources associated with the construction, operation, and maintenance of the proposed transmission line, switchyard, substation, line removal, and line expansion.

4.6.1 Proposed Action

Grazing Allotments

Forage removal from the two grazing allotments crossed by the Proposed Action would be the primary impact to grazing resources. Construction of the transmission line may affect up to 117.25 acres of vegetation, which represents 0.12% of the BLM grazing allotments intersected by the Proposed Action. Approximately 8.71 acres would be permanently removed from grazing.

Range Improvements

Engineering designs (see Appendix A) indicate that approximately 25 locations along the Arnold allotment fencing would require cutting to facilitate the location, construction, and operation of the access spur roads. Permanent gates (four-strand, wildlife-friendly, barbed-wire gate) would be installed at each

access spur road to facilitate access during operation and maintenance of the transmission line. These gates may or may not require locks; the BLM rangeland specialist would work with the allotment permittee during final design to identify where locks may be required.

4.6.2 No Action

Under the No Action Alternative, the ROW application would not be approved, and no construction would take place. Thus, no adverse direct or indirect impacts to rangeland resources would occur.

4.7 GEOLOGY AND MINERALS

This section describes the impacts to geology and minerals associated with the construction, operation, and maintenance of the proposed transmission line, switchyard, substation, line removal, and line expansion.

4.7.1 Proposed Action

The Proposed Action would have a negligible effect on geology and minerals. The occupancy of BLM lands by the permanent, 40-foot ROW (if a ROW is granted by the BLM) may limit mineral exploration and development on up to 117.25 acres since the BLM-administered lands crossed by the Proposed Action are currently open to mineral exploration and development. The BLM must consider complete applications for exploration and development of mineral interests, but valid existing rights such as this ROW would be taken into consideration through the analysis and approval process.

4.7.2 No Action

Under the No Action Alternative, the ROW application would not be approved, and no construction would take place. Mineral exploration and development would be available on the 117.25 acres if the BLM does not grant a ROW to APS, subject to valid existing rights.

4.8 HUMAN HEALTH AND SAFETY

This section describes the impacts to human health and safety associated with the construction, operation, and maintenance of the proposed transmission line, switchyard, substation, line removal, and line expansion.

4.8.1 Proposed Action

Potential risks associated with construction activities include, but are not limited to, electrocution, exposure to extreme weather, falling, exposure to hazardous materials, and injury from equipment and materials. There is also a minor risk to recreation users and other visitors to BLM-administered lands during construction; however, the general public would be prohibited from entering the construction ROW (up to 117.25 acres) during construction activities. All equipment would either be locked in the temporary storage yard or secured during non-working hours. The construction of the Proposed Action is temporary and would be confined to the footprint of the transmission lines, access roads, switchyard, and substation; thus, the increase in potential risk to human health and safety associated with construction activities would be short term and minor. The risks to human health and safety during operation and maintenance of the Proposed Action would be minor but long term. Construction safety requirements and

mitigation measures would meet the OSHA standards, and site-specific occupational safety would be developed as appropriate.

EMFs produced by the proposed transmission line are not expected to exceed safety guidelines; therefore, any increased risk of public exposure to electromagnetic fields from the Proposed Action would be considered negligible. No adverse direct or indirect effects on human health and safety are expected.

4.8.2 No Action

Under the No Action Alternative, the ROW application would not be approved, and no construction would take place. Thus, there would not be an increased risk to occupational safety from the construction and operation/maintenance of the Proposed Action, and there would be no adverse direct or indirect effects on human health and safety.

4.9 HAZARDOUS MATERIALS

This section describes the hazardous materials impacts associated with the construction, operation, and maintenance of the proposed transmission line, switchyard, substation, line removal, and line expansion.

4.9.1 Proposed Action

During construction, operation, and maintenance, there is a potential risk of contamination to soil through leaks from equipment or accidental releases within the Proposed Action (up to approximately 40 acres [permanent ROW]). A SWPPP will be developed to minimize the risk of an accidental release. If previously unidentified hazardous materials are encountered during construction or operation and maintenance, work would stop at that location until the material was investigated and proper action implemented. No adverse direct or indirect effects from hazardous materials are expected.

4.9.2 No Action

Under the No Action Alternative, the ROW application would not be approved, and no construction would take place. Thus, no adverse direct or indirect impacts to hazardous materials would occur.

4.10 NOISE

This section describes the noise impacts associated with the construction, operation, and maintenance of the proposed transmission line, switchyard, substation, line removal, and line expansion.

4.10.1 Proposed Action

Noise levels resulting from the Proposed Action would be almost entirely due to construction-related activities, which would result in a temporary increase in noise levels during daytime hours and may cause localized impacts in the immediate vicinity of the project. Noise levels associated with construction activities may range from approximately 75 to 85 A-weighted decibels (dBA) within 50 feet of the activity. Since the area is primarily vacant and undeveloped land, noise impacts are expected to be unnoticed, short term, and minor. Measures would be implemented to mitigate noise impacts to noise-sensitive receivers during construction activities. For example, levels of noise would be reduced to low or none during nighttime hours.

4.10.2 No Action

Under the No Action Alternative, the ROW application would not be approved, and no construction would take place. Thus, no adverse direct or indirect noise impacts to would occur.

4.11 LAND USE AND REALTY

This section describes the impacts to land use and realty associated with the construction, operation, and maintenance of the proposed transmission line, switchyard, substation, line removal, and line expansion.

4.11.1 Proposed Action

There would be no change in land ownership under the Proposed Action.

The change in land use from mostly undeveloped, open desert (paralleling existing utilities) to a utility corridor would be a change to the existing land use, for BLM-administered lands, ASLD lands, and private lands. No change in land use would occur at the Robbins Butte 69-kV line or the Komatke switchyard and Willis substation since these areas have been previously graded and graveled, and the stations locations are enclosed by a fence. The removal of the 1.62 miles of existing 69-kV line would result in change from a utility corridor back to undeveloped, open desert. Existing land uses would continue, and access to all authorized users (e.g., SRP, El Paso Natural Gas) would be maintained during construction and operation.

Temporary, minor impacts to recreation would occur during construction on up to 117.25 acres but would cease during operation and maintenance.

4.11.2 No Action

Under the No Action Alternative, the ROW application would not be approved, and no construction would take place. Thus, no adverse direct or indirect impacts to land use and realty would occur.

4.12 SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE

This section describes the impacts to socioeconomics associated with the construction, operation, and maintenance of the proposed transmission line, switchyard, substation, line removal, and line expansion. As noted in Chapter 3, there are no environmental justice populations within the analysis area. As such, environmental justice is not discussed further.

4.12.1 Proposed Action

As discussed in Tables 2.5 and 2.6 (see Chapter 2), the construction workforce would include 33 to 45 people over a 12-month construction period. The Cities of Buckeye and Goodyear, along with Maricopa County, have a large construction workforce, compared with the construction employment need. As such, no direct or indirect impacts to population or housing are anticipated. Construction could result in minor short-term increases in local economic output as workers purchase food and supplies from area businesses. However, due to the small anticipated workforce, these impacts are likely to be limited to a few local businesses.

4.12.2 No Action

Under the No Action Alternative, the ROW application would not be approved, and no construction would take place. There would be no change to the existing conditions described in Chapter 3. The No Action Alternative would not add bulk electric infrastructure to the existing grid, would not allow APS needed flexibility for unanticipated and scheduled grid outages, would not improve additional connections, would not increase import capability for regional utilities, would not improve voltage limitations, would not reduce curtailment for local utilities and would continue the current risk for incidences of failures. These factors would result in short-term, site-specific, negligible impacts to population, demographics, economy, and quality of life.

4.13 SOILS

This section describes the impacts to soils associated with the construction, operation, and maintenance of the proposed transmission line, switchyard, substation, line removal, and line expansion.

4.13.1 Proposed Action

Construction of the Proposed Action could temporarily impact up to 117.25 acres of soil resources. Permanent impacts to 8.72 acres would result from the construction of the transmission towers and access roads. Direct impacts to the soils would include erosion from the removal of vegetative cover and compaction from heavy equipment, resulting in the loss of soil structure and porosity. These impacts could lead to increased rainfall runoff and susceptibility to high wind events and, consequently, increased erosion.

Indirect impacts to soil resources can include colonization of noxious weeds on disturbed soils. This can occur anywhere soil is disturbed. Weeds can outcompete native species due to their ability to thrive under conditions with low soil moisture content, poor nutrient availability, and coarse soil textures. BMPs would be used to prevent the spread of weeds.

4.13.2 No Action

Under the No Action Alternative, the ROW application would not be approved, and no construction would take place. Thus, no adverse direct or indirect impacts to soils would occur.

4.14 TRAVEL MANAGEMENT

This section describes the impacts to travel management associated with the construction, operation, and maintenance of the proposed transmission line, switchyard, substation, line removal, and line expansion.

4.14.1 Proposed Action

Access to the construction ROW would be available from Rainbow Valley Road and SR 85. No delays in traffic would result during construction. APS would place a speed limit of 10 miles per hour on construction trucks along the 7.42-acres of new access roads. Road fill required at the culvert locations along the SRP access road would result in short-term (less than 1 day) impacts to travel management due to the temporary access restrictions that would result during the filling of the roadbed. Once the filling is complete, no impacts to travel management along existing access roads would occur.

The Proposed Action operation would not result in an increase of traffic on any roads. Therefore, the Proposed Action would not result in impacts to travel management.

4.14.2 No Action

Under the No Action Alternative, the ROW application would not be approved, and the 7.42 acres of new access roads would not be constructed. Thus, no adverse direct or indirect impacts to travel management would occur.

4.15 VISUAL RESOURCES

This section describes the impacts to visual resources associated with the construction, operation, and maintenance of the proposed transmission line, switchyard, substation, line removal, and line expansion.

4.15.1 Proposed Action

The Proposed Action would result in an alteration of the existing landscape. In the short term, construction of the Proposed Action would cause dust to be emitted from earthmoving activities, construction vehicles and equipment, construction worker vehicles, and materials delivery vehicles, and from areas within the construction zone that have been disturbed or where excavation material is stockpiled. Fugitive dust, if emitted in sufficient quantities, and if adverse weather conditions persist, could impact or degrade existing views in the short term. Fugitive dust would not result in permanent changes to the existing landscape.

The Proposed Action would be visible from selected KOPs located in and along the Proposed Action. KOP 1 is located on Rainbow Valley Road, north of Willis substation; KOP 2 is located on Rainbow Valley Road, south of KOP 1; KOP 3 is located on Komatke Road, along the northern edge of the SDNM; and KOP 4 is located on SR 85, west of the Komatke switchyard. The level of change to the landscape apparent from KOPs 1, 2, 3, and 4 would be minor to moderate based on the visual resource contrast analysis. Minor to moderate contrasts in the elements of the environment are consistent with BLM's objectives for VRM Class IV. Although there are existing visible contrasts apparent from each of the KOPs, because they occur primarily along moderate- to high-speed travel routes, the contrasts would be visible for limited periods of time, no more than 10 minutes. The Proposed Action would attract attention and be seen, but would not dominate the view of the casual observer from the KOPs. This is consistent with Class IV management objectives.

4.15.2 No Action

Under the No Action Alternative, the ROW application would not be approved, and no construction would take place. Thus, no adverse direct or indirect impacts to visual resources would occur.

4.16 WATER RESOURCES

This section describes the impacts to water resources associated with the construction, operation, and maintenance of the proposed transmission line, switchyard, substation, line removal, and line expansion.

4.16.1 Proposed Action

There are no perennial surface water features in or crossed by the Proposed Action, only ephemeral washes that flow in response to rainfall. Waterman Wash is the main ephemeral wash crossed by the Proposed Action. Construction of the Proposed Action would result in no direct impacts to Waterman Wash since no activities would be required within the wash. Some short-term, temporary disturbances to ephemeral washes at the culvert locations (along the existing SRP access road) would occur during construction. Culvert installation would prevent these disturbances from altering flow and channel dynamics, and would not disturb riparian vegetation in the immediate vicinity of each wash crossing. No direct impacts to the Phoenix AMA would occur. Water used during construction (e.g., water used to reduce fugitive dust) would be obtained from existing, off-site approved sources.

With respect to wash crossings along the Proposed Action, APS has committed to environmental protection measures that would maintain natural drainage patterns, and crossings have been designed to maintain the existing flow velocities within up to 117.25 acres (temporary disturbance estimates).

With respect to groundwater quality, because BMPs would be in place to protect against potential spills during the construction phase, the potential for the Proposed Action to impact groundwater quality during construction would be temporary and negligible.

4.16.2 No Action

Under the No Action Alternative, the ROW application would not be approved, and no construction would take place. Thus, no adverse direct or indirect impacts to water resources would occur.

4.17 CUMULATIVE EFFECTS

Cumulative impacts are those impacts resulting from the incremental effect of an action when added to other past, present, or reasonably foreseeable actions, regardless of which agency or person undertakes such other actions. Cumulative impact can result from individually minor but collectively significant actions taking place over a period of time (40 CFR 1508.7). All resource values addressed in Chapter 4 have been evaluated for cumulative effects. If there is no net effect on a particular resource from an action, there is no potential for cumulative effects.

Existing environmental conditions in the vicinity of the Proposed Action reflect changes brought about by occupancy and use of utility corridors and recreation. Ongoing or planned activities that may contribute to cumulative impact include nearby past mining activities, activities related to the utility corridors, recreational activities, the establishment of the Sonoran Desert National Monument, and traffic along Rainbow Valley Road and SR 85.

4.17.1 Past, Present and Reasonably Foreseeable Future Actions

For this analysis, the cumulative effects analysis area has been defined as the Little Rainbow Valley. This generally covers the area between the west end of the Proposed Action (Komatke switchyard) and the east end of the Proposed Action (Willis substation). The time frame of the cumulative effects analysis is 30 years. Implementation of the proposed project is not expected to result in significant cumulative impacts.

The BLM has determined that the primary activities that could contribute to cumulative impacts in the cumulative effects analysis area for the Proposed Action would include past, present, and reasonably

foreseeable future mineral exploration, development, and expansion; long-term transportation planning; City of Buckeye and City of Goodyear development; and administrative land use activities.

The Proposed Action site has been disturbed since the 1940s, beginning with mining and prospecting in the surrounding mountains. Original utility activities consisted of transmission lines, substations, pipelines, and the associated access route network. The Proposed Action's addition of 8.64 acres of new access roads would cumulatively add to the overall road network that has been developed in the past in support of mining and utilities. This would represent a minor cumulative impact to air quality and climate change, land use, recreation, human health and safety, hazardous materials, noise, travel management, and water resources. This permanent disturbance associated with the new access roads and transmission line towers would have minor cumulative impacts to biological resources, cultural and historic resources, rangeland resources, geology and minerals, soils, and visual resources. When considering the visual impacts cumulatively, implementation of the Proposed Action would not dominate the attention of viewers traveling through Rainbow Valley.

The MAG 2035 Regional Transportation Plan (MAG 2014) indicates that a high-capacity transportation corridor has been identified in the BLM's El Paso Natural Gas Multi-Use Utility Corridor (BLM 2012), approximately 1 mile south of the Proposed Action. When combined with the Proposed Action, long-term transportation planning would have a negligible cumulative impact to socioeconomics and environmental justice.

The City of Goodyear's *Integrated Water Master Plan* (City of Goodyear 2007) has identified the site adjacent to the Willis substation as suitable for construction and operation of a water reclamation and treatment facility.

The BLM is not aware of any specific activity that is reasonably certain to occur on the lands APS is requesting for a 40-foot permanent ROW.

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Chapter 5

CONSULTATION AND COORDINATION

5.1 INTRODUCTION

CEQ regulations implementing NEPA require that federal agencies provide meaningful opportunities for the public and stakeholders to provide input and identify their concerns with regard to the NEPA process. Federal laws, such as the ESA, CWA, and the NHPA, mandate public involvement and consultation with agencies or federally recognized tribal governments.

This chapter documents the specific consultation and coordination efforts undertaken by the BLM throughout the entire process of developing the APS Komatke 69-kV to Willis Substation EA.

5.2 PUBLIC INVOLVEMENT

The BLM has taken a variety of steps to inform the public, special interest groups, and local, state, and federal agencies about the Proposed Action, and to solicit feedback from these interested parties to help shape the scope of this project (described in Section 1.7).

Internal public scoping was performed by the BLM on February 12, 2015. The BLM prepared scoping information materials and provided copies to federal, state, and local agencies; Native American tribes; and members of the general; the scoping period lasted from March 31, 2015 to May 4, 2015. A total of 3 individuals and organizations had commented at the close of the scoping period. Throughout the preparation of the EA, updates to the Lower Sonoran Field Office website were made by the BLM to inform these groups of the process, project activities, and availability of the EA.

5.3 TRIBAL CONSULTATION

The BLM Lower Sonoran Field Office initiated tribal consultation on April 1, 2015, by sending out letters to the chairpersons of five tribes. These included the Tohono O'odham Nation, Hopi Tribe, Gila River Indian Community, Ak-Chin Indian Community, and Salt River Pima-Maricopa Indian Community. Courtesy copies were sent to each tribal cultural resources staff member under separate cover. The letters indicated that consultation would be initiated under NEPA, NHPA, and American Indian Religious Freedom Act, and that an EA would be written that would analyze the impacts to natural and cultural resources. Response letters were received from the Hopi Tribe (Cultural Preservation Office) and the Gila River Indian Community. A copy of the draft cultural survey report was sent by emails from BLM to the cultural staff at the Hopi Tribe, the Tohono O'odham Nation, and the Gila River Indian Community. In addition, Michael Rice, BLM Project Manager for this project attended the Four Southern Tribes Cultural Working Group meeting on March 20, 2015, and presented a verbal update on the status of this project to Tribal representatives. A second letter was sent to Salt River Pima-Maricopa Indian Community and Ak-Chin Indian Community on July 2, 2015, in order to initiate consultation with two tribes who had not responded to the letter sent in April.

5.4 LIST OF PREPARERS

The EA was written by a team composed of BLM and third-party contractor personnel. Under direction of the BLM, the consulting team prepared the description of the Proposed Action, collected data for the

analysis, assessed potential effects of the Proposed Action and No Action Alternative, and prepared other chapters with additional comments and critiques from the BLM and APS. The BLM has approved the content of this EA. Table 5-1 identifies the agencies and individuals involved with the preparation and review of this EA.

Table 5-1. List of Preparers

Entity		Responsibility	Title	Years of Experience
Bureau of Land Management				
Kender	Ed	Authorized Officer	Field Manager	2
Bickauskas	Tom	Travel Management	Travel Management Coordinator	11
Tipton	Ron	Wildlife	Wildlife Biologist	11
Gilbert	Mary	Wildlife	Wildlife Biologist	13
Blanchard	Cheryl	Cultural Resources	Archaeologist	31
Rice	Michael	Project Manager	Project Manager	20
Felton	Andrea	Livestock Grazing	Rangeland Management Specialist	8
Scarbrough	Dave	Wilderness, National Monuments, Special Designations, Visual Resources	Sonoran Desert National Monument Manager	30
Tibbetts	Gloria	NEPA Adequacy	NEPA Coordinator	11
SWCA Environmental Consultants				
Rausch	Ryan	Project Management, Lands and Realty, Visual Resources, Air Resources and Climate Change, Travel Management, Water Resources	Project Manager	10
Bellavia	Cara	Socioeconomics and Environmental Justice	Office Director, Phoenix and Tucson	16
Tremblay	Adrienne	Cultural and Heritage Resources, Tribal Concerns	Senior Archaeologist	10
Champagne	Lisa	Cultural and Heritage Resource	Field Archaeologist	4
Gladding	Eleanor	Biological Resources	Senior Biologist	16
Johnson	Jeffery	Biological Resources	Biologist	16
Addy	Jenny	Rangeland Resources, Geology and Minerals, Human Health and Safety, Hazardous Materials, Noise, Soils	Environmental Planner	4
Bell	Shari	Document Formatting	Formatter	6
Orcutt-Gachiri	Heidi	Technical Editing	Technical Editor	13
Stutz	Allen	Visual simulations	GIS/CADD Specialist	10
Query	Chris	Maps and Figures	GIS/CADD Specialist	15

Chapter 6

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Appendix A

APS KOMATKE TO WILLIS 69-KV FINAL DESIGN PLANS

VICINITY MAP

CONSTRUCTION NOTES:

1) ALL POLE DETAILS FOUND ON SHTS. 32-35

2) LINE SECTION MAP FOUND ON SHT. 31

3) ASSOCIATED PROJECTS:
WA182266 KOMATKE TO PATTERSON-ROBBINS BUTTE TAP.

