BUREAU OF RECLAMATION

Draft Environmental Assessment

APS Queue 317 Painted Desert Solar Project - Interior Region 8: Lower Colorado Basin

Cover Photo: Proposed Gen-Tie Alignment Paralleling Existing Transmission Corridor. (Barr/John Dodge)

U.S. Department of the Interior
Bureau of Reclamation
Interior Region 8: Lower Colorado Basin
Phoenix Area Office
Glendale, Arizona

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Mission Statements

The U.S. Department of the Interior protects and manages the Nation's natural resources and cultural heritage; provides scientific and other information about those resources; and honors its trust responsibilities or special commitments to American Indians, Alaska Natives, Native Hawaiians, and affiliated Island Communities.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

Acronyms and Abbreviations

1934 Act	Act of June 14, 1934
AC	Alternating Current
AIRFA	American Indian Religious Freedom Act
APLIC	Avian Power Line Interaction Committee
APS	Arizona Public Service
AUM	Abandoned Uranium Mines
BESS	Battery Energy Storage System
BIA	Bureau of Indian Affairs
BLM	Bureau of Land Management
BMP	Best Management Practice
BRCF	Biological Resources Compliance Form
CFR	Code of Federal Regulation
CAP	Central Arizona Project
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CRBPA	Colorado River Basin Project Act
CRCF	Cultural Resources Compliance Form
CWA	Clean Water Act
DOE	Department of Energy
EA	Environmental Assessment
Ecosphere	Ecosphere Environmental Services, Inc.
EO	Executive Order
EPA	Environmental Protection Agency
EPC	Engineering, Procurement, and Construction
FERC	Federal Energy Regulatory Commission
FPA	Federal Power Act
ft	Feet
G2	Group 2
G3	Group 3
G4	Group 4
GLDD	General Land Development Department
HASP	Health and Safety Plan
HAZMAT	Hazardous Material
IPaC	Information for Planning and Consultation
ITA(s)	Indian Trust Assets
KOP	Key Observation Points
kV	Kilovolt
LCR	Little Colorado River
LGIA	Large Generator Interconnection Agreement
LMD	Land Management District
MBTA	Migratory Bird Treaty Act
MW	Megawatt

MWDC	Megawatt Direct Current
NEPA	National Environmental Policy Act
NESL	Navajo Endangered Species List
NGS	Navajo Generating Station
NNC	Navajo Nation Code
NNDFW	Navajo Nation Department of Fish and Wildlife
NNEPA	Navajo Nation Environmental Protection Agency
NNHP	Navajo Natural Heritage Program
NNHPD	Navajo Nation Heritage and Historic Preservation Department
NR	Navajo Route
NRHP	National Register of Historic Places
NSTS	Navajo Southern Transmission System
NWTS	Navajo Western Transmission System
O&M	Operation and Maintenance
PDP	Painted Desert Power, LLC
P.L.	Public Law
POCO	Point of Change of Ownership
POD	Plan of Development
PPE	Personal Protective Equipment
Project	Painted Desert Solar Project
PV	Photovoltaic
Reclamation	Bureau of Reclamation
ROW	Right of Way
RPP	Radiation Protection Plan
RT	Route
SO	Secretarial Order
SPCC	Spill Prevention, Control, and Countermeasure
SR	State Route
SWPPP	Storm Water Pollution Prevention Plan
TDD	Threshold Determination Document
U.S.	United States
USACE	United States Army Corps of Engineers
U.S.C.	United States Code
US 89	United States Highway 89
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
VRA	Visual Resources Assessment
WQC	Water Quality Certification

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1.0 Introduction, Background, Purpose, and Need

1.1 Introduction

The United States (U.S.) Bureau of Reclamation (Reclamation) has prepared this draft Environmental Assessment (EA) to analyze and disclose the potential environmental consequences of the proposed Painted Desert Power, LLC (PDP) Queue 317 Interconnection and the Painted Desert Solar Project (Project) within the exterior boundaries of the Navajo Reservation. The Project is a proposed 750-megawatt (MW) photovoltaic (PV) solar generating and battery energy storage system (BESS) facility to be developed on approximately 5,163 acres in the Cameron and Coalmine Canyon Chapters of the Navajo Nation (Figure 1-1). PDP would construct and operate the Project. To carry out the Project, PDP has filed an interconnection request to Arizona Public Service (APS) at the Moenkopi Switchyard. The Moenkopi Switchyard is part of the Navajo Southern Transmission System (NSTS), which the federal government partially owns. Reclamation is responsible for the federal interest in the NSTS and must approve the interconnection into the Moenkopi Switchyard. PDP has also filed a right-of-way (ROW) application with the Bureau of Indian Affairs (BIA) for the Project gen-tie, to interconnect the Project to the Moenkopi Switchyard via a 4.6-mile 500 kilovolt gen-tie line, and to improve the existing BIA Route 6730 to the Project solar generation site. A short portion of the gen-tie ROW crosses lands that Congress excluded (herein referred to as excluded lands) from the Reservation, but did provide the Navajo Nation an exclusive right to occupy and use those lands. These excluded lands are currently withdrawn for water-power and power-site purposes. Because of this excluded land status, either the Bureau of Land Management (BLM) must issue a separate ROW across these excluded lands or the BIA must modify its overall gen-tie ROW to account for the unique status of these excluded lands.

This EA was prepared in accordance with the National Environmental Policy Act (NEPA; Public Law (P.L.) 91-190; 42 U.S.C. §§ 4321 et seq., as amended). Reclamation is the lead federal agency, and the BIA and BLM are cooperating agencies consistent with 42 U.S.C. § 4336a(a)(3).

1.2 Background

The 1968 Colorado River Basin Project Act (CRBPA; P.L. 90-537, 82 Statute 885) authorized the construction, operation, and maintenance of the Central Arizona Project (CAP). It also provided the authority for the federal government, through the Secretary of the Interior, to enter into agreements to participate in the "Navajo Project," which generates the power and energy used to

operate the CAP pump stations. The agreements authorized by the CRBPA covered the construction and operation of the Navajo Generating Station (NGS), including the power plant and associated transmission system. The participants in the NGS (NGS Participants) are Salt River Project Agricultural Improvement and Power District (SRP), APS, Tucson Electric Power (TEP), Nevada Energy (NVE), and the federal government. Reclamation is responsible for the administration of the federal government's 24.3 percent interest in NGS on behalf of the Secretary of the Interior under a 1969 delegation of authority.

The NGS was a 2,250-MW coal-fired power plant on leased Navajo Nation lands about 5 miles east of Page, Arizona. The NGS and related facilities are operated pursuant to a 1969 "Navajo Project Indenture of Lease" (1969 Lease). The facility's construction began in 1969, and power production started in 1973. Power was transmitted from NGS via two transmission systems known as the Navajo Western Transmission System (NWTS) and NSTS. These two transmission systems are integrated into the country's western electrical grid. Since the decommissioning of the NGS in 2020, NWTS and NSTS have been and will continue to be in use by the NGS Participants until 2054.

The Háyoołkáál Proclamation, issued by Navajo Nation President Jonathan Nez in 2019, promotes renewable energy development on tribal lands to benefit the Navajo people. It aims to boost the local economy, replace energy from the retired coal-fired NGS, and ensure reliable, cost-effective power. The proclamation also emphasizes minimizing environmental and cultural impacts by utilizing previously disturbed land or degraded lands near existing transmission systems. Navajo Nation's general leasing regulations and recently enacted federal law (25 U.S.C. § 415[e]) authorize the Navajo Nation to issue leases, under certain circumstances without Secretary of the Interior's approval. Under this authority, PDP has submitted a land lease application to the Navajo Nation under the provisions of the Navajo Nation General Leasing Regulations of 2013 (16 Navajo Nation Code (NNC) §§ 2333 and 2384) to develop the Project on 4,563 acres of land. As part of the land lease application, PDP prepared the *Threshold Determination Document: Painted Desert Power Solar Project Cameron & Coalmine Canyon Chapters, Navajo Nation, Arizona* (PDP, 2023). The threshold determination document (TDD) includes biological, cultural, social, and physical resource baselines of all Project components (i.e., gen-tie, access road, and power generation site) and quantified potential impacts (i.e., adverse and beneficial) of Project development. The TDD is available on Reclamation's project website at: https://www.usbr.gov/lc/phoenix/, and is incorporated by reference in this EA.

1.2.1 Power-related withdrawals

Based on a review of the land status records for this project, almost all of the proposed facilities would be located on Navajo Nation tribal trust land. During its land status review, the BLM identified certain early 20th century legal authorities that may impact the land management of a small portion of the project lands lying on both sides of the Little Colorado River (LCR). In 1934, under the Act of June 14, 1934 (1934 Act), P.L. No. 73-352, 48 Statute 960, Congress added lands west of the LCR to the Navajo Reservation, including much of the land within the proposed gen-tie ROW. In that 1934 Act, Congress excluded from the Reservation certain lands withdrawn for water-power and power-site purposes but provided the Navajo Nation an exclusive right to occupy and use such

excluded lands. Previous executive actions had created Power Site Reserve No. 451 (Executive Order (EO) dated October 23, 1914), Power Site Reserve No. 450 (Secretary Order [SO] dated January 12, 1915) and Water Power Designation No. 6 (SO dated February 9, 1917), all of which impacted lands generally located within a quarter-mile of the LCR (Figure 1-1). The existence of these three power-related withdrawals resulted in these withdrawal areas being the excluded lands per the above referenced act of Congress. Since all three of these withdrawals are for power-related purposes, as defined in Section 24 of the Federal Power Act (FPA; 16 United States Code §§ 791 et seq.), the BLM would request that the Federal Energy Regulatory Commission (FERC) provide comments and/or recommended stipulations for those portions of the proposed project that cross the above-mentioned power-related withdrawals.

1.3 Project Location

The proposed interconnection and gen-tie would connect the Project to the Moenkopi Switchyard near Cameron, Arizona. The Project would include the interconnection at the Moenkopi Switchyard and the approximately 4.6-mile gen-tie, associated access roads, and the solar generation facility. Figure 1-1 shows the solar power generation site and roads within the Navajo Nation lease request and also depicts the gen-tie and associated facilities. Any temporary construction lay-down areas would be within the gen-tie ROW or the solar facility lease site (refer to Preliminary Site Plan in Appendix B).

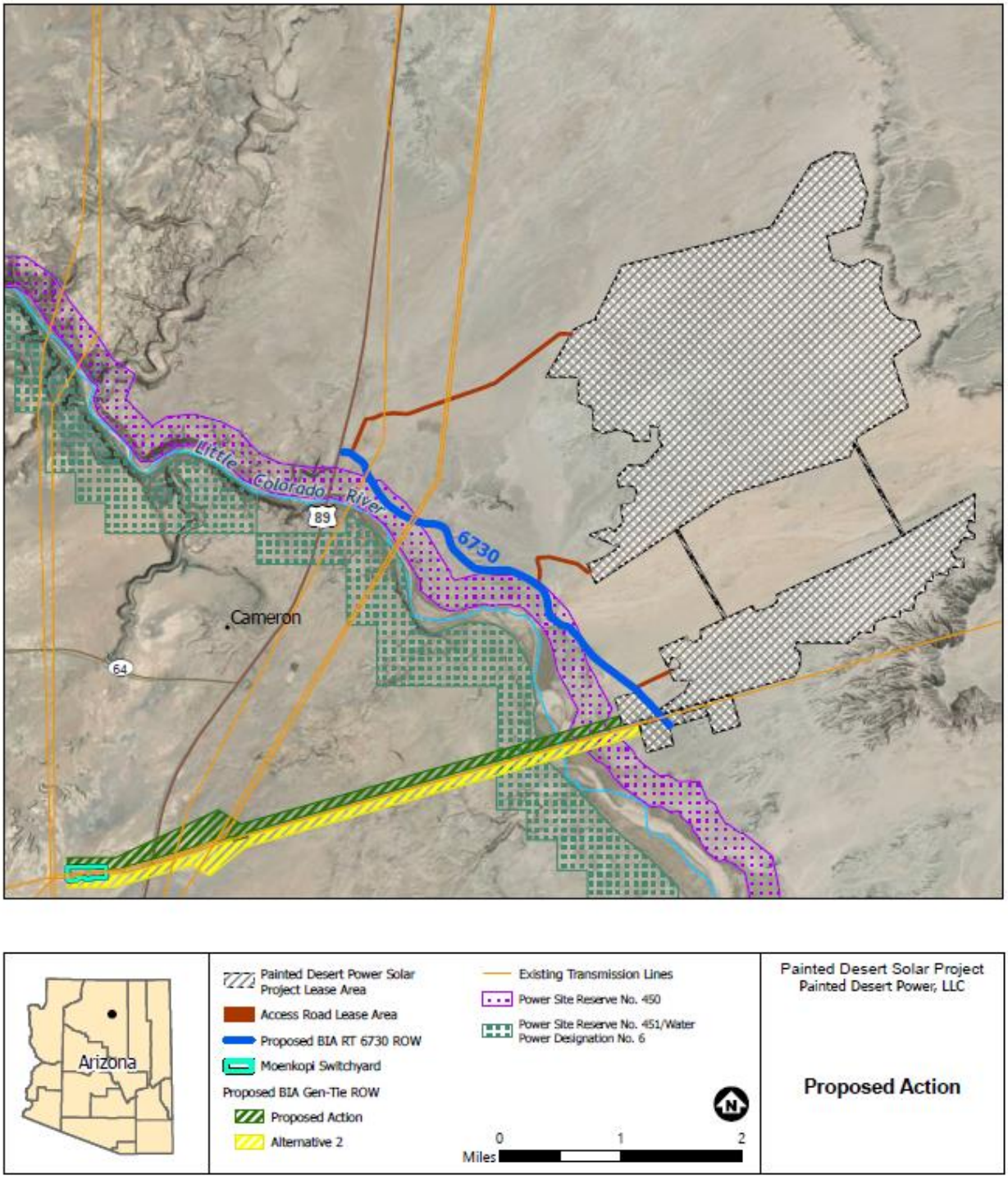

Figure 1-1. Location of Action Alternatives

1.4 Purpose and Need

1.4.1 Bureau of Reclamation

As an NSTS share owner, Reclamation's purpose is to consider the application for the Project's interconnection to the NSTS at the Moenkopi Switchyard. Reclamation's need for the action is to respond to PDP's application for a Large Generator Interconnection Agreement (LGIA) in accordance with applicable laws, regulations, and policies described below and, if appropriate, approve the LGIA.

Reclamation's need is based on the partial ownership of the NSTS by the U.S. government. Additionally, EO 14154 and SO 3418 support improving energy development, generation, and distribution in the U.S. EO 14156 and SO 3417 call for expanding the United States' energy infrastructure.

1.4.2 Bureau of Indian Affairs

The Secretary of the Interior through BIA has broad authority to grant ROWs over and across tribal lands according to 25 U.S.C. §§ 323-328. The Secretary of the Interior is empowered to grant ROWs over and across any lands held in trust by the U.S. for individual Indians or Indian tribes. Under 25 U.S.C. § 324, no grant of a ROW over and across any lands belonging to a tribe shall be made without the consent of the proper tribal officials.

The BIA's purpose is to respond to the Project ROW applications as authorized by 25 U.S.C. §§ 323-328 and 25 CFR 169. ROWs are needed to access the solar generation site and to convey energy from the solar generating site and storage facility to the Moenkopi Switchyard.

1.4.3 Bureau of Land Management

With respect to the excluded lands, the ROW authorization would be issued by the BLM or the BIA, as appropriate, across these specific lands. If BLM is the authorizing agency for the ROW across the excluded lands, then this ROW would be subject to Section 501 of Federal Land Policy and Management Act of 1976, as amended (43 U.S.C. 1761).

Additionally, since Power Site Reserve No. 450, Power Site Reserve No. 451, and Water Power Designation No. 6 are for power-related purposes, as defined in Section 24 of the FPA, the BLM would request that the FERC provide comments and/or recommended stipulations for improvements to BIA RT 6730 and those portions of the requested gen-tie transmission line ROW that crosses the above-mentioned power-related withdrawals.

1.5 Public Involvement

Reclamation solicited input from the public about the Project to assist in identifying key issues and defining the Project's scope and environmental analysis. Reclamation conducted scoping via email and U.S. mail (to 64 potentially interested agencies, organizations, tribes, and neighbors to the

Proposed Action), newspaper notices (in both the Navajo Times and Lake Powell Chronicle), and internet publication. Appendix A contains a copy of the scoping letter. A 30-day public scoping period was initiated on December 19, 2024. Reclamation received three comment letters, two from private citizens and one from the U.S. Environmental Protection Agency (EPA). The EPA letter recommended that the EA follow various Council on Environmental Quality NEPA standards. The two letters from citizens, one being an area resident, recommended consideration of visual resources and aesthetics and local land use issues, such as grazing, cultural resources, and the presence of abandoned uranium mines in the area.

1.6 Cooperating Agencies

Reclamation is the lead federal agency responsible for preparing the EA, and the BIA and BLM are cooperating agencies reviewing the EA. The Navajo Nation is responsible for managing the lands upon which the power generation site, gen-tie, and access roads are located. The Navajo Nation did not respond to the request to be a cooperating agency. Reclamation also invited the FERC to participate as a cooperating agency due to the gen-tie crossing lands reserved and designated for power-related purposes, as defined in Section 24 of the FPA. FERC declined the invitation to be a cooperating agency.

2.0 Proposed Action and Alternatives

2.1 Alternative 1 (Proposed Alternative)

Under the Proposed Action, Reclamation would approve the LGIA for the APS Queue 317 Interconnection, and the BIA would authorize the gen-tie ROW and may grant a ROW for the BIA RT 6730. For the short portion of the gen-tie that crosses the excluded lands, either the BIA would account for the unique status of the excluded lands within the Navajo Reservation, or the BLM would issue a separate ROW for this short portion of the gen-tie. For the above-mentioned power-related withdrawals, BLM and/or BIA would integrate into the ROW FERC's comments and recommended stipulations for those portions of the gen-tie transmission line and BIA RT 6730 improvements that occur within these withdrawals.

The Project would involve constructing, operating, maintaining, and eventually decommissioning a 4.7-mile long, 500 kilovolt (kV) gen-tie that would interconnect into the regional transmission grid at the Moenkopi Switchyard. The width of the gen-tie ROW is on average 400 ft and would occupy 303 acres. An overview of the Project route is shown in Figure 1-1. The Project also includes the Painted Desert Solar generation site, which is evaluated as a connected action.

The new interconnection and gen-tie line would parallel two existing APS 500 kV transmission lines for its entire length. PDP would construct the gen-tie interconnecting the solar Project substation to the point of the change of ownership (POCO) structure (the point at which APS owns and maintains the line) on the north side of the Moenkopi Switchyard. APS would add a bay within the Moenkopi Switchyard to accommodate the interconnection.

The Project's major components include the interconnection and gen-tie transmission lines and related facilities, Moenkopi switchyard facilities, and the solar generation site. Final design characteristics would be determined in the detailed design phase, before constructing the interconnection, gen-tie, and Painted Desert Solar generation site.

Project facilities (Section 2.1.1), pre-construction activities (Section 2.1.2), and construction (Section 2.1.3) methods and sequencing details are further detailed in the TDD and Plan of Development (POD) available on Reclamation's website. To prepare a concise EA, these component descriptions and construction details are incorporated by reference.

2.1.1 Project Facilities

2.1.1.1 Solar Generating Facility

The solar generating facility is a 4,500-acre solar PV facility. PDP has submitted a land lease application to the Navajo Nation under the provisions of the Navajo Nation General Leasing Regulations of 2013 (16 NNC §§ 2333 and 2384) for the facilities described in this section. At full build-out, most of the lease area would be occupied by solar panels mounted on single-axis trackers (solar panel mounting structures) and related equipment. The PV facility would have approximately 1,682,478 solar panels, each rated at 580 watts. This number is subject to change as the project progresses through the stages of design and would be finalized when the Issued for Construction design set is finalized closer to the commencement of construction. The current design groups the PV panels, inverters, and medium voltage transformers into approximately 4 MW direct current blocks that, when combined, would produce the Project output of 750 MW alternating current (MW AC). The direct current (DC) electrical output of multiple rows of PV panels is collected through one or more combiner boxes and directed to an inverter that converts the DC electricity to AC electricity. The generated energy flows from the inverter to a transformer, where it is stepped up to distribution-level voltage, approximately 34.5 kV. Multiple transformers are connected in parallel via 34.5 kV lines (installed either overhead or below ground) to a single 34.5/500 kV substation. A new collector substation in the southwest corner of the solar generation lease site would increase power from 34.5 kV to 500 kV for transmission. The collector substation would occupy 14.7 acres and consist of one or more general step-up transformers, a control house, and a substation superstructure within an approximately 8 ft-tall fence enclosure.

Certain phases of the Project may include a battery energy storage system (BESS) that would store electricity for dispatch into the transmission grid via the gen-tie. A BESS or battery grid storage is a type of energy storage technology that uses a group of batteries to store electrical energy for dispatch to the grid as needed to stabilize grid current. At complete buildout, PDP anticipates that the BESS could consist of approximately 75 to 150 enclosed battery storage containers. Each

container would house battery modules mounted in racks (akin to server racks) and associated electrical equipment. PDP anticipates that the battery storage containers would be built using standard shipping containers, each measuring approximately 40 feet (ft) in length, 8 ft in width, and 9 ft in height. Each container would house battery modules mounted in racks (akin to server racks) and associated electrical equipment. The containers would have concrete foundation pads, with one pad per container. The dimensions of the pads would be approximately 48 ft in length, 17.5 ft in width, and 1 ft in height. The combined collector substation and BESS area is expected to cover approximately 49.7 acres and may be distributed throughout the site.

2.1.1.2 Access Roads – Existing and New

Figure 2-1 shows existing roads, existing roads that would require improvements, and new roads. The existing roads in the Project area are all dirt surface and are approximately 15 to 20 ft wide. There may be some minor grading to smooth or fill ruts. New roads are spur roads that would extend from existing or improved roads. No new roads are needed to cross the LCR to construct the gen-tie.

The gen-tie was designed to utilize existing roads where available. Access to tower locations for construction and maintenance would be from existing area roads associated with the existing multiple transmission line corridor that the gen-tie follows. Short-constructed spur or off-shoot roads or overland access would enable access to tower locations beyond the existing road network.

New spur roads would be approximately 20 ft wide and located within the ROW for the gen-tie and within the lease area for roads within the generation site area. New spur roads along the gen-tie ROW and extending into the solar generation area would be sited to avoid abandoned uranium mines (AUM), cultural resources, and other sensitive resources.

The primary access to the generation site would be via BIA RT 6730. Improvements to BIA 6730 would generally include installing a low-water crossing where BIA RT 6730 crosses an ephemeral tributary of the LCR, which periodically floods and becomes covered with sediment during storm events. In addition to installing a low-water crossing, road improvements to BIA RT 6730 would generally include surface preparation through grading, filling ruts or potholes, spreading gravel and/or minor adjustments to the slope and line of the road. New spur roads along the gen-tie ROW and extending into the solar generation area would be sited to avoid abandoned uranium mines (AUM), cultural resources, and other sensitive resources.

2.1.1.3 Transmission (Gen-tie) Line

The gen-tie would be built as a single-circuit, 500 kV line using lattice, H-frame, three-pole steel structure, or a single steel pole structure. All structure types would be made of self-weathering or galvanized steel. Illustrations of the typical 500 kV structures that could be used for this Project are provided in Figure 2-2.

The gen-tie's approximately 34 structures/towers would be up to 140 ft tall, varying with terrain, associated span lengths, and crossing existing transmission lines. The average span length is expected to be approximately 900 to 1,400 ft between towers; however, crossing the LCR floodplain

may require a span of 2,800 ft. The minimum ground clearance from conductor to the ground would be 32.5 ft. Communication cables would be mounted on top of the structures with the exception of the APS line crossing, where communication cables would be underbuilt and would have a minimum clearance of 16.2 ft.

Each H-frame, three-pole steel structure, or single-pole steel structure would be either directly embedded into the ground or installed on drilled piers with anchor bolts typically 15 ft to 50 ft deep and 4 ft to 12 ft in diameter. Lattice structures would be installed on drilled piers using anchor bolts. The foundation depths and diameters depend on prevailing soil properties. A geotechnical study would be conducted before the final foundation designs.

The gen-tie would also provide communication paths via optical ground-wire fiber-optic cable and all-dielectric self-supporting fiber-optic cable. Remote security cameras would be installed to monitor the facility 24 hours a day. AES Clean Energy (AESCE) will provide remote monitoring at an off-site Remote Operations Control Center.

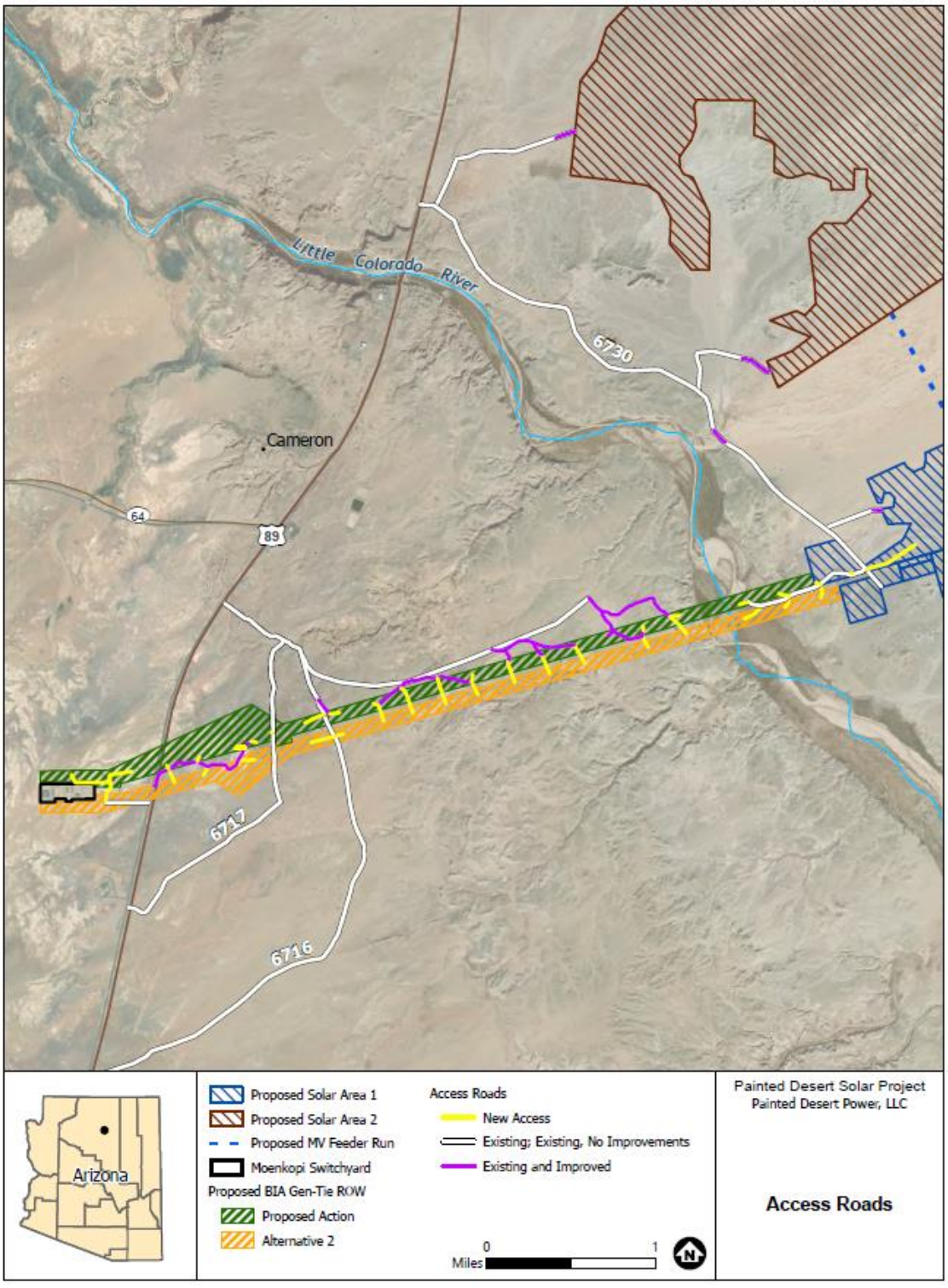

Figure 2-1. Proposed Action and Alternative 2 Access Roads

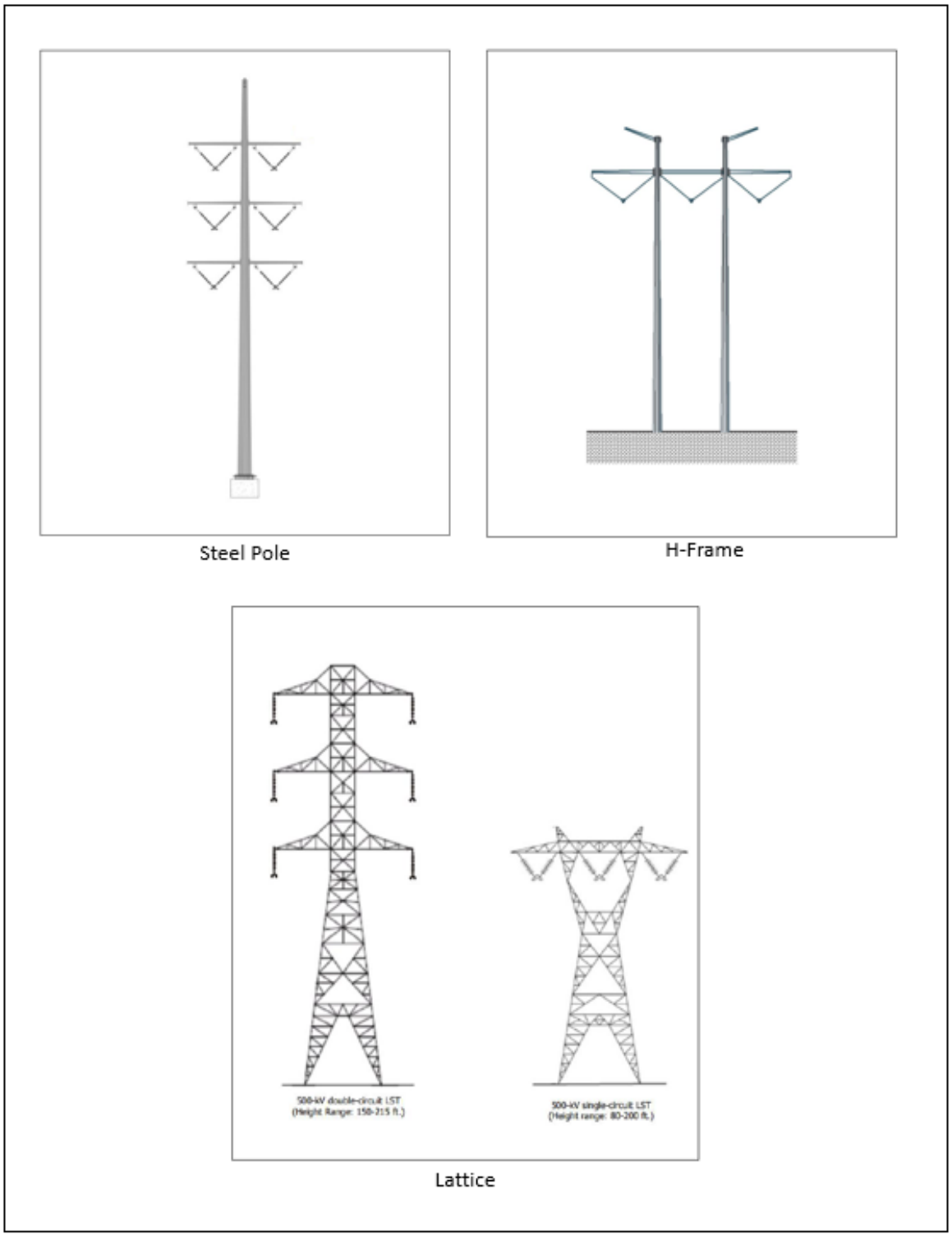

Figure 2-2. Schematics of 500 kV Transmission Structure Schematic

2.1.1.4 Interconnection Facilities

The point of interconnection into the NSTS for the proposed Project would be the existing Moenkopi Switchyard. The POCO structure would be on the north side of the Moenkopi Switchyard. All work associated with the Project interconnection would be done inside the switchyard fence. New interconnection facilities within the existing switchyard would include the following:

- Terminus for the gen-tie line at A-frame structures at bay positions within the switchyard.
- 500 kV circuit breaker, disconnect switch, instrument transformers, bus supports, and bus conductors for the new bay.
- All required foundations, grounding, and conduit within the switchyard.
- Metering and protection equipment inside the Moenkopi switchyard control building for the new bay position.

2.1.2 Pre-Construction

2.1.2.1 Geotechnical Pre-Construction Surveys

A detailed geotechnical field survey would be conducted as part of the final design and engineering before construction. The purpose of the geotechnical survey would be to observe subsurface conditions and obtain samples of site soils for laboratory testing and classification, with results from the analyses helping determine the foundation design for the Project components. All geotechnical work would be confined to the gen-tie ROW and the solar generation lease site. Borings would be obtained using a truck-mounted auger. No core drilling of rock nor the need for drilling fluids or water are anticipated. Drill crews would access each boring site using the existing roads. Where new access is needed, off-road travel would be used. The boring holes would be backfilled upon completion.

2.1.2.2 Construction Crew Training

Before construction, all contractors, subcontractors, and personnel necessary for the construction phase would undergo an environmental training program to become familiarized with Project construction requirements.

2.1.2.3 Transmission Line Surveying, Flagging, and Staking

Before construction, pre-construction engineering survey work would be conducted to locate the centerline, structure center hubs, ROW boundaries, and access roads. These features would be staked in the field, and no paint or permanent discoloring agents would be applied to rocks or vegetation to indicate survey or construction limits. Any sensitive resources within or near the planned work areas would be flagged so they can be avoided or appropriately dealt with during construction.

2.1.3 Construction

The construction and installation of the Project would generally be performed using the construction techniques discussed in the following subsections.

2.1.3.1 Site Preparation

Construction of the Project would begin with clearing and grading (as necessary) the laydown/staging areas. Laydown/staging areas typically include temporary construction trailers, worker parking, truck loading and unloading facilities, and areas for assembly. The laydown/staging areas are temporary (reclaimed after the construction is complete) and are spread across the solar generation site and within the gen-tie ROW. The exact locations would be determined prior to construction but would be placed to avoid sensitive resources, such as AUMs and cultural resources. In total, laydown/staging areas would temporarily impact up to 85 acres.

Road corridors within the gen-tie ROW and generation lease area would be surveyed, cleared, and graded to bring equipment, materials, and workers to the locations under construction. Existing buried electrical lines or pipelines, PV array locations, and locations of other facilities would be flagged and staked to guide construction activities.

The PV system installation would also include earthwork, grading, and erosion control. Some minor earthwork would be required to accommodate trackers, foundations or footings, access roads, and drainage feature placement. Grading within the Project site would be limited to the locations of access roads, inverter pads, lay-down areas, trackers where topography requires it, and ancillary facilities (including the parking and material storage areas, the operation and maintenance (O&M) facilities, and the Project collector substation).

Across most of the Project area, a low-impact mow and disc-and-roll technique would be used to remove surface vegetation and keep root balls in place. This practice minimizes dust generation and water usage related to dust suppression and promotes faster regeneration of vegetation cover than re-seeding alone. Grubbing and grading would be required to level particularly rough areas of the Project area and to prepare the ground for concrete foundations for collector substation equipment and inverters. Access roadbeds and the facility perimeter fence would be grubbed, graded, and compacted.

For the gen-tie structures, vegetation clearing and ground disturbance would be required at each structure site for excavating holes and pouring concrete foundations. No grading is anticipated to construct the gen-tie line. Each structure site would be approximately 150 ft by 150 ft, resulting in approximately 0.52 acres of temporary disturbance per structure site.
shows the acres of short-term and long-term ground disturbance that would result from this alternative. Short-term disturbance is associated with construction and would be reclaimed within one to two years. Long-term disturbance is considered permanent and includes areas converted to industrial facilities for the life of the Project. Ground disturbance for the construction activities occurring within the gen-tie ROW include overland spur roads, structure locations, laydown yards, and pull tensioning sites. Disturbance associated with the solar generation lease site would consist of interior roads, solar racking systems, the BESS, the collector substation, medium voltage buried collector lines, staging and lay-down areas, and several office and storage facilities. Not all of the lease acreage or gen-tie ROW would require ground disturbance.

Table 2-1. Ground Disturbance from the Proposed Action

Disturbance Type	Long-term Impacts (Acres)	Short-term Impacts (Acres)
Solar facility	3,654	60
Gen-tie	4	47
Collector Substation/BESS	50	0
Solar facility exterior roads	20	22
O&M Building	0.2	0
Moenkopi switchyard	0.8	0.3
Total	3,729	129.3

Cultural sites and other sensitive resources would be temporarily fenced off prior to construction activity in their vicinity. Best management practices (BMP) (i.e., preparing a Stormwater Management Plan) for stormwater and erosion control would be implemented during the site preparation phase and before grading activities. Additionally, dDiesel and gasoline fuel tanks would be set up and operated within the solar generation site lease area in accordance with Navajo Nation, state, and federal regulations.

2.1.3.2 Solar Facility Construction

The PV system installation would include the erection of the trackers, PV panels, foundations, and associated electrical equipment. System installation would begin with teams installing the single-axis trackers and steel pile support structures. The specific soil conditions would determine their exact design but would likely include pneumatically driven steel beams attached to a tracker racking system. Panel installation and electrical work would follow.

Concrete may be required for the footings and foundations, including the pads for the inverters, transformers, and BESS. A local provider would produce and transport concrete to the Project area by truck. Inverters and transformers are typically delivered on prefabricated skids (or placed on skids assembled on site) and lifted onto concrete foundations via a crane.

Medium-voltage collection circuits would be routed to the Project substation at the southwestern corner of the solar generation lease site. The main components of the collector substation are the steel riser structures, electrical bus work, circuit breakers, main power transformer, pad transformers, switches, reactive power equipment, and electronic cabinets. All are installed on poured concrete pads or column foundations. The control building of the substation would be prefabricated and installed on site on a poured concrete pad.

2.1.3.3 Gen-tie Transmission Line Construction

Structure locations would be determined by topography and best engineering practices. The preliminary locations of proposed structure sites are shown on gen-tie alignment sheets in Appendix B.

Foundation excavations for each structure would be made with power drilling equipment, such as a vehicle-mounted power auger or backhoe. Lattice structures would require four holes with the foundation be approximately 4 to 8 ft in diameter for each hole. H-frame structures would require two holes, each 6 to 10 ft in diameter. Steel poles would require one 12- to 15-ft diameter hole. Foundations would be installed by placing reinforced steel and transmission structure steel components into each foundation hole, positioning the steel components, and encasing them in concrete. Excess soil material would be used for fill, where suitable, and any remaining soil would be spread and compacted on the access road.

The structures would be equipped with insulator strings and stringing sheaves at each ground wire and conductor position. For public protection during wire installation, temporary H-framed wood guard structures would be erected where the line would cross public roads, existing power lines, and other obstacles. These temporary structures prevent ground wire, conductor, and equipment from sagging or falling to the ground during stringing and would be removed following the completion of conductor installation in that area.

Pilot lines would be pulled (strung) from structure to structure using helicopters or pulling equipment and threaded through the stringing sheaves at each structure. Following pilot lines, the stronger line with a greater diameter would be attached to conductors to pull them onto structures. This process would be repeated until the ground wire or conductor is pulled through all sheaves.

The shield wire and conductors would be strung using powered pulling equipment at one end and powered braking or equipment tensioning at the other end of each conductor stringing segment. Sites for tensioning equipment and pulling equipment would be approximately 14,500 ft apart. Each pulling or tensioning site would be approximately 100 by 400 ft. Pulling activities would occur within the gen-tie ROW. The construction contractor would determine the exact location and size based on what is technically feasible and in consideration of areas that have been biologically and culturally cleared of sensitive resources. Final pull site locations will be confirmed during final design.

2.1.3.4 Construction Workforce and Schedule

Construction would be expected to require approximately 12 to 36 months from the beginning of site preparation to the completion of a commercially operational facility, depending upon commercial arrangements and phases. Within this timeline, construction of the gen-tie line is estimated to be 6 to 9 months. The typical work week on the Navajo Nation is approximately 8 hours per day, 5 days per week.

2.1.3.5 Water Supply and Use

Prior to construction, PDP would prepare a water use plan and application for water use permits with the Technical, Construction and Operations Branch (TCOB) of the Navajo Nation Department of Water Resources (DWR). Options for the Project water supply are outlined in a technical memorandum from C2 Environmental LLC in Appendix H of the TDD, and in Section 2.2.6 of the TDD.

During construction and operation, the Project would use water trucked to the Project Site or pumped from on-site or nearby wells. Any water from the Navajo Nation would be utilized in accordance with the Navajo Nation Water Code. Construction water use would be limited to soil conditioning and dust suppression. Potable water would be transported to the Project Site for drinking and domestic needs.

During the operational phase, solar PV plants use minimal water. The annual water consumption for operation of the facility would be expected to be approximately 30 acre-feet. This includes the water required for washing the PV panels as many as four times per year using a manual cleaning system.

2.1.4 Operations and Maintenance

The Project would enter the operations and maintenance (O&M) phase upon commissioning and is expected to have at least a 35-year operational life that would require approximately 17 to 25 on-site technicians and personnel. Commissioning a project is the process of ensuring that all systems and components of a building or industrial plant are designed, installed, tested, operated, and maintained according to the owner's or operational requirements. Additional details regarding operational and routine maintenance activities are included in Section 11, pages 34-35 of the Project POD and Final Decommissioning Plan (SWCA 2024) available on Reclamation's website and incorporated here by reference.

2.1.5 Restoration and Decommissioning

A detailed description of Project decommissioning is provided in Section 12, pages 37-38 of the Project POD and in the Final Decommissioning Plan (SWCA 2024). All decommissioning, system removal, and Project area restoration activities would adhere to the requirements of appropriate governing authorities, including requirements set forth in the lease and real estate agreements with the Navajo Nation and the gen-tie ROW with the BIA and/or BLM.

Currently, these activities include:

- Removing structures
- Recontouring of roads, structure pads, etc., if needed
- Stabilizing and re-vegetating disturbed areas

In general, all decommissioning activities would be conducted in accordance with industry and the Navajo Nation, BLM, and BIA's standards depending on jurisdiction. Restoration would adhere to the accepted standard procedures at the time and wouldl be completed in coordination with the Navajo Nation Department of Fish and Wildlife (NNDFW) and THPO as appropriate.

Prior to restoration, any necessary resource surveys would be conducted in accordance with accepted standards and procedures at the time. During any necessary restoration activities, education like that given to construction crews would be given to workers regarding environmentally sensitive areas and resources. Standard safety procedures associated with restoration activities would be implemented.

2.1.6 BMPs and Mitigation Measures

BMPs and mitigation measures are used to avoid or minimize potential impacts during the construction, operation, and decommissioning of the Project. BMPs are physical or cultural controls, while mitigation measures are additional actions taken to reduce impacts. BMPs include but are not limited to erosion control, weed management, dust suppression, safety, hazardous material management, and restoration. BMPs and mitigation measures would be employed as part of the Project and are detailed in Appendix C. The environmental effects analysis conducted for this EA considers environmental effects after BMPs are implemented. Implementation of BMPs would be required.

2.2 Alternative 2 (Alternate Action Alternative)

Because multiple existing transmission line corridors in the Project area also interconnect at the switchyard, alternative entry opportunities into the Moenkopi Switchyard are limited. In 2024, APS completed Phase 1 of the NSTS Cluster System Impact Study (APS 2024) to evaluate the proposed interconnection of 12 projects into the NSTS. The study identified an optimal interconnection and POCO for Q317 entering the switchyard from a northeastern approach (the Proposed Action). While this study identifies APS's preferred, and most likely interconnection approach, it is possible that the location could change. To mitigate this possibility, this EA also evaluates a gen-tie interconnection approach from the south. Under Alternative 2, the solar generation lease site, including access roads, would be the same as the Proposed Action. The only difference between the two action alternatives is the location and length of the gen-tie line and associated proposed ROW. Like the Proposed Action, Alternative 2 would parallel the multiple existing transmission line corridors from the solar generation lease area to the Moenkopi Switchyard. The ROW would be approximately 200 ft south of the Proposed Action and 4.7 miles (25,572 ft) in length. This alternative gen-tie corridor would occupy approximately 253-acres, which is 50-acres less than the Proposed Action.

2.3 No Action Alternative

Under the No Action Alternative, the LGIA would not be approved by Reclamation, BIA would not issue ROWs for the gen-tie line and BIA RT 6730, and BLM (if deemed the appropriate action agency for the issuance of a ROW for the excluded lands) would not grant a separate ROW for the gen-tie crossing the excluded lands. The proposed solar generation facility would not be constructed as there are no other economically feasible interconnection opportunities.

2.4 Alternatives Considered but Eliminated from Further Study

As part of the development of the proposed Project, two options for interconnection to the regional grid that would promote solar development opportunities on Navajo Nation lands were considered. These options and the reasons they were not carried forward are described below.

2.4.1 Alternative Gen-Tie Alignments

PDP considered an alternative gen-tie alignment from the northern end of the solar generation area to the Moenkopi Switchyard. This alignment would have paralleled an existing APS transmission line to the switchyard and would have been located in the northern portion of the Project area. This alternative was 5.5 miles in length, which is 1.2 miles longer than the Proposed Action. At high voltages, each mile of line is expensive, so the shortest possible gen-tie was pursued in order to minimize cost and to reduce environmental impacts.

The possibility of a ROW approaching and entering the switchyard from the east or west was eliminated in the aforementioned Cluster Impact Study.