4) PROJECT IS 32 MILES FROM GOODYEAR YARD

5) MOBILE SUB TO BE PLACED W/O POLE 158A TO BE USED FOR TEMPORARY STATION POWER DURING CONSTRUCTION FOR JOJOBA SUB.

POLE DATA

POLE	REMOVE INSTALL	QTY	DESCRIPTION	HOLE DIA	HOLE DEPTH	BACKFILL
1962.G	INSTALL	3	69A15	48"	15'	CONC.
1907.501G	INSTALL	1	50 CL 1 STEEL	24"	7'	NATIVE
1907.65H3G	INSTALL	6	65 CL H3 STEEL	30"	10.5'	NATIVE
1907.70H3G	INSTALL	2	70 CL H3 STEEL	30"	11'	NATIVE
1907.75H3G	INSTALL	142	75 CL H3 STEEL	30"	11.5'	NATIVE
1975.G	INSTALL	2	DCDE	5'	27'	CONC.
1974.G	INSTALL	4	DCA90	5'	27'	CONC.
1968.G	INSTALL	4	69A90	5'	25'	CONC.
1907.70H1G	REM	12	70 CL H1 STEEL	NA	NA	NATIVE

WIRE DATA

WIRE	REMOVE INSTALL	QTY	DESCRIPTION	DIA. IN.	WEIGHT PER FOOT
6251.R2/0V	INSTALL	5,162'	2/0 AWAC	.447	.2610
6250.A795V	INSTALL	151,985'	795 AL	1.026	0.7463
6251.R795X	INSTALL	255,150'	795 ACSS	1.063	0.896
6270.F656C	INSTALL	16,256'	OPGW-96	0.656	0.5318
6270.F656B	INSTALL	56,333'	OPGW-48	0.656	0.5318
000100684	INSTALL	1,800	ADSS-96	0.535	0.132

MARICOPA COUNTY GENERAL NOTES

1. All construction shall conform to the latest Maricopa County Department of Transpiration (MCDOT) Roadway Design Manual and M.A.G. Specifications and Maricopa County Special Provisions for Construction of Street Improvements.
2. Contractor to obtain necessary MCDOT permits prior to construction within right-of-way.
3. The engineering designs on these plans are only approved by Maricopa County Department of Transportation in scope and not in detail. Construction quantities on these plans are not verified by MCDOT. Approval of these plans are for permit purposes only and shall not prevent MCDOT from requiring correction of errors in the plans where such errors are subsequently found to be in violation of any law, ordinance, health, safety, or other design issues.
4. Contractor shall notify the MCDOT Inspection Department at least 24 hours in advance of any construction at **(602) 506-8606**.
5. An approved set of plans shall be on the site during construction and inspections.
6. Contractor performing construction or excavating operations is responsible for locating, relocating and/or protecting all utilities in conflict or within the clear zone, at no expense to Maricopa County.
7. All compaction and backfill within County right-of-way shall conform to the MCDOT Supplement to M.A.G. Specifications. Backfill under any existing or proposed pavement, curb and gutter or within two feet (2') or less from the edge of pavement shall consist of one-half sack CLSM.
8. All structures, such as manholes, valve box & covers, and monitoring wells must be marked with at least two reflective yellow flex post when Structures are located outside the traveled way and within the right-of-way. ("applies only when there is no curb.")
9. All existing pavement marking, traffic signs and signal equipment that needs to be removed, replaced, relocated or repaired because of contractor's work will be done by the contractor at his expense. All traffic signs that are removed shall be stockpiled on the project site and the contractor is to notify the inspector when all signs have been removed. All new street name signs shall be provided and installed by permittee at no expense to the Maricopa County.
10. Pavement marking, signing and signal work will be inspected and will have to meet County Standards before release of bond.
11. Asphalt mix design shall be submitted to MCDOT a minimum of 48 hours prior to placing any asphalt courses. (Trench work excluded)
12. Prior to conducting excavation operations, the Contractor shall obtain from the Arizona State Historical Preservation Officer (SHPO) **(602) 542-4009**, recommendations regarding the need for cultural resources (archaeological) clearance. All discoveries of human remains, Cultural artifacts, or paleontological remains shall be reported to the Arizona State Museum and MCDOT. Upon discovery, Contractor shall cease operations in the vicinity of the find and protect the discovery area from further disturbance until the find can be professionally investigated by the Arizona State Museum and MCDOT.
13. Prior to moving or destroying protected native plant species, the Contractor shall file a formal Notice of Intent with the Arizona Department of Agriculture Native Plants **(602) 542-6408**.
14. Except under emergency conditions, roads shall not be closed for construction activities unless prior approval is obtained from the Transportation Director or his representative.
15. All box culverts constructed in the public right-of-way shall comply with ADOT latest design specifications and standards. Minimum clear height of box culvert shall be 4 feet.
16. Prior to installation of the base course and wearing surface, submit soil test(s) of sub-grade and revised pavement design/calculations to the Maricopa County Department of Transportation for review and approval.

WA184027
KOMATKE TO WILLIS 69kV

APS UTILITIES KEY

EXISTING		PROPOSED
W	WATER	W
S	SEWER	S
G	GAS	G
SD	STORM DRAIN	SD
IRR	IRRIGATION	IRR
TS	TRAFFIC SIGNAL	TS
T	TELE	T
CATV	CATV	CATV
FO	FIBER	FO

UG ELECTRIC TRANSMISSION
UG ELECTRIC PRIMARY
UG ELECTRIC SEC/SVC
OH ELECTRIC TRANSMISSION
OH ELECTRIC PRIMARY
OH SEC/SVC.
CONDUIT
U.L.S.

APS SYMBOLS LEGEND

EXISTING EQUIPMENT	PROPOSED EQUIPMENT	DESCRIPTION
		- PADMOUNTED TRANSFORMER
		- SWITCHING CABINETS
		- 1Ø SWITCHING CABINET
		- OH/UG CAPACITOR BANK
		- J-BOX / PULL BOX
		- MANHOLES
		- OH TRANSFORMER
		- OH SWITCH (KPF)
		- APS OWNED POLE
		- APS OWNED STEEL POLE
		- APS OWNED JOINT USE POLE
		- DIP (TRANSITION) POLE
		- STREET LIGHT
		- DUSK TO DAWN LIGHT

DATA MODIFIED PER FIELD CONDITIONS

T 2S	R 3W	Sec 29	NW 1/4	MAP#
T 2S	R 3W	Sec 20	SW 1/4	MAP#
T 2S	R 3W	Sec 20	SE 1/4	MAP#
T 2S	R 3W	Sec 20	NE 1/4	MAP#
T 2S	R 3W	Sec 21	NW 1/4	MAP#
T 2S	R 3W	Sec 16	SW 1/4	MAP#
T 2S	R 3W	Sec 16	SE 1/4	MAP#
T 2S	R 3W	Sec 16	NE 1/4	MAP#
T 2S	R 3W	Sec 15	NW 1/4	MAP#
T 2S	R 3W	Sec 10	SW 1/4	MAP#
T 2S	R 3W	Sec 10	SE 1/4	MAP#
T 2S	R 3W	Sec 10	NE 1/4	MAP#
T 2S	R 3W	Sec 11	NW 1/4	MAP#
T 2S	R 3W	Sec 2	SW 1/4	MAP#
T 2S	R 3W	Sec 2	SE 1/4	MAP#
T 2S	R 3W	Sec 2	SE 1/4	MAP#
T 2S	R 3W	Sec 2	SE 1/4	MAP#
T 1S	R 2W	Sec 32	NE 1/4	MAP# S11-W33
T 1S	R 2W	Sec 29	SE 1/4	MAP# S10-W33
T 1S	R 2W	Sec 28	SW 1/4	MAP# S10-W32
T 2S	R 4W	Sec 24	SE 1/4	MAP#
T 2S	R 4W	Sec 25	NE 1/4	MAP#
T 2S	R 3W	Sec 30	NW 1/4	MAP#
T 2S	R 3W	Sec 30	NE 1/4	MAP#
T 2S	R 3W	Sec 1	SW 1/4	MAP#
T 2S	R 3W	Sec 1	NW 1/4	MAP#
T 2S	R 3W	Sec 1	NE 1/4	MAP#
T 1S	R 3W	Sec 36	SE 1/4	MAP# S12-W25
T 1S	R 2W	Sec 31	SW 1/4	MAP# S12-W36
T 1S	R 2W	Sec 31	SE 1/4	MAP# S12-W35
T 1S	R 2W	Sec 31	NE 1/4	MAP# S11-W36
T 1S	R 2W	Sec 32	NW 1/4	MAP# S11-W34

FINAL
APS DESIGN
05/17/2015

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1-800-STAKE-IT
(OUTSIDE MARICOPA COUNTY)

TOTAL TRENCH (ft): 912
TOTAL TRENCH IN R/W (ft):

CONTACT: DAN DALEY
PHONE: 602/371-6868 PGR MOBILE: 602/526-2571
INSPECTOR:
PHONE: PGR MOBILE:

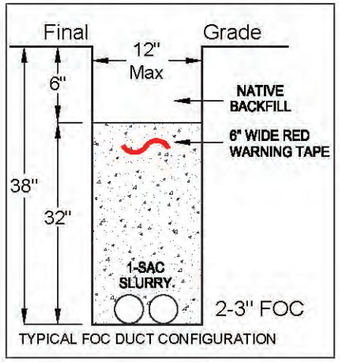
NO.	DATE	DESCRIPTION	BY

aps

KOMATKE TO WILLIS 69KV
WA184027

WO#: WA184027 DATE: 8/13/15
BY: GEORGE PARKER SCALE: 1:100
FILENAME: WA184027 FINAL.DWG SHEET 1 OF 36

WA184027
KOMATKE TO WILLIS 69kV



TYPICAL FOC DUCT CONFIGURATION

MATCHLINE "D" STA. 58+00 SEE SHT. 3

COIL 200' FOC ON FIBER RACK

SRP / 500kV

6-R795X+F656C
3-A795V+CN

760401 STA: 59+15 LT: 0.00 DCDE SEE DETAIL "G" SHT. 34

6-R795X+F656C (REDUCED TENSION)

STA: 59+15.17
RT: 104'
50 1G

PATTERSON

ROBBINS BUTTE

RAINBOW VALLEY

1 WILLIS STA: 10+00 LT: 0.00 DCDE (Cut 15.5' off top of pole and weld new vangs and arms) SEE DETAIL "L" SHT 35

2 STA: 12+69 LT: 0.00 65H3G (Cut 9' off top of pole) SEE DETAIL "K" SHT 35

6-R795X R.S.= 270'

ADSS-96 + 2-3"

TOWER 82

COIL 200' FOC ON FIBER RACK

APS EASEMENT

3 40'x225' STA: 15+39 RT: 0.00 DCA90 SEE DETAIL "M" SHT 35

SRP 500kV

6-R795X+F656C R.S. = 325'

200' SRP ROW

40' APS EASEMENT

4 STA: 18+74 RT: 0.00 75H3G

SCATTERED BRUSH

MATCHLINE "E" STA. 21+00 SEE SHT.5

1 1975.G **(Cut 15.5' off top of pole, and weld new vangs and arms)**
CONC.16 CU. YDS.
4345.SCCPUR795X
2355.K21
2350.L23 (2)
2439.C
2120.F2 (6)
1170 (3)
1172 (3)
APN: 33002810 (DE SHACKLE)
SEE DETAIL "L" SHT.35

2 1907.65H3G **(Cut 9' off top of pole)**
4332.SCC6R795X
2355.K21
2350.L13 (2)
SEE DETAIL "K" SHT. 35

3 1974.G
CONC. 12 CU.YDS.
4345.SCCPUR795X
2355.K21
2350.L23 (4)
6172.S00F656C
5600.G6 (CABLE GUARD)
SEE DETAIL "M" SHT. 35

4 1907.75H3G
4332.SCC6R795X
2355.K21
2350.L13 (2)

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T 2S	R 3W	Sec 30	NW 1/4	MAP#		
T 2S	R 4W	Sec 25	NE 1/4	MAP#		
T	R	Sec	1/4	MAP#		
T	R	Sec	1/4	MAP#		
T	R	Sec	1/4	MAP#		

CONTACT: DAN DALEY
PHONE: 602/371-6868 PGR/MOBILE: 602/526-2571
INSPECTOR:
PHONE: PGR/MOBILE:

NO.	DATE	DESCRIPTION	BY

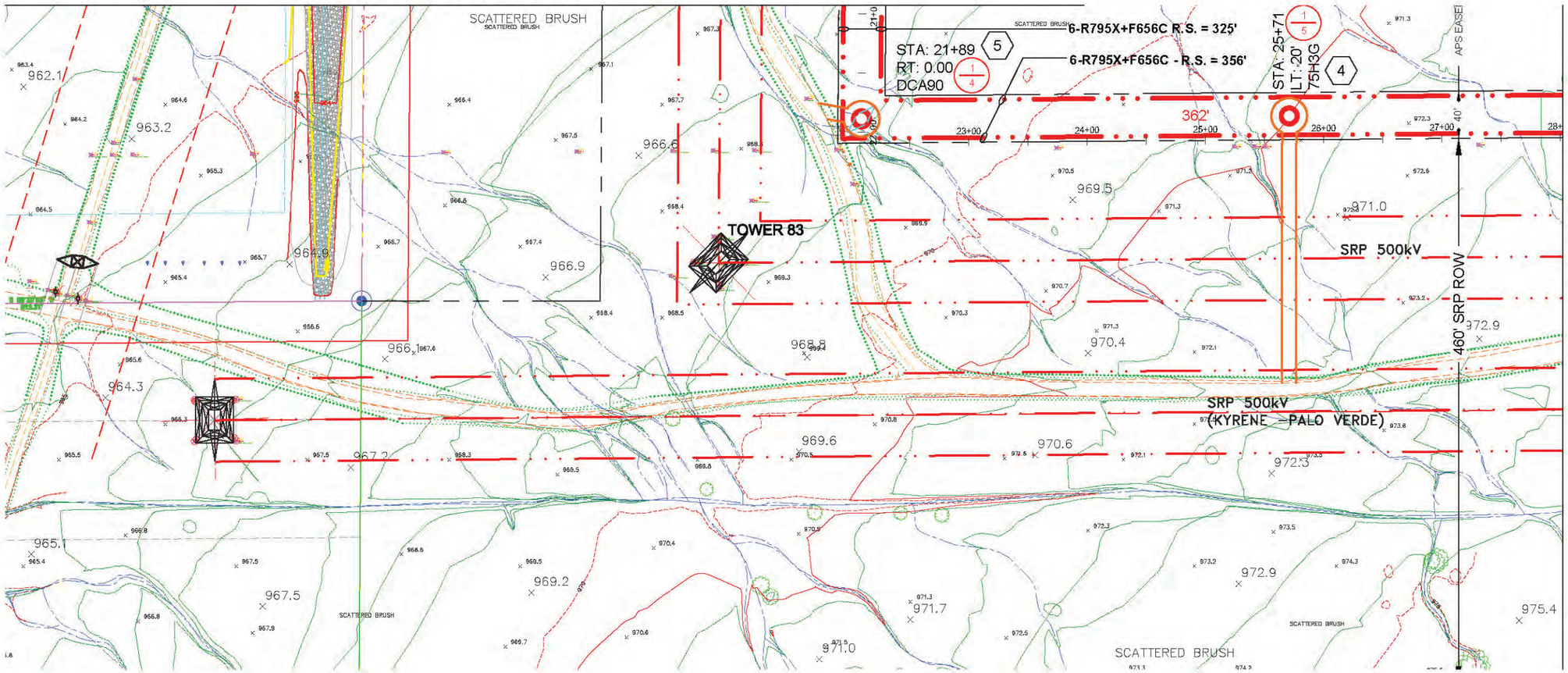
aps

KOMATKE TO WILLIS 69KV
WA184027

WO#:	WA184027	DATE:	8/13/15
BY:	GEORGE PARKER	SCALE:	1:100
FILENAME:	WA184027 FINAL..DWG	SHEET	4 OF 36

WA184027
KOMATKE TO WILLIS 69kV

MATCHLINE "E" STA. 21+00 SEE SHT.4



MATCHLINE "F" STA. 28+00 SEE SHT.6

5 1974.G
CONC. 11 CU.YDS.
4345.SCCPUR795X
2355.K21
2350.L23 (4)

4 1907.75H3G
4332.SCC6R795X
2355.K21
2350.L13 (2)

FINAL
APS DESIGN
05/17/2015

T 2S	R 3W	Sec 30	NW 1/4	MAP#
T	R	Sec	1/4	MAP#
T	R	Sec	1/4	MAP#
T	R	Sec	1/4	MAP#

CONTACT: DAN DALEY
PHONE: 602/371-6868 PGR/MOBILE: 602/526-2571
INSPECTOR:
PHONE: PGR/MOBILE:

NO.	DATE	DESCRIPTION	BY

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1-800-STAKE-IT
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aps

KOMATKE TO WILLIS 69KV
WA184027

WO#: WA184027	DATE: 8/13/15
BY: GEORGE PARKER	SCALE: 1:100
FILENAME: **WA184027 FINAL.DWG**	SHEET 5 OF 36

WA184027
KOMATKE TO WILLIS 69kV

MATCHLINE "F" STA. 28+00 SEE SHT. 5

STA: 29+26 LT: 20' 75H3G (1/6)
STA: 32+81 LT: 20' 75H3G (1/7)
STA: 36+36 LT: 20' 75H3G (1/8)
STA: 39+81 LT: 20' 75H3G (1/9)

APS EASEMENT
460' SRP ROW
SCATTERED BRUSH
355'
345'
6-R795X+F656C - R.S. = 356'
TOWER 84
SRP 500kV
SRP 500kV
(KYRENE –PALO VERDE)
973.1
975.0
976.6
977.1
977.2
979.0
979.1
979.5
979.6
975.0
975.0
976.8
981.0
982.5
980.9

MATCHLINE "G" STA. 41+00 SEE BELOW LEFT

7 LOCATIONS
4 1907.75H3G
4332.SCC6R795X
2355.K21
2350.L13 (2)

MATCHLINE "G" STA. 41+00 SEE ABOVE RIGHT

STA: 43+46 LT: 20' 75H3G (1/10)
STA: 47+01 LT: 20' 75H3G (1/11)
STA: 50+56 LT: 20' 75H3G (1/12)

APS EASEMENT
460' SRP ROW
SCATTERED BRUSH
365'
355'
6-R795X+F656C - R.S. = 356'
TOWER 85
SRP 500kV
SRP 500kV
(KYRENE –PALO VERDE)
982.7
982.7
983.6
984.9
985.2
985.3
987.1
988.5
988.6
988.9
990.9
991.0
991.1
992.9
993.0
993.1

MATCHLINE "J" STA. 54+00 SEE SHT. 7

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APS DESIGN
05/17/2015

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(OUTSIDE MARICOPA COUNTY)

T 2S	R 4W	Sec 30	NE 1/4	MAP#
T 2S	R 3W	Sec 30	NW 1/4	MAP#
T	R	Sec	1/4	MAP#
T	R	Sec	1/4	MAP#
T	R	Sec	1/4	MAP#