2.4.2 Alternative Generation Lease Sites

In coordination with the Navajo Nation, PDP evaluated ten alternative solar generation sites, including the Proposed Action solar generation site, within a 10-mile radius of the Moenkopi Switchyard. These alternative generation sites are described in the TDD and Biological Evaluation (BE) available on Reclamation's website. Factors evaluated included economic considerations, such as transmission and civil engineering costs, and logistical considerations associated with the size and configuration of perspective development parcels. It is important that sites be contiguous rather than a fragmented site plan. A project that is constructed across multiple dispersed parcels is much less cost-effective than a project constructed in one or two contiguous areas. Dispersed parcels must be electrically connected back to a single point of interconnection across a distance using medium voltage cables (34.5 kV). The addition of runs of medium voltage cables to a project causes very high energy losses due to the high resistance of the medium voltage cables, in addition to added costs, including to the market price of the energy produced.

Environmental and community considerations were also considered. Environmental factors included avoiding sensitive wildlife areas and floodplain or flood prone zones and avoiding areas where active AUM cleanup activities were in process. Other environmental factors pertained to soils and/or geologic constraints, topographic aspect, and visual resource impacts.

Community considerations, including the objectives of the Navajo Háyoołkáał Proclamation were also addressed in the evaluation of alternative generation sites. PDP worked closely with the Cameron and Coal Mine Chapters (Chapters) and area grazing allottees to identify important grazing and/or land use areas and to delineate underutilized or degraded lands in the area. As a result of this community screening process, both Chapters passed resolutions supporting the proposed Painted Desert Solar lease site. Alternative generation sites were either eliminated due to cost or environmental impacts or because the affected Navajo communities rejected them. For these reasons, alternative generation sites were dropped from further consideration in this EA.

3.0 Affected Environment and Environmental Consequences

This chapter presents the existing conditions in the Project area and the environmental effects that would be reasonably expected from implementing the Proposed Action and alternatives. Environmental consequences are analyzed based on effects to resources under consideration within the Project area.

Effects from past and ongoing actions in or near the project area are incorporated into the description of the project's existing conditions and are listed below. This EA also identifies other reasonably foreseeable future actions to the extent possible. Reasonably foreseeable future projects are those that are or could reasonably be, located within the vicinity of the Project area and that have the potential to impact resources in the Project area. The geographic scope for this analysis includes other projects within the Project area and other projects near the Project area if impacts from those other projects have the potential to affect Project area resources. The temporal scope includes projects within a range of approximately 20 years. Under these parameters, the following past, ongoing, and reasonably foreseeable future actions were identified for the purpose of conducting the effects analysis:

- Past activities include highway improvements along U.S. Highway 89 (US 89), development of the Cameron Trading Post and schools, convenience stores, and gas stations. Other past actions in the Project area include uranium mining and the development of electric utility infrastructure (transmission lines, including the NSTS and Moenkopi Switchyard).
- Ongoing activities associated with livestock grazing, usage of existing high and low transmission lines, transportation along US 89 and existing dirt roads, and regional tourism. Also present in the area is limited, small-scale farming and trade of arts and crafts.
- Known future activities in the area include limited AUM clean-up and development of renewable energy generation sites and associated infrastructure.

As described in Section 1.2, PDP has submitted a land lease application to the Navajo Nation under the provisions of the Navajo Nation General Leasing Regulations of 2013 to develop the Project on 4,500 acres of leased land. As part of the land lease application package, PDP prepared the Project TDD. The TDD includes biological, cultural, social, and physical resource baselines of all Project components (gen-tie ROW and Navajo Nation lease area) and quantified potential impacts of Project development. Accordingly, the TDD is incorporated by reference in this EA when describing resources within the Project area and when quantifying effects that may occur later in time or far away, or that are caused by the combined impact of past, present, and potential future foreseeable actions from the solar generation lease site.

3.1 Impact Analysis Methods and Terminology

The impact analysis for each resource is focused only on areas where the applicable resource is likely to be impacted by the Proposed Action and alternatives. However, not all resources would experience impacts within the Project Area, and not all impacts from the Proposed Action or alternatives would extend across the entire analysis area.

For each resource, this chapter describes the current conditions, followed by an analysis of the impacts of the Proposed Action and alternatives using the following impact type descriptors:

- Direct—A direct impact is an impact to a resource that is caused by the action and occurs at a particular time and place.
- Indirect—An indirect impact is an impact to a resource that is caused by the action later in time or farther away and is still reasonably foreseeable (e.g., increased likelihood of nonnative, invasive species moving into the area after disturbance).
- Short-term—A short-term impact is an impact to a resource that would be less than 5 years in duration, including temporary disturbance during construction and decommissioning.
- Long-term—A long-term impact is an impact to a resource that would be greater than 5 years in duration.
- Negligible—This indicates no measurable or observable change from current conditions. The impact to the resource would be at or below the levels of detection.
- Minor or minimal—This indicates a small, detectable, or measurable change. The impact could be: (1) outside the range of natural or typical variability but occur for a very brief duration; or (2) within the natural or typical range of variability but occur for a longer period of time. Mitigation, if implemented, would be easily applied and successful with a high degree of certainty.
- Moderate—This indicates an easily discernible or measurable change. The effects would either: (1) be readily apparent or would result in measurable impacts to the resource; these impacts would affect the availability or natural recovery of those environmental elements over the long term; or (2) could be substantial but of a short duration with no permanent impact to the resource. It is anticipated that mitigation, if implemented, would be successful with a high degree of certainty, based on prior examples with similar effects and documented mitigation outcomes.
- Major—This indicates a large observable or measurable change. The effects would result in substantial impacts to the resource that would be readily apparent, consequential, and outside the natural or typical range of variability. Mitigation, if implemented, would be uncertain in its success, or ineffective with consequent long-term and permanent changes in the availability or natural recovery of the resource.
- Beneficial—This indicates a positive change in the condition, appearance, or function of the resource.
- Adverse—This indicates a negative change that moves the resource away from or detracts from its condition, appearance, or function.

The analysis captures effects to the extent reasonably possible based on the best available information.

3.2 Resources Eliminated from Further Study

This section describes resources that do not require detailed analysis to address potential environmental effects and the rationale for that determination.

3.2.1 Air Quality

The air quality in the Project area meets the National Ambient Air Quality Standards and is not located in a nonattainment or maintenance area. Air quality would be temporarily impacted during Project construction by equipment emissions and fugitive dust. BMPs for fugitive dust control, including a Dust Control Plan identified in the POD and in Appendix C, would be applied during construction, consistent with the Navajo Nation's requirements. Although Project construction, operations, and eventual decommissioning would generate emissions of criteria pollutants, emissions would not exceed National Ambient Air Quality Standards given the temporary nature of those emissions and the remote location of the Project. Air quality impacts from the construction, operation and decommissioning of the Project were calculated and are included in Appendix C of the TDD.

3.2.2 Noise

Several noise receptors (residences) are within a half a mile of the proposed ROW and the Navajo Nation lease area. There are two small clusters of two to three residences, each located approximately 0.25 miles south of the proposed gen-tie alignments and approximately 0.75-1 mile east of US 89. The closest residence to the solar generation site is 0.41 miles in the northern portion of the proposed lease area. Noise impacts from the construction, operation and decommissioning of the Project were modeled and are included in Appendix C of the TDD. Construction activities would produce a short-term increase in area noise over the existing ambient noise levels but would be temporary and minor. No construction or construction access would occur south of the existing multiple transmission corridor. Long-term noise effects from the O&M of the proposed Project would be negligible. This resource is not evaluated in detail in the EA.

3.2.3 Public Health and Safety

Potential health and safety impacts that could result from using hazardous materials, electrical hazards, or fire hazards would be expected to have a small, minor potential risk to public health and safety. Fuels, oils, and lubricants would be on site while constructing the generation facility and the gen-tie line. The construction contractor would be required to develop and implement plans to minimize the health and safety risk, including a Health and Safety Plan, an Emergency Preparedness and Response Plan, a Hazardous Materials Management Plan, and a Waste Management Plan. The risks to workers and public health and safety associated with the Project would be minimized by implementing BMPs and mitigation measures (Appendix C) and site-specific health, safety, fire,

security, and hazardous material plans. A Project Radiation Plan and an Excavation Plan have been prepared and can be found in the TDD.

3.2.4 Paleontological Resources

The Project area is entirely composed of sedimentary geologic strata. Surficial eolian dune sands and alluvial stream deposits with low potential to contain important paleontological resources cover approximately two-thirds of the area. The remaining one-third of the Project area is mapped as Shinarump and Petrified Forest Members of the Chinle Formation, which are considered to have high potential to contain important paleontological resources (Billingsley et al. 2007). A paleontological analysis was completed for the Project and is summarized in Section 3.3.2, pages 76-78 of the TDD. Localized impacts on surface or subsurface paleontological resources may occur from ground disturbance within the Chinle Formation if the resources are crushed, broken, and/or moved. These impacts are expected to be negligible following the implementation of BMPs to protect paleontological resources (Appendix C).

3.2.5 Recreation

Approximately half of the proposed Project is within the Little Colorado River Navajo Tribal Park (Park), a 363,574-acre recreational area featuring the deep, narrow gorge of the LCR with a visitor center in Cameron, Arizona. Due to the absence of unique landscape features or trails in the Project area, it is unlikely to be a destination for tourists interested in visiting the park. The LCR canyon, particularly as it extends north from Cameron, represents the Park's most likely recreational use area near the Project area. However, Project activities are proposed outside of the canyon. As part of the Navajo Nation land leasing process, the Navajo Nation GLDD has withdrawn the tribal park lands from the proposed solar generation lease area. Consequently, there would be no effects to recreation.

3.2.6 Water Resources

An inventory of surface water resources, including wetlands, in the Project area was completed in 2020 by Ecosphere Environmental Services, Inc. (Ecosphere) and documented in an Aquatic Resources Delineation Report. To ensure Project compliance with Clean Water Act (CWA) Section 404/401, a request for an approved jurisdictional determination (JD), including the delineation report, was submitted to the U.S. Army Corps of Engineers (USACE) Phoenix Regulatory Office on November 13, 2020. A CWA Section 401 Water Quality Certification (WQC) application was submitted at the same time to the Navajo Nation Environmental Protection Agency (NNEPA). In March 2021, the USACE issued a "no permit required" letter to PDP regarding compliance with CWA Section 404. This USACE "no permit required letter" is in Appendix Q of the TDD. Also in March 2021, the NNEPA informed PDP that no CWA 401 WQC would be required for the Project as, according to the USACE and NNEPA, no jurisdictional waters of the United States, or of the Navajo Nation, occur within the Project area. The NNEPA no permit required letter is in Appendix R of the TDD.

In addition to the Project avoiding waters of the United States and of the Navajo Nation, the Project generation site was designed to avoid a flood-prone zone associated with a large wash that bisects the solar generation site. The flood prone zone is identified as Zone D (i.e. where there is a

potential for flooding, but no detailed analysis has been conducted to assess the flood risk) on the Federal Emergency Management Agency flood maps. In certain portions of the site, run-off flow from upgradient areas would be diverted around the project in a series of broad controlled swales and permanent and stabilized washes. Through the application of check dams, level spreaders and other flow dissipation measures, which would be located along the easterly boundary of the development area, it is expected that stormwater discharge from the developed areas would be at or below baseline conditions. Run-off generated by on-site rainfall would be managed with a series of swales placed along the edge of proposed access roads. Discharge points would remain consistent with the existing condition, in conformance with BMPs in Appendix C.

As outlined in in Appendix C, PDP would work with Navajo Nation water resources officials to identify a suitable water source for the Project. Water would be used for periodic panel washing and dust suppression during construction. The actual water source is currently being identified and may include the installation of a well (or wells) onsite and some trucked in water to supplement when needed. Within Appendix H of the TDD, C2 Environmental evaluated the potential effects on local water resources of the Project's anticipated direct non-potable water uses during construction and operation, including compaction, cleaning, repairs, and dust abatement.

3.3 Geology, Topography, and Soils

3.3.1 Affected Environment

The Project site is on the Colorado Plateaus Province in a landscape of plateaus, mesas, deep canyons, and barren badlands. Tohnali Mesa and the Moenkopi Plateau rise above the Project site to the east, above the Ward Plateau and erosional scarp of the Adeii Eechii Cliffs. The Project site is on the Ward Terrace, which flanks the plateau and slopes gently toward the edge of the steep canyon of the LCR. The strata beneath the Project site are composed of Mesozoic sedimentary rocks, including the Lower Triassic Moenkopi Formation and the Upper Triassic Chinle Formation (Billingsley et al 2007). These Pleistocene and Holocene surficial eolian sand deposits cover much of the older Chinle Formation throughout the Project Site (Billingsley et al 2007).

Soils at the Project Site are mapped as Rock Outcrop-Needle-Epikom Association in the northern part of the Project site and Sheppard-Joraibi-Jocity Association in the southern part (USGS 2021). Rock outcrop, mapped in much of the northern half of the solar generation lease site, is an area with little or no soil material and supporting little or no vegetation (NRCS 2012). The Sheppard-Joraibi-Jocity Association soils in the south of the Project site are deeper. These soils formed in eolian and alluvial deposits that include alluvium from sandstone, mudstone, and shale, sand sheets, sand dunes, and stream alluvium, which are some of the deeper soils. These soils support vegetation suitable for livestock grazing, and irrigated Jocity soils could also support cultivated crops.

3.3.2 Environmental Consequences

3.3.2.1 No Action

Under the No Action Alternative, the Project would not be built, and soils and geological resources in the area would continue to be subject to existing conditions.

3.3.2.2 Proposed Action

Impacts to soils in the Project area include soil compaction, soil horizon mixing, soil erosion and deposition by wind, soil erosion by water and surface runoff, sedimentation, and soil contamination. Ground disturbance, totaling approximately 47 acres, would occur within the Project gen-tie ROW, of which 4 acres would be permanent (long-term) associated with transmission towers. The solar generation lease area would have short and long-term (for the life of the Project) effects to approximately 3,811 acres. There would be no impacts or access to mineral resources as a result of the Proposed Action. There would be no long-term effect on the local topography.

Project construction would result in impacts to soil resources over an area equivalent to the sum of the footprints of all structures (e.g., solar panels) and related infrastructure (e.g., on-site roads, access roads, parking areas, and fencing [Section 2.1.1]). Ground-disturbing activities include clearing vegetation and grubbing; excavating for foundations, footings, and trenches for buried piping and electrical connections; pile driving (foundations); stockpiling excavated material for backfilling; grading for roads, staging and laydown areas, and operations areas; and installing stormwater management features (e.g., ditches and infiltration basins). The construction of ancillary facilities (e.g., support buildings, BESS) would also result in adverse impacts on soil resources from ground disturbance. The immediate adverse effects of construction activities relate mainly to the increased potential for soil compaction, soil horizon mixing, soil erosion by wind and water, and surface runoff. Soil contamination could also result from releasing contaminants related to using trucks and equipment that use fuels, oils, and lubricants. Implementing BMPs identified in Appendix C and Section 3.2.4 of the TDD would reduce the level of adverse impacts associated with these activities.

Immediate adverse effects from O&M activities are expected to be minor because project activities (e.g., monitoring controls and inspecting equipment, maintenance, and panel washing) would not involve extensive ground disturbances. However, soil erosion could still occur during the operations phase if soil surfaces exposed by vegetation clearing, grading, and excavation during construction continue to be exposed during the life of the Project.

The types of impacts resulting from decommissioning would be similar to those associated with facility construction. Ground disturbances would increase the potential for soil compaction, soil horizon mixing, soil erosion by wind and water and surface runoff. Ground disturbing activities would include the removal of most if not all equipment and the removal of permanent structures and improvements (including access roads). Direct adverse impacts would be less than during construction because the objective of decommissioning is to return the site to pre-disturbance conditions.

Following the implementation of BMPs described below, the collective impacts from past, ongoing, and future foreseeable actions within the Project area to soil would be minor to moderate and primarily related to erosion from wind and water during construction and decommissioning activities. These impacts are primarily considered short-term, lasting only for the duration of these activities. There would be some long-term loss and mixing of soils within the Project generation site lease area.

3.3.2.3 Alternative 2

Because this alternative essentially parallels the Proposed Action, impacts to soils during construction, operations, and decommissioning of this alternative would be similar to those described for the Proposed Action. Following the implementation of the BMPs, collective impacts from past, ongoing, and future foreseeable actions within the Project area to soils would be low to moderate and primarily related to erosion from wind and water during construction and decommissioning activities.

3.4 Indian Trust Assets

3.4.1 Affected Environment

Indian Trust Assets (ITAs) are legal interests in assets held in trust by the United States for the benefit of federally recognized Indian Tribes or individual tribal members. The United States, as trustee protects and maintains the specific rights reserved by, or granted to, Indian tribes or individuals by treaties, statutes, and executive orders.

ITAs may include land, minerals, hunting and gathering rights, water rights, groundwater, and instream flows. Cultural and paleontological resources located on Indian trust lands also may be ITAs in some specific situations. The Secretary of the Interior is the Trustee and holds many assets in trust for the Navajo Nation.

The Navajo Nation is a federally recognized Indian tribe whose reservation covers 12.5 million acres within New Mexico, Utah, Colorado, and Arizona. The Navajo Reservation was initially established by treaty in 1868, expanded by EOs in 1884, 1900, and 1930, and by a 1934 legislative expansion. The affected environment for Navajo Nation trust assets includes those trust assets that may be affected by the Project. These assets include but are not limited to water rights, lands, minerals, and traditional land use, like hunting and gathering.

The Project would occur within the exterior boundaries of the Navajo Reservation and mostly on tribal trust lands. A portion of the gen-tie corridor crosses lands excluded from the Reservation for power-related purposes by the 1934 Act. Within the excluded lands, the Navajo Nation has an exclusive right to occupy and use these lands.

The solar generation lease site and gen-tie corridor crosses lands where grazing permits have been issued by the Navajo Nation. The area is considered a Customary Use Area for various permittees

where tribal members are authorized to graze a number of animal units identified in their grazing permits. There are no specific boundaries identified for each grazing permit or permittee. This is described more in the land use section below (Section 3.5).

3.4.2 Environmental Consequences

3.4.2.1 No Action

Under the No Action Alternative, the Project would not be built, and ITAs in the area would continue to be subject to existing conditions.

3.4.2.2 Proposed Action

Navajo Nation land trust assets within the Project area that would be impacted under the Proposed Action include approximately 3,867 acres. The ROW for the gen-tie and BIA RT 6730 would be issued by the BIA in accordance with 25 U.S.C. 323-328, and a solar generation area lease would be issued through the Tribe's general leasing regulations. As it relates to the excluded land, either the BLM would issue a separate ROW across these excluded lands, or the BIA must modify its overall gen-tie ROW to account for the unique status of these excluded lands. The affected tribal trust lands would continue to be subject to tribal land policies, regulations, and laws. The Proposed Action would mostly occupy tribal trust land for the life of the project. Some of these lands have been previously disturbed. In general, the use of the land affected by the Project would change but the Navajo Nation would continue to benefit from the trust resource. Impacts would be beneficial as they relate to Project area infrastructure improvements and new socioeconomic opportunities. In addition, the Project would support the development of renewable energy on Navajo Nation lands held in trust. There would be minor, long-term impacts to trust lands along the proposed gen-tie, limited to the loss of 4 acres during the project life due to the land occupied by the gen-tie transmission towers. Additionally, there would be moderate, long-term adverse and beneficial impacts to trust lands associated with the solar generation lease area.

The solar generation site lease would be dependent upon the Nation's approval and implementation. The Cameron and Coalmine Canyon Chapters have passed Chapter resolutions with PDP whereby the Chapters and tribal members support the withdrawal of the lands within their boundaries associated with the proposed Project generation site lease area. A non-binding agreement concerning community benefits for the Chapters was agreed to for the Project, and the Chapters would receive and directly control funds if they obtain Local Government Act (LGA) certification. The Chapter resolutions supporting the gen-tie ROW and generation site lease withdrawal are available in Appendix N and O of the TDD. Impacts to ITAs would be the similar during all phases of Project development, from construction through operations and decommissioning. Hunting and gathering, grazing, and other traditional land uses on the tribal trust lands crossed would be temporarily interrupted for up to 1-3 years during construction of the Project and then for another 12-16 months during decommissioning. Traditional uses within the gen-tie ROW would resume following the completion of gen-tie construction, although there would be a 4-acre reduction in land area due to the placement of towers within the ROW. During operation of the solar generation site, most traditional uses within the facility fencing would cease as a result of the land withdrawal and

development of the solar generation site. These impacts are expected to be minor and mitigated by the economic benefits to the Nation and chapter residents (Section 3.7).

The proposed Project would have immediate and delayed impacts to Navajo Nation lands and associated vegetation and wildlife resources which would affect hunting and gathering where the solar generation site, gen-tie line, and roads are constructed. There would be a long-term impact to habitat utilized for hunting and gathering and for grazing forage as a result of the construction, operation, and decommissioning of the solar generation lease area, gen-tie, and associated road. This effect is considered negligible or minor as adjacent lands and the Cameron and Coalmine Canyon Chapters have a vast quantity of contiguous, Great Basin Desertscrub habitat available for traditional land use. In addition, construction of the Project would be coordinated with the grazing permittees to minimize potential conflicts. PDP has offered sheep grazing option agreements to several grazing permittees that would be impacted by the Project. The option agreement, if fully executed, would allow periodic grazing of sheep within the fenced solar generation lease area. Other grazing BMPs are described in more detail in Section 3.5 below.

Combined with these uses, the Project would have limited incremental impacts from past, present, and future foreseeable actions on ITAs as they all benefit the Navajo Nation and do not create major adverse effects on trust resources. The lease of trust lands is expected to have cumulative beneficial impacts on the Navajo Nation (Section 3.7).

3.4.2.3 Alternative 2

The effects of Alternative 2 would be the same as those of the Proposed Action.

3.5 Land Use

3.5.1 Affected Environment

Both the Cameron and Coalmine Canyon Chapters have passed resolutions supporting the gen-tie ROW and solar generation lease site. The Navajo Nation General Land Development Department (GLDD) has granted a land withdrawal for the solar lease area for 5 years beginning December 2023. The chapter resolutions and the subsequent GLDD land withdrawal give PDP the exclusive right to develop a utility-scale solar project within the chapters on the GLDD withdrawn lands.

3.5.1.1 Infrastructure

Overhead transmission lines and associated infrastructure occur adjacent to the Project area in two locations: the NSTS transmission corridor parallels the western edge of the solar generation lease area, and the APS Four Corners transmission corridor parallels the proposed gen-tie ROW corridor and the southern boundary of the solar generation lease area. The Moenkopi Switchyard is at the terminus of the proposed gen-tie. APS operates the existing electrical facilities on behalf of the NSTS owners under a lease agreement with the Navajo Nation and a ROW permit issued by the BIA. In addition to these existing transmission ROWs, the BLM has three withdrawals along the LCR for power-related purposes.

One gas pipeline, owned by APS and Enbridge Gas, crosses beneath the proposed gen-tie ROW corridor at approximately 1.42 miles east of US 89. This pipeline continues northeast under the LCR and continues northeastwardly through a portion of the solar generation lease site.

3.5.1.2 Grazing

The proposed Project is located entirely within BIA Land Management District (LMD) 3, a 1.2-million acre area in north-central Arizona that encompasses a diversity of habitats, from semi-arid grasslands to mixed-shrub communities to woodlands, forests, and riparian wetlands.

The Project area is split between LMD 3 Unit 1, Coalmine Canyon, and LMD 3 Unit 4, Cameron. The proposed gen-tie is mostly in LMD 3, Unit 4, Compartment 8, or LMD 3-4-8, but also crosses small areas of LMD 3-1-10, 3-1-12, and 3-4-5. (Figure 3-1). Most of the Project's solar generation facility components are in LMD 3, Unit 1, Compartment 10, or LMD 3-1-10.

The Project also crosses lands where the Navajo Nation have issued grazing permits. The area is considered a Customary Use Area for various permittees where tribal members are authorized to graze a number of animal units identified in their grazing permits. No specific boundaries are identified for each grazing permit or permittee.

Table 3-1 shows the number of acres of each grazing unit in the Project area. Area grazing allottees have traditionally used the Project area for sheep grazing. There are five active grazing permits along the gen-tie line and 19 within the solar generation lease area.

Table 3-1 Grazing Unit Acreages in the Project Area

Grazing Unit (GU)	Total Area GU (Acres)	Acres in Project Area	Percent of GU Impacted	Project Components
3-1-10	37,740	3,846	10	PV modules, BESS
3-1-12	3,457	4	<1	Gen-tie line
3-4-8	24,977	31	<1	Gen-tie line
3-4-5	30,221	4	<1	Gen-tie line
Total	**96,395**	**3,885**	**4**	

3.5.1.3 Agriculture

Approximately 1,030 acres of croplands in 218 plots (ranging from 0.25 to 85 acres) in LMD 3 are leased to 183 permittees to grow corn, squash, melons, and hay (BIA 2019). There are 19 permittees

in the Project area. The proposed gen-tie ROW would span/cross a 413.1-acre plot of BIA-designated cropland along approximately 1.75 miles of the LCR floodplain (Figure 3-1). The subject cropland is not considered prime or unique farmland as defined by the U.S. Department of Agriculture.

3.5.1.4 Transportation and Traffic

Figure 2-1 depicts the existing Project area roads, new roads, and those proposed to be ungraded. US 89 is the main highway used to access the Project area. It is approximately 1 mile west of the Project solar generation lease area, and the Project gen-tie ROW crosses it. US 89 is a two-lane roadway stretching from Interstate 40 in Flagstaff, Arizona, to the Arizona-Utah border. US 89 provides a regional transportation corridor for access to the nearby community of Cameron, BIA RT 6730, and turnouts to SR 64 and SR 260.

BIA RT 6730 is an unpaved roadway with existing turnout access from US 89. A portion of the BIA RT 6730 falls within Power Site Reserve No. 450 withdrawal. BIA RT 6730 provides local access to the Navajo Nation and travels several miles to the east. Any maintenance agreements associated with the ROW for BIA RT 6730 would be finalized in consultation with BIA.

Navajo Route (NR) 6716 and NR 6767 are Navajo Division of Transportation (NDOT)-managed unpaved roadways that turn out from US 89. They provide local access to homes and travel to the south and southwest. NR 6716 and 6767 would cross under the proposed gen-tie ROW.

An abandoned airstrip (formerly Cameron Airport) is immediately northwest of the proposed solar generation lease area.

3.5.2 Environmental Consequences

3.5.2.1 No Action

Under the No Action Alternative, the Project would not be built, and land uses in the area would continue to be subject to existing conditions.

3.5.2.2 Proposed Action

3.5.2.2.1 Infrastructure

The proposed Project would provide a new source of up to 750 MW of renewable energy. This would result in long-term, beneficial, immediate effects on the electrical utility service supplied by the existing NSTS and long-term, beneficial, immediate impacts on entities with renewable energy development goals, including the Navajo Nation, the state of Arizona, and local customers. The existing infrastructure at the Moenkopi Switchyard would be expanded with additional equipment required to connect the proposed gen-tie. Short-term, adverse impacts are possible should temporary power outages occur following final interconnection or during routine maintenance outside peak load periods. These impacts would range from negligible to minor, depending on the duration of any power outages. The Proposed Action would convert approximately 3,858 acres

(3,729 of those acres would be permanent effected and 129.3 acres would be temporary effected) Uto new power generation infrastructure.

Within the power-related withdrawals, three gen-tie towers/structures and a short segment of access road leading to each tower would be installed. Two gen-tie towers/structures would be located within Power Site Reserve No. 451 and Water Power Designation No. 6 and one tower/structure would be placed within Power Site Reserve 450. The total acreage within the power-related withdrawals that would be permanently impacted by the gen-tie structures is approximately 1.6 acres. FERC would provide recommendations and/or stipulations to any ROW issued for this project within the power-related withdrawals as it relates to Section 24 of the FPA. FERC's recommendations and/or stipulations typically include the following:

- The right to itself, its permittees, or licensees, to enter upon, occupy, and use any part or all of said lands necessary, in the judgment of the Federal Energy Regulatory Commission, for the purposes of Part I of the Federal Power Act, which right shall be expressly reserved in every patent issued for such lands; and no claim or right to compensation shall accrue from the occupation or use of said lands or said purposes.
- The U.S., its permittees, lessees, and licensees shall not be responsible or held liable or incur any liability for the damage, destruction, or loss of any land, crops, facilities installed, income, or other property or investments resulting from the use of such lands, or portions thereof, for hydroelectric development at any time where such hydroelectric development is made by or under the authority of the United States. Furthermore, in the event the reserved lands are required for hydroelectric development purposes, any structures or improvements placed thereon found to interfere with such development shall be removed or relocated as necessary to eliminate such interference at no cost to the United States or its permittees or licensees.

The proposed gen-tie would cross an existing transmission line and a buried gas pipeline. These crossings would be coordinated with each ROW-holder to ensure the Project would not negatively affect any of these existing ROWs during construction, operation, maintenance, and decommissioning. The existing buried pipeline would be flagged and staked for avoidance during Project construction and decommissioning; thus, impacts would be avoided during these activities. The transmission line would only cross/span the underground pipeline. No impacts to existing utility infrastructure are anticipated during Project operation.

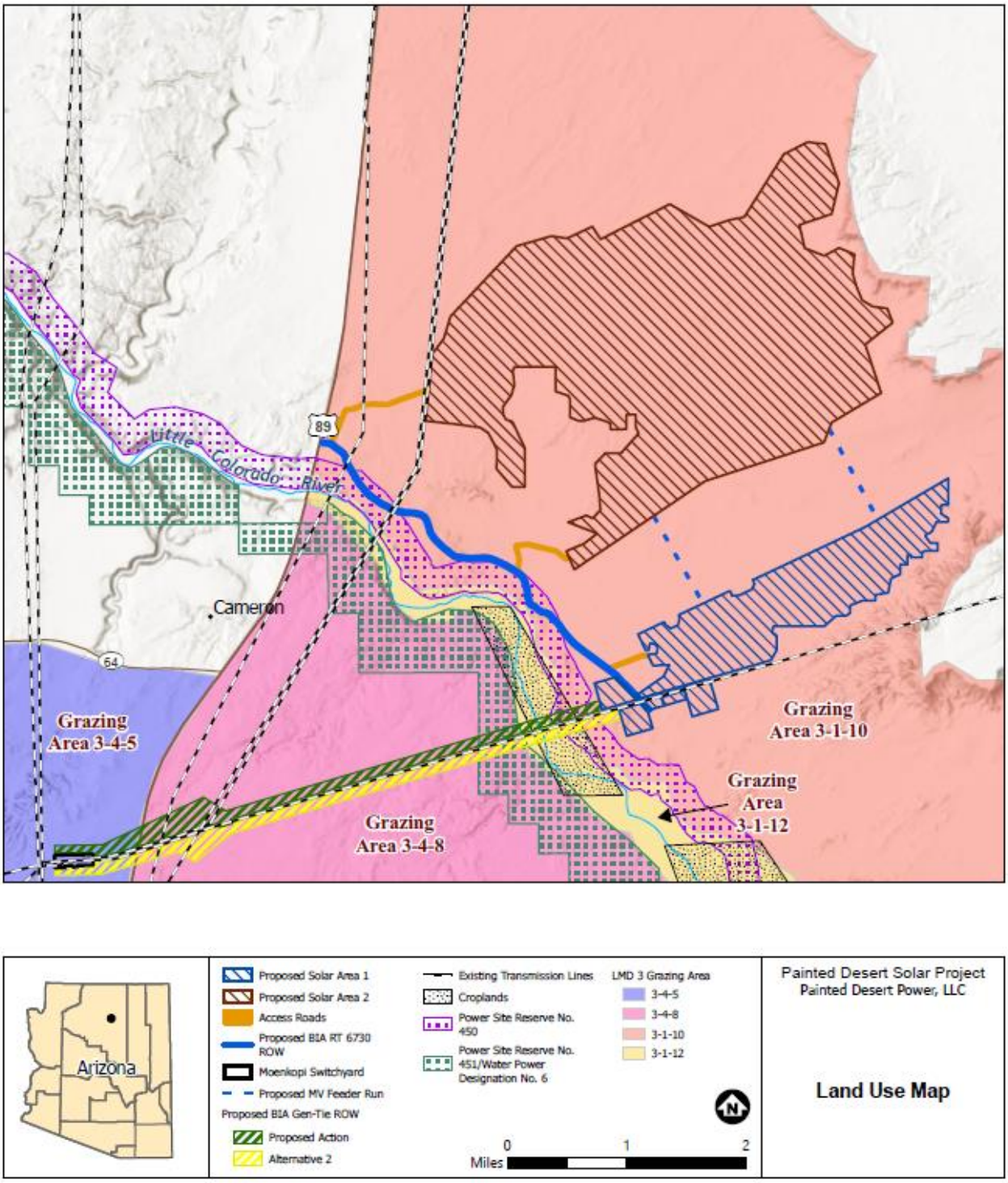

Figure 3-1. Land Use in the Project Area

3.5.2.2.2 Grazing

The Project would include new fencing that would limit livestock access to the solar array areas. The option to graze sheep, but no other livestock, within the fenced-off solar generation lease area during project operations has been agreed to by PDP with the grazing permit holders. Grazing consents were duly obtained from all valid grazing permit holders and signed off on by a Chapter grazing official and a Navajo Nation Land Agent, following Navajo Nation policy. All livestock may be able to graze within the gen-tie and BIA RT 6730 ROW. As many as 3,880 acres could be removed from grazing, except for sheep. There would be additional losses, albeit minor (4 acres), from gen-tie impacts (such as the footprints for the approximately 34 proposed transmission towers) in LMD 3-1-12, 3-4-8, and 3-4-5 and the Moenkopi Switchyard expansion in LMD 3-4-5. These reductions in available grazing areas would result in a loss of carrying capacity for each grazing area. Overall, these impacts are minor as the Project would impact about 4 percent of the overall grazing unit. LMD 3-1-10 represents the grazing area most impacted at approximately 10 percent of the whole grazing unit. All other grazing unit acreages lost would be less than 1 percent of the grazing unit (Table 3-1).

Grazing in the immediate vicinity of the Project could be temporarily affected during the duration of construction activities. Activities at individual structure locations would occur over several weeks at intervals over the course of construction (site preparation, structure assembly/erection, stringing, and restoration), so access to the grazing allotments along the gen-tie would be limited over a brief period within the proposed gen-tie ROW. Following construction, because the ROW would not be fenced, grazing would continue within the gen-tie ROW.

A negligible, long-term impact to grazing is expected to grazing units LMD 3-1-12, 3-4-8, and 3-4-5 during operation of the Project from the loss of 4 acres that would be disturbed by structure sites. A moderate, long-term impact to grazing in LMD 3-1-10 would occur from the loss of 10 percent of the grazing area. Because all the grazing permits lack a defined boundary, , the loss in the grazing area is not expected to have a measurable impact on any individual permittee(s).

At the end of the Project lifetime, the Project area would be reclaimed per NNDFW requirements and future land use objectives identified by the Navajo Nation and Cameron and Coalmine Canyon Chapter officials. With the implementation of proposed BMPs, the Project would result in negligible to low long-term impacts to Project area grazing, associated with an approximately 4 percent reduction in available grazing lands.

3.5.2.2.3 Agriculture

The proposed gen-tie would span the 413.1-acre BIA-designated cropland along the east side of the LCR (refer to Figure 3-1). Gen-tie towers in this area were spaced to specifically avoid the small cropland. No agricultural land or designated croplands would be impacted by the Proposed Action.

3.5.2.2.4 Transportation and Traffic

PDP would prepare and implement a Transportation Plan to reduce the Project's impacts on local traffic patterns, including utilizing the existing "park and ride" to shuttle workers to the site. This plan would minimize traffic disruption during workforce and equipment deliveries to the Project

area during construction and minimize truck deliveries during heavy tourist traffic loads to the Grand Canyon area north of the Project Site.

The increase in Project-related traffic would result in minor, direct impacts on US 89 and BIA RT 6730 during Project construction. Through traffic on US 89, BIA RT 6730 and NR 6716 and 6767 would be maintained during Project construction; however, temporary traffic controls, including lane closures, may be implemented and minor traffic delays could occur. These impacts would be short-term and temporary in nature since impacts would cease following Project construction.

When considering all land uses, the Project combined with the past, present, and future foreseeable projects would have a moderate overall impact on land use within the area as an additional 3,858.3 acres would be developed. Following the implementation of BMPs, the collective impacts from past, ongoing, and future foreseeable actions within the Project area to existing infrastructure is negligible as existing infrastructure would be avoided during construction, operations and decommissioning. There would be negligible impacts to grazing along the Project gen-tie ROW and minor, long-term impacts associated with reductions in available grazing lands in the solar generation area. However, some or all of these impacts may be mitigated by measures included in Appendix C. Transportation infrastructure in the Project area would be marginally improved after the Project is implemented (Section 2.1.1). Following the implementation of BMPs, the collective impacts from past, ongoing, and future foreseeable actions within the Project area to transportation and traffic would be minor and adverse to traffic during construction and decommissioning and minor and beneficial during operations due to Project road improvements to the area.

3.5.2.3 Alternative 2

The effects from Alternative 2 would be the same as that of the Proposed Action.

3.6 Visual Resources

3.6.1 Affected Environment

The overall character of the immediate landscape is rangelands interspersed with rolling hills and mesas. The most notable natural features in the landscape are the eroded mesas interspersed with dry valleys with distant backdrop views of mountains—including the San Francisco Peaks—and textured dirt and soft, light tan, scenic sand dunes leading to mesa escarpments mountain ranges in the background. There is also existing transmission line infrastructure running parallel and perpendicular to the alternative gen-tie ROWs and the existing Moenkopi Switchyard. Nonetheless, there are no nearby sensitive receptors, and these project features would be consistent with the existing electrical infrastructure.

PDP completed a Visual Resources Assessment (VRA) that included an analysis of visual contrast to determine to what degree the Project would attract attention and to assess the relative change in the character landscape. The analysis uses concepts and methods based on the visual resource contrast rating process presented in BLM Handbook H-8431-1 (BLM 1986). The methodology consists of landscape review, key observation points (KOPs) identification, field reconnaissance and

photography, visual simulations, and contrast rating analysis and is described in detail in the VRA. The VRA is incorporated by reference and available in Appendix G of the TDD. It is also summarized in Section 3.3.9 of the TDD.

The Navajo Nation administers no specific policy or guidance for how to evaluate a project's visual impact on their lands.

3.6.2 Environmental Consequences

Visual impacts are defined as the change to an existing visual environment resulting from the introduction of modifications to the landscape. An analysis of visual contrast was used in determining to what degree the Project would attract attention and in assessing the relative change in the character landscape.

3.6.2.1 No Action

Under the No Action Alternative, the Project would not be built, and visual resources in the area would continue to be subject to existing conditions.

3.6.2.2 Proposed Action

The VRA concluded that two KOPs of the proposed gen-tie from US 89 looking east and west would have minor visual impacts. Views of the solar generation site from US 89 would be moderate, while visual impacts along BIA Route 6730 would be minor to major, depending on location, along the road. Following the implementation of BMPs, collective impacts from past, ongoing, and future foreseeable actions within the Project area would be low to high. Visual impacts increase the closer the viewer is to Project facilities. Blowing dust during construction and decommissioning would also impact area views, although the frequency and severity would not be consistent due to the high amount of desert pavement soils in the Project area.

3.6.2.3 Alternative 2

Because this alternative essentially parallels the Proposed Action, impacts to visual resources would be similar to those described for the Proposed Action.

3.7 Biological Resources

3.7.1 Affected Environment

3.7.1.1 Vegetation

The Project site is within the Great Basin Desert scrub vegetation community (Brown 1982). This biome consists of a high-elevation desert. In the Project site, vegetative ground cover is very sparse overall, ranging between 0 and 25 percent. Most of the Project site is dominated by desert pavement, with gravel, pebbles, or cobbles covering much of the surface. Sandy area inclusions or dunes are scattered throughout the Project site. Vegetation is generally scattered and dominated by shrubs, including mound saltbush (*Atriplex obovata*), shadscale (*Atriplex confertifolia*), four-wing saltbush (*Atriplex canescens*) and rubber rabbitbrush (*Ericameria nauseosa*). The Project generation site

is generally devoid of trees. There are large patches of tamarisk within the LCR that the gen-tie ROW would span. There are also scattered pinyon and juniper trees south of the river that the gen-tie ROW would also span. Forbs and grass species in the Project site include alkali sacaton (*Sporobolus airoides*), James' galleta (*Pleuraphis jamesii*), and sand dropseed (*Sporobolus cryptandrus*). A complete list of plants observed in the Project site is included in the Biological Evaluation (BE).

Two BIA Navajo Region noxious weeds, camel thorn (*Alhagi camelorum*) and halogeton (*Halogeton glomeratus*), both rated as Class B species, were found at the Project site during biological surveys.

3.7.1.2 Wildlife

The NNDFW is responsible for managing and protecting the Navajo Nation's fish, wildlife, plants, and their habitat. The NNDFW has established wildlife habitat, sensitive areas, and associated Biological Resource Land Use Clearance Policies and Procedures (RCP) to help direct development to areas where impacts to wildlife and habitat would be less (Navajo Nation Council 2008). There are six wildlife area RCP classifications mapped on the Navajo Nation. There are four area classifications within the proposed Project area (Figure 3-2).

As classified by the NNDFW, approximately 26 percent (1,829 acres) of the Project site is in Area 1 – Highly Sensitive Area, 58 percent (4,088 acres) is in Area 2 – Moderate Sensitive Area, 15 percent (1,031 acres) is designated as Area 3 – Less Sensitive Area, and 1 percent (52 acres) is in Area 4 – Community Development.

Based on desktop Geographic Information System (GIS) review and extensive pedestrian field review of the Project area, there are virtually no or only very subtle differences between the physical and biological attributes that characterize RCP-mapped habitats within the Project area. The BE provides the results of the desktop GIS comparison and the field/photographic comparison of the RCP mapping in the Project area. The Project BE is incorporated by reference and can be found on Reclamation's website. While the RCP policy does not have provisions to review or adjust RCP mapping over time, the policy does state that the mapped RCP areas "provide the framework for planning specific development projects, but site-specific planning to address wildlife resources will still be necessary" (Navajo Nation Council 2008). Information presented in the BE provided NNDFW with sufficient site-specific data to thoroughly review the subject Project.

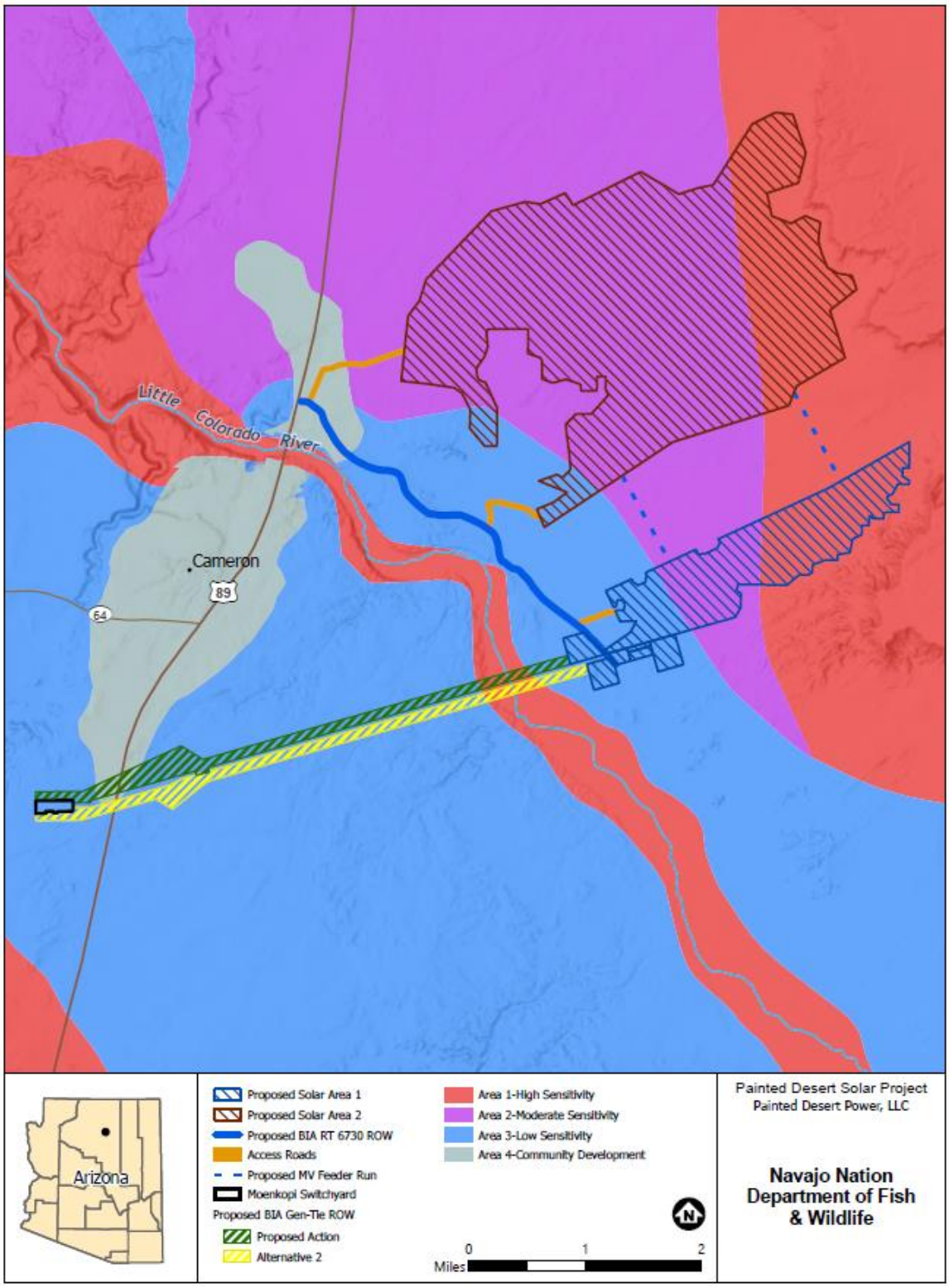

Figure 3-2. Wildlife Area RCPs in the Project Area

3.7.1.3 Federal Listed Species

There are five threatened, endangered, or experimental population, non-essential species that have the potential to occur within the Project action area (U.S. Fish and Wildlife Service [USFWS] 2020). There is no proposed or designated critical habitat within the action area (USFWS 2020). The list included the following species:

- California Condor (*Gymnogyps californianus*) – Endangered/Experimental, Non-essential
- Mexican Spotted Owl (*Strix occidentalis lucida*) – Threatened
- Yellow-billed Cuckoo (*Coccyzus americanus*) – Threatened
- Northern Mexican Gartersnake (*Thamnophis eques megalops*) – Threatened
- Fickeisen Plains Cactus *(Pediocactus peeblesianus fickeiseniae*) – Endangered

The USFWS Information for Planning and Consultation (IPaC) species list and USFWS consultation letter (No. 02EAAZ00-2020-SLI-0695) is provided in the Project BE on Reclamation's website. These species were eliminated from detailed evaluation in the BE due to the absence of suitable habitat in the Project area. Because the initial USFWS consultation was completed in 2020, an updated species list was reviewed on IPaC in 2025. Based on the updated IPaC query, the threatened Northern Mexican gartersnake and the endangered Fickeisen Plains Cactus are no longer listed as potentially occurring in the Project area. Two new species, the proposed threatened Monarch butterfly (*Danaus plexippus*) and the proposed endangered Suckley's cuckoo bumble bee (*Bombus suckleyi*) have been added to the IPaC list for the Project site. The range of both species is extensive and includes most of North America for the Monarch butterfly and the western half of the continent for the Suckley's bumble bee. Both have the potential to occur in Arizona, although neither is likely to occur in the Project area, nor be impacted by the Project's development based on habitat availability.