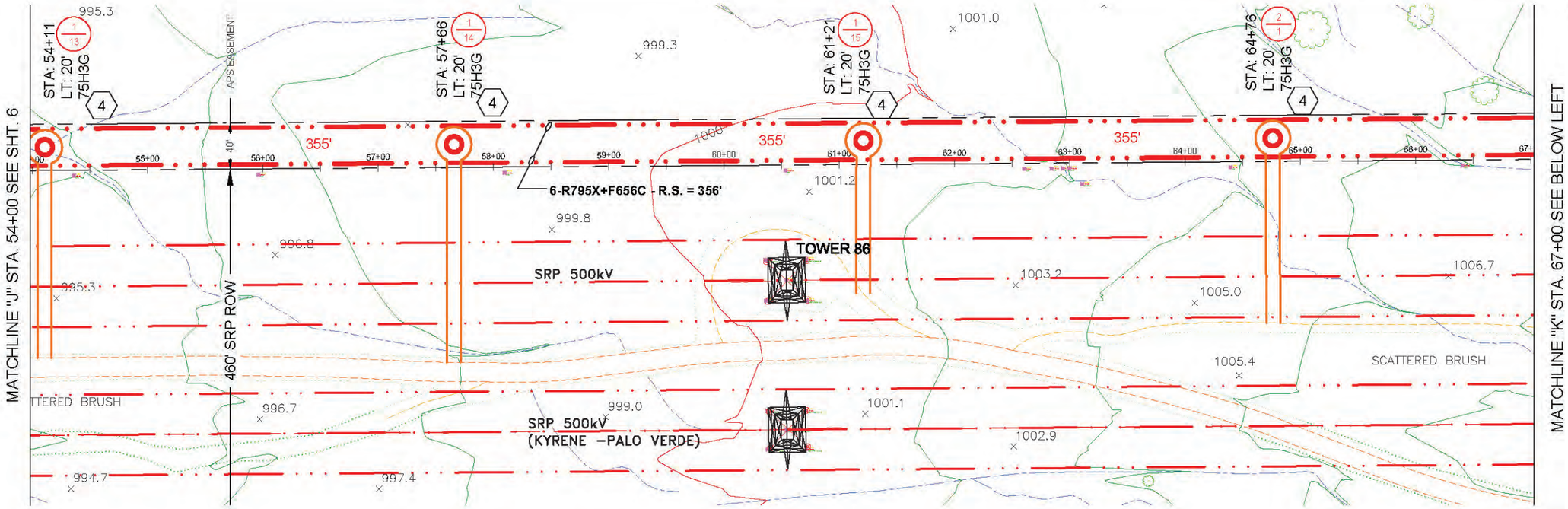
CONTACT: DAN DALEY
PHONE: 602/371-6868 PGR/MOBILE: 602/526-2571
INSPECTOR:
PHONE: PGR/MOBILE:

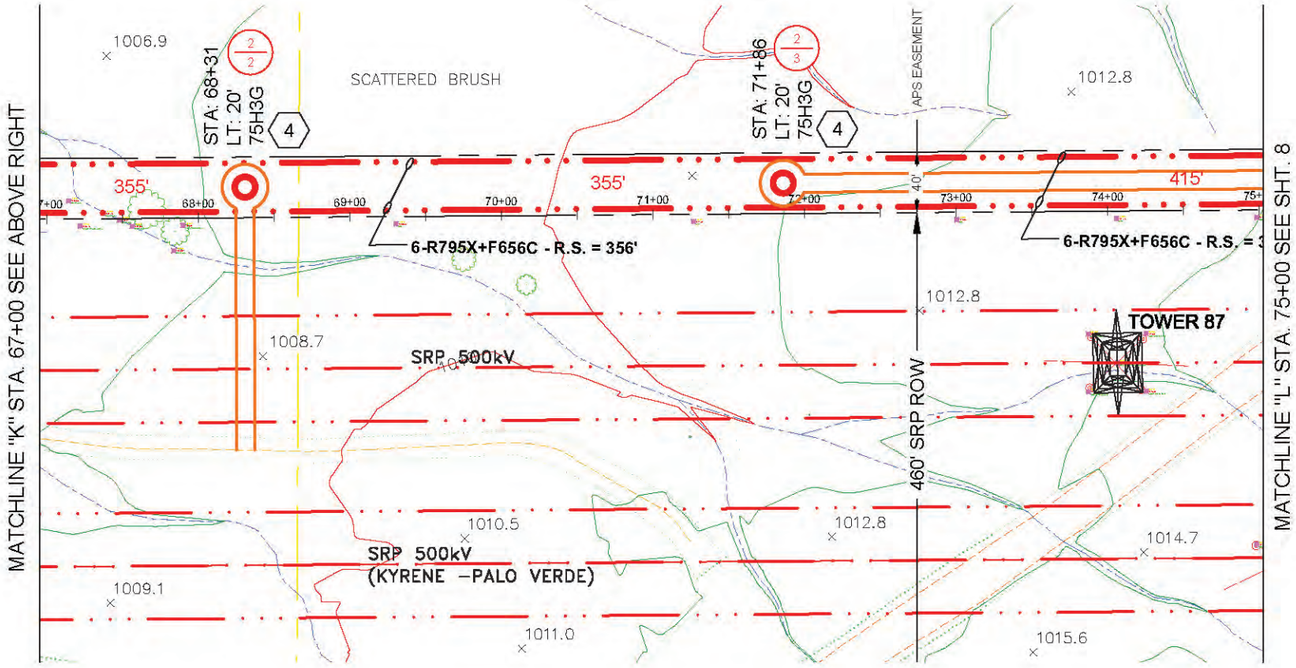
NO.	DATE	DESCRIPTION	BY

aps
KOMATKE TO WILLIS 69KV
WA184027

WO#: WA184027	DATE: 8/13/15
BY: GEORGE PARKER	SCALE: 1:100
FILENAME: WA184027 FINAL.DWG	SHEET 6 OF 36

WA184027
KOMATKE TO WILLIS 69kV





4 1907.75H3G
4332.SCC6R795X
2355.K21
2350.L13 (2)

6 LOCATIONS

FINAL
APS DESIGN
05/17/2015

ARIZONA BLUE STAKE
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1-800-STAKE-IT
(OUTSIDE MARICOPA COUNTY)

T 2S	R 3W	Sec 30	NW 1/4		MAP#
T	R	Sec	1/4		MAP#
T	R	Sec	1/4		MAP#
T	R	Sec	1/4		MAP#
T	R	Sec	1/4		MAP#

CONTACT: DAN DALEY			
PHONE: 602/371-6868		PGR/MOBILE: 602/526-2571	
INSPECTOR:			
PHONE:		PGR/MOBILE:	

NO.	DATE	DESCRIPTION	BY

aps

KOMATKE TO WILLIS 69KV
WA184027

WO#: WA184027	DATE: 8/13/15
BY: GEORGE PARKER	SCALE: 1:100
FILENAME: **WA184027 FINAL.DWG**	SHEET 7 OF 36

WA184027
KOMATKE TO WILLIS 69kV

MATCHLINE "M" STA. 85+00 SEE SHT.9

MATCHLINE "L" STA. 75+00 SEE SHT. 7

4 1907.75H3G
4332.SCC6R795X
2355.K21
2350.L13 (2)
2 LOCATIONS

6 1974.G
CONC. 15 CU. YDS.
4345.SCCPUR795X
2355.K21
2350.L23 (4)
6172.S00F656C
5600.G6
8876.HA (40)
8890.HF (2)
APN: 00100689 (ADSS DE CLAMP)

200' SRP ROW

375'

SRP 500kV
(KYRENE –PALO VERDE)

STA: 79+23
RT: 0.00
75H3G

COIL 200' FOC
ON FIBER RACK

SCATTERED BRUSH

10'
STA: 76+01
LT: 20'
69A60

47°

6-R795X+F656C - R.S. = 375'

40'x225'

356'

TOWER 88

TOWER 241

V SRP ROW

1013.1 1015.1 1017.0 1015.2 1012.9 1015.4 1012.8 1018.7 1020 1021.1 1022.8 1020.4 1023.0 1017.7 1019.5 1024.7 1020.7 1022.7 1019.1 1017.3 1024.4 1026.9 1021.6 1016.3 1018.7 1019.5 1022.5 1023.3 1026.3

FINAL
APS DESIGN
05/17/2015

T 2S	R 3W	Sec 30	NE 1/4	MAP#
T	R	Sec	1/4	MAP#
T	R	Sec	1/4	MAP#
T	R	Sec	1/4	MAP#
T	R	Sec	1/4	MAP#

CONTACT: DAN DALEY
PHONE: 602/371-6868 PGR/MOBILE: 602/526-2571
INSPECTOR:
PHONE: PGR/MOBILE:

NO.	DATE	DESCRIPTION	BY

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aps

KOMATKE TO WILLIS 69KV
WA184027

WO#	WA184027	DATE:	8/13/15
BY:	GEORGE PARKER	SCALE:	1:100
FILENAME:	WA184027 FINAL.DWG	SHEET	8 OF 36

WA184027
KOMATKE TO WILLIS 69kV

MATCHLINE "M" STA. 85+00 SEE SHT. 8

STA: 85+64 RT: 0.00 DCA90 (2/7)

40'x225'

375'

6-R795X+F656C - R.S. = 375'

90°

240'

TOWER 240

200' SRP ROW

SRP 500kV
(KYRENE –PALO VERDE)

SCATTERED BRUSH

90°

40'x225'

89+00 90+00 424' 91+00 92+00 93+00 94+00 342' 95+00 96+00 97+

STA: 89+06 RT: 0.00 DCA90 (2/8)

APS EASEMENT

STA: 92+40 RT: 0.00 75H3G (2/9)

6-R795X+F656C - R.S. = 338'

STA: 95+90 LT: 0.00 75H3G (2/10)

MATCHLINE "N" STA. 97+00 SEE BELOW LEFT

7 1974.G
CONC. 15 CU. YDS.
4345.SCCPUR795X
2355.K21
2350.L23 (4)
6172.S00F656C
5600.G6
8876.HA (40)
8890.HF (2)
APN: 00100689 (ADSS DE CLAMP)
2 LOCATIONS

4 1907.75H3G
4332.SCC6R795X
2355.K21
2350.L13 (2)
6 LOCATIONS

MATCHLINE "N" STA. 97+00 SEE ABOVE RIGHT

98+00 342' 99+00 100+00 332' 101+00 102+00 103+00 337' 104+00 105+00 106+00 107+00 357' 108+00 109+00 110+

STA: 99+32 RT: 0.00 75H3G (2/11)

STA: 102+64 LT: 0.00 75H3G (2/12)

TOWER 239

SRP 500kV
(KYRENE –PALO VERDE)

6-R795X+F656C - R.S. = 338'

STA: 106+01 LT: 0.00 75H3G (2/13)

APS EASEMENT

STA: 109+58 RT: 0.00 75H3G (2/14)

MATCHLINE "P" STA. 110+00 SEE SHT. 10

FINAL
APS DESIGN
05/17/2015

T 2S	R 3W	Sec 20	SE 1/4		MAP#
T 2S	R 3W	Sec 30	NE 1/4		MAP#
T 2S	R 3W	Sec 20	SW 1/4		MAP#
T	R	Sec	1/4		MAP#
T	R	Sec	1/4		MAP#

CONTACT: DAN DALEY
PHONE: 602/371-6868 PGR/MOBILE: 602/526-2571
INSPECTOR:
PHONE: PGR/MOBILE:

NO.	DATE	DESCRIPTION	BY

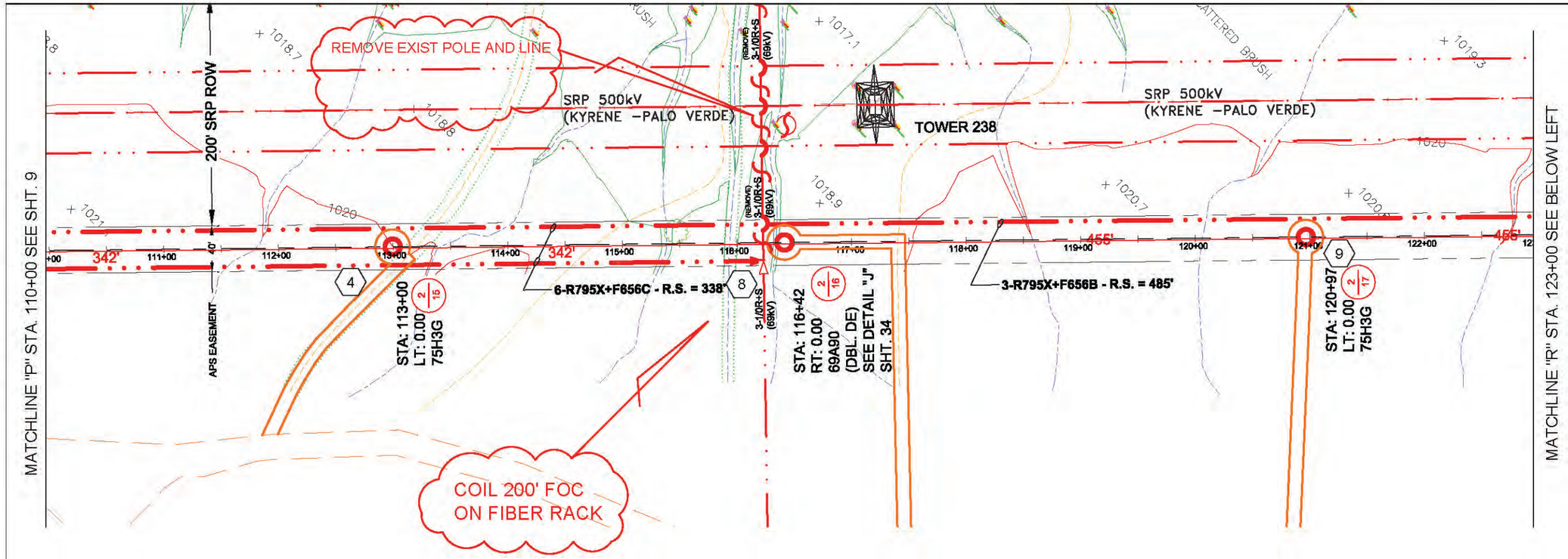
ARIZONA BLUE STAKE
CALL TWO WORKING DAYS BEFORE YOU DIG
Dial 811 or
602-263-1100
1-800-STAKE-IT
(OUTSIDE MARICOPA COUNTY)

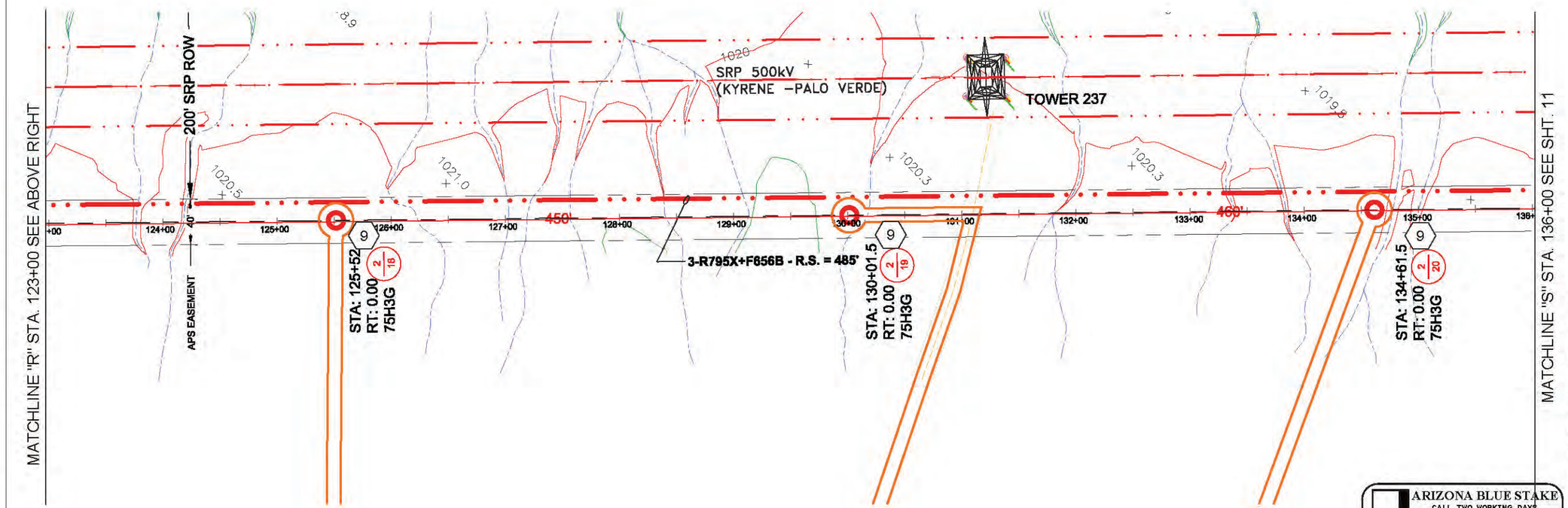
aps

KOMATKE TO WILLIS 69KV
WA184027

WO#:	WA184027	DATE:	8/13/15
BY:	GEORGE PARKER	SCALE:	1:100
FILENAME:	WA184027 FINAL.DWG	SHEET	9 OF 36

WA184027
KOMATKE TO WILLIS 69kV





4 1907.75H3G
4332.SCC6R795X
2355.K21
2350.L13 (2)

8 1968.G
10 CU. YDS.
4242.SSPUR795X
4125.SCCUR795X
4262.SBPUR10/V
2120.B2 (3)
2355.K21 (2)
2350.L23 (3)
2355.F21 (2)
6172.S00F656C
(SEE DETAIL "J" SHT.34))

9 1907.75H3G
4012.SBCTR795X
2355.K21
2350.L13 (2)
4 LOCATIONS

FINAL
APS DESIGN
05/17/2015

T 2S	R 3W	Sec 20	SE 1/4		MAP#
T 2S	R 3W	Sec 20	NE 1/4		MAP#
T	R	Sec	1/4		MAP#
T	R	Sec	1/4		MAP#
T	R	Sec	1/4		MAP#
CONTACT: DAN DALEY					
PHONE: 602/371-6868		PGR/MOBILE: 602/526-2571			
INSPECTOR:					
PHONE:		PGR/MOBILE:			

NO.	DATE	DESCRIPTION	BY

ARIZONA BLUE STAKE
CALL TWO WORKING DAYS
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1-800-STAKE-IT
(OUTSIDE MARICOPA COUNTY)

aps

KOMATKE TO WILLIS 69KV
WA184027

WO#:	WA184027	DATE:	8/13/15
BY:	GEORGE PARKER	SCALE:	1:100
FILENAME:	WA184027 FINAL.DWG	SHEET	10 OF 36

WA184027
KOMATKE TO WILLIS 69kV

MATCHLINE "S" STA. 136+00 SEE SHT. 10

SRP 500kV
(KYRENE –PALO VERDE)

200' SRP ROW

APS EASEMENT

TOWER 236

525'

555'

485'

3-R795X+F656B - R.S. = 485'

STA: 139+86.5
RT: 0.00
75H3G
2/21

STA: 145+41.5
RT: 0.00
75H3G
2/22

MATCHLINE "T" STA. 149+00 SEE BELOW LEFT

5 LOCATIONS
9 1907.75H3G
4012.SBCTR795X
2355.K21
2350.L13 (2)

MATCHLINE "T" STA. 149+00 SEE ABOVE RIGHT

SRP 500kV
(KYRENE –PALO VERDE)

200' SRP ROW

APS EASEMENT

TOWER 235

510'

465'

3-R795X+F656B - R.S. = 485'

STA: 150+27
LT: 0.00
75H3G
2/23

STA: 155+36.5
RT: 0.00
75H3G
2/24

STA: 160+01.5
LT: 0.00
75H3G
2/25

MATCHLINE "U" STA. 162+00 SEE SHT. 12

FINAL
APS DESIGN
05/17/2015

ARIZONA BLUE STAKE
CALL TWO WORKING DAYS
BEFORE YOU DIG
Dial 811 or
602-263-1100
1-800-STAKE-IT
(OUTSIDE MARICOPA COUNTY)

T 2S	R 3W	Sec 20 NE 1/4	MAP#
T 2S	R 3W	Sec 21 NW 1/4	MAP#
T	R	Sec 1/4	MAP#
T	R	Sec 1/4	MAP#
T	R	Sec 1/4	MAP#