The Monarch butterfly requires the presence of milkweed (*Asclepias* sp.) for reproduction and other pollinator species (USFWS 2024a). Milkweeds occur in many different habitats, such as wetlands, streambanks, prairies, and other semiarid and arid rangelands, woodlands, cropland, irrigation ditches, roadsides, and abandoned fields. No *Asclepias* were found in the Project area, an area dominated by desert pavement, sandy dune areas, and areas nearly devoid of vegetation.

While the range of Suckley's cuckoo bumble bee is suspected to extend into Arizona, there are only two records of male specimens from 2009 and 2011 in Arizona. The USFWS species status assessment (USFWS 2024b) for the Suckley's cuckoo bumble bee suggests that these records may be a case of mistaken identity, confusing the Suckley's with the widespread Western bumble bee (*Bombus occidentalis*). Suckley's cuckoo bumble bees are found in a wide variety of habitats, including montane meadows and prairies, farms, woodlands, boreal forests, active and fallow agricultural fields, and urban areas. None of these habitat types are present in the Project area.

3.7.1.4 Navajo Nation Listed Sensitive Species

The Navajo Natural Heritage Program (NNHP) identified 10 Navajo Endangered Species List (NESL) species (excluding those also federally listed) with the potential to occur within the Project area (NNHP 2020).

Navajo endangered species include NNHP and federally protected, candidate, and other rare or otherwise sensitive species. NESL species are designated by group. Group 1 (G1) species are those species or subspecies that no longer occur on the Navajo Nation. Group 2 (G2) species are considered endangered, or a species or subspecies whose prospects of survival or recruitment on the Navajo Nation are in jeopardy. Group 3 (G3) are those species whose prospects of survival or recruitment are likely to be in jeopardy in the foreseeable future. Group 4 (G4) are those species for which the NNDFW does not currently have sufficient information to support them being listed as G2 or G3 but has reason to consider them. The species listed by the Navajo Nation are specific to the U.S. Geological Survey (USGS) 7.5-minute quadrangle, rather than specific to the Project area. The Project area encompasses all or part of two USGS 7.5-minute quadrangle maps, Lees Ferry and White Dome, Arizona.

Of the 10 NNHP special status plant and wildlife species with the potential to occur within the Project and action area, all but five species were eliminated from further consideration in the BE due to the absence of suitable habitat in the Project area. The NNDFW determined that the following species have the potential to occur or be impacted by the proposed Project:

- Ferruginous hawk (*Buteo regalis*), NESL G3, Migratory Bird Treaty Act (MBTA)
- Golden eagle (*Aquila chrysaetos*), NESL G3, Bald and Golden Eagle Protection Act (BGEPA)
- Peregrine falcon (*Falco peregrinus*), NESL G4, MBTA
- Peebles' blue-star (*Amsonia peeblesii*), NESL Sensitive
- Beath's milkvetch (*Astragalus beathii*), NESL G4

There is suitable foraging habitat throughout the Project area for the ferruginous hawk, golden eagle, and peregrine falcon. As much of the solar generation lease area is within RCP Area 1, it was thought there would be suitable nesting habitat for raptors less than 1 mile east of the Project site on the Ward Terrace. However, intensive raptor surveys completed in 2021 and 2023 resulted in documentation that the terrace provides few nesting opportunities for larger raptors and overall is considered poor nesting substrate due to the rapid erosion of the terrace and the instability of, or lack of, platforms or shelves for nest building. The 2021 and 2023 raptor surveys detected no nesting use of the Project area by any of these species. No historic nesting records exist for any of these sensitive raptors within 3 miles of the Project area. Ferruginous hawks and golden eagles were observed flying over the Project area on several occasions over the 2 years of field surveys, but no other use was observed. Peregrine falcons were not observed in any of the survey years.

Peebles' blue-star pre-construction surveys were initiated in April 2021 and resulted in documenting a population of 80 Peebles' blue-star individuals in the Project area. The population was found on sandy soils next to ephemeral washes on the north side of the Moenkopi Switchyard. No Beath's milkvetch was found in the Project area.

3.7.1.5 Migratory Birds

Under the Migratory Bird Treaty Act (MBTA) of 1918 (16 U.S.C. 703-712; Ch. 128, as amended) and EO 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds*, federal agencies are required to consider management impacts to migratory birds. While all migratory birds are protected under

the MBTA, some species have been identified as being of conservation concern. Data collected through breeding bird surveys coordinated by the USFWS and other private sector efforts have provided the basis for the USFWS's *Birds of Conservation Concern* (USFWS 2008). This list identifies bird species that "without additional conservation actions, are likely to become candidates for listing under the Endangered Species Act of 1973" (USFWS 2008). Species on this list have been assessed based on population trends, threats, distribution, abundance, and relative density (USFWS 2008). Migratory bird species on the USFWS's *Birds of Conservation Concern* that have the potential to occur within the Project site include (USFWS 2008):

- Ferruginous hawk
- Golden eagle
- Peregrine falcon
- Mountain plover *(Anarhynchus montanus)*
- Burrowing owl (*Athene cunicularia*)
- Brewer's sparrow (*Spizella breweri*)

The Project site also includes foraging habitat for many raptor species, including red-tailed hawks (*Buteo jamaicensis*) and prairie falcons. An active red-tailed hawk nest was observed in 2020 and 2021 on an existing steel lattice transmission tower adjacent to the proposed gen-tie ROW—approximately 0.25 miles west of the LCR. Golden eagles and red-tailed hawks were observed within the Project site. A complete list of birds observed within the Project site is included in the BE.

3.7.2 Environmental Consequences

3.7.2.1 No Action

Under the No Action Alternative, the Project would not be built and biological resources in the area would continue to be subject to existing conditions

3.7.2.2 Proposed Action

3.7.2.2.1 Vegetation

The Project area supports a low-cover (0-25 percent cover) vegetation community (NRCS 2012, 2020). Much of the vegetation present would be directly or indirectly impacted by the Project. Approximately 3,729 acres would be permanently (long-term) impacted, and 129.3 acres would be temporarily impacted. Temporary impacts are those associated with site preparation and construction, and permanent impacts are those associated with constructed facilities and operation. Permanent Project impacts would persist for the proposed life of the development rather than into perpetuity. The Navajo Nation and Chapter officials would determine the future land use of the Project area before decommissioning.

During construction, the removal of vegetation would result in soil compaction, infiltration rates, and erosion (Lovich and Bainbridge 1999; Newman and Redente 2001; Belnap and Herrick 2006).

The Project would also result in some habitat fragmentation, which converts large continuous patches of a vegetation community into numerous smaller, less functional areas (Roig-Silva et al. 2013; USDOE 2014). Effects resulting later in time from ground disturbance and vegetation removal include altering soil temperatures and moisture regimes, particularly underneath solar PV panels.

Ground disturbance from construction would make vegetation communities more susceptible to introducing or spreading noxious weeds or invasive plants, resulting in indirect adverse long-term moderate impacts. Seeds of noxious species could unknowingly be carried on vehicles or heavy equipment and on personnel's clothing and shoes. Roads can be a significant conduit for the spread of noxious weeds or undesirable plants (Gelbard and Belnap 2002).

Impacts occurring later in time include changes in plant density, abundance, and species diversity because disturbed areas would not necessarily regenerate with the same species in the same abundance (Hickman et al. 2013), and species colonization from nearby native communities may be slow (Paschke et al. 2005; Newman and Redente 2001). Restoring plant communities in arid climates, such as the Project area, can be particularly difficult (Monsen et al. 2004).

Impacts on plant communities and habitats during facility O&M could include the continued effects of fugitive dust, effects of hazardous material spills, and the potential introduction and spread of non-native invasive plant species. Dust deposition generated during clearing and grading activities and operational use of access roads could reduce plant photosynthesis and productivity (Farmer 1993), but this would be largely avoided by implementing surface spraying when needed to control dust. Potential impacts on vegetation that would occur later in time while operating the solar generation site include potential changes to the vegetation community with the formation of microclimates under the solar arrays.

The types of impacts resulting from decommissioning would be similar to those associated with facility construction. Decommissioning would result in soil disturbance, potentially including regrading some Project areas. Ground disturbance would also occur in temporary work areas and storage areas. Vegetation would be removed or damaged in areas of disturbed soils, and these areas would require re-establishing plant communities. Impacts associated with decommissioning activities could include erosion, sedimentation, soil compaction, changes to surface water hydrology, establishment of invasive species, deposition of airborne dust, and potential spills of hazardous materials.

By implementing the avoidance and minimization measures included in Appendix C, impacts on vegetation would be immediate and gradual over time, long-term, and moderate in intensity compared to the baseline. With the implementation of avoidance and minimization measures included in Appendix C, impacts on vegetation would be both immediate and gradual over time, long-term, and moderate in intensity when added to past, present, and reasonably foreseeable developments in the region.

3.7.2.2.2 Wildlife

During construction, marginal-quality wildlife habitat would be directly effected by ground disturbance, vegetation removal, human activity, and habitat fragmentation caused by fencing and roads. Approximately 3,729 acres would be permanently (long-term) impacted, and 129.3 acres temporarily impacted. Temporary impacts are those associated with site preparation and construction activities, and permanent impacts are those associated with constructed facilities.

The solar generation site fencing would exclude large rangeland wildlife like wild horses and antelope from entering the site. However, the fencing has a 6- to 8-inch (depending upon terrain) opening between the ground and the bottom of the fence to allow most wildlife passage in the area. Some wildlife may be attracted to the cover and shelter the panel arrays offer, and the microclimate created. However, other wildlife would avoid the area due to loss or alteration of vegetation and human activity or only enter the facility at night or while workers are not present. Predatory animals may be deterred from hunting due to the presence of panel arrays and other facilities.

Within the Project area, wildlife habitat would be modified by a change in vegetation composition and density, resulting in a change in wildlife use. In addition to the direct loss of habitat, human activity and noise in the Project area would adversely affect wildlife species. Disturbances and barriers, such as fences, can alter how wildlife uses or moves through an area and could push individual animals from their preferred habitat into less suitable habitat. Such displacement would likely be localized in the Project area (Roig-Siva et al. 2013). Earthmoving and heavy equipment and vehicle traffic could result in the direct injury or death of less mobile wildlife or those using burrows, but very few of these species use the Project area (Ecosphere 2020).

No construction would occur within the LCR or its floodplain, which provides the highest quality and most diverse habitat. The proposed gen-tie would span these areas, paralleling the two existing transmission lines at this location. Wildlife access to resources provided by the LCR would be restricted during construction in the immediate vicinity of the gen-tie corridor due to human activity and noise. However, during the operational life of the Project, wildlife is expected to have unfettered access to the LCR. Direct and indirect impacts on wildlife habitat in the LCR corridor would be short-term and negligible.

During the O&M, wildlife would be affected by disturbance (e.g., from ongoing habitat loss, occasional noise, and the intermittent presence of workers). Wildlife may also be impacted by collisions with above-ground facilities or maintenance vehicles and/or exposure to or ingesting contaminants.

Project decommissioning would impact soils, increase human presence, and cause short-term increases in dust and noise, all of which could impact wildlife and wildlife habitat. The impacts from decommissioning would be similar to those associated with facility construction.

Project impacts on wildlife are reduced because the Project area is largely within a previously disturbed and scarcely vegetated area that provides generally low-quality, sparsely inhabited habitat. Nonetheless, soils and vegetation that provide wildlife structure, cover, and food sources would be

removed or disturbed beyond the construction timeframe. Therefore, the overall impacts on wildlife would be moderate and short term during construction and minor and long-term for the O&M and decommissioning. These impacts would be minimized or eliminated by BMPs and mitigation measures included in Appendix C.

3.7.2.2.3 Federal Listed Species

No federally listed species would be impacted by the Proposed Action due to the absence of suitable habitats present. The NNDFW Project Biological Resources Compliance Form (BRCF) is provided in Appendix D. There would be no collective impacts from past, present, and future foreseeable actions to federally listed threatened or endangered species as none are potentially impacted by the Project.

3.7.2.2.4 Navajo Nation Listed and Sensitive Species

Impacts to NNHP sensitive wildlife and vegetation would be similar to the project construction, operations and decommissioning impacts described above. The NNDFW Project BRCF is provided in Appendix D.

Immediate impacts to sensitive raptors include the long-term loss and fragmentation of potential foraging habitat and the possibility of avoidance of the Project area during construction, O&M, and decommissioning. These impacts would be for the duration of the construction and life of the Project. Impacts from construction and decommissioning would be greater during the breeding season if there were an active nest in the Project area. However, these impacts are less likely to occur based on the lack of suitable nesting habitat in the Project area.

Effects occurring later in time (i.e. indirect effects) on the raptor species include the long-term avoidance of the Project area for foraging and nesting during the life of the Project due to an increase in human presence, noise, and general disturbance. Direct and indirect effects would result from the construction and O&M of powerlines and structures, increasing the risk of collision with man-made structures and, therefore, injury or mortality. The relative size of the proposed 500 kV gen-tie structures and conductors (versus low-voltage lines) make these facilities highly visible and thus less likely that raptors would collide with the lines. Raptors perching on powerlines may be electrocuted, causing injury or mortality. The potential effects to these sensitive raptor species from collisions with or electrocution by the gen-tie line during operations would be minimized by designing these lines in accordance with Avian Power Line Interaction Committee (APLIC) guidelines.

The Project may impact Peebles' blue-star and Beath's milkvetch populations along the proposed gen-tie on the north side of the Moenkopi Switchyard. While these G4 plants have no formal protections by the NNDFW, PDP would attempt to avoid these small populations during the final design of the gen-tie and associated tower locations. The plants would likely be spanned as PDP would not place tower footers or within sandy washes where these plants occur.

The collective effects to Peebles' blue-star and Beath's milkvetch when considering past, present, and future foreseeable actions would include a loss or modification of suitable habitat. While these

impacts could affect individuals, no population-level impacts would be expected to occur. There would be no additional collective effects to any other NNHP listed sensitive species.

3.7.2.2.5 Migratory Birds

Impacts to migratory birds from Project construction, operations, and decommissioning would be similar to the impacts to wildlife described above. Impacts on migratory birds include the long-term loss of 3,729 acres of potential shrub and ground-nesting, foraging, migration, and dispersal habitat where vegetation is removed and/or bare ground is covered by permanent facilities. Additional impacts include the avoidance of the Project site due to construction noise, increased human activity, vehicles, lights, and infrastructure. Impacts on migratory birds are expected to be greater should construction occur within the migratory bird breeding season, generally between the beginning of May and the end of July.

Additional impacts to migratory birds may result from collisions with photovoltaic panels and associated transmission infrastructure. Kosciuch et al. (2020) analyzed avian fatality data from 13 studies at 10 PV solar sites in the Southwestern United States and calculated an average fatality estimate of 2.49 birds per megawatt per year. Kosciuch et al. (2020) found the species with the highest adjusted composition of fatalities among projects were widely distributed ground-dwelling birds with large populations in the area where the studies occurred. The potential effects to migratory species from collisions with or electrocution by the gen-tie line during operations would be minimized by designing these lines in accordance with APLIC guidelines. Additionally, as a result of completing 3 years of raptor surveys within the Project area, it is well documented that the Project area has limited nesting opportunities for raptors or eagles. A single red-tailed hawk nest has been identified in the Project area on a steel-lattice transmission tower.

The collective effects to wildlife and sensitive species, including migratory birds, when considering past, present, and future foreseeable action are expected to be minor and long-term, provided the BMPs and mitigation measures presented in Appendix C are implemented during each phase of Project development. Raptor species, including the ferruginous hawk, golden eagle, and peregrine falcon, could be cumulatively impacted by the loss of foraging habitat. This impact, however, is expected to be negligible due to poor-quality raptor nesting and foraging habitat present.

3.7.2.3 Alternative 2

Because this alternative gen-tie ROW essentially parallels the Proposed Action gen-tie ROW, impacts to biological resources during construction, operations, and decommissioning of this alternative would be similar to those described for the Proposed Action. Following the implementation of BMPs and mitigation measures described in Appendix C, there would be long-term, and minor to moderate effects compared to the baseline. This alternative was evaluated and included in the BRCF issued by the NNDFW.

3.7.3 Mitigation Measures

The NNDFW required mitigation measures are included in the BRCF issued by the NNDFW and included in Appendix D

3.8 Cultural Resources

3.8.1 Affected Environment

Section 106 of the National Historic Preservation Act of 1966 (NHPA), as amended (54 U.S.C. 300101), and its implementing regulations (36 CFR 800), defines the area of potential effects (APE) as the geographic area or areas within which impacts from an undertaking (that is, a federal action) may directly or indirectly affect cultural resources that are listed, or eligible for listing, in the National Register of Historic Places (NRHP) (i.e., historic properties). The Project APE consists of approximately 5,295 acres of land situated entirely on Navajo Nation tribal trust land.

Class I and Class III cultural resources records review and inventory of the APE was completed in 2020 and 2025. The Class I literature review included a quarter-mile buffer around the APE to identify previous projects, archaeological sites, and sites of religious or cultural significance. Between March 4 and July 7, 2020, and April 9-10, 2025, a Class III cultural resource inventory of 5,666 acres encompassed the APE with a 50-ft buffer. The survey was completed under Navajo Nation Heritage and Historic Preservation Department (NNHPD) Survey Permit Nos. B20075 and B25382.

The Class III cultural resource inventory (Permit B20075) identified and documented 60 newly recorded sites (AZ-N-5-48 through AZ-N-5-53; AZ-N-6-5 through AZ-N-6-18; AZ-N-11-22 through AZ-N-11-39; and AZ-N-12-82 through AZ-N-12-103), 108 Isolated Occurrences, and four In-Use Areas/Current Cultural Properties. Thirty-six of the archaeological sites are prehistoric, 17 are from the historical period, and seven are multi-component. Site types include artifact scatters both with and without features, single- and multiple-residence habitation sites, ranching features and structures, and transportation structures. Archaeological sites represent the use of and habitation within the project area by Archaic, Anasazi, Navajo, and Euro-American peoples. In addition, several unmarked human burials and other concerns were identified during ethnographic interviews for this Project. The NNHPD reviewed the resultant survey report for Permit B20075 and provided a Cultural Resources Compliance Form (CRCF) for the Project (Appendix E). The attached CRCF includes a listing of the site names, site types, eligibility, and required protection measures per site. The 2025 addendum survey (Permit B25382) identified one new site (AZ-N-12-133, a prehistoric artifact scatter), and four Isolated Occurrences. The NNHPD has not yet issued a CRCF for the addendum survey. It is anticipated that NNHPD will issue a CRCF during the Section 106 consultation process.

Isolated occurrences were not considered eligible for the NRHP given their limited remains, disturbance from grazing and erosion, lack of cultural context, and the fact that further analysis would not have the potential to yield significant information about the past. Detailed field recording of the isolated occurrences has adequately characterized their limited information potential in archival form. The unmarked human burials would all be avoided by the Project and would not be impacted. Twenty-three sites are recommended NRHP eligible under Criterion D and/or Criterion C. Eight additional sites are recommended NRHP undetermined under Criterion D as a surface inspection alone in the absence of subsurface investigations was not adequate for assessing their data

potential. Thirty sites and the four In-Use Areas/Current Cultural Properties are recommended not eligible to the NRHP under any criteria due to excessive erosion and/or lack of further data potential.

3.8.2 Environmental Consequences

3.8.2.1 No Action

Under the No Action Alternative, the Project would not be built, and cultural resources in the area would continue to be subject to existing conditions.

3.8.2.2 Proposed Action

All 33 sites evaluated as NRHP eligible or NRHP undetermined and those sites with American Indian Religious Freedom Act (AIRFA) concerns would be avoided. This includes human burial sites identified during surveying or interviews. With full implementation of the management recommendations provided by the NNHPD in the CRCFs for the Project (Appendix E), no significant or potentially significant cultural properties would be adversely affected during construction, O&M, or decommissioning of the facilities.

No collective impacts based on past, present, and future foreseeable actions are anticipated for cultural resources, as all sites evaluated as NRHP eligible or NRHP undetermined and those with AIRFA concerns would be avoided.

3.8.2.3 Alternative 2

This alternative was evaluated by NNHPD and given a CRCF. Potential impacts to cultural resources during construction, operations, and decommissioning would be similar to those described for the Proposed Action. Following the implementation of BMPs and Protection Measures, no impacts to cultural resources are anticipated.

3.8.3 Protection Measures

The NNHPD required site protection measures and are included in the CRCF in Appendix E.

3.9 Socioeconomic Resources

3.9.1 Affected Environment

The following socioeconomic analysis is summarized from the analyses completed by Triple Point Strategic Consulting, LLC and Mangum Economics found in Section 3.3.8, pages 99-108 of the TDD.

3.9.1.1 Population and Demographic Characteristics

Together the Cameron and Coalmine Canyon Chapters cover almost 1,000 square miles and are very sparsely populated, with fewer than 2,000 residents. The population of Cameron Chapter is about double that of Coalmine Canyon Chapter. The median age in Cameron is 34.3, and 33.2 in

Coalmine Canyon (Table 3-2). By comparison, the median age in Arizona is 39.3, and 39.2 for the United States population overall (US Census 2023).