CONTACT: DAN DALEY	
PHONE: 602/371-6868	PGR/MOBILE: 602/526-2571
INSPECTOR:	
PHONE:	PGR/MOBILE:

NO.	DATE	DESCRIPTION	BY

aps
KOMATKE TO WILLIS 69KV
WA184027

WO#: WA184027	DATE: 8/13/15
BY: GEORGE PARKER	SCALE: 1:100
FILENAME: WA184027 FINAL.DWG	SHEET 11 OF 36

WA184027
KOMATKE TO WILLIS 69kV

MATCHLINE "U" STA. 162+00 SEE SHT. 11

MATCHLINE "V" STA. 175+00 SEE BELOW LEFT

SRP 500kV
(KYRENE –PALO VERDE)

200' SRP ROW

APS EASEMENT

TOWER 234

476'

467'

482'

3-R795X+F656B - R.S. = 485'

STA: 164+78
RT: 0.00
75H3G
2/28

STA: 169+44.5
RT: 0.00
75H3G
3/1

STA: 174+26.5
RT: 0.00
75H3G
3/2

5 LOCATIONS

9 1907.75H3G
4012.SBCTR795X
2355.K21
2350.L13 (2)

MATCHLINE "V" STA. 175+00 SEE ABOVE RIGHT

MATCHLINE "X" STA. 188+00 SEE SHT. 12

SRP 500kV
(KYRENE –PALO VERDE)

200' SRP ROW

APS EASEMENT

472'

492'

467'

3-R795X+F656B - R.S. = 485'

STA: 178+98.5
LT: 0.00
75H3G
3/3

STA: 183+90.5
RT: 0.00
75H3G
3/4

FINAL
APS DESIGN
05/17/2015

ARIZONA BLUE STAKE
CALL TWO WORKING DAYS
BEFORE YOU DIG
Dial 811 or
602-263-1100
1-800-STAKE-IT
(OUTSIDE MARICOPA COUNTY)

T 2S	R 3W	Sec 16	SE 1/4	MAP#
T 2S	R 3W	Sec 16	SW 1/4	MAP#
T	R	Sec	1/4	MAP#
T	R	Sec	1/4	MAP#
T	R	Sec	1/4	MAP#

CONTACT: DAN DALEY	
PHONE: 602/371-6868	PGR/MOBILE: 602/526-2571
INSPECTOR:	
PHONE:	PGR/MOBILE:

NO.	DATE	DESCRIPTION	BY

aps

KOMATKE TO WILLIS 69KV
WA184027

WO#: WA184027	DATE: 8/13/15
BY: GEORGE PARKER	SCALE: 1:100
FILENAME: WA184027 FINAL.DWG	SHEET 12 OF 36

WA184027
KOMATKE TO WILLIS 69kV

MATCHLINE "X" STA. 188+00 SEE SHT. 12

TOWER 233

SRP 500kV
(KYRENE –PALO VERDE)

200' SRP ROW

APS EASEMENT

497'

512'

452'

3-R795X+F656B - R.S. = 485'

STA: 188+57.5
RT: 0.00
75H3G

STA: 193+54.5
RT: 0.00
75H3G

STA: 198+66.5
RT: 0.00
75H3G

MATCHLINE "Y" STA. 201+00 SEE BELOW LEFT

MATCHLINE "Y" STA. 201+00 SEE ABOVE RIGHT

TOWER 232

SRP 500kV
(KYRENE –PALO VERDE)

SCATTERED BRUSH

200' SRP ROW

APS EASEMENT

482'

482'

3-R795X+F656B
R.S. = 478'

STA: 203+18.5
RT: 0.00
75H3G (DBL. DE)

STA: 208+00.5
RT: 0.00
75H3G

STA: 212+82.5
RT: 0.00
75H3G

COIL 200' FOC
ON FIBER RACK

MATCHLINE "Z" STA. 214+00 SEE SHT. 14

5 LOCATIONS

9 1907.75H3G
4012.SBCTR795X
2355.K21
2350.L13 (2)

10 1907.75H3G
4255.SBPUR795X
4265.SBPUR795X
2355.K21 (2)
2350.L23 (2)
6172.T00F656B

FINAL
APS DESIGN
05/17/2015

ARIZONA BLUE STAKE
CALL TWO WORKING DAYS
BEFORE YOU DIG
Dial 811 or
602-263-1100
1-800-STAKE-IT
(OUTSIDE MARICOPA COUNTY)

T 2S	R 3W	Sec 16	NE 1/4	MAP#
T 2S	R 3W	Sec 16	SE 1/4	MAP#
T	R	Sec	1/4	MAP#
T	R	Sec	1/4	MAP#
T	R	Sec	1/4	MAP#

CONTACT: DAN DALEY	
PHONE: 602/371-6868	PGR/MOBILE: 602/526-2571
INSPECTOR:	
PHONE:	PGR/MOBILE:

NO.	DATE	DESCRIPTION	BY

aps

KOMATKE TO WILLIS 69KV
WA184027

WO#: WA184027	DATE: 8/13/15
BY: GEORGE PARKER	SCALE: 1:100
FILENAME: WA184027 FINAL.DWG	SHEET 13 OF 36

WA184027
KOMATKE TO WILLIS 69kV

MATCHLINE "Z" STA. 214+00 SEE SHT. 13

MATCHLINE "AA" STA. 227+00 SEE BELOW LEFT

SRP 500kV
(KYRENE –PALO VERDE)

TOWER 231

SCATTERED BRUSH

200' SRP ROW

APS EASEMENT

482'

467'

497'

STA: 217+64.5
RT: 0.00
75H3G

3-R795X+F656B
R.S. = 478'

STA: 222+31.5
RT: 0.00
75H3G

5 LOCATIONS

9 1907.75H3G
4012.SBCTR795X
2355.K21
2350.L13 (2)

MATCHLINE "AA" STA. 227+00 SEE ABOVE RIGHT

MATCHLINE "AB" STA. 240+00 SEE SHT. 15

SRP 500kV
(KYRENE –PALO VERDE

TOWER 230

200' SRP ROW

APS EASEMENT

482'

STA: 227+28.5
RT: 0.00
75H3G

3-R795X+F656CB
R.S. = 478'

STA: 232+10.5
RT: 0.00
75H3G

STA: 236+92.5
RT: 0.00
75H3G

3-R795X+F656B
R.S. = 478'

FINAL
APS DESIGN
05/17/2015

T 2S	R 3W	Sec 16	NE 1/4	MAP#		
T 2S	R 3W	Sec 15	NW 1/4	MAP#		
T	R	Sec	1/4	MAP#		
T	R	Sec	1/4	MAP#		
T	R	Sec	1/4	MAP#		

CONTACT: DAN DALEY
PHONE: 602/371-6868 PGR/MOBILE: 602/526-2571
INSPECTOR:
PHONE: PGR/MOBILE:

NO.	DATE	DESCRIPTION	BY

ARIZONA BLUE STAKE
CALL TWO WORKING DAYS BEFORE YOU DIG
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602-263-1100
1-800-STAKE-IT
(OUTSIDE MARICOPA COUNTY)

aps

KOMATKE TO WILLIS 69KV
WA184027

WO#:	WA184027	DATE:	8/13/15
BY:	GEORGE PARKER	SCALE:	1:100
FILENAME:	WA184027 FINAL.DWG	SHEET	14 OF 36

WA184027
KOMATKE TO WILLIS 69kV

MATCHLINE "AB" STA. 240+00 SEE SHT. 14

500kV
RENE –PALO VERDE)

200' SRP ROW

APS EASEMENT

TOWER 229

SRP 500kV
(KYRENE –PALO VERDE)

SCATTERED BRUSH

482'

3-R795X+F656B
R.S. = 478'

STA: 241+74.5
RT: 0.00
75H3G

STA: 246+56.5
RT: 0.00
75H3G

STA: 251+38.5
RT: 0.00
75H3G

5 LOCATIONS
9 1907.75H3G
4012.SBCTR795X
2355.K21
2350.L13 (2)

11 1962.G
CONC. 8 CU.YDS.
4012.SBCTR795X
2355.K21
2350.L13 (2)

MATCHLINE "AC" STA. 253+00 SEE BELOW LEFT

MATCHLINE "AC" STA. 253+00 SEE ABOVE RIGHT

SRP 500kV
(KYRENE –PALO VERDE)

TOWER 228

DENSE TREES

482'

470'

3-R795X+F656CB
R.S. = 478'

STA: 256+20.5
RT: 0.00
75H3G

STA: 261+02.5
RT: 0.00
69A15 (8°)

STA: 265+72
RT: 0.00
75H3G

MATCHLINE "AD" STA. 266+00 SEE SHT. 16

FINAL
APS DESIGN
05/17/2015

ARIZONA BLUE STAKE
CALL TWO WORKING DAYS
BEFORE YOU DIG
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602-263-1100
1-800-STAKE-IT
(OUTSIDE MARICOPA COUNTY)

T 2S	R 3W	Sec 10	SW 1/4	MAP#
T	R	Sec	1/4	MAP#
T	R	Sec	1/4	MAP#
T	R	Sec	1/4	MAP#

CONTACT: DAN DALEY
PHONE: 602/371-6868 PGR/MOBILE: 602/526-2571
INSPECTOR:
PHONE: PGR/MOBILE:

NO.	DATE	DESCRIPTION	BY

aps

KOMATKE TO WILLIS 69KV
WA184027

WO#:	WA184027	DATE:	8/13/15
BY:	GEORGE PARKER	SCALE:	1:100
FILENAME:	WA184027 FINAL.DWG	SHEET	15 OF 36

WA184027
KOMATKE TO WILLIS 69kV

MATCHLINE "AD" STA. 266+00 SEE SHT. 15

SRP 500kV
(KYRENE –PALO VERDE)

+ 1051.6
+ 1048.3
1050
+ 1051.1
+ 1053.0
+ 1054.6
SCATTERED BRUSH
+ 1056.5
+ 1055.2
+ 1054.1
SCATTERED BRUSH

200' SRP ROW

TOWER 227

267+00 268+00 269+00 270+00 271+00 272+00 273+00 274+00 275+00 276+00 277+00 278+00 279+00

471' 471' 471'

40'

APS EASEMENT

9 STA: 270+43 RT: 0.00 75H3G (4/11)

9 STA: 275+14 RT: 0.00 75H3G (5/1)

3-R795X+F656B
R.S. = 478'

3-R795X+F656B
R.S. = 478'

MATCHLINE "AE" STA. 279+00 SEE BELOW LEFT

4 LOCATIONS
9 1907.75H3G
4012.SBCTR795X
2355.K21
2350.L13 (2)

11 1962.G
CONC. 8 CU.YDS.
4012.SBCTR795X
2355.K21
2350.L13 (2)

MATCHLINE "AE" STA. 279+00 SEE ABOVE RIGHT

SRP 500kV
(KYRENE –PALO VERDE)

+ 1059.2
+ 1059.0
1050
+ 1058.7
SCATTERED BRUSH
+ 1060.8
+ 1062.8
+ 1065.4
SCATTERED BRUSH
+ 1065.4

200' SRP ROW

TOWER 226

200' SRP ROW

280+00 281+00 282+00 283+00 284+00 285+00 286+00 287+00 288+00 289+00 290+00 291+00 292+00

471' 471' 478'

40'

APS EASEMENT

9 STA: 279+85 RT: 0.00 75H3G (5/2)

9 STA: 284+56 RT: 0.00 75H3G (5/3)

3-R795X+F656B
R.S. = 478'

11 STA: 289+27 RT: 0.00 69A15 (DBL. DE) (8°) (5/4)

COIL 200' FOC
ON FIBER RACK

MATCHLINE "AF" STA. 292+00 SEE SHT. 17

FINAL
APS DESIGN
05/17/2015

T 2S	R 3W	Sec 10	NE 1/4			MAP#
T 2S	R 3W	Sec 10	SE 1/4			MAP#
T	R	Sec	1/4			MAP#
T	R	Sec	1/4			MAP#
T	R	Sec	1/4			MAP#
CONTACT: DAN DALEY						
PHONE: 602/371-6868		PGR/MOBILE: 602/526-2571				
INSPECTOR:						
PHONE:		PGR/MOBILE:				

NO.	DATE	DESCRIPTION	BY

ARIZONA BLUE STAKE
CALL TWO WORKING DAYS
BEFORE YOU DIG
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602-263-1100
1-800-STAKE-IT
(OUTSIDE MARICOPA COUNTY)

aps

KOMATKE TO WILLIS 69KV
WA184027

WO#:	WA184027	DATE:	8/13/15
BY:	GEORGE PARKER	SCALE:	1:100
FILENAME:	WA184027 FINAL.DWG	SHEET	16 OF 36

WA184027
KOMATKE TO WILLIS 69kV

MATCHLINE "AF" STA. 292+00 SEE SHT. 16

MATCHLINE "AG" STA. 305+00 SEE BELOW LEFT

5 LOCATIONS
9 1907.75H3G
4012.SBCTR795X
2355.K21
2350.L13 (2)

SRP 500kV
(KYRENE –PALO VERDE)

200' SRP ROW

APS EASEMENT

TOWER 225

SCATTERED BRUSH

STA: 294+05
RT: 0.00
75H3G

3-R795X+F656B
R.S. = 478'

STA: 298+83
RT: 0.00
75H3G

STA: 303+61
RT: 0.00
75H3G

478'

MATCHLINE "AG" STA. 305+00 SEE ABOVE RIGHT

MATCHLINE "AJ" STA. 317+00 SEE SHT. 18

STA: 308+39
RT: 0.00
75H3G

STA: 313+17
RT: 0.00
75H3G

FINAL
APS DESIGN
05/17/2015

ARIZONA BLUE STAKE
CALL TWO WORKING DAYS
BEFORE YOU DIG
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602-263-1100
1-800-STAKE-IT
(OUTSIDE MARICOPA COUNTY)

T 2S	R 3W	Sec 11	NW 1/4	MAP#
T	R	Sec	1/4	MAP#
T	R	Sec	1/4	MAP#
T	R	Sec	1/4	MAP#
CONTACT: DAN DALEY			
PHONE: 602/371-6868		PGR/MOBILE: 602/526-2571	
INSPECTOR:			
PHONE:		PGR/MOBILE:	

NO.	DATE	DESCRIPTION	BY

aps

KOMATKE TO WILLIS 69KV
WA184027

WO#: WA184027	DATE: 8/13/15
BY: GEORGE PARKER	SCALE: 1:100
FILENAME: WA184027 FINAL.DWG	SHEET 17 OF 36

WA184027
KOMATKE TO WILLIS 69kV

MATCHLINE "AJ" STA. 317+00 SEE SHT. 17

TOWER 224

SRP 500kV
(KYRENE –PALO VERDE)

200' SRP ROW

APS EASEMENT

SCATTERED BRUSH

478'

478'

468'

STA: 317+95
RT: 0.00
75H3G

3-R795X+F656B
R.S. = 478'

STA: 322+73
RT: 0.00
75H3G

STA: 327+51
RT: 0.00
75H3G

3-R795X+F656B
R.S. = 478'

MATCHLINE "AK" STA. 330+00 SEE BELOW LEFT

6 LOCATIONS
9 1907.75H3G
4012.SBCTR795X
2355.K21
2350.L13 (2)

MATCHLINE "AK" STA. 330+00 SEE ABOVE RIGHT

TOWER 223

SRP 500kV
(KYRENE –PALO VERDE)

200' SRP ROW

APS EASEMENT

SCATTERED BRUSH

483'

483'

STA: 332+19
RT: 0.00
75H3G

STA: 337+02
RT: 0.00
75H3G

3-R795X+F656B
R.S. = 478'

STA: 341+85
RT: 0.00
75H3G

MATCHLINE "AL" STA. 343+00 SEE SHT. 19

FINAL
APS DESIGN
05/17/2015

T 2S	R 3W	Sec 2	SE 1/4	MAP#	
T 2S	R 3W	Sec 2	SW 1/4	MAP#	
T	R	Sec	1/4	MAP#	
T	R	Sec	1/4	MAP#	
T	R	Sec	1/4	MAP#	

CONTACT: DAN DALEY
PHONE: 602/371-6868 PGR/MOBILE: 602/526-2571
INSPECTOR:
PHONE: PGR/MOBILE:

NO.	DATE	DESCRIPTION	BY

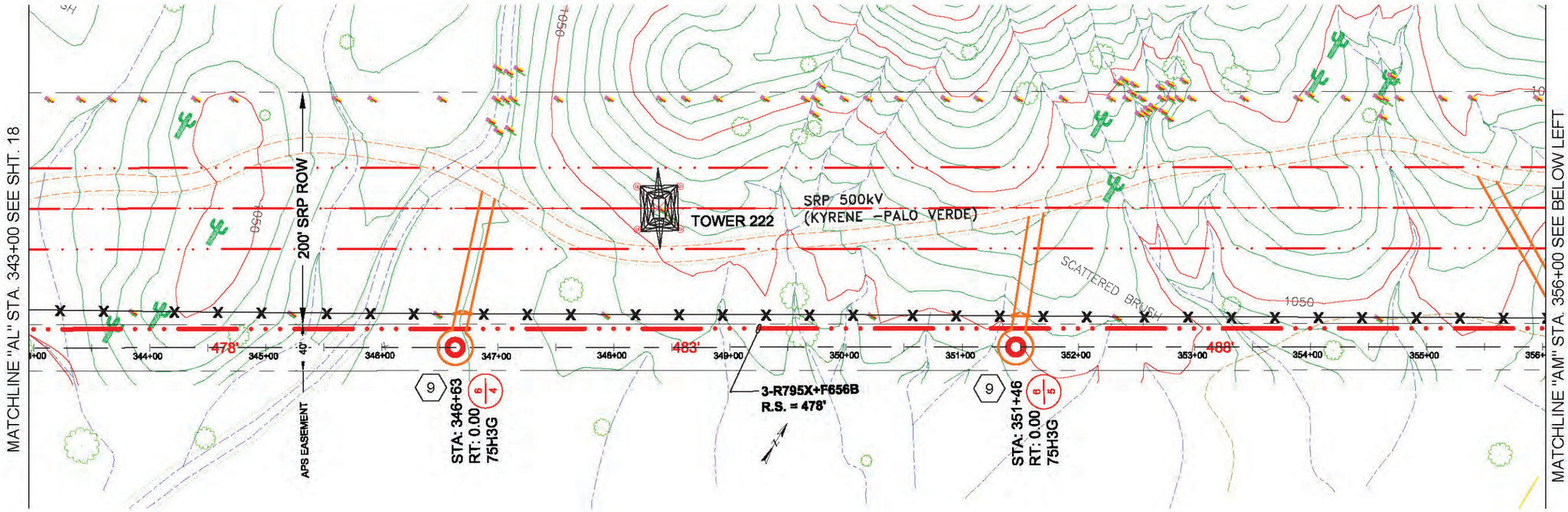
ARIZONA BLUE STAKE
CALL TWO WORKING DAYS
BEFORE YOU DIG
Dial 811 or
602-263-1100
1-800-STAKE-IT
(OUTSIDE MARICOPA COUNTY)

aps

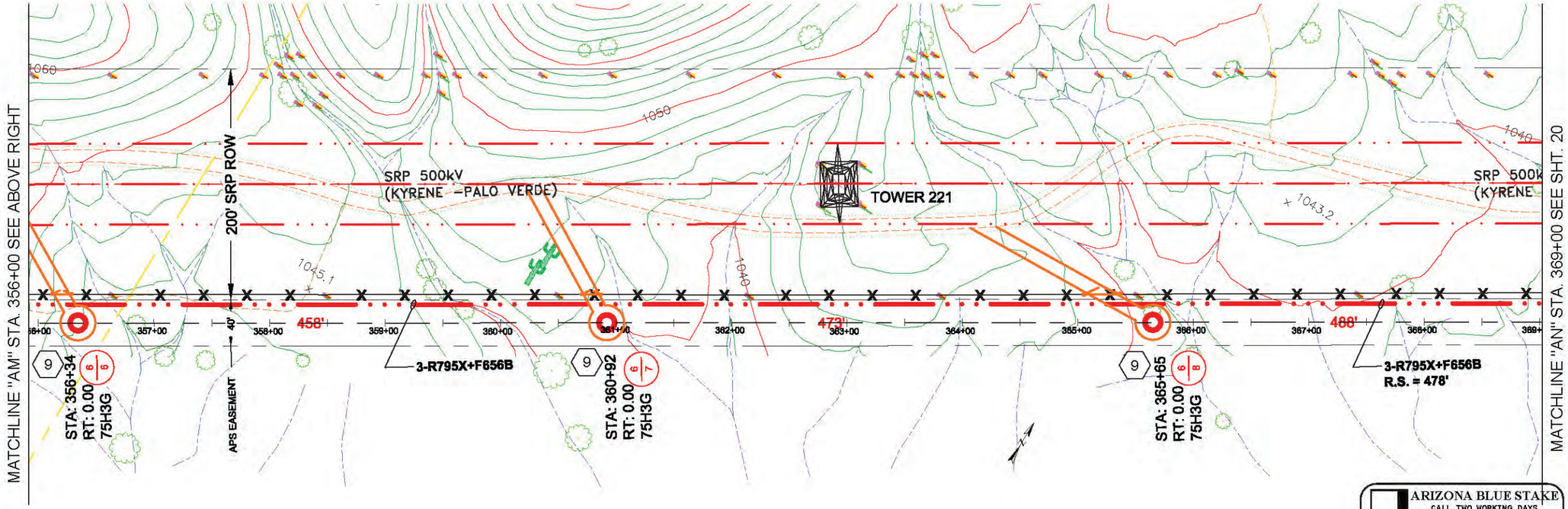
KOMATKE TO WILLIS 69KV
WA184027

WO#:	WA184027	DATE:	8/13/15
BY:	GEORGE PARKER	SCALE:	1:100
FILENAME:	WA184027 FINAL.DWG	SHEET	18 OF 36

WA184027
KOMATKE TO WILLIS 69kV



5 LOCATIONS
9 1907.75H3G
4012.SBCTR795X
2355.K21
2350.L13 (2)



FINAL
APS DESIGN
05/17/2015

T 2S	R 3W	Sec 2	SE 1/4	MAP#	
T 2S	R 3W	Sec 1	SE 1/4	MAP#	
T	R	Sec	1/4	MAP#	
T	R	Sec	1/4	MAP#	
T	R	Sec	1/4	MAP#	