The United States median per capita and household incomes are $34,103 and $62,843, respectively, as compared to the Cameron Chapter per capita and household incomes of $13,453 and $34,853 and those of the Coalmine Canyon Chapter, which are lower still at $11,653 and $26,875 (Table 3-2) (US Census 2019). At 31 percent, the number of people in Cameron Chapter living below the poverty line is more than double the overall United States rate of 13.4 percent (US Census 2019). At 46 percent, the number of people in Coalmine Canyon living below the poverty line is more than triple the overall United States rate (Mangum Economics 2022)

Table 3-2 Population and Demographic Characteristics

Category	Cameron	Coalmine Canyon	United States
Population	1,122	672	340,110,988
Households	328	185	145,344,636
Persons Per Household	3.4	3.5	2.54
Median Age	34.3	33.2	39.2
Per Capita Income	$13,453	$11,653	$43,289
Median Household Income	$34,853	$26,875	$78,538
Persons Below Poverty Line	31%	46%	11%
Children Under 18 Below Poverty Line	37%	50%	NA
Percent with High School or Higher Degree	75%	79%	89%
Percent with Bachelor's or Higher Degree	3%	7%	35%
Mean Travel Time to Work (in minutes)	32	32	26.6

Sources: U.S. Census Bureau 2019, https://www.census.gov/quickfacts/fact/table/US/PST045224 (for U.S. data)

3.9.1.2 Housing Resources and Conditions

The median home values in Cameron and Coalmine Canyon Chapters are $54,100 and $41,300, respectively. In comparison, the median home value in Arizona is $417,400 and $434,670 in the United States (US Census Bureau 2023).

3.9.1.3 Employment and Unemployment

In March 2021, the unemployment rates in Coconino County and the State of Arizona were 8.0 percent (Bureau of Labor Statistics 2021b) and 6.5 percent (Bureau of Labor Statistics 2021), respectively. As recovery from the Coronavirus Disease 2019 (COVID-19) pandemic continues, these rates have dropped to 5.1 percent (Bureau of Labor Statistics 2021b) and 5.7 percent (Bureau of Labor Statistics 2021), respectively, as of December 2021. Because the Town of Cameron is a census-designated place (CDP), detailed estimates regarding employment in the Town of Cameron

are available. The unemployment rate in Cameron is about 8.1 percent. Of those employed, the median earnings are approximately $20,300 annually for a worker (Bureau of Labor Statistics 2021).

3.9.1.4 Chapter Financials

In the 1990s, the Navajo Nation began to transition from funding governmental operations with tax and royalty revenue associated with coal production to generating revenue from a broader sales and consumption tax base (Harvard Project on American Indian Economic Development 2008). Portions of these revenues are earmarked for local chapters that are Local Governance Act-certified. To date, only 44 of the Navajo Nation's 110 chapters have been certified, and neither chapter is among them (Navajo Nation Office of the Auditor General 2021).

Each of the 110 chapters provides program budget summary information to the Navajo Nation Division of Community Development. The budgets for administering the Chapters are modest and resemble those of small neighborhood property owners' associations. Thus, chapters lack the capacity to provide workforce training and incentivize other means of economic development. The operating budgets of the Chapters are approximately $250,000 each (Navajo Nation Office of the Auditor General 2021).

3.9.2 Environmental Consequences

3.9.2.1 No Action

Under the No Action Alternative, the Project would not be built and potential socioeconomic benefits to the Navajo Nation and nearby communities from the Project would not be realized.

3.9.2.2 Proposed Action

The Project would have a positive impact on the economy of the Navajo Nation and help the Navajo Nation build a more balanced energy portfolio by developing clean, renewable energy for the long-term benefit of the Navajo people.

The Project would repurpose reclaimed lands impacted by historic uranium mining by using lands that are no longer in remediation phases or have been documented as safe by the NNEPA for alternative uses. The Project would also reduce dependence on energy generated from fossil fuels, partially replacing the coal-fired NGS, decommissioned in 2019. The Project would help the Navajo Nation become a significant producer of renewable energy and provide clean energy jobs and workforce training within the community.

The Project would create revenue streams for the Navajo Nation through taxation and lease payments while also generating jobs in a new sector for the Navajo community. PDP would generate an estimated $58 million in community stakeholder payments and $12 million in Navajo Nation lease payments over the Project's lifetime (Mangum Economics 2022).

Project construction would support an estimated 770 jobs in Coconino County, with $39.7 million in associated labor income and $116.9 million in total economic output. Of the jobs supported by the Project construction, 570 would be directly associated with construction, contributing

$30.2 million in labor income to Coconino County's fifth-largest industry sector. The average weekly wages for construction jobs are $918, as compared to the county-wide average of $866. Total intermediate expenditures within the county resulting from Project construction are estimated to range from $41 million to $58 million. Sales and other consumption tax revenues resulting from this economic activity are estimated to range from $1.6 million to $7.4 million.

Project O&M would create at least 21 new jobs in Coconino County with $1 million in associated labor income and $3.3 million in total economic output annually. Total intermediate expenditures within the county resulting from Project operation are estimated to range from $500,000 to $1.5 million annually. Sales and other consumption tax revenues resulting from this economic activity are estimated to range from $103,000 to $160,000 annually.

Personal property tax revenue would be generated from the purchase and ownership of PV, BESS, and other capital equipment purchased outside of Coconino County for Project construction and operation. The total lifetime revenue generated by personal property tax is estimated to range from $6.3 million to $6.4 million.

Decommissioning would also require expenditures with economic impacts. AESCE estimated the cost of decommissioning the 750MW Project would be $42.3 million, with an estimated $8.2 million recovery salvage value, for a net decommissioning cost of $31.5 trillion.

In combination with other reasonably foreseeable developments in the region, the Project would result in a short-term beneficial economic stimulus to the local Chapters and serve as a foundation for long-term economic development by providing reliable and clean electric energy, workforce development, ongoing employment, and annual tax revenues. The Project would improve the socioeconomic conditions of current residents and fuel future economic growth.

3.9.2.3 Alternative 2

Under Alternative 2, potential impacts to area socioeconomics during construction, operations, and decommissioning would be similar to those described for the Proposed Action, would have long-term socioeconomic benefits to the Navajo Nation and to the region.

3.10 Hazards and Hazardous Materials

3.10.1 Affected Environment

Uranium was found near Cameron in 1950, a time when it was highly sought after for national defense purposes and energy development. Fifty-seven AUMs occur within 5 miles of the Project site. Based on EPA site assessment reports summarized in the TDD, 14 have not been reclaimed, or their status is unknown. The Project was designed to avoid known AUMs to the extent practicable (Figure 3-2). One AUM (Charles Huskon 14) occurs between towers 9 and 10 within the Proposed Action and Alternative 2 ROWs. There is also a small "hot-spot" within the Proposed Action ROW near tower 8 and another hot-spot in the southern portion of solar development area 2. Hot spots are areas identified by the U.S. Department of Energy (DOE) during aerial radiological

surveys completed on the Navajo Nation between 1994 and 1999 (Bechtel Nevada 2001). The DOE surveys identified areas of excess bismuth-214 activity (as a proxy for uranium and an indicator of uranium ore deposits and/or uranium mines). Most of the hot spots identified in the Project area generally coincide with the AUMs identified in the TDD; there were a few additional hot spots that did not though. PDP is treating the two hot-spots described above the same as AUMs; they are being avoided and buffered by 100 ft. There are 12 other AUMs depicted on Figure 3-3 within approximately 0.50-miles of proposed BIA ROWs and the solar generation site lease area. Most of these AUMs occur between BIA RT 6730 and the proposed generation site lease.

No other mineral resources or areas containing hazardous materials have been identified in the Project area.

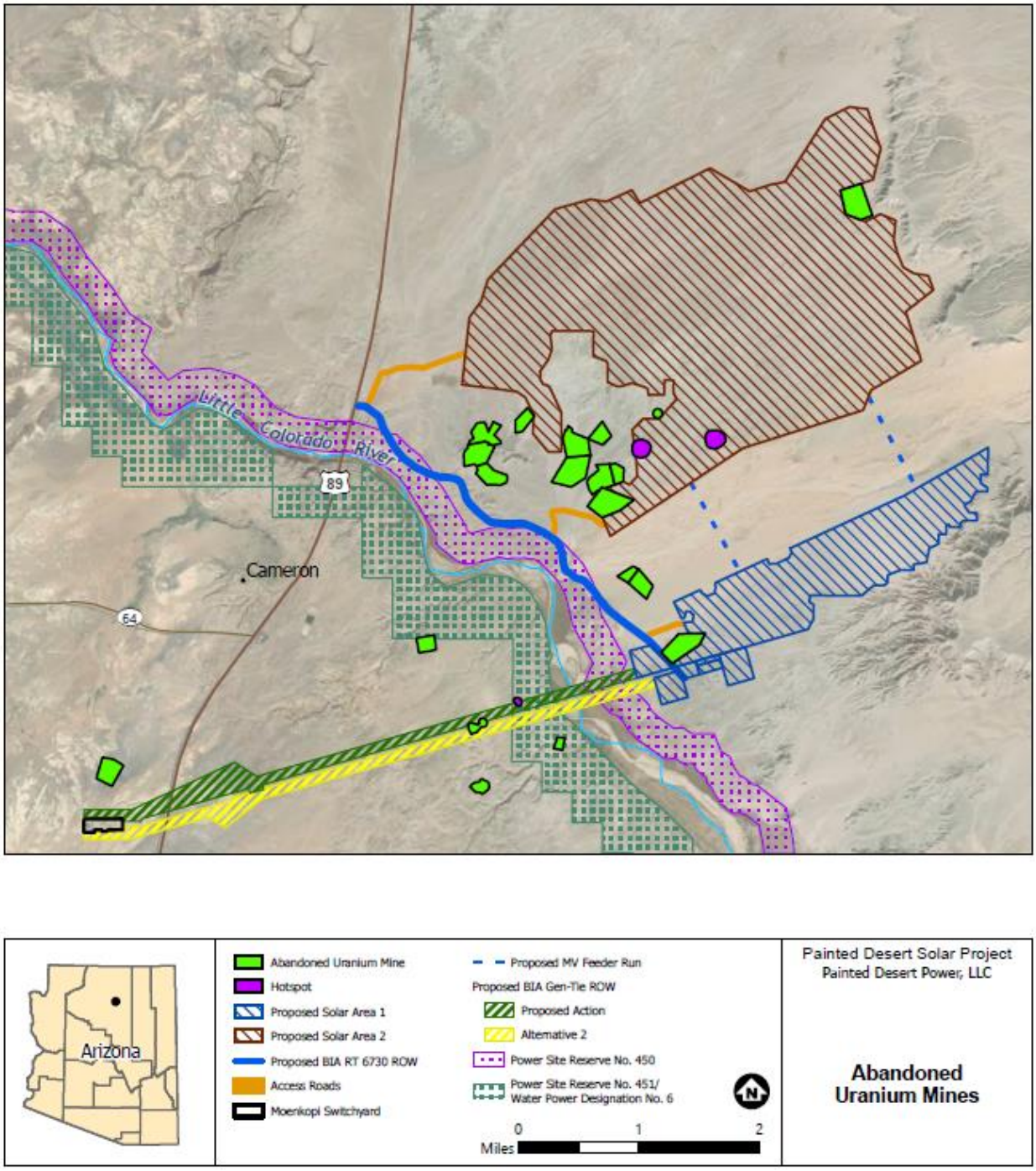

Figure 3-2. Abandoned Uranium Mines in Proximity to the Proposed Action

3.10.2 Environmental Consequences

3.10.2.1 No Action

Under the No Action Alternative, the Project would not be built and hazards to public safety would continue to be subject to existing conditions.

3.10.2.2 Proposed Action

The Charles Huskon 14 AUM is partially within the Proposed Action gen-tie ROW and there are two hot-spots also within the boundaries of this alternative. One hot-spot is within the gen-tie ROW and another is within solar development area 2. PDP has prepared a Radiation Protection Plan (RPP) and Excavation Plan to address safety associated with naturally occurring uranium, and the known AUMs and hot-spots in and near the Project area The objectives of the RPP are to anticipate, identify, evaluate radiological hazards, and establish appropriate and commensurate hazard control and mitigation measures to ensure that the work is carried out within the bounds of applicable and established radiation protection standards and regulations.

The RPP establishes the project requirements for radioactive material control, monitoring for potential exposures to radiation, radiation protection of personnel involved in site work, measures to ensure the health and safety of the general public, and control measures designed to protect the environment during site activities. These plans are available on Reclamation's website.

To prevent disturbing these areas during construction and to maintain their accessibility for potential future restoration efforts, the Project is designed to avoid and buffer the locations of AUMs by 100 ft. For instance, the AUM occurring within the proposed gen-tie ROW would be spanned. The 100 ft buffer distance was recommended by Haley & Aldrich to allow for the reclamation of the AUM by permitting adequate access to the impacted areas and ensures that all activities needed for Project development do not impact known AUM sites. The Haley & Aldrich report is available on the Reclamation's website. Consequently, with the implementation of the RPP and Excavation Plan, no direct or indirect impacts are anticipated to the AUM hazard and hazardous materials during construction, O&M, or decommissioning of the Project.

Future foreseeable actions in the Project area include remediation of uranium contaminated AUMs in the area. These future actions would have a long-term beneficial effect on area residents and the environment by reducing hazardous materials and risks to human health and safety.

3.10.2.3 Alternative 2

Under Alternative 2, potential impacts associated with hazards and hazardous materials during construction, operations, and decommissioning would be similar to those described for the Proposed Action. The same Charles Huskon 14 AUM extends into the Alternative 2 gen-tie ROW. Alternative 2 also includes the hot-spot within solar development area 2. Ass with the Proposed Action, the AUM and hot-spot would be avoided and buffered. The only difference between this alternative and the Proposed Action is that there is not a hot-spot within the proposed gen-tie ROW. Following the implementation of the BMPs and mitigation measures found in Appendix C, no impacts are anticipated.

4.0 Consultation and Coordination

4.1 Permits to be Acquired

PDP, in coordination with Reclamation, BIA, and BLM, where applicable, would acquire all applicable permits (e.g., Section 402) under the national and Navajo Nation Clean Water Acts prior to construction, operation, and decommissioning, should they be required.

An MBTA permit may be required for any immediate effects to migratory bird species that cannot be avoided. If required, PDP, in coordination with Reclamation, BIA, BLM (where applicable), and the NNDFW, would obtain the MBTA permit for the Project.

PDP would seek ROWs for the gen-tie and BIA RT 6730 from the BIA (and from BLM, if applicable) and interconnection authorization from Reclamation. PDP would seek a lease for the solar generation site with the Navajo Nation in accordance with the Navajo Nation Leasing Act.

4.2 List of Preparers

Nichole Olsker, Reclamation, Environmental Protection Specialist
Evi Rader, Reclamation, Environmental Protection Specialist
Lauren Jelinek, Reclamation, Archaeologist
Jorge Mora-Lopez, Reclamation, Mechanical Engineer
Mike Fitzgerald, Barr Engineering Co., Project Manager
Michael (Mike) Ouellett, BLM, Realty Specialist
Leonard Notah, BIA, Supervisory Environmental Protection Specialist

4.3 Agencies and Persons Consulted

Reclamation submitted scoping information to the following entities during development of the EA. The names of individuals that were notified of the NEPA review and/or submitted comments are part of the administrative record. Those names are available upon request.

Native American Communities:
Navajo Nation
Cameron Chapter
Coalmine Canyon Chapter

Local Agencies:
City of Page
City of Flagstaff
Coconino County

State Agencies:
Arizona Department of Transportation
Arizona Game and Fish Department

Federal Agencies:
BIA
BLM
FERC
USFWS
National Park Service
Federal Highway Administration
Navajo Area Indian Health Service
Western Area Power Administration

Public Utilities:
Arizona Public Service Company
Salt River Project
Tucson Electric Power
Department of Water and Power of the City of Los Angeles
NV Energy

Conservation and Environmental Organizations:
North Arizona Audubon Society
Center for Biological Diversity
National Parks Conservation Association
Sierra Club – Grand Canyon Chapter
Sonoran Institute
The Nature Conservancy – North Arizona
Arizona Wildlife Federation

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APPENDIX A. NEPA SCOPING LETTER

United States Department of the Interior

BUREAU OF RECLAMATION
Phoenix Area Office
6150 West Thunderbird Road
Glendale, AZ 85306-4001

IN REPLY REFER TO:
PXAO-1500
2.1.4.17

December 19, 2024

VIA ELECTRONIC MAIL AND U.S. MAIL

Subject: Notice of Public Scoping for an Environmental Assessment (EA) on the Proposed Arizona Public Service (APS) Queue 317 Interconnection for the Painted Desert Power Project on the Navajo Nation in Coconino County, Arizona. PXAO-25-3-Scoping (Action by 30 days from the date of this memorandum)

Dear Interested Party:

Painted Desert Power, LLC (Applicant) is proposing to construct, operate, maintain, and decommission the Painted Desert Power Project (Project), a 750-megawatt (MW) photovoltaic solar generating and battery energy storage system with a generation intertie (gen-tie) that would connect the Project to the existing Moenkopi Switchyard. The Project is located approximately 4 miles east of the unincorporated town of Cameron, Arizona, within the Cameron and Coalmine Canyon Chapters of the Navajo Nation (Figure 1). The Applicant has filed an interconnection request with APS at the Moenkopi Switchyard. The Moenkopi Switchyard is part of the Navajo Southern Transmission System (NSTS), which is partially owned by the federal government. The United States Bureau of Reclamation (Reclamation) is responsible for the federal interest in the NSTS and must approve the interconnection into the Moenkopi Switchyard. The Applicant has also filed a right-of-way (ROW) application with the Bureau of Indian Affairs (BIA) for the Project gen-tie, to interconnect the Project to the Moenkopi Switchyard via a 4.2-mile 500 kilovolt (kV) gen-tie line, and to improve the existing BIA Route 6730 to the Project generation site (Figure 1). The ROW associated with the gen-tie would parallel existing multiple transmission ROWs that terminate at the switchyard.

The major Project components include a gen-tie transmission line and associated elements, interconnection facilities, and the solar generation and storage facility. The gen-tie line would support one circuit of suspended 500 kV electrical conductors and one or two communications lines. The gen-tie line structures, whether steel monopole, steel lattice, or steel H-frame structures, would be anchored to poured concrete column or footing foundations. A fiber-optic ground wire may also be installed in the circuit for communications and grounding purposes. The Project ROW would be accessed from existing roads and spurs associated with the existing multiple transmission line corridor that the Project would parallel. The 750-MW solar generation and storage facility will be evaluated in the EA as a connected action consistent with 40 CFR §1501.3(b). Concurrently with the National Environmental Policy Act process, the Navajo Nation is processing the Applicant's application for the 4,563-acre solar generation site under provisions of the Navajo Leasing Act.

Reclamation, as the lead federal agency, and BIA, as a cooperating agency have determined that an EA is the appropriate level of review under the National Environmental Policy Act (Public Law 91-190; NEPA). Reclamation and BIA are requesting public input to help identify issues and concerns associated with the proposed Project. This information will be used to evaluate the potential effects of the Project on the environment. Comments should be submitted to APS Queue 317 Interconnection Project, c/o Barr Engineering Company, 776 East 2nd Avenue, Durango, Colorado, 81301, or via email to fitz@barr.com, no later than 30 days from the date of this memorandum.

Please be aware that by law, your name, address, and other personal identifying information may be made publicly available at any time. Individuals may request that their personal identifying information be withheld from public review by stating so prominently at the beginning of your comment. We cannot guarantee that we will be able to do so; however, we will honor your request to the extent allowable by law. All comments from organizations or businesses will be available for public inspection in their entirety.

For additional information on this Project or the status of the EA for this Project, please contact Ms. Evi Rader, Environmental Protection Specialist with Reclamation's Phoenix Area Office, at (480) 216-9914 or via email at erader@usbr.gov. Individuals in the United States who are deaf, deafblind, hard of hearing, or have a speech disability, may dial 711 (TTY, TDD, or TeleBraille) to access telecommunication relay services.

Sincerely,

SEAN HEATH

Digitally signed by SEAN HEATH
Date: 2024.12.16 14:33:13 -07'00'