CONTACT: DAN DALEY	
PHONE: 602/371-6868	PGR/MOBILE: 602/526-2571
INSPECTOR:	
PHONE:	PGR/MOBILE:

NO.	DATE	DESCRIPTION	BY

ARIZONA BLUE STAKE
CALL TWO WORKING DAYS
BEFORE YOU DIG
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602-263-1100
1-800-STAKE-IT
(OUTSIDE MARICOPA COUNTY)

aps
KOMATKE TO WILLIS 69KV
WA184027

WO#:	WA184027	DATE:	8/13/15
BY:	GEORGE PARKER	SCALE:	1:100
FILENAME:	WA184027 FINAL.DWG	SHEET	19 OF 36

WA184027
KOMATKE TO WILLIS 69kV

MATCHLINE "AN" STA. 369+00 SEE SHT. 19

MATCHLINE "AP" STA. 382+00 SEE BELOW LEFT

5 LOCATIONS
9 1907.75H3G
4012.SBCTR795X
2355.K21
2350.L13 (2)

kV
–PALO VERDE)

SCATTERED BRUSH

200' SRP ROW

APS EASEMENT 40'

TOWER 220

SRP 500kV
(KYRENE –PALO VERDE)

x 1028.7

x 1029.2

x 1028.3

x 1027.1

1030

483'

468'

483'

370+00 371+00 372+00 373+00 374+00 375+00 376+00 377+00 378+00 379+00 380+00 381+00

STA: 370+53
RT: 0.00
75H3G
6/9

STA: 375+36
RT: 0.00
75H3G
(DBL. DE)
6/10

12

COIL 200' FOC
ON FIBER RACK

3-R795X+F656B
R.S. = 485'

9

STA: 380+04
RT: 0.00
75H3G
6/11

MATCHLINE "AP" STA. 382+00 SEE ABOVE RIGHT

MATCHLINE "AR" STA. 395+00 SEE SHT. 21

12 1907.75H3G
4255.SBPUR795X
4265.SBPUR795X
2355.K21 (2)
2350.L13 (2)
6172.S00F656B

SRP 500kV
(KYRENE –PALO VERDE)

x 1028.8

x 1029.0

1030

x 1032.8

1030

x 1027.6

1027.5

x

1029.1

x

200' SRP ROW

TOWER 219

SCATTERED BRUSH

APS EASEMENT 40'

453'

503'

383+00 384+00 385+00 386+00 387+00 388+00 389+00 390+00 391+00 392+00 393+00 394+00 395+00

STA: 384+87
RT: 0.00
75H3G
6/12

3-R795X+F656B
R.S. = 485'

STA: 389+40
RT: 0.00
75H3G
7/1

9

STA: 394+43
RT: 0.00
75H3G
7/2

FINAL
APS DESIGN
05/17/2015

T 2S	R 3W	Sec 1	NW 1/4		MAP#
T 2S	R 3W	Sec 1	SE 1/4		MAP#
T	R	Sec	1/4		MAP#
T	R	Sec	1/4		MAP#
T	R	Sec	1/4		MAP#
CONTACT: DAN DALEY					
PHONE: 602/371-6868			PGR/MOBILE: 602/526-2571		
INSPECTOR:					
PHONE:			PGR/MOBILE:		

NO.	DATE	DESCRIPTION	BY

ARIZONA BLUE STAKE
CALL TWO WORKING DAYS
BEFORE YOU DIG
Dial 811 or
602-263-1100
1-800-STAKE-IT
(OUTSIDE MARICOPA COUNTY)

aps

KOMATKE TO WILLIS 69KV
WA184027

WO#:	WA184027	DATE:	8/13/15
BY:	GEORGE PARKER	SCALE:	1:100
FILENAME:	WA184027 FINAL.DWG	SHEET	20 OF 36

WA184027
KOMATKE TO WILLIS 69kV

MATCHLINE "AR" STA. 395+00 SEE SHT. 20

MATCHLINE "AS" STA. 408+00 SEE BELOW LEFT

SRP 500kV
(KYRENE –PALO VERDE)

200' SRP ROW

APS EASEMENT

TOWER 218

478'

468'

488'

3-R795X+F656B
R.S. = 485'

STA: 399+21
RT: 0.00
75H3G

STA: 403+89
RT: 5.00
75H3G

4 LOCATIONS
9 1907.75H3G
4012.SBCTR795X
2355.K21
2350.L13 (2)

11 1962.G
CONC. 8 CU.YDS.
4012.SBCTR795X
2355.K21
2350.L13 (2)

MATCHLINE "AS" STA. 408+00 SEE ABOVE RIGHT

MATCHLINE "AT" STA. 421+00 SEE SHT. 22

SRP 500kV
(KYRENE –PALO VERDE)

SCATTERED BRUSH

TOWER 217

200' SRP ROW

478'

464.5'

472'

3-R795X+F656B
R.S. = 485'

STA: 408+77
RT: 0.00
75H3G

STA: 413+55
RT: 0.00
75H3G

STA: 418+20
RT: 0.00
69A15 (8")

APS EASEMENT

FINAL
APS DESIGN
05/17/2015

T 2S	R 3W	Sec 1	NW 1/4	MAP#	
T 2S	R 3W	Sec 1	NE 1/4	MAP#	
T	R	Sec	1/4	MAP#	
T	R	Sec	1/4	MAP#	
T	R	Sec	1/4	MAP#	

CONTACT:	DAN DALEY
PHONE:	602/371-6868 PGR/MOBILE: 602/526-2571
INSPECTOR:	
PHONE:	PGR/MOBILE:

NO.	DATE	DESCRIPTION	BY

ARIZONA BLUE STAKE
CALL TWO WORKING DAYS
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602-263-1100
1-800-STAKE-IT
(OUTSIDE MARICOPA COUNTY)

aps

KOMATKE TO WILLIS 69KV
WA184027

WO#:	WA184027	DATE:	8/13/15
BY:	GEORGE PARKER	SCALE:	1:100
FILENAME:	WA184027 FINAL.DWG	SHEET	21 OF 36

WA184027
KOMATKE TO WILLIS 69kV

MATCHLINE "AT" STA. 421+00 SEE SHT. 21

SRP 500kV
(KYRENE –PALO VERDE)

TOWER 216

200' SRP ROW

SCATTERED BRUSH

STA: 422+97
RT: 0.00
75H3G

STA: 427+84
RT: 0.00
75H3G

3-R795X+F656B
R.S. = 485'

APS EASEMENT

STA: 432+96
RT: 0.00
75H3G

MATCHLINE "AU" STA. 434+00 SEE BELOW LEFT

5 LOCATIONS

9 1907.75H3G
4012.SBCTR795X
2355.K21
2350.L13 (2)

MATCHLINE "AU" STA. 434+00 SEE ABOVE RIGHT

SRP 500kV
(KYRENE –PALO VERDE)

TOWER 215

200' SRP ROW

SCATTERED BRUSH

STA: 437+88
RT: 0.00
75H3G

3-R795X+F656B
R.S. = 485'

APS EASEMENT

STA: 442+80
RT: 0.00
75H3G

MATCHLINE "AV" STA. 447+00 SEE SHT. 23

FINAL
APS DESIGN
05/17/2015

T 1S	R 3W	Sec 36	SW 1/4	MAP#
T 1S	R 3W	Sec 36	SE 1/4	MAP#
T	R	Sec	1/4	MAP#
T	R	Sec	1/4	MAP#
T	R	Sec	1/4	MAP#

CONTACT: DAN DALEY
PHONE: 602/371-6868 PGR/MOBILE: 602/526-2571
INSPECTOR:
PHONE: PGR/MOBILE:

NO.	DATE	DESCRIPTION	BY

ARIZONA BLUE STAKE
CALL TWO WORKING DAYS BEFORE YOU DIG
Dial 811 or
602-263-1100
1-800-STAKE-IT
(OUTSIDE MARICOPA COUNTY)

aps

KOMATKE TO WILLIS 69KV
WA184027

WO#:	WA184027	DATE:	8/13/15
BY:	GEORGE PARKER	SCALE:	1:100
FILENAME:	WA184027 FINAL.DWG	SHEET	22 OF 36

WA184027
KOMATKE TO WILLIS 69kV

MATCHLINE "AV" STA. 447+00 SEE SHT. 22

SRP 500kV
(KYRENE –PALO VERDE)

TOWER 214

200' SRP ROW

APS EASEMENT

MATCHLINE "AX" STA. 460+00 SEE BELOW LEFT

STA: 447+72
RT: 0.00
75H3G

3-R795X+F656B
R.S. = 485'

STA: 452+59
LT: 0.00
75H3G

STA: 457+56
RT: 0.00
75H3G

6 LOCATIONS
9 1907.75H3G
4012.SBCTR795X
2355.K21
2350.L13 (2)

MATCHLINE "AX" STA. 460+00 SEE ABOVE RIGHT

SCATTERED BRUSH

TOWER 213

SRP 500kV
(KYRENE –PALO VERDE)

3-R795X+F656B
R.S. = 485'

STA: 462+48
RT: 0.00
75H3G

STA: 467+55
RT: 0.00
75H3G

STA: 472+32
RT: 0.00
75H3G

MATCHLINE "AY" STA. 473+00 SEE SHT. 24

FINAL
APS DESIGN
05/17/2015

ARIZONA BLUE STAKE
CALL TWO WORKING DAYS BEFORE YOU DIG
Dial 811 or
602-263-1100
1-800-STAKE-IT
(OUTSIDE MARICOPA COUNTY)

T 1S	R 3W	Sec 31	SW 1/4	MAP#
T 1S	R 3W	Sec 36	SE 1/4	MAP#
T	R	Sec	1/4	MAP#
T	R	Sec	1/4	MAP#

CONTACT: DAN DALEY
PHONE: 602/371-6868 PGR/MOBILE: 602/526-2571
INSPECTOR:
PHONE: PGR/MOBILE:

NO.	DATE	DESCRIPTION	BY

aps

KOMATKE TO WILLIS 69KV
WA184027

WO#	WA184027	DATE:	8/13/15
BY:	GEORGE PARKER	SCALE:	1:100
FILENAME:	WA184027 FINAL.DWG	SHEET	23 OF 36

WA184027
KOMATKE TO WILLIS 69kV

MATCHLINE "AY" STA. 473+00 SEE SHT. 23

MATCHLINE "AZ" STA. 486+00 SEE BELOW LEFT

4 LOCATIONS
9 1907.75H3G
4012.SBCTR795X
2355.K21
2350.L13 (2)

12 1907.75H3G
4255.SBPUR795X
4265.SBPUR795X
2355.K21 (2)
2350.L13 (2)
6172.S00F656B

200' SRP ROW

APS EASEMENT

SRP 500kV
(KYRENE –PALO VERDE)

TOWER 212

SCATTERED BRUSH

DENSE TREES

492'

482'

467'

12 STA: 477+24 RT: 0.00 75H3G (DBL. DE.)

3-R795X+F656B
R.S. = 493'

9 STA: 482+06 RT: 0.00 75H3G

COIL 200' FOC
ON FIBER RACK

MATCHLINE "AZ" STA. 486+00 SEE ABOVE RIGHT

MATCHLINE "BA" STA. 499+00 SEE SHT. 25

SRP 500kV
(KYRENE –PALO VERDE)

TOWER 211

504'

505'

502'

9 STA: 486+73 RT: 0.00 75H3G

3-R795X+F656B
R.S. = 493'

9 STA: 491+77 RT: 0.00 75H3G

9 STA: 496+82 RT: 0.00 75H3G

FINAL
APS DESIGN
05/17/2015

T 1S	R 3W	Sec 31	SW 1/4	MAP#	
T 1S	R 3W	Sec 31	SE 1/4	MAP#	
T 1S	R 3W	Sec 31	NE 1/4	MAP#	
T	R	Sec	1/4	MAP#	
T	R	Sec	1/4	MAP#	
T	R	Sec	1/4	MAP#	

CONTACT: DAN DALEY
PHONE: 602/371-6868 PGR/MOBILE: 602/526-2571
INSPECTOR:
PHONE: PGR/MOBILE:

NO.	DATE	DESCRIPTION	BY

ARIZONA BLUE STAKE
CALL TWO WORKING DAYS
BEFORE YOU DIG
Dial 811 or
602-263-1100
1-800-STAKE-IT
(OUTSIDE MARICOPA COUNTY)

aps

KOMATKE TO WILLIS 69KV
WA184027

WO#:	WA184027	DATE:	8/13/15
BY:	GEORGE PARKER	SCALE:	1:100
FILENAME:	WA184027 FINAL.DWG	SHEET	24 OF 36

WA184027
KOMATKE TO WILLIS 69kV

MATCHLINE "BA" STA. 499+00 SEE SHT. 24

SRP 500kV
(KYRENE –PALO VERDE)

TUTHILL ROAD

SCATTERED BRUSH

200' SRP ROW

APS EASEMENT

TOWER 210

492'

502'

3-R795X+F656B
R.S. = 493'

STA: 501+84
RT: 0.00
75H3G

STA: 506+76
RT: 0.00
75H3G

STA: 511+78
RT: 0.00
75H3G

MATCHLINE "BB" STA. 512+00 SEE SHT. 25

5 LOCATIONS

9 1907.75H3G
4012.SBCTR795X
2355.K21
2350.L13 (2)

MATCHLINE "BB" STA. 512+00 SEE ABOVE RIGHT

SRP 500kV
(KYRENE –PALO VERDE)

SCATTERED BRUSH

200' SRP ROW

APS EASEMENT

TOWER 209

482'

492'

507'

3-R795X+F656B
R.S. = 493'

STA: 516+60
RT: 0.00
75H3G

STA: 521+52
RT: 0.00
75H3G

MATCHLINE "BC" STA. 525+00 SEE SHT. 26

FINAL
APS DESIGN
05/17/2015

T 1S	R 3W	Sec 32	NW 1/4		MAP#
T 1S	R 3W	Sec 31	NE 1/4		MAP#
T	R	Sec		1/4	MAP#
T	R	Sec		1/4	MAP#

CONTACT: DAN DALEY
PHONE: 602/371-6868 PGR/MOBILE: 602/526-2571
INSPECTOR:
PHONE: PGR/MOBILE:

NO.	DATE	DESCRIPTION	BY

ARIZONA BLUE STAKE
CALL TWO WORKING DAYS
BEFORE YOU DIG
Dial 811 or
602-263-1100
1-800-STAKE-IT
(OUTSIDE MARICOPA COUNTY)

aps

KOMATKE TO WILLIS 69KV
WA184027

WO#:	WA184027	DATE:	8/13/15
BY:	GEORGE PARKER	SCALE:	1:100
FILENAME:	WA184027 FINAL.DWG	SHEET	25 OF 36

WA184027
KOMATKE TO WILLIS 69kV

MATCHLINE "BC" STA. 525+00 SEE SHT. 25

MATCHLINE "BD" STA. 538+00 SEE BELOW LEFT

6 LOCATIONS
9 1907.75H3G
4012.SBCTR795X
2355.K21
2350.L13 (2)

SRP 500kV
(KYRENE –PALO VERDE)

200' SRP ROW

APS EASEMENT

SCATTERED BRUSH

x 962.9 x 965.1 x 967.0 x 968.4 x 970.7 x 970 x 968.7 x 963.0 x 965.0 x 969.0

526+00 527+00 528+00 529+00 530+00 531+00 532+00 533+00 534+00 535+00 536+00 537+00

477' 467'

9 STA: 526+59 RT: 0.00 75H3G (9/7)

3-R795X+F656B
R.S. = 493'

9 STA: 531+36 RT: 0.00 75H3G (9/8)

9 STA: 536+03 RT: 0.00 75H3G (9/9)

MATCHLINE "BD" STA. 538+00 SEE ABOVE RIGHT

MATCHLINE "BE" STA. 551+00 SEE SHT. 27

TOWER 208

SRP 500kV
(KYRENE –PALO VERDE)

SCATTERED BRUSH

x 975.4 x 978.9 x 983.0 x 987.2 x 972.5 x 974.4 x 982.6

539+00 540+00 541+00 542+00 543+00 544+00 545+00 546+00 547+00 548+00 549+00 550+00 551+00

500' 494' 497'

3-R795X+F656B
R.S. = 493'

9 STA: 541+03 RT: 0.00 75H3G (9/10)

9 STA: 545+97 RT: 0.00 75H3G (9/11)

3-R795X+F656B
R.S. = 493'

9 STA: 550+94 RT: 0.00 75H3G (10/1)

FINAL
APS DESIGN
05/17/2015

ARIZONA BLUE STAKE
CALL TWO WORKING DAYS BEFORE YOU DIG
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602-263-1100
1-800-STAKE-IT
(OUTSIDE MARICOPA COUNTY)

T 1S	R 3W	Sec 32	NW 1/4	MAP#
T 1S	R 3W	Sec 32	NE 1/4	MAP#
T	R	Sec	1/4	MAP#
T	R	Sec	1/4	MAP#

CONTACT: DAN DALEY			
PHONE: 602/371-6868		PGR/MOBILE: 602/526-2571	
INSPECTOR:			
PHONE:		PGR/MOBILE:	