Acting For Alexander B. Smith
Area Manager

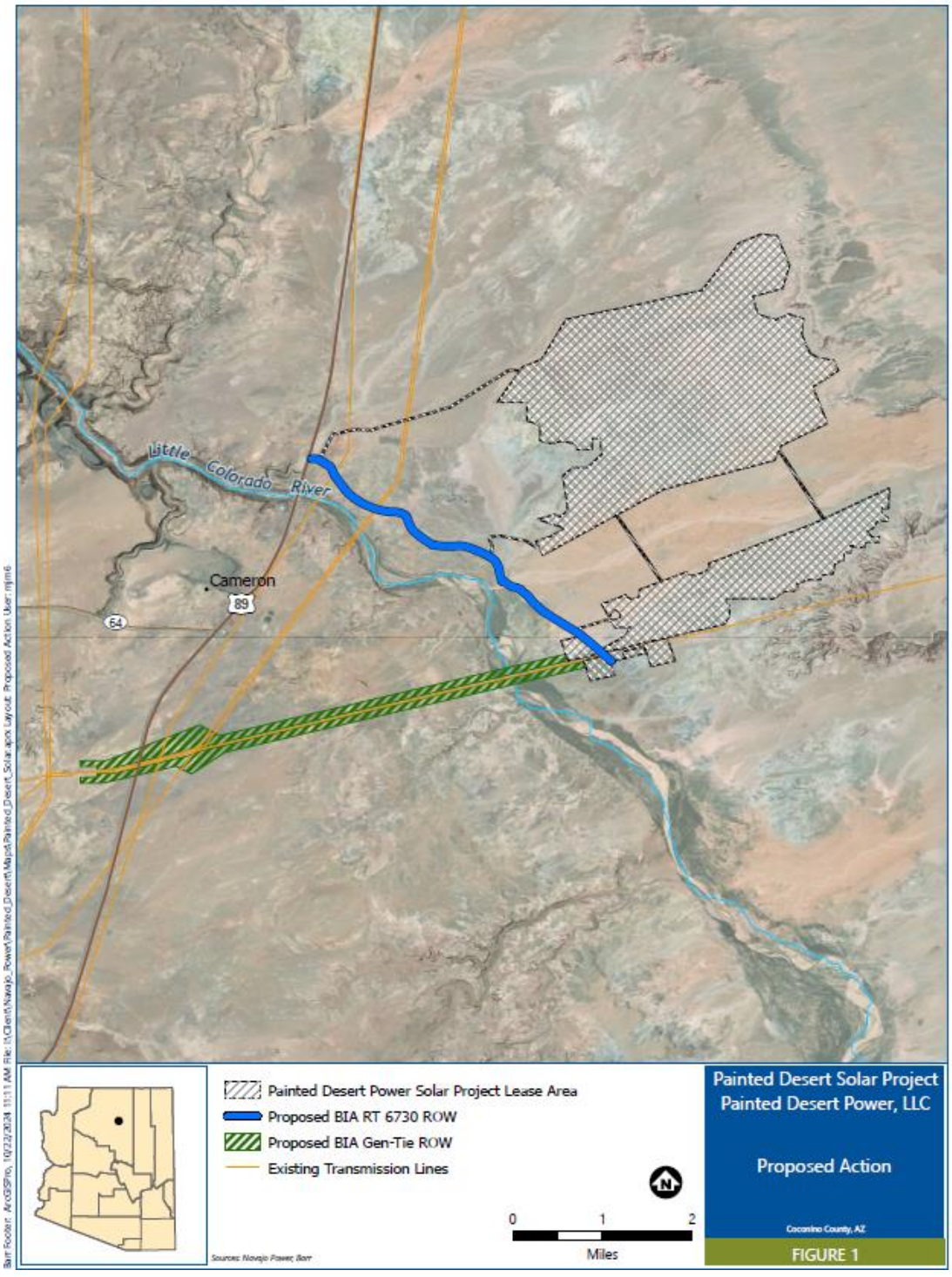
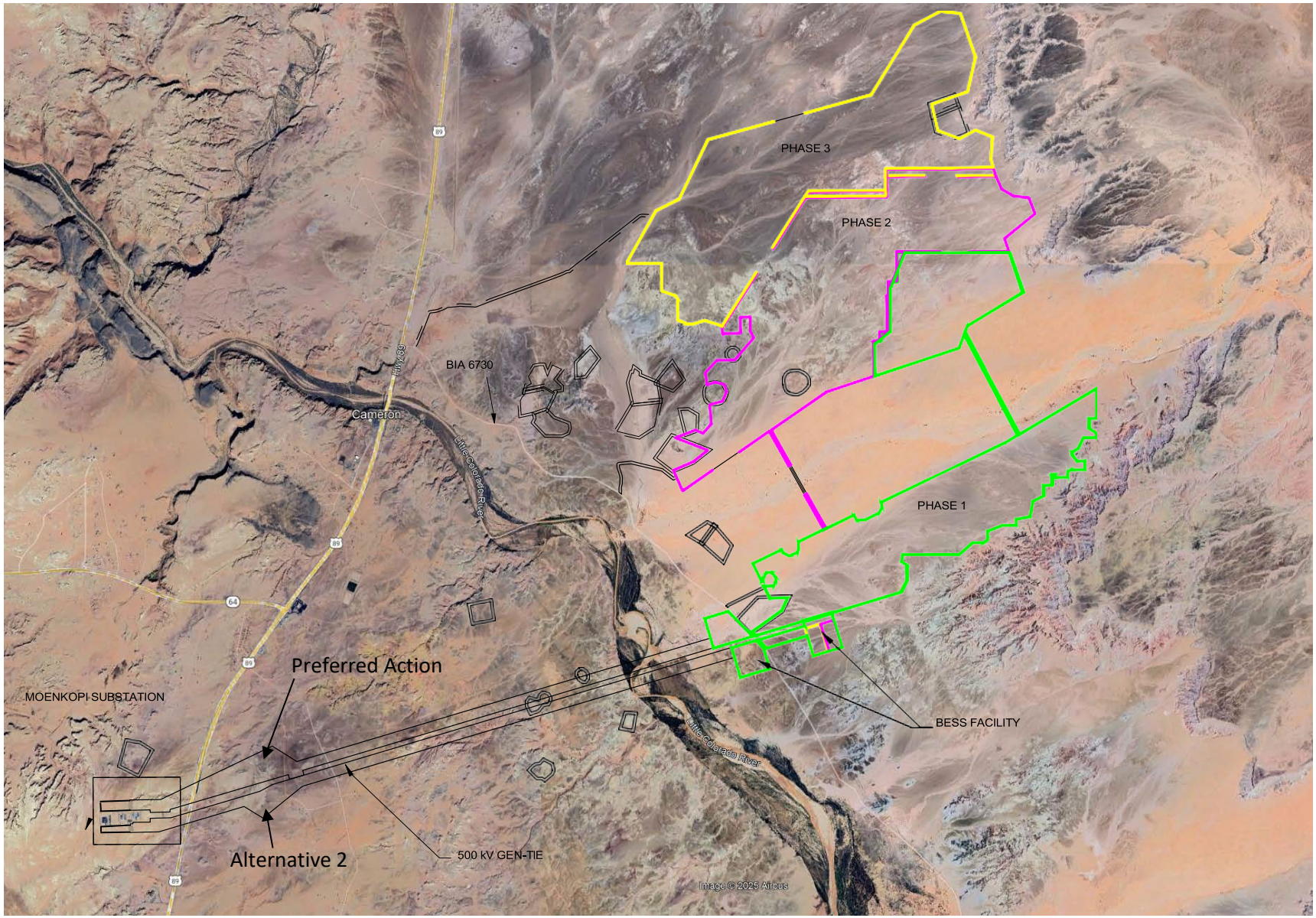


Figure 1. APS Queue 317 Interconnection Project Location.

APPENDIX B. PRELIMINARY SITE PLAN

Appendix B Painted Desert Solar Design Overview



APPENDIX C. BMPS AND MITIGATION MEASURES

Resource Considerations Connected to Design Features	BMPs, Protection Measures, and Mitigation Measures
PALEONTOLOGICAL-1: Paleontological Pre-Construction Survey and Unanticipated Discovery Plan	PDP would complete a Paleontological Pre-Construction Survey and Unanticipated Discovery Plan
AIR-1: Dust Control Plan	PDP would submit a dust control plan for construction and operation to the NNEPA for approval prior to construction. The approved plan would remain in effect throughout the lifetime of the Project. The plan addresses watering active construction sites or sites where earthmoving is planned (in accordance with HAZMAT-6), vehicle speeds and idling protocols on the Project Site, covering of equipment and materials, minimizing grading and excavation to prevent excessive dust, vehicle cleaning, and protective measures related to uranium.
NOISE-1: Noise-Reducing Practices and Work Hour Restrictions	PDP would follow noise-reducing practices during construction, including maintaining equipment to proper manufacturer's specifications and limiting excessive use of horns or other loud signals on the Project Site except when needed as safety alerts.

Resource Considerations Connected to Design Features	BMPs, Protection Measures, and Mitigation Measures
BIOLOGICAL-1: Noxious Weed Control and Vegetation Management, Revegetation, and Monitoring	To prevent the spread of invasive plant species, all construction equipment would be washed at the construction personnel's storage facility prior to entering the construction site. In addition, the construction personnel would inspect construction equipment and remove all attached plant debris prior to leaving the construction site to prevent the spread of invasive plant species to off-site locations. To minimize site disturbance, erosion, and weed establishment and to maintain wildlife and pollinator habitat in the Project area, revegetation would use an NNHP botanist-approved native seed mix (or mixes) in the temporary use areas identified by the NNDFW conditional approval letter where vegetation was present prior to disturbance. Noxious weed and vegetation management plans would be prepared as needed to mitigate short-term impacts during construction.
BIOLOGICAL-2: Migratory Bird Treaty Act Compliance	A pre-construction survey for nesting migratory birds would be necessary before vegetation clearing if scheduled to occur during migratory bird nesting season (mid-April to the end of July). If an active nest is discovered, vegetation clearing activities would not be allowed to proceed in the vicinity of the nest(s). No activities would occur within an appropriate buffered distance from active nests until after the young birds have fledged from the nest. If an active nest is discovered, a qualified biologist would determine the appropriate buffered.
BIOLOGICAL-3: Limitation of Herbicide Use to Non-Persistent, Immobile Substances	As determined in consultation with NNDFW, only herbicides with low toxicity to wildlife and non-target native plant species would be used.

Resource Considerations Connected to Design Features	BMPs, Protection Measures, and Mitigation Measures
BIOLOGICAL-4: Raptor Electrocution Prevention	The Project would implement current guidelines and methodologies in designing and analyzing proposed transmission facilities to minimize the potential for raptors (including golden eagles) and other birds to collide or be electrocuted by them. Measures would be coordinated with the NNDFW and would comply with Navajo Nation Raptor Electrocution Prevention Regulations. In the case of the golden eagle, PDP would also adhere to the Bald and Golden Eagle Protection Act.
CULTURAL-1: Site Avoidance, Monitoring, Discovery, and Treatment Plan	PDP would avoid all cultural, historic, and other tribal resources identified by the NNHPD that require avoidance. A 50-ft offset would be placed around protected resources prior to construction. These lathe and flagged barriers will remain in place throughout Project construction and be removed after the completion of Project construction. No surface-disturbing activities or vehicle traffic are allowed within the barriers. In addition, a qualified archaeologist must monitor all earth- disturbing construction activities within 100 ft of the flagged avoidance zones. In the event of a subsurface discovery during the Project's lifetime, all construction within 200 ft of the discovery would be immediately halted. All maps, photographs, notes, and Geographic Information Systems (GIS) data would be sent to the NNHPD to assist in their evaluation and consultation process. The NNHPD would then determine appropriate mitigation measures for the discovery before construction in the area could resume. These measures may include, but are not limited to, directing the archaeologist to document and map the stratigraphic profile, extraction of dating or other sample types, excavation of isolated features, complete avoidance of the area, or full data recovery (excavation) if the area cannot be avoided.

Resource Considerations Connected to Design Features	BMPs, Protection Measures, and Mitigation Measures
CULTURAL-2: Tribal Cultural and Paleontological Worker Training	Prior to construction and in collaboration with the NNHPD, PDP would provide training by a qualified archaeologist for all construction personnel on the recognition of buried tribal cultural resources and paleontological resources and the protection of these resources during construction.
CULTURAL-3: Native American Graves Protection and Repatriation Act (NAGPRA) Compliance	Should any human remains or cultural items be identified during the project, PDP would immediately notify NNHPD and BIA. Any planning for treatment of historic properties or mitigation would take NAGPRA compliance into account.
HAZMAT-1: Hazardous Material Handling and Spill Prevention and Response Plans	Prior to the start of construction, PDP would prepare hazardous material handling and spill prevention, control, and countermeasure (SPCC) plans to reduce the potential for contamination and exposure of workers and the public to hazardous material in the event of a spill and to require that any surface spills are cleaned expediently and any contaminated soil disposed of properly. The contractor's petroleum product storage must be located at least 20-ft from storm water channels, washes, and rivers. The petroleum storage areas should be lined and diked to permit safe containment of leaks and spills. If storage occurs on-site, fuel and lubricants should be placed in clearly marked above-ground containers with approved secondary containment.

Resource Considerations Connected to Design Features	BMPs, Protection Measures, and Mitigation Measures
HAZMAT-2: Waste Disposal	PDP would require that the EPC contractor responsible for daily on-site management of construction carefully disassemble and recycle shipping containers and solar panel packaging to minimize solid waste impacts and store, collect, and dispose of solid waste in such a manner as to prevent fire and health hazards, rodent harborage, insect breeding, accidents, and odor. The EPC contractor would ensure that no littering on the Project Site or neighboring properties occurs during construction.
HAZMAT-3: Avoidance of Abandoned Uranium Mines	All mapped AUMs should be avoided during Project construction and operation with a 100-ft land- use buffer around mine boundaries to allow access for any potential future assessment and mitigation of AUMs.. PDP has prepared a RPP and Excavation Plan to address safety associated with naturally occurring uranium, and the known AUMs and hot-spots in and near the Project area.
HAZMAT-4: Refining Abandoned Uranium Mine Exclusion Areas as Needed	AUM-related exclusion areas should be refined based on Project-specific exposure scenarios within the context of the total radiation doses workers may receive while constructing the Project. Additional field data verification, limited soil sampling and analysis, and site-specific toxicology and exposure assessments may be needed.

Resource Considerations Connected to Design Features	BMPs, Protection Measures, and Mitigation Measures
HAZMAT-5: Health and Safety Plan (HASP)	A site-specific HASP for Project construction and operation should be prepared and implemented. The plan should include discussions of proper personal protective equipment (PPE) and inform workers of potential hazards.
HAZMAT-6: Dust Suppression Measures	Dust control best management practices should be implemented during Project construction and operation. On-site and local water should be tested for safety before use in dust suppression because the prevalence of uranium and other constituents in local groundwater could pose concerns for human contact and ingestion and/or inhalation of water mist.
LAND USE-1: Fencing Improvements	PDP would work with local grazing permit holders and farmers to design fencing.
LAND USE-2: Road Design to Minimize Impacts on Grazing	Roads would be constructed, improved, and maintained to minimize their impact on grazing operations. Road design would include fencing, cattle guards, and speed control and information signs where appropriate.
LAND USE-3: Coordination with Grazing Permit Holders	PDP would coordinate discussion with affected grazing permit holders on how proposed Project construction and operation activity may affect grazing operations and possible alternatives to avoid or minimize impacts.
VISUAL-1: Height Restrictions and Site Maintenance	To minimize impacts on the viewshed, PDP would keep the Project Site free from debris, trash, and waste during construction and solar generating structures (e.g., inverters, solar panels) would not exceed 15 ft at their highest point, as measured from their installed foundation.
VISUAL-2: Minimization of Lighting Impacts	During Project operation, facility lighting would be located, screened, or shielded so that any sensitive receptors or access roads are not directly illuminated.

Resource Considerations Connected to Design Features	BMPs, Protection Measures, and Mitigation Measures
VISUAL-3: Material Reflectivity and Color Treatment	Materials, coatings, or paints with little or no reflectivity should be used on structures to the extent possible. The surfaces of structures should be painted with neutral colors to minimize the contrast of the structures with their landscape backdrops. Security fencing should have a dulled, darkened finish to reduce contrast. Electric transmission towers should be color treated and should have a low- reflectivity treatment to reduce contrast with the existing landscape. Where the transmission facilities using towers are located within the same ROW or corridor as existing facilities, the color treatment of the proposed facilities should match that of the existing facilities, unless the existing facilities' color treatment contrasts with the visual backdrop.
PUBLIC HEALTH-1: Safety, Emergency Preparedness, Fire, and Site Security Plans	PDP would prepare and implement safety, emergency preparedness, fire, and site security plans to address fire and fuels management and fire protection, provide a safety program for construction and operation at the facility, address health and safety protocols related to the neighboring AUMs, and provide for site security and monitoring.
TRANSPORTATION-1: Transportation Plan to Reduce Impact on Traffic	PDP would prepare and implement a transportation plan to reduce the Project's impacts on local traffic patterns. This plan would include working with the Navajo Nation and ADOT to design appropriate turnout enhancements on US 89 to minimize traffic disruption during workforce and equipment deliveries to the Project Site during Project construction and minimizing truck deliveries during heavy tourist traffic loads to the Grand Canyon area north of the Project Site.

Resource Considerations Connected to Design Features	BMPs, Protection Measures, and Mitigation Measures
TRANSPORTATION-2: Road Repair and Restoration	Prior to construction, PDP would document the conditions of all access roads and turnoffs to the Project Site by video, showing the full width of the roadway plus a 5-ft buffer. Any public street surfaces damaged by Project construction traffic would be restored to their pre-existing condition within 6 months of completion of the full-scale Project build-out.
TRANSPORTATION-3: Temporary Access Road Reclamation	Upon completion of the full-scale Project build-out, the temporary access roads used during construction would be reclaimed back to as close as possible to pre-construction function and conditions, rendering impacts temporary and minimal.

Resource Considerations Connected to Design Features	BMPs, Protection Measures, and Mitigation Measures
WATER-1: Minimization of Project Impacts on Surface Waters and Obtainment of Relevant Permits	Any unavoidable impacts of Project development on existing surface water features—including washes, streams, and floodplains—within the Project area would be minimized or mitigated.
WATER-2: Stormwater Pollution Prevention Plan	The EPC contractor would control Project Site drainage, erosion, and sedimentation related to stormwater runoff. The Project developer would identify site surface water runoff patterns and develop measures to prevent adverse impacts associated with Project-related soil deposition and erosion throughout and downslope of the Project Site and Project-related construction areas. These measures would be implemented within the SWPPP and incorporated into the POD, as appropriate.
WATER-3: Water Source Review	PDP would work with Navajo Nation water resources officials to identify a water source for the Project and complete testing to check for contaminants that would make it unsuitable to use for panel washing or dust suppression. Assessing water use would include, but is not limited to, the following: • quantifying water use requirements for Project construction, operation, and decommissioning • meeting the potable water supply standards of federal and Navajo Nation water quality authorities (e.g., CWA Sections 303 and 304 and applicable sections of the Navajo Nation Clean Water Act) • identifying wastewater treatment measures and new or expanded facilities, if any, to be included as part of the Project's National Pollutant Discharge Elimination System permit
WATER-4: Minimization of Impacts on Area Drainage Patterns and Floodplains	PDP would maintain natural drainages and pre-Project hydrographs across the Project Site to the extent practicable and maintain a pre-development flood hydrograph for all storms up to and including the 100-year rainfall event.

Resource Considerations Connected to Design Features	BMPs, Protection Measures, and Mitigation Measures
WATER-5: Restoration and Decommissioning	Restoration of the Project area would begin immediately after decommissioning to reduce the likelihood of surface water sedimentation.

APPENDIX D. BIOLOGICAL RESOURCES COMPLIANCE FORM

Appendix D BIOLOGICAL RESOURCES COMPLIANCE FORM

NNDFW Review No. 20skyl101

BIOLOGICAL RESOURCES COMPLIANCE FORM
NAVAJO NATION DEPARTMENT OF FISH AND WILDLIFE
P.O. BOX 1480, WINDOW ROCK, ARIZONA 86515-1480

It is the Department's opinion the project described below, with applicable conditions, is in compliance with Tribal and Federal laws protecting biological resources including the Navajo Endangered Species and Environmental Policy Codes, U.S. Endangered Species, Migratory Bird Treaty, Eagle Protection and National Environmental Policy Acts. This form does not preclude or replace consultation with the U.S. Fish and Wildlife Service if a Federally-listed species is affected.

PROJECT NAME & NO.: Navajo Power, Painted Desert Solar Array

DESCRIPTION: Painted Desert Power (PDP), LLC proposes to develop and operate the Painted Desert Project (Project) a proposed photovoltaic solar generating facility. The solar development areas encompass just under 5,000-acres. The Project also includes the proposed substation/BESS area and a gen tie corridor to the Moenkopi substation as well as expansion of the existing Moenkopi Substation (south) and the Arizona State Route 89 (SR 89) turnout, improvement and widening of Bureau of Indian Affairs (BIA) Route 6730 (BIA RT 6730), construction of three new access roads from BIA RT 6730 to the solar array areas, and East and West Connectors linking Areas 1 and 2.

LOCATION: The proposed Project is located on Navajo Nation lands in Coconino County, Arizona within the Cameron and Coalmine Canyon chapters, approximately 4 miles east of Cameron, Arizona.

REPRESENTATIVE: Jennifer Rouda

ACTION AGENCY: Painted Desert Power, LLC

B.R. REPORT TITLE / DATE / PREPARER: Biological Evaluation, Painted Desert Solar Project/ OCT 2020/Ecosphere Environmental Services, Inc.

SIGNIFICANT BIOLOGICAL RESOURCES FOUND: 1,826 acres (26 percent) of this project is located in RCP Area 1, highly sensitive wildlife area and 4,088 acres (58 percent) of this project is located in RCP Area 2, moderately sensitive wildlife area.

POTENTIAL IMPACTS

NESL SPECIES POTENTIALLY IMPACTED: [1] Aquila chrysaetos (golden eagle), G3, [2] Buteo regalis (ferruginous hawk), G3, [3] Falco peregrinus (peregrine falcon), G4, [4] Amsonia peeblesii (Peeble's bluestar), sensitive [5] Astragalus beathii (Beath's milkvetch), sensitive.

FEDERALLY-LISTED SPECIES AFFECTED: NA

OTHER SIGNIFICANT IMPACTS TO BIOLOGICAL RESOURCES: Grading and removal of existing vegetation for temporary access and staging of equiptment and facilities during construction may result in increased erosion, weed encroachment, and loss of wildlife habitat. Temporary-use roads and areas will need to be recontoured where necessary and reseeded using a NNHP botanist-approved native seed mix or mixes.

AVOIDANCE / MITIGATION MEASURES: Mitigation measures outlined in the Biological Evaluation will be required on a case-by-case basis in the event that NESL species are identified within the Project Area during species-specific surveys in close consultation with the NNHP zoologist and/or botanist.

CONDITIONS OF COMPLIANCE*: Habitat is present for golden eagle (Aquila chrysaetos), ferruginous hawk (Buteo regalis), peregrine falcon (Falco peregrinus), Peeble's bluestar (Amsonia peeblesii), and Beath's milkvetch (Astragalus beathii). Specifies-specific surveys shall be conducted prior to construction between March and mid June for raptor species and between mid May through mid July for Peeble's bluestar and mid March through early May for Beath's milkvetch, when plants are flowering. All powerlines within the Project Area shall be constructed utilizing a raptor-safe, power-pole design standard (per Raptor Electrocution Prevention Regulations).

FORM PREPARED BY / DATE: Nora E. Talkington/04 February, 2021

COPIES TO: (add categories as necessary)

☒ _____ ☐ _____

2 NTC § 164 Recommendation:	Signature	Date
☐Approval ☒Conditional Approval (with memo) ☐Disapproval (with memo) ☐Categorical Exclusion (with request letter) ☐None (with memo)	Gloria M. Tom Gloria M. Tom, Director, Navajo Nation Department of Fish and Wildlife	02/05/21

*I understand and accept the conditions of compliance, and acknowledge that lack of signature may be grounds for the Department not recommending the above described project for approval to the Tribal Decision-maker.

Representative's signature Joshua S. Finn Date 02/08/2021

Joshua S. Finn
Managing Director, Development

Feb 4th, 2021
20skyl101

Jennifer Rouda

Navajo Power Planning

7 Skyline, LLC

Dear Jennifer

The Navajo Nation Department of Fish and Wildlife (NNDFW) reviewed the revised Biological Evaluation (BE) for the Painted Desert Solar Project, submitted in October, 2020. Painted Desert Power (PDP), LLC proposes to develop and operate the Painted Desert Project (Project) a proposed photovoltaic solar generating facility. The proposed Project is located on approximately 5,000 acres of Navajo Nation lands in Coconino County, Arizona. The Project is a proposed 750-megawatt photovoltaicsolar-generating and battery energy storage system facility in the Cameron and Coalmine Canyon chapters of the Navajo Nation Reservation, approximately 4 miles east of Cameron, Arizona. The purpose of this letter is to inform you that we are granting the proposed project a ***Conditional Approval***.

Based on the information submitted in the BE and information in the Navajo Heritage Program database, NNHP does not think it is necessary to conduct a survey for or mitigation measures for Southwestern Willow Flycatcher, despite the BE identifying there to be potential impacts to this species or its habitat. Please note, NNHP has reached a similar decision regarding all other species listed under the BE, with the exception of the following NESL species that may be present in the project area:

[1] *Aquila chrysaetos* (golden eagle), G3

[2] *Buteo regalis* (ferruginous hawk), G3

[3] *Falco peregrinus* (peregrine falcon), G4

In addition, the following NNHP sensitive plant species may be present in the project area:

[1] *Amsonia peeblesii* (Peeble's bluestar)

[2] *Astragalus beathii* (Beath's milkvetch)

Pre-construction species-specific surveys are required, following the protocols below:

Raptor Surveys (Eagles)

Pedestrian surveys with high-power optics for nest sites or breeding adults shall occur from **1 March – 15 June, of any year**. Surveys shall consist of potentially up to 2 Phases; an initial Phase 1 during the Egg-laying period (March – April) and nesting period (April – June). If an active nest is located during the Phase 1 surveys a Phase 2 survey shall be conducted during the fledging period (May – June).