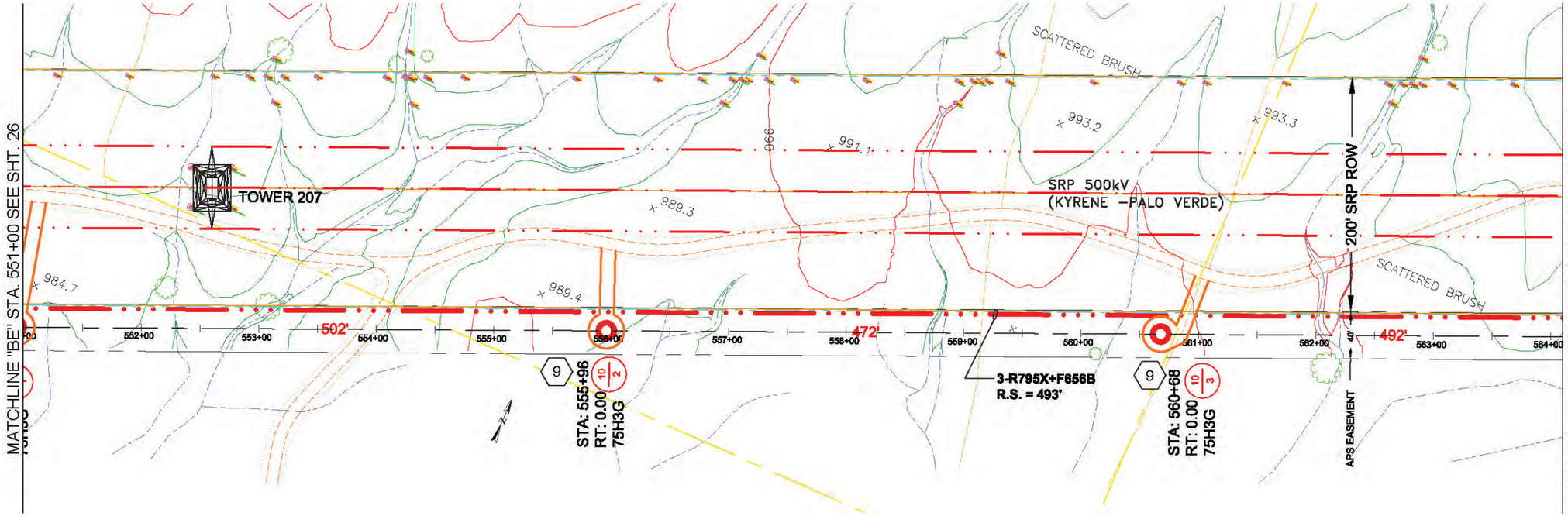
NO.	DATE	DESCRIPTION	BY

aps

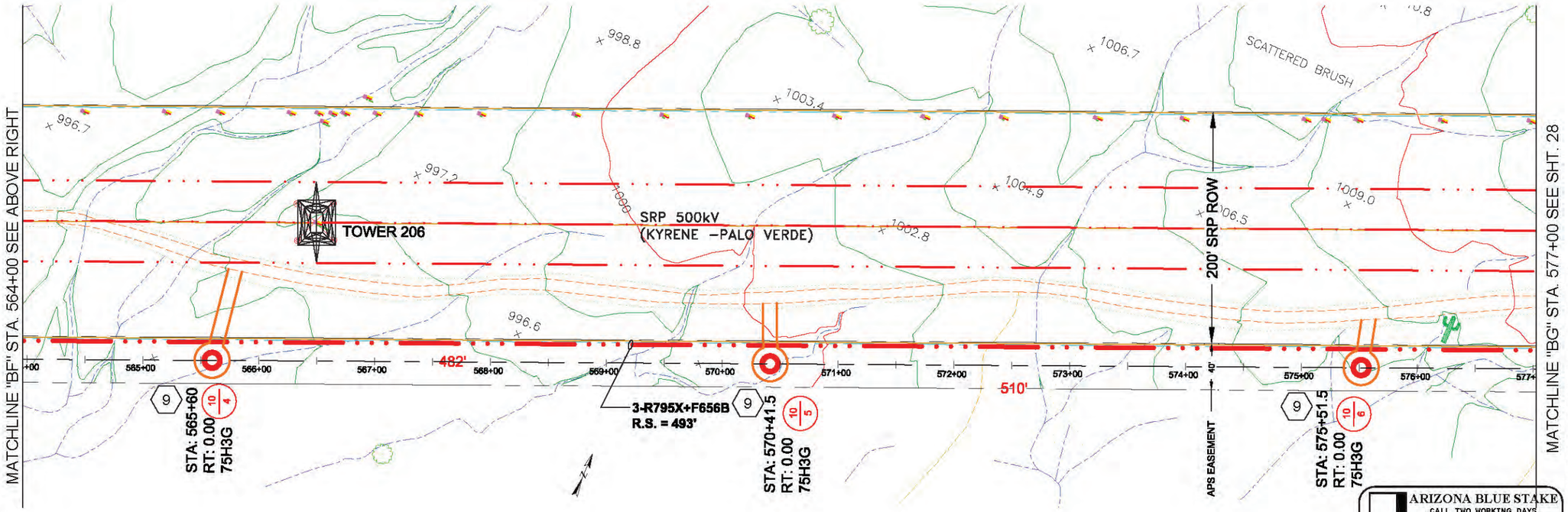
KOMATKE TO WILLIS 69KV
WA184027

WO#: WA184027	DATE: 8/13/15
BY: GEORGE PARKER	SCALE: 1:100
FILENAME: WA184027 FINAL.DWG	SHEET 26 OF 36

WA184027
KOMATKE TO WILLIS 69kV



5 LOCATIONS
9 1907.75H3G
4012.SBCTR795X
2355.K21
2350.L13 (2)



FINAL
APS DESIGN
05/17/2015

T 1S	R 3W	Sec 28	SW 1/4	MAP#	
T 1S	R 3W	Sec 32	NE 1/4	MAP#	
T 1S	R 3W	Sec 29	SE 1/4	MAP#	
T	R	Sec	1/4	MAP#	
T	R	Sec	1/4	MAP#	
T	R	Sec	1/4	MAP#	

CONTACT: DAN DALEY		
PHONE: 602/371-6868	PGR/MOBILE: 602/526-2571	
INSPECTOR:		
PHONE:	PGR/MOBILE:	

NO.	DATE	DESCRIPTION	BY

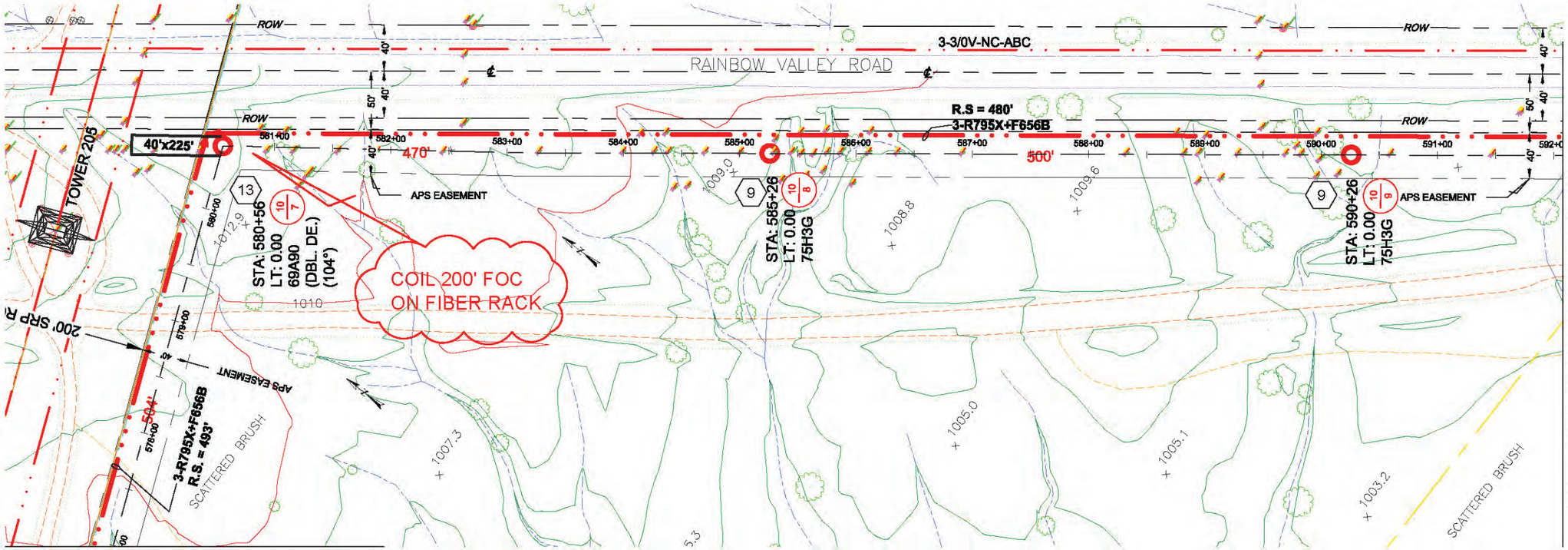
ARIZONA BLUE STAKE
CALL TWO WORKING DAYS BEFORE YOU DIG
Dial 811 or
602-263-1100
1-800-STAKE-IT
(OUTSIDE MARICOPA COUNTY)

aps

KOMATKE TO WILLIS 69KV
WA184027

WO#:	WA184027	DATE:	8/13/15
BY:	GEORGE PARKER	SCALE:	1:100
FILENAME:	WA184027 FINAL.DWG	SHEET	27 OF 36

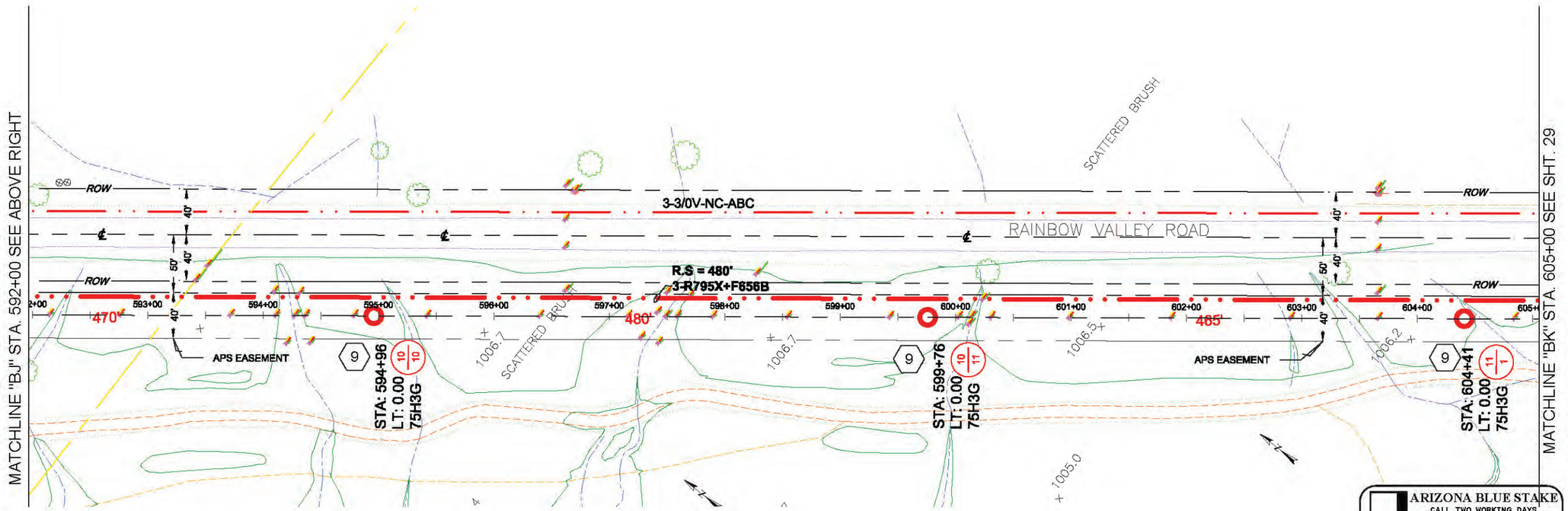
WA184027
KOMATKE TO WILLIS 69kV



5 LOCATIONS

9 1907.75H3G
4012.SBCTR795X
2355.K21
2350.L13 (2)

13 1968.G
CONC. 10 CU. YDS.
4242.SBPUR795X
2355.K21 (2)
2350.L23 (2)
6172.S00F656B



FINAL
APS DESIGN
05/17/2015

T 1S	R 3W	Sec 28	SW 1/4		MAP#
T 1S	R 3W	Sec 33	NE 1/4		MAP#
T	R	Sec	1/4		MAP#
T	R	Sec	1/4		MAP#

CONTACT: DAN DALEY
PHONE: 602/371-6868 PGR/MOBILE: 602/526-2571
INSPECTOR:
PHONE: PGR/MOBILE:

NO.	DATE	DESCRIPTION	BY

ARIZONA BLUE STAKE
CALL TWO WORKING DAYS BEFORE YOU DIG
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602-263-1100
1-800-STAKE-IT
(OUTSIDE MARICOPA COUNTY)

aps

KOMATKE TO WILLIS 69KV
WA184027

WO#:	WA184027	DATE:	8/13/15
BY:	GEORGE PARKER	SCALE:	1:100
FILENAME:	WA184027 FINAL.DWG	SHEET	28 OF 36

WA184027
KOMATKE TO WILLIS 69kV

MATCHLINE "BK" STA. 605+00 SEE SHT. 28

MATCHLINE "BM" STA. 618+00 SEE BELOW LEFT

5 LOCATIONS
9 1907.75H3G
4012.SBCTR795X
2355.K21
2350.L13 (2)

RAINBOW VALLEY ROAD

3-3/0V-NC-ABC

R.S = 480'
3-R795X+F656B

ROW

APS EASEMENT

STA: 609+36
LT: 0.00
75H3G

STA: 614+16
LT: 0.00
75H3G

495'

480'

470'

MATCHLINE "BM" STA. 618+00 SEE ABOVE RIGHT

MATCHLINE "BN" STA. 631+00 SEE SHT. 30

SCATTERED BRUSH

475'

495'

480'

STA: 618+86
LT: 0.00
75H3G

STA: 623+61
LT: 0.00
75H3G

STA: 628+56
LT: 0.00
75H3G

FINAL
APS DESIGN
05/17/2015

ARIZONA BLUE STAKE
CALL TWO WORKING DAYS BEFORE YOU DIG
Dial 811 or
602-263-1100
1-800-STAKE-IT
(OUTSIDE MARICOPA COUNTY)

T 1S	R 3W	Sec 33	SE 1/4	MAP#
T 1S	R 3W	Sec 33	NE 1/4	MAP#
T	R	Sec	1/4	MAP#
T	R	Sec	1/4	MAP#
T	R	Sec	1/4	MAP#

CONTACT: DAN DALEY	
PHONE: 602/371-6868	PGR/MOBILE: 602/526-2571
INSPECTOR:	
PHONE:	PGR/MOBILE:

NO.	DATE	DESCRIPTION	BY

aps

KOMATKE TO WILLIS 69KV
WA184027

WO#: WA184027	DATE: 8/13/15
BY: GEORGE PARKER	SCALE: 1:100
FILENAME: WA184027 FINAL.DWG	SHEET 29 OF 36

WA184027
KOMATKE TO WILLIS 69kV

MATCHLINE "BP" STA. 642+00 SEE BELOW RIGHT

3-3/0V-NC-ABC

3-R795X+F656B APS EASEMENT

STA: 642+91.5
LT: 0.00
69A90
(128°)

SCATTERED BRUSH

RAINBOW VALLEY ROAD

ROW

P518980

X253560

733116

STA: 642+91.5
LT: 383'
75H3G

R.S. = 383'
3-R795X+F656B

3-R795X-F656C R.S.=283'

383'

383'

384'

STA: 642+91.5
LT: 766'
75H3G

COIL 200' FOC
ON FIBER RACK

STA: 642+91.5
LT: 1150'
69A90G

WILLIS
SUBSTATION

END OF PROJECT

ACCESS ROAD

APS EASEMENT

PROPOSED FUTURE
5 MG STORAGE
RESERVOIR

APN 400-58-070M
CITY OF GOODYEAR
PUMP STATION /

MATCHLINE "BN" STA. 631+00 SEE SHT. 29

3-3/0V-NC-ABC

RAINBOW VALLEY ROAD

DENSE TREES

R.S = 480'
3-R795X+F656B

480'

470'

STA: 633+36
LT: 0.00
75H3G

STA: 638+16
LT: 0.00
75H3G

APS EASEMENT

MATCHLINE "BP" STA. 642+00 SEE ABOVE LEFT

4 LOCATIONS

9 1907.75H3G
4012.SBCTR795X
2355.K21
2350.L13 (2)

14 1968.G
CONC. 10 CU. YDS.
4242.SBPUR795X
4804.CR795X (3)
2355.K21 (2)
2350.L23 (2)
6172.S00F656B

15 1968.G
CONC. 10 CU. YDS.
4262.SBPUR795X
4265.SBPUR795X
2355.K21
2350.L23 (2)
6172.S00F656B
2439.C
2120.F2 (3)
1170 (3)
1172 (3)
APN: 33002810 (3)(DE SHACKLES)

FINAL
APS DESIGN
05/17/2015

ARIZONA BLUE STAKE
CALL TWO WORKING DAYS
BEFORE YOU DIG
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602-263-1100
1-800-STAKE-IT
(OUTSIDE MARICOPA COUNTY)

T 1S	R 3W	Sec 33	SE 1/4	MAP#
T 1S	R 3W	Sec 34	SW 1/4	MAP#
T	R	Sec	1/4	MAP#
T	R	Sec	1/4	MAP#

CONTACT: DAN DALEY
PHONE: 602/371-6868 PGR/MOBILE: 602/526-2571
INSPECTOR:
PHONE: PGR/MOBILE:

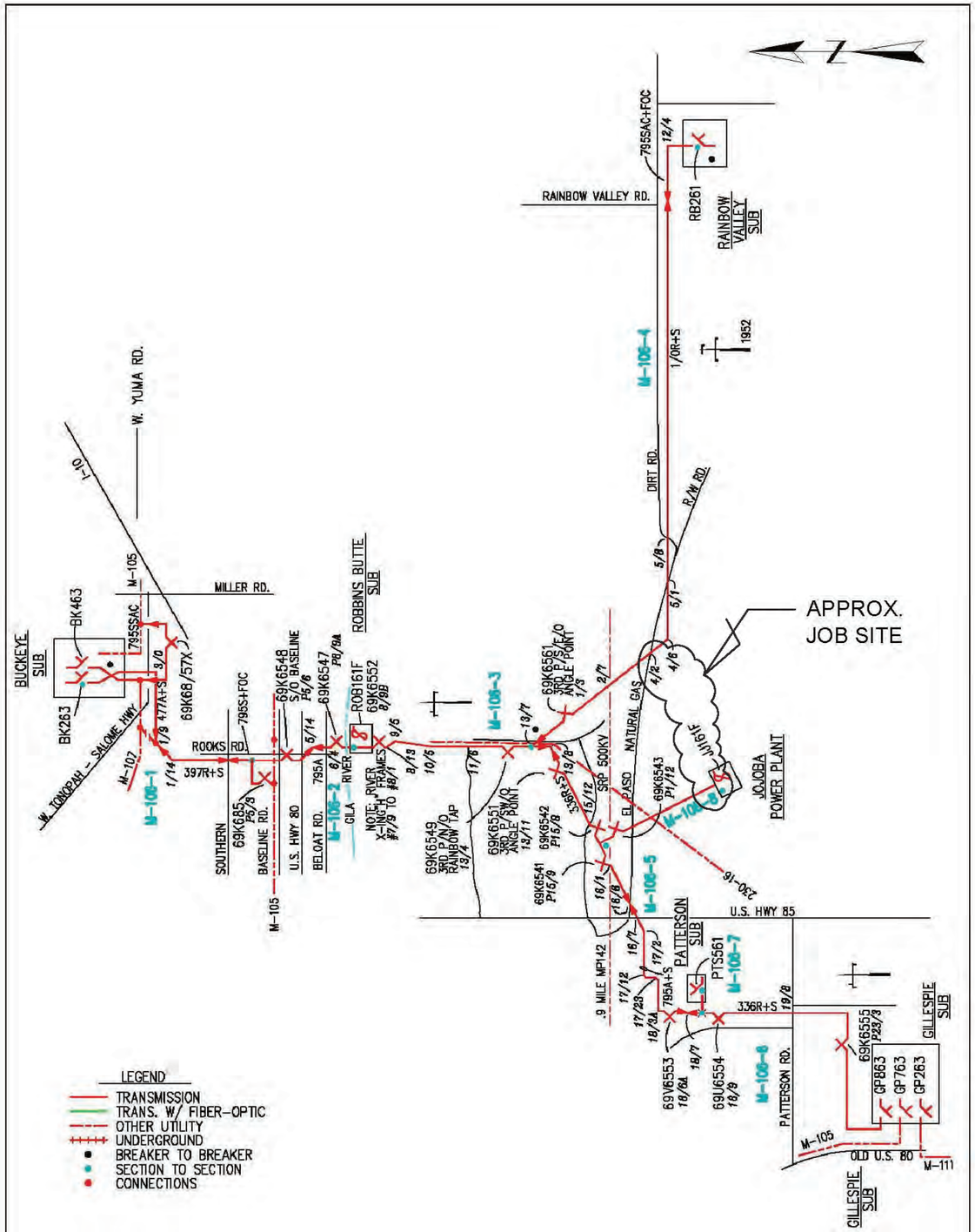
NO.	DATE	DESCRIPTION	BY

aps

KOMATKE TO WILLIS 69KV
WA184027

WO#: WA184027 DATE: 8/13/15
BY: GEORGE PARKER SCALE: 1:100
FILENAME: WA184027 FINAL.DWG SHEET 30 OF 36

WA184027
KOMATKE TO WILLIS 69kV



NO.	DATE	REVISION
16	03/13/13	CORRECTED DEPICTION OF YUMA RD
15	11/08/12	ADDED LINE SECTION M-106-8 AND BLUE DOT
14	06/20/12	SWITCH 69V6554 CHANGED TO 69U6554
13	02/25/09	NEW RECONDUCTOR PORTION BTWN 4/15-5/14 CUT IN NEW LOCATION K685 & K6548

aps
ARIZONA PUBLIC SERVICE COMPANY
TRANSMISSION LINE SECTION BOOK

DATE	DIVISION	DRAWING NO.
06/30/94	METRO	M-106
		SH 1 OF 1

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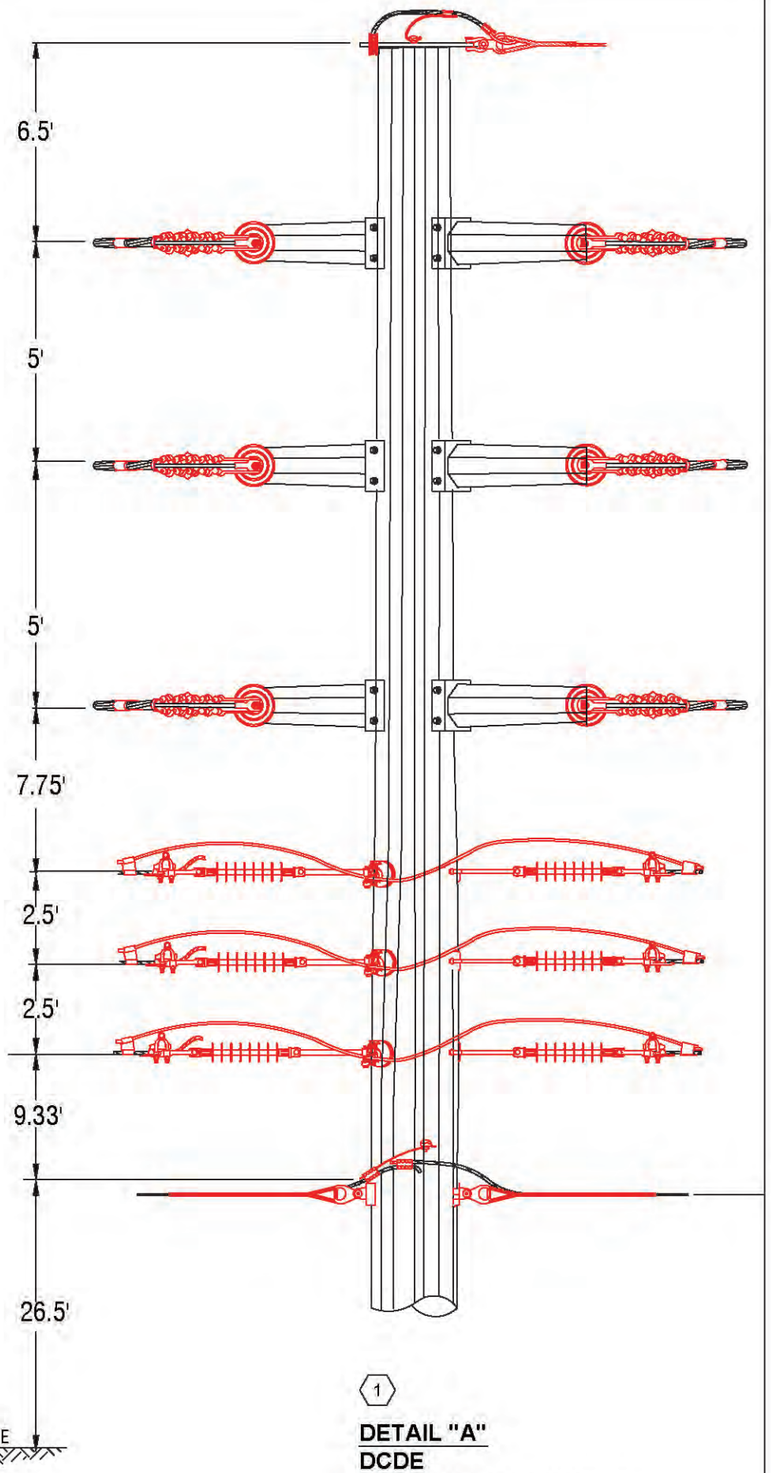
T	R	Sec	1/4	MAP#
T	R	Sec	1/4	MAP#
T	R	Sec	1/4	MAP#
T	R	Sec	1/4	MAP#
T	R	Sec	1/4	MAP#

CONTACT: DAN DALEY
PHONE: 602/371-6868 PGR/MOBILE: 602/526-2571
INSPECTOR:
PHONE: PGR/MOBILE:

NO.	DATE	DESCRIPTION	BY

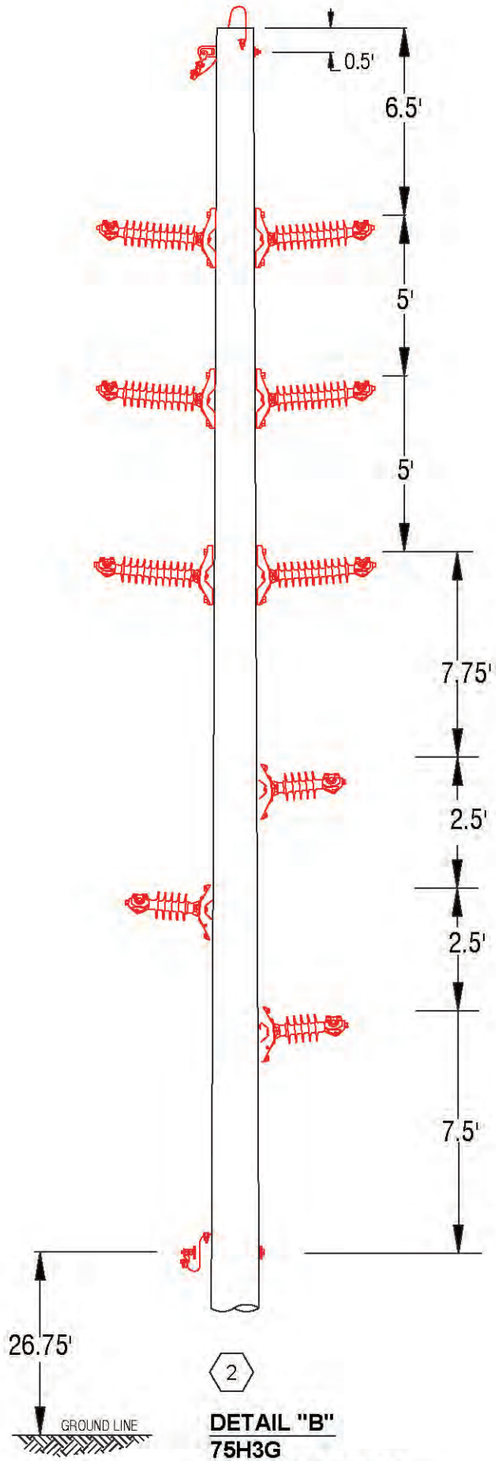
aps
KOMATKE TO WILLIS 69KV
WA184027

WO#:	WA184027	DATE:	8/13/15
BY:	GEORGE PARKER	SCALE:	1:100
FILENAME:	WA184027 FINAL.DWG	SHEET	31 OF 36



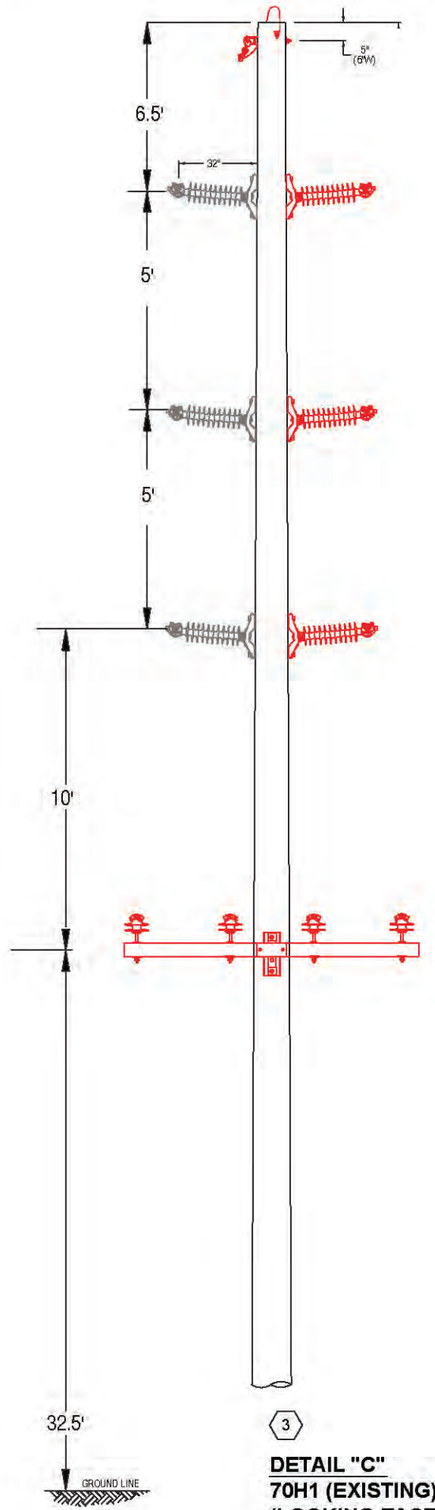
1

DETAIL "A"
DCDE
(LOOKING NORTHWEST)



2

DETAIL "B"
75H3G
(LOOKING WEST)



3

DETAIL "C"
70H1 (EXISTING)
(LOOKING EAST)

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T	R	Sec	1/4	MAP#
T	R	Sec	1/4	MAP#
T	R	Sec	1/4	MAP#

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INSPECTOR:	
PHONE:	PGR/MOBILE:

NO.	DATE	DESCRIPTION	BY

aps

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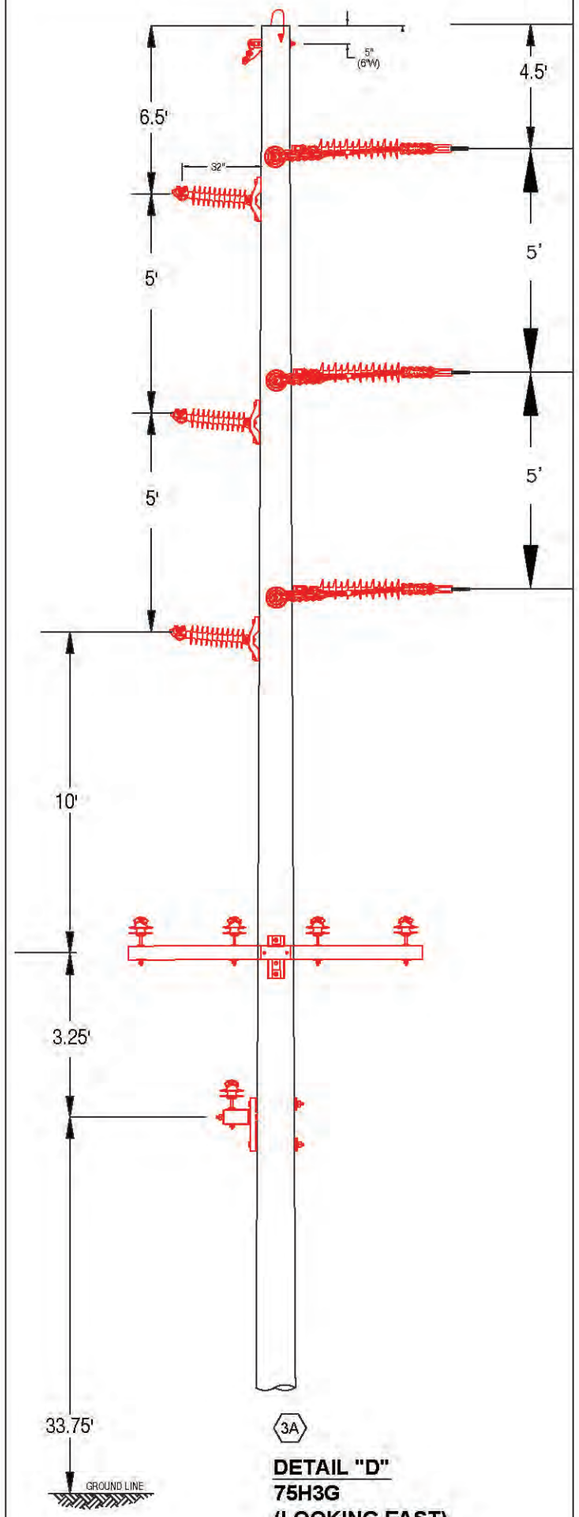
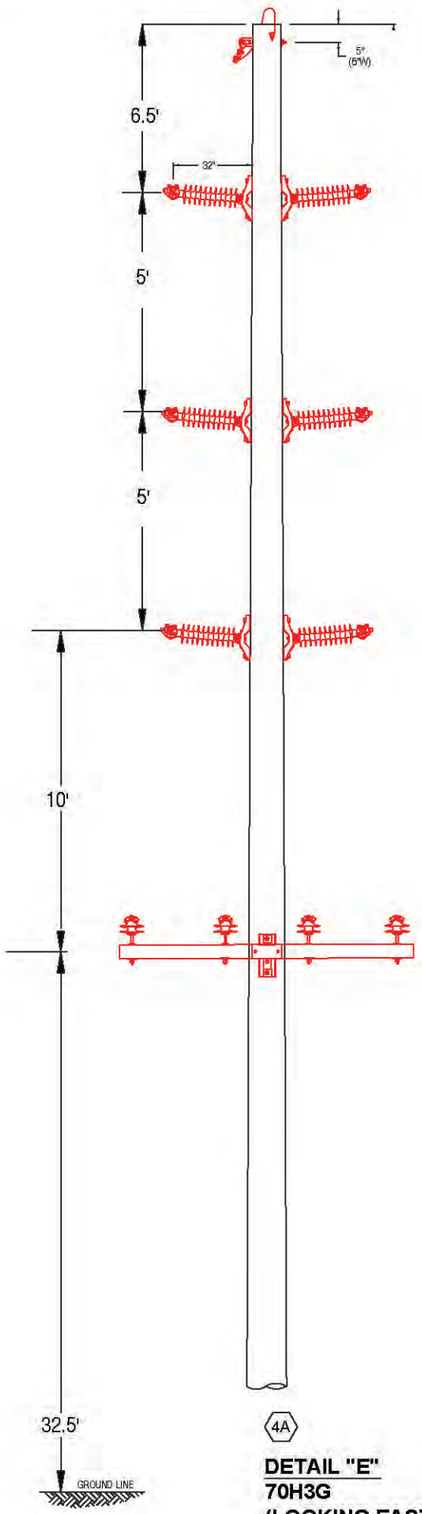
WA184027

WO# WA184027	DATE: 8/13/15
BY: GEORGE PARKER	SCALE: 1:100
FILENAME: WA184027 FINAL.DWG	SHEET 32 OF 36

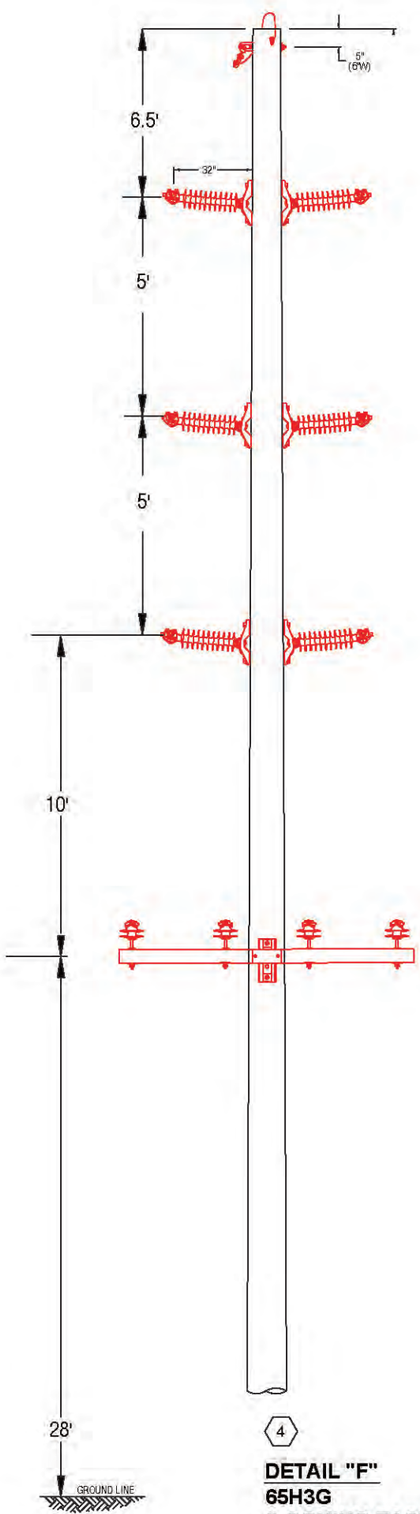
WA184027
KOMATKE TO WILLIS 69kV



DETAIL "D"
75H3G
(LOOKING EAST)



DETAIL "E"
70H3G
(LOOKING EAST)



DETAIL "F"
65H3G
(LOOKING EAST)

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T	R	Sec	1/4	MAP#
T	R	Sec	1/4	MAP#

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PHONE:	PGR/MOBILE:

NO.	DATE	DESCRIPTION	BY

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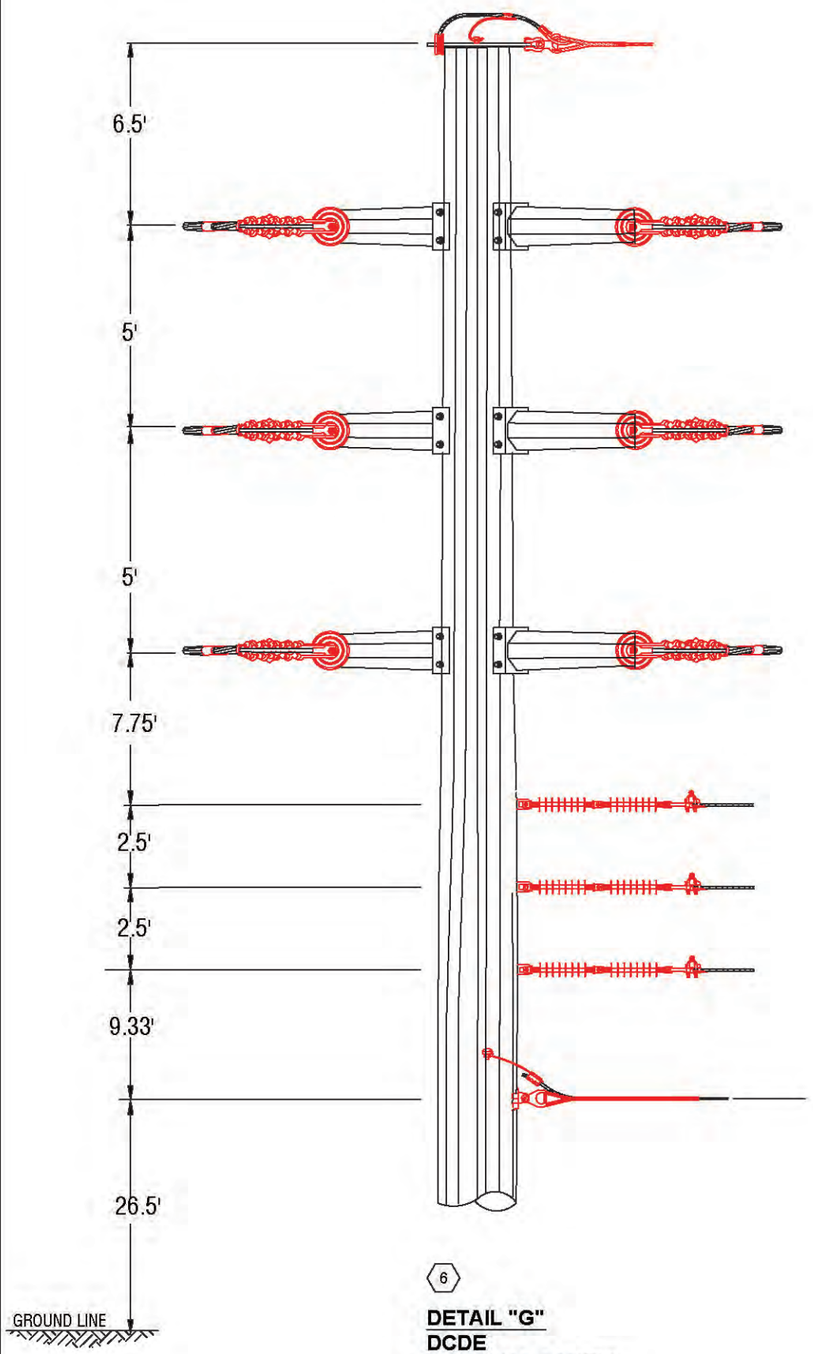
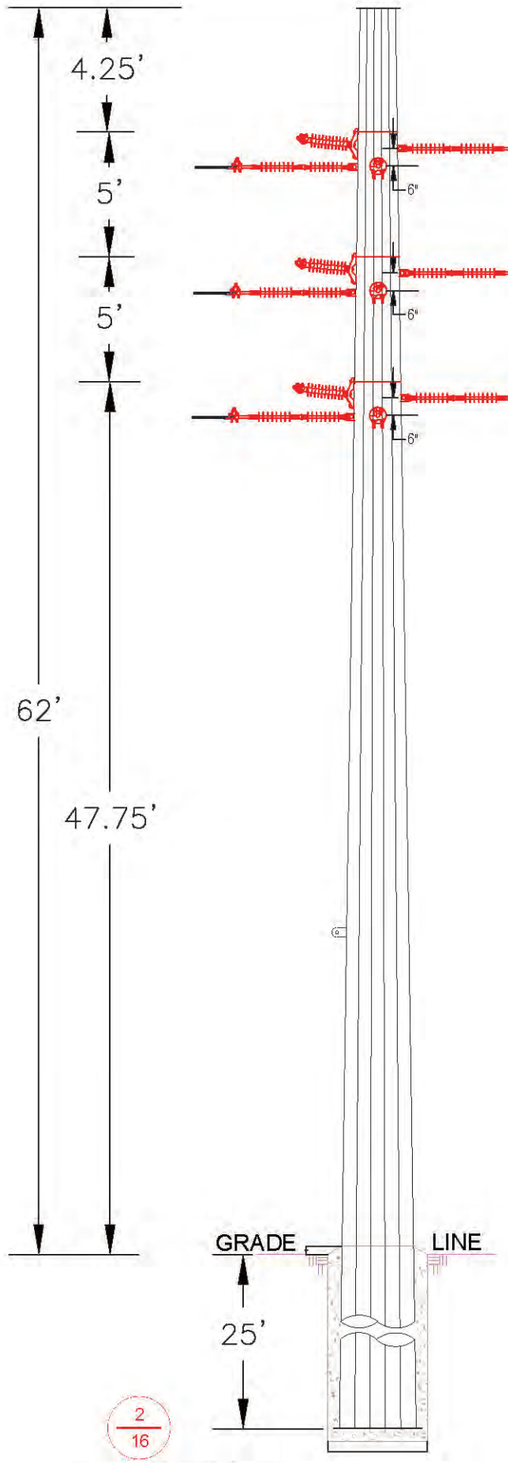
WO#	WA184027	DATE:	8/13/15
BY:	GEORGE PARKER	SCALE:	1:100
FILENAME:	WA184027 FINAL.DWG	SHEET	33 OF 36



6

DETAIL "G"
DCDE
(LOOKING SOUTH)

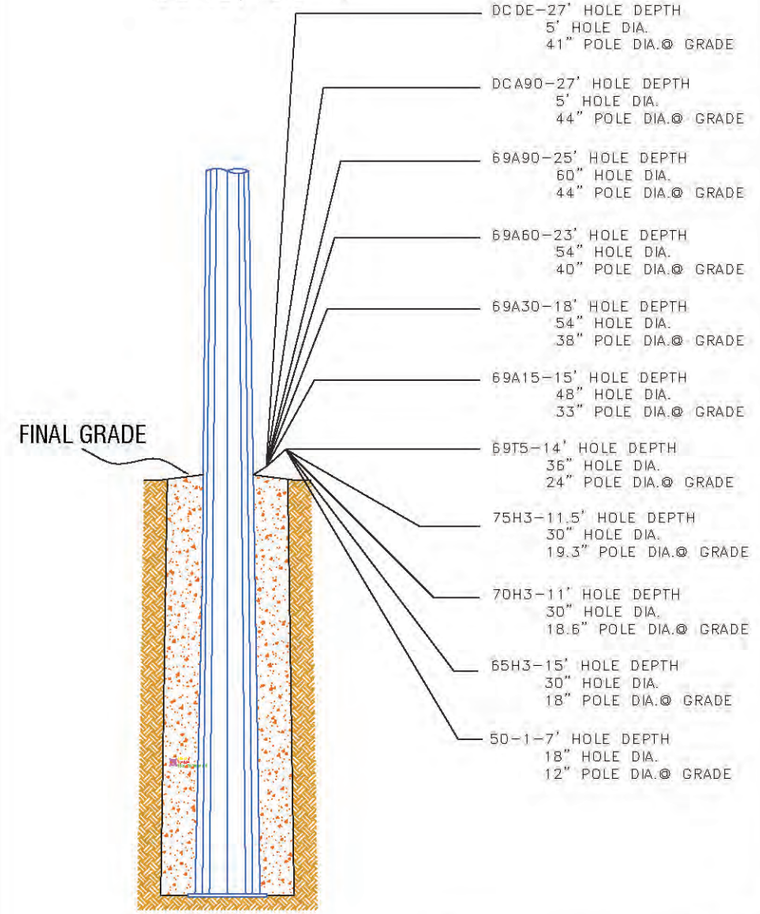


2/16

DETAIL "J" 12
69A60
(LOOKING NORTHEAST)

WA184027
KOMATKE TO WILLIS 69kV

TYPICAL POLE HOLE DETAIL
75H3, 69T5, 69A15, 69A30, 69A90, DCA90, DCDE, 70H3, 65H3, 50-1



T	R	Sec	1/4	MAP#
T	R	Sec	1/4	MAP#
T	R	Sec	1/4	MAP#
T	R	Sec	1/4	MAP#
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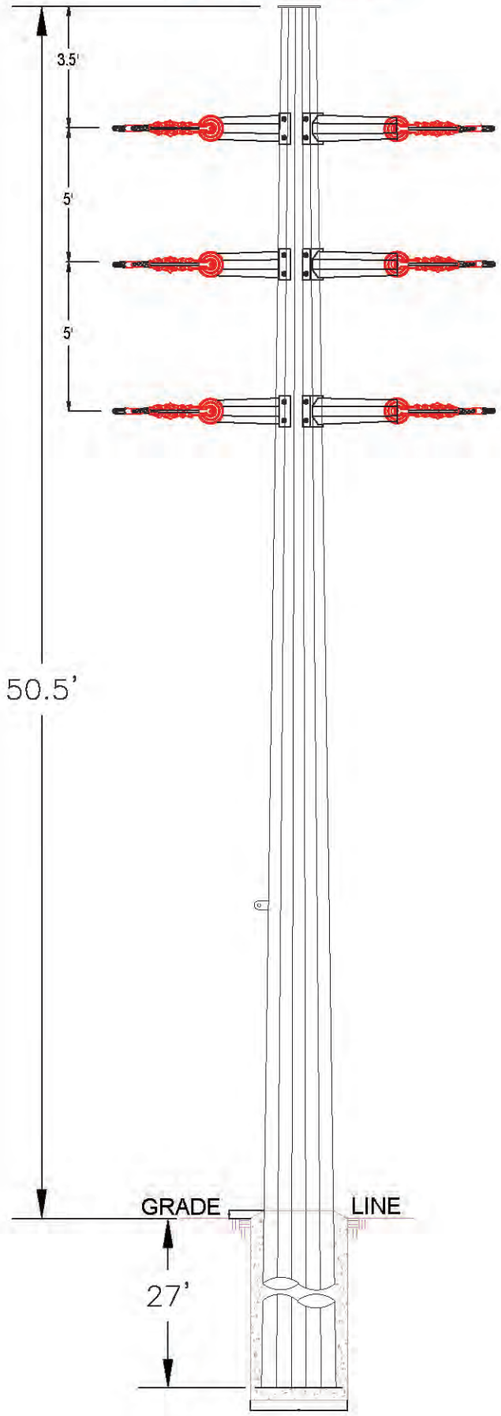
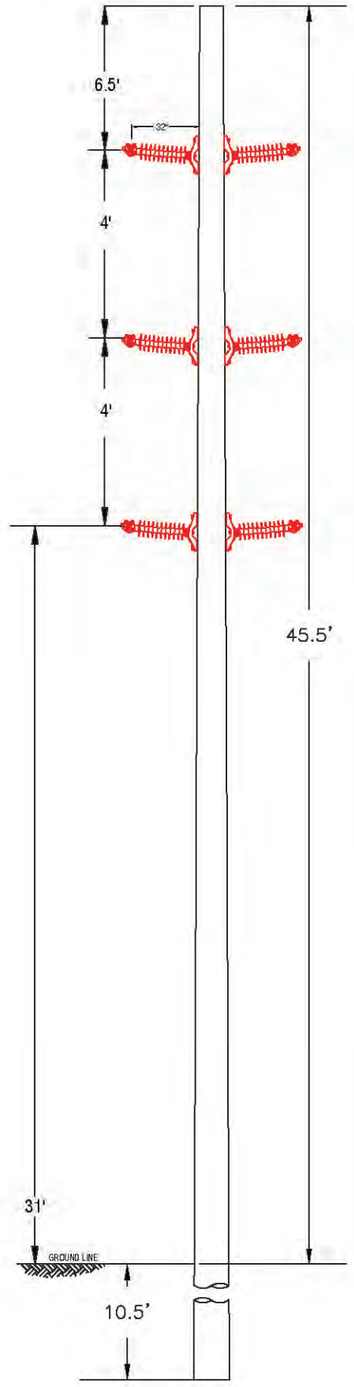
FILENAME:	WA184027 FINAL.DWG	SHEET	34 OF 36

Top Pole 14.5' from Top

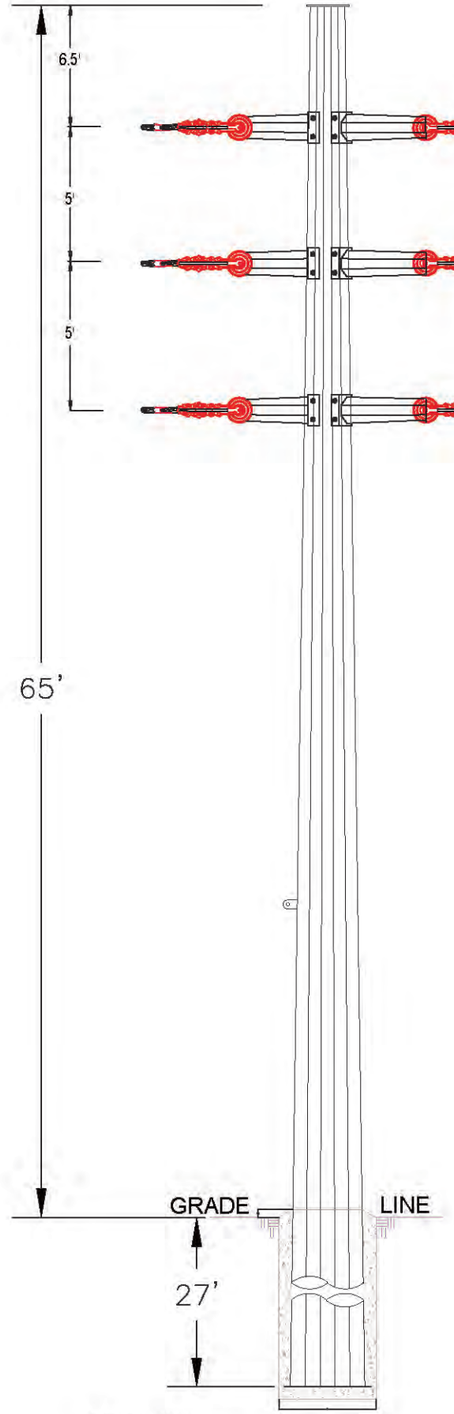


DETAIL "L" (8)
DCA90
(LOOKING EAST)

Top 7' off pole

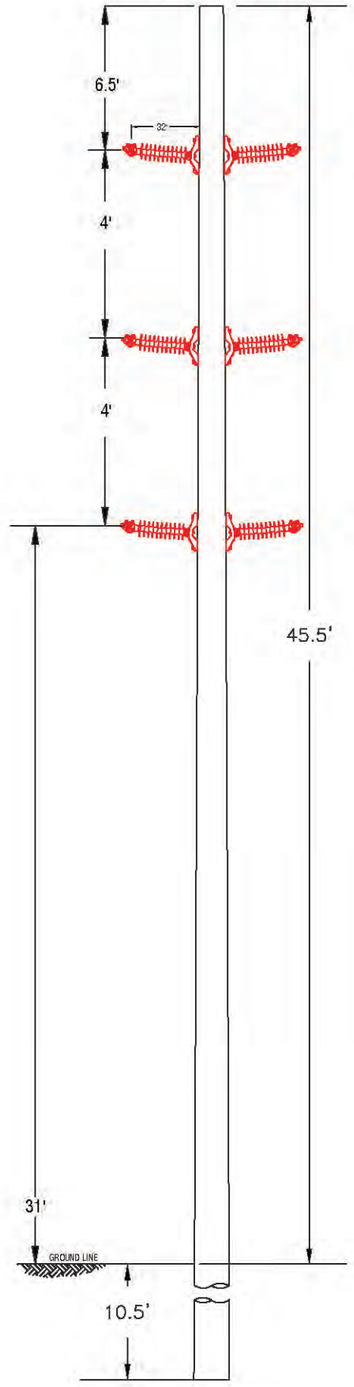


(9) **DETAIL "K"** 1/1
65H3G
(LOOKING EAST)



DETAIL "M" (10)
DCA90
(LOOKING EAST)

Top 9' off pole



(11A) **DETAIL "N"** 2/4
65H3G
(LOOKING EAST)

WA184027
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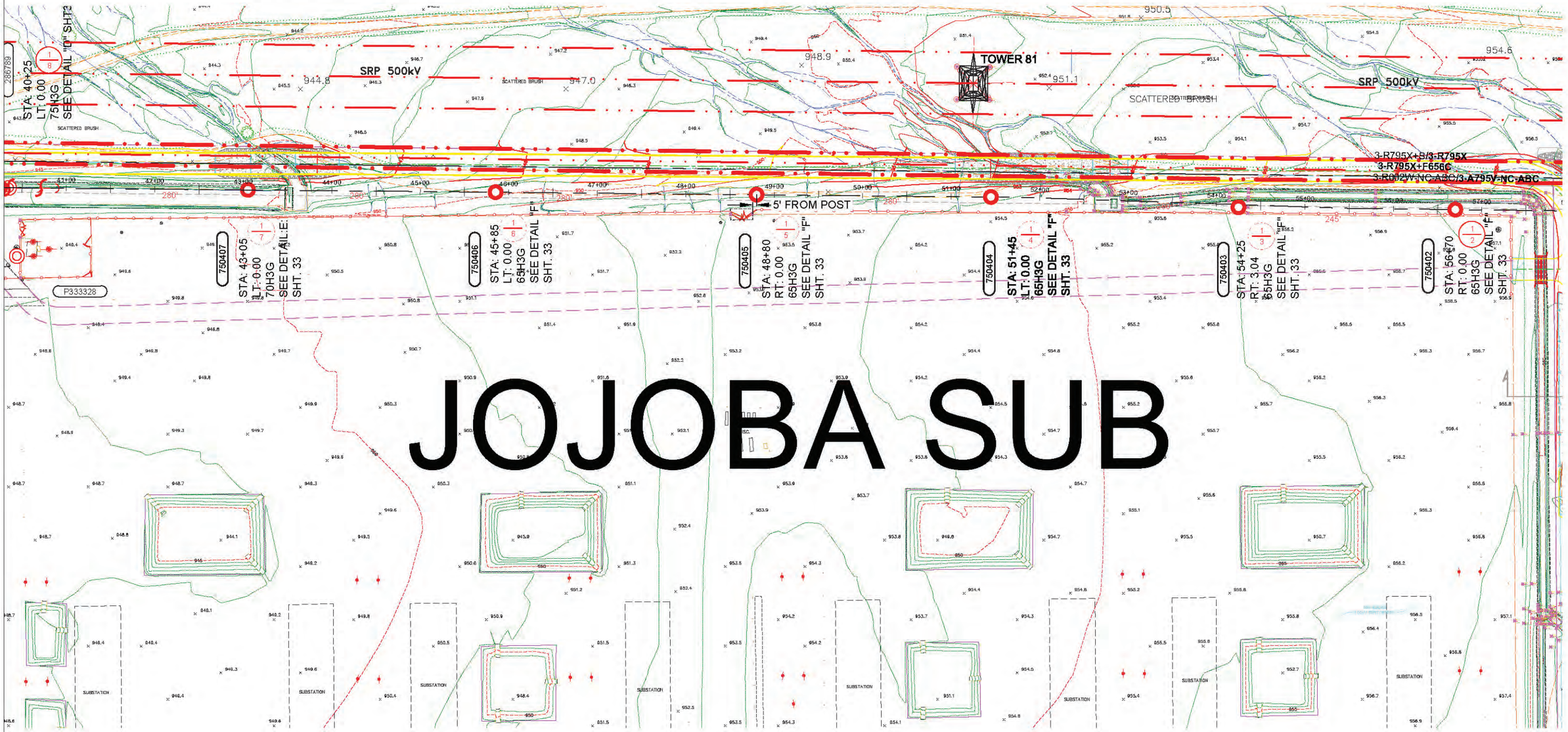
FILENAME:	WA184027 FINAL.DWG	SHEET	35 OF 36

JOJOBA ULTIMATE SUB BAY LAYOUT REFERENCE

WA184027
KOMATKE TO WILLIS 69kV



JOJOBA SUB

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