If an active nest is observed the project footprint and/or the proposed work and construction sequencing shall be redesigned to include the recommended avoidance measures described in the Golden and Bald Eagle Nest Protection Policy (see attached). Prior to the commencement of work, the project applicant or their chosen representative shall submit to the Navajo Natural Heritage Program a revised plan of work/construction sequencing that details how the project meets these protective measures. Work on the project shall not commence until a written approval letter/email is received from the Navajo Nation Natural Heritage Program approving of the redesigned project/construction sequence.

Phase 1 Egg-laying and Nesting Survey: If an active nest is observed during the Phase 1 survey period than an additional Phase 2 fledging survey shall be implemented.

- Shall consist of **at least 16 hours of survey effort**, calculated as observer hours
- Shall be conducted over a **minimum of 3 non-consecutive days** during the two (2) major phenology periods
- Shall occur across all **areas of suitable habitat within 1 mile** of the proposed project site

Phase 2 Fledging Survey: Please note, provided the recommended Golden and Bald Eagle Nest Protection policy avoidance measures are implemented the project does not need to delay the commencement of work for the May – July fledging survey results.

- Shall consist of an additional **1 day or 8 hours of survey effort** to document fledging
- Shall occur **during the May – June time period**

Post Survey Reporting: At the completion of Phase 1 surveys and prior to the commencement of work a written report shall be submitted to the Navajo Nation Natural Heritage Program (NHP) detailing the results of the survey. If a second phase survey is completed a separate summary fledging report shall be submitted within 30-days of the completion of the survey. Please email electronic data to the Navajo Nation Zoologist, Brent Powers, bpowers@nndfw.org and Environmental Review Specialist, Pam Kyselka, pkyselka@nndfw.org.

Plant Suveys: *Astragalus beathii* and *Amsonia peeblesii*

For sensitive plant species with known habitat in the area, Beath's milkvetch and Peeble's bluestar, surveys are reccomended for the presence of these plants within wash/drainage potential habitat identified in the Biological Evaluation on pages 35 and 36 when plants are fruiting/flowering (mid May-mid July for Peeble's bluestar and mid March-early May for Beath's milkvetch). Surveys must be conducted by an experienced botanist/biologist who is permitted by the Navajo Nation.

Revegetation and Monitoring:

In order to minimize site disturbance, erosion, and weed establishment as well as to maintain wildlife and pollinator habitat in the project area, revegetation efforts must occur using a NNHP botanist-approved native seed mix (or mixes) in the following areas:

- Any temporary construction laydown, staging, equiptment storage, parking areas, construction trailors, or on-site assembly facility areas that result in disturbance to existing vegetation.

- Areas where existing vegetation is removed or graded to facilitate temporary access for single-axis trackers, foundations or footings, access roads, or drainage features for array installation.
- Any temporary access roads created to allow equiptment access during construction that will not be used during operations.

Temporary use areas such as access roads and construction laydown areas that will not be converted to permanent use during operations (as a site for ancillary facilities, ect.) will need to be recontoured back to existing topology prior to reseeding with a native species mix. Revegetation efforts will need to be monitored using the methodology outlined under section 3.3.7 of the Biological Evaluation to ensure that revegetation efforts meet minimum performance measures. If performance measures are not met then additional seeding, and/or site modifications may be required on a case-by-case basis.

Survey reports for these species need to be sent to NNHP prior to construction activities taking place. The survey contractor shall consult with the NNHP botanist and zoologist for positive identification and development of mitigation strategies if NESL plants and or wildlife species are found during surveys. In addition, all powerlines constructed within the Project Area shall be built to APLIC raptor-safe standards in accordance with NNHP Raptor Electrocution Prevention Regulations.

Please contact me via email at ntalkington@nndfw.org with any questions that you have concerning the review of this project.

Sincerely,

Nora E. Talkington, Botanist

Navajo Natural Heritage Program

Department of Fish and Wildlife

CONCURRENCE

Gloria M. Tom 02/05/21

Gloria Tom, Director Date

Department of Fish and Wildlife

xc: CONS-100-19

BIA

APPENDIX E. CULTURAL RESOURCES COMPLIANCE FORMS

Appendix E CULTURAL RESOURCES COMPLIANCE FORM

THE NAVAJO NATION
HERITAGE & HISTORIC PRESERVATION DEPARTMENT
PO Box 4950, Window Rock, Arizona 86515
TEL: (928) 871-7198 **FAX:** (928) 871-7886

CULTURAL RESOURCES COMPLIANCE FORM

ROUTE COPIES TO:	NNHPD NO.: *HPD-20-914 - REVISED*
☑ SEAS	OTHER PROJECT NO.: SEAS 20-012

PROJECT TITLE:

Cultural Resource Inventory for the Proposed Painted Desert Solar Project in Cameron and Coalmine Canyon Chapters of the Navajo Nation, Coconino County, Arizona

LEAD AGENCY:	BIA/NR
SPONSOR:	Jennifer Rouda, Project Planner, Painted Desert Power, LLC

PROJECT DESCRIPTION:

The project proposes a 750-megawatt photovoltaic solar-generating and battery energy storage system facility with numerous exclusion areas within and adjacent to the project where uranium mines and wildcat pits. Some of these former mines have been capped/stabilized. The project consists of two areas (Areas 1 and 2) and is connected via the East and West Connectors. Area 1 consists of a large area of solar arrays and related facilities (such as inverters and access roads), one or more operations and maintenance (O&M) buildings, and a new high-voltage substation and BESS area. Area 1 would be accessed via Bureau of Indian Affairs (BIA) Route (RT) 6730. The larger Area 2 is located north of Area 1 by approximately 0.3 to 0.7 miles and features additional solar arrays. Area 2 would be accessed via two existing roads running east from BIA RT 6730. The gap between Areas 1 and 2 will be connected via the East and West Connectors. These corridors would contain medium-voltage (MV) circuits, all-weather access roads, and overhead or underground communications (fiber-optic) cable. Generation intertie (Gentie) will connect the project to the Moenkopi substation. Including all project components, the area of potential effect (APE) is 5,283.68 acres, and the total area surveyed is 5,653.26 acres.

LAND STATUS:	Navajo Tribal Trust Land
CHAPTER:	Cameron & Coalmine Canyon
LOCATION:	The project occurs on the Cameron North, Cameron NE, Cameron South, Cameron SE Quadrangles in Coconino County, Arizona G&SRPM

T.28N, R.9E – Sec. 1, 2, 3, 4

T.29N, R.9E – Sec. 13, 14, 22, 23, 24, 26, 34, 35, 36

T.29N, R.10E – Sec. 4, 5, 6, 7, 8, 9, 16, 17, 18, 19, 20, 21, 22, 27, 28, 29, 30, 31, 32

UTM COORDINATES: ***NAD 83, Zone 12***	See Report
PROJECT ARCHAEOLOGIST:	Doug Loebig, Katelyn Hillmeyer, Julius Tulley, Ian Geoffrey Thompson
NAVAJO ANTIQUITIES PERMIT NO.:	B20075

-DOCUMENT IS VOID IF ALTERED-

DATE INSPECTED:	03/04/20 – 07/07/20
DATE OF REPORT:	10/20
TOTAL ACREAGE INSPECTED:	5,653.26 – ac total
METHOD OF INVESTIGATION:	Class III pedestrian inventory with transects spaced 10-12 m apart.
LIST OF CULTURAL RESOURCES FOUND:	**(60) SITES** AZ-N-5-48, AZ-N-5-49, AZ-N-5-50, AZ-N-5-51, AZ-N-5-52, AZ-N-5-53, AZ-N-6-5, AZ-N-6-6, AZ-N-6-7, AZ-N-6-8, AZ-N-6-9, AZ-N-6-10, AZ-N-6-11, AZ-N-6-12, AZ-N-6-13, AZ-N-6-14, AZ-N-6-15, AZ-N-6-16, AZ-N-6-17, AZ-N-6-18, AZ-N-11-22, AZ-N-11-23, AZ-N-11-24, AZ-N-11-25, AZ-N-11-26, AZ-N-11-27, AZ-N-11-28, AZ-N-11-29, AZ-N-11-30, AZ-N-11-31, AZ-N-11-32, AZ-N-11-33, AZ-N-11-34, AZ-N-11-35, AZ-N-11-36, AZ-N-11-37, AZ-N-11-38, AZ-N-11-39, AZ-N-12-82, AZ-N-12-83, AZ-N-12-84, AZ-N-12-85 (CONTAINS TCP), AZ-N-12-86, AZ-N-12-87, AZ-N-12-88, AZ-N-12-89, AZ-N-12-90, AZ-N-12-91, AZ-N-12-92, AZ-N-12-93, AZ-N-12-94, AZ-N-12-95, AZ-N-12-96, AZ-N-12-97, AZ-N-12-98, AZ-N-12-99, AZ-N-12-100, AZ-N-12-101, AZ-N-12-102, AZ-N-12-103 **(108) ISOLATED OCCURRENCES (IO)** **(4) IN-USE AREAS (IUA)/CURRENT CULTURAL PROPERTIES (CCP)** **(4) JISCHAA/UNMARKED BURIALS**

LIST OF ELIGIBLE PROPERTIES:	**(23) SITES** AZ-N-5-48, AZ-N-6-7, AZ-N-6-8, AZ-N-6-9, AZ-N-6-10, AZ-N-6-11, AZ-N-6-13, AZ-N-6-14, AZ-N-6-16, AZ-N-6-18, AZ-N-11-24, AZ-N-11-27, AZ-N-11-28, AZ-N-11-30, AZ-N-11-37, AZ-N-11-39, AZ-N-12-85 (CONTAINS TCP), AZ-N-12-86, AZ-N-12-87, AZ-N-12-88, AZ-N-12-93, AZ-N-12-98, AZ-N-12-99
UNEVALUATED/UNDETERMINED PROPERTIES:	**(10) SITES** AZ-N-5-50, AZ-N-5-52, AZ-N-6-6, AZ-N-11-22, AZ-N-11-29, AZ-N-11-36, AZ-N-12-94, AZ-N-12-91, AZ-N-12-92, AZ-N-12-102
LIST OF NON-ELIGIBLE PROPERTIES:	**(27) SITES** AZ-N-5-49, AZ-N-5-51, AZ-N-5-53, AZ-N-6-5, AZ-N-6-12, AZ-N-6-15, AZ-N-6-17, AZ-N-11-23, AZ-N-11-25, AZ-N-11-26, AZ-N-11-31, AZ-N-11-32, AZ-N-11-33, AZ-N-11-34, AZ-N-11-35, AZ-N-11-38, AZ-N-12-82, AZ-N-12-83, AZ-N-12-84, AZ-N-12-89, AZ-N-12-90, AZ-N-12-95, AZ-N-12-96, AZ-N-12-97, AZ-N-12-100, AZ-N-12-101, AZ-N-12-103 **(4) IN-USE AREAS (IUA)** **(108) ISOLATED OCCURRENCES (IO)**

-DOCUMENT IS VOID IF ALTERED-.

LIST OF ARCHAEOLOGICAL RESOURCES:	**(22) SITES** AZ-N-5-48, AZ-N-6-7, AZ-N-6-8, AZ-N-6-9, AZ-N-6-10, AZ-N-6-11, AZ-N-6-13, AZ-N-6-14, AZ-N-6-16, AZ-N-6-18, AZ-N-11-27, AZ-N-11-28, AZ-N-11-30, AZ-N-11-37, AZ-N-11-39, AZ-N-12-85, AZ-N-12-86, AZ-N-12-87, AZ-N-12-88, AZ-N-12-93, AZ-N-12-98, AZ-N-12-99

EFFECT/CONDITIONS OF COMPLIANCE: The proposed undertaking will have No Adverse Effect on Historic Properties identified provided that the following conditions are met. Painted Desert Power will ensure:

SITE PROTECTIONS & EMPLOYEE EDUCATION: All employees of the project, including the project sponsor and its contractors/subcontractors, will be educated on archaeological site locations, sensitive areas, and stipulations those places before any construction activities begin. All cultural sites will be avoided by all personnel, vehicles, and company equipment. They will also be notified that it is illegal to collect, damage, or disturb cultural resources and that such activities are punishable by criminal and/or administrative penalties under the provision of the Archaeological Resources Protection Act (ARPA) the Navajo Nation Cultural Resources Protection Act (CRPA)

Sites: AZ-N-6-7, AZ-N-6-8, AZ-N-6-9, AZ-N-6-10, AZ-N-6-11, AZ-N-6-13, AZ-N-6-14, AZ-N-6-16, AZ-N-6-18

1. The project sponsor will avoid these nine sites, including the projected zones in between sites.
2. The southeast side of the abandoned coal slurry pipeline corridor parallel to and offset from the alignment of nine sites will serve as the southeast boundary of the avoidance zone.
3. A 100-foot offset zone from the site boundaries will serve as the northwestern boundary of the avoidance zone.
4. The entirety of the avoidance zone will be clearly demarcated with lathe and flagging placed by a qualified archaeologist before construction begins
5. Barriers will remain in place throughout construction & removed after project completion
6. There will be not ground-disturbing activities within the marked site boundaries.
7. A qualified archaeologist will monitor all earth-disturbing project-related activities within 100 feet of the flagged avoidance zones.
8. The monitoring archaeologist will obtain a Class C Permit from NNHHPD before monitoring activities begin.
9. A report of monitoring activities is to be submitted to NNHHPD within 30-days of the completed action.

Sites: AZ-N-6-6, AZ-N-11-22, AZ-N-11-27, AZ-N-11-29, AZ-N-36, AZ-N-11-37, AZ-N-11-39, AZ-N-12-88, AZ-N-12-93, AZ-N-12-94

1. The project design avoids the sites by at least 50-ft from the site boundaries.
2. The avoidance zones are delineated with lathe and flagging placed by a qualified archaeologist before construction begins.
3. Barriers will remain in place throughout construction & removed after project completion.
4. There will be no surface-disturbing activities or vehicle traffic within the barriers.
5. A qualified archaeologist will monitor all ground-disturbing activities within 100-ft of the avoidance zone.
6. The monitoring archaeologist obtains a Class C Permit from NNHHPD before monitoring activities begin.
7. A report of monitoring activities is to be submitted to NNHHPD within 30-days of the completed action.

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Site: AZ-N-5-48

1. The Sponsor will avoid site AZ-N-5-48 by limiting all road improvement activities on NR 6730 to the existing road cut on the road's northeast side.
2. The northeastern road cut will be clearly marked with lathe and flagging for avoidance. A qualified archaeologist will place flagging before construction begins.
3. Barriers will remain in place throughout construction & removed after project completion.
4. There will be no surface-disturbing activities or vehicle traffic within the barriers.
5. A qualified archaeologist should monitor all earth-disturbing construction activities within 100 feet of the avoidance zone.
6. The monitoring archaeologist obtains a Class C Permit from NNHHPD before monitoring activities begin.
7. A report of monitoring activities is to be submitted to NNHHPD within 30-days of the completed action.

Site: AZ-N-11-24

1. The Sponsor will avoid site AZ-N-11-24 by a minimum 100-foot buffer zone around the project area's site boundary.
2. A minimum 100-foot offset buffer zone should be clearly demarcated with lathe and flagging. A qualified archaeologist will place flagging before construction begins.
3. Barriers will remain in place throughout construction & removed after project completion.
4. There will be no surface-disturbing activities or vehicle traffic within the barriers.
5. A qualified archaeologist should monitor Earth-disturbing construction activities within 100 feet of the flagged avoidance zone.
6. The monitoring archaeologist obtains a Class C Permit from NNHHPD before monitoring activities begin.
7. A report of monitoring activities is to be submitted to NNHHPD within 30-days of the completed action.

Site: AZ-N-11-28

1. Site disturbance and avoidance will be achieved by placing flags and wooden lathes along both sides of the existing NR 6730 road cut for proposed road improvements.
2. The site's portion extending southwest from NR 6730 into the proposed solar field, site AZ-N-11-28, be avoided by a minimum 50-foot avoidance zone around the site boundary.
3. This 50-foot offset avoidance zone will be clearly demarcated with lathe and flagging. A qualified archaeologist will place flagging before construction begins.
4. Barriers will remain in place throughout construction & removed after project completion.
5. There will be no surface-disturbing activities or vehicle traffic within the barriers.
6. A qualified archaeologist should monitor Earth-disturbing project-related activities within 100 feet of the flagged avoidance zone.
7. The monitoring archaeologist obtains a Class C Permit from NNHHPD before monitoring activities begin.
8. A report of monitoring activities is to be submitted to NNHHPD within 30-days of the completed action.

Site: AZ-N-11-30

1. AZ-N-11-30 extends 3 meters into the 50-foot buffer zone for the solar field project area.
2. The Sponsor will ensure that a 50-foot offset avoidance zone off the northeast side of the site be clearly demarcated with lathe and flagging to ensure no damage occurs.
3. A qualified archaeologist will place flagging before construction begins.
4. Barriers will remain in place throughout construction & removed after project completion.
5. There will be no surface-disturbing activities or vehicle traffic within the barriers.
6. A qualified archaeologist should monitor Earth-disturbing construction activities within 100 feet of the flagged avoidance zone.
7. The monitoring archaeologist obtains a Class C Permit from NNHHPD before monitoring activities begin.
8. A report of monitoring activities is to be submitted to NNHHPD within 30-days of the completed action.

Site: AZ-N-11-31

1. Site AZ-N-11-31 is located in the buffer zone of a proposed Connector utility corridor.
2. The site be avoided with the northeast side of the site boundary clearly demarcated by lathe and flagging.
3. A qualified archaeologist will place flagging before construction begins.
4. Barriers will remain in place throughout construction & removed after project completion.
5. There will be no surface-disturbing activities or vehicle traffic within the barriers.
6. A qualified archaeologist should monitor Earth-disturbing construction activities within 100 feet of the flagged avoidance zone
7. The monitoring archaeologist obtains a Class C Permit from NNHHPD before monitoring activities begin.
8. A report of monitoring activities is to be submitted to NNHHPD within 30-days of the completed action.

Site: AZ-N-12-85. Contains TCP1

1. Site AZ-N-12-85 is located in the survey buffer zone of NR 6730 and will not be impacted by the project.
2. However, to ensure maximum protection for the site and other concerns in the area, road improvements at NR 6730 are restricted entirely to the northeast side of the existing southwestern road cut of NR 6730 within the existing disturbance.
3. The road cut will be clearly marked with lathe and flagging and serve as the avoidance zone.
4. Lathe and flagging avoidance zone will continue along the road cut southeast of this site all the way to, and connecting with, the proposed AZ-N-12-86 avoidance zone concerning a TCP southwest of NR 6730 within and between AZ-N-12-85 and AZ-N-12-86.
5. A qualified archaeologist will place flagging before construction begins.
6. Barriers will remain in place throughout construction & removed after project completion.
7. There will be no surface-disturbing activities or vehicle traffic within the barriers.
8. A qualified archaeologist should monitor all earth-disturbing construction activities within 100 feet of the flagged avoidance zone.
9. The monitoring archaeologist obtains a Class C Permit from NNHHPD before monitoring activities begin.
10. A report of monitoring activities is to be submitted to NNHHPD within 30-days of the completed action.

Site: AZ-N-12-86

1. Site AZ-N-12-86 will be avoided by restricting road improvements along NR 6730 northeast of the southwestern roadcut within the existing disturbance.
2. The road cut should be clearly demarcated with lathe and flagging and extending to the northwest to form a continuous avoidance zone with site AZ-N-12-85 due to traditional cultural concerns in the area southwest of the road.
3. A qualified archaeologist will place flagging before construction begins.
4. Barriers will remain in place throughout construction & removed after project completion.
5. There will be no surface-disturbing activities or vehicle traffic within the barriers.
6. A qualified archaeologist should monitor all earth-disturbing construction activities within 100 feet of the flagged avoidance zone.
7. The monitoring archaeologist obtains a Class C Permit from NNHHPD before monitoring activities begin.
8. A report of monitoring activities is to be submitted to NNHHPD within 30-days of the completed action.

Site: AZ-N-12-87

1. The southern end of site AZ-N-12-87 is within the Gentie survey corridor.
2. A minimum of 50 feet will avoid the site.
3. It is recommended that a 50-foot offset buffer zone around the site boundary portion within the project should be clearly demarcated with lathe and flagging to ensure no incidental damage occurs.
4. A qualified archaeologist will place flagging before construction begins.

5. Barriers will remain in place throughout construction & removed after project completion.
6. There will be no surface-disturbing activities or vehicle traffic within the barriers.
7. A qualified archaeologist should monitor Earth-disturbing construction activities within 100 feet of the flagged avoidance zone.
8. The monitoring archaeologist obtains a Class C Permit from NNHHPD before monitoring activities begin.
9. A report of monitoring activities is to be submitted to NNHHPD within 30-days of the completed action.

Site: AZ-N-12-98

1. The northern tip of this site extends into the Gentie corridor.
2. A minimum of 50 feet avoid the site portion within the project.
3. This 50-foot offset avoidance zone should be clearly demarcated with lathe and flagging.
4. A qualified archaeologist will place flagging before construction begins.
5. Barriers will remain in place throughout construction & removed after project completion.
6. There will be no surface-disturbing activities or vehicle traffic within the barriers.
7. A qualified archaeologist should monitor all earth-disturbing construction related activities within 100 feet of the flagged avoidance zone.
8. The monitoring archaeologist obtains a Class C Permit from NNHHPD before monitoring activities begin.
9. A report of monitoring activities is to be submitted to NNHHPD within 30-days of the completed action.

Site: AZ-N-12-99

1. AZ-N-12-99 straddles most of the Gentie survey corridor.
2. A minimum of 50 feet will avoid the site. This 50-foot offset avoidance zone should be clearly demarcated with lathe and flagging.
3. A qualified archaeologist will place flagging before construction begins.
4. Barriers will remain in place throughout construction & removed after project completion.
5. There will be no surface-disturbing activities or vehicle traffic within the barriers.
6. A qualified archaeologist should monitor all earth-disturbing construction-related activities within 100 feet of the flagged avoidance zone.
7. The monitoring archaeologist obtains a Class C Permit from NNHHPD before monitoring activities begin.
8. A report of monitoring activities is to be submitted to NNHHPD within 30-days of the completed action.

Site: AZ-N-12-101

1. No further cultural resource work is considered necessary at AZ-N-12-101.
2. The site is naturally protected, is on the edge of the Gentie project area, and will not be impacted.

Site: AZ-N-12-102. NNHHPD disagrees with SEAS's site eligibility. Site needs more data to decide eligibility.

1. The site needs more data to make site eligibility.
2. The site will be avoided in the absence of more needed data.
3. A 50-foot avoidance zone around the east side of the site be clearly marked with lathe, and blue flagging, and the road alignment shifted slightly east.
4. A qualified archaeologist will place flagging before construction begins.
5. Barriers will remain in place throughout construction & removed after project completion.
6. There will be no surface-disturbing activities or vehicle traffic within the barriers.
7. A qualified archaeologist should monitor all earth-disturbing construction activities within 100 feet of the avoidance zone.
8. The monitoring archaeologist obtains a Class C Permit from NNHHPD before monitoring activities begin.
9. A report of monitoring activities is to be submitted to NNHHPD within 30-days of the completed action.

Sites: AZ-N-12-91, AZ-N-12-92. NNHPD determines that these sites may be eligible to the NRHP changing SEAS's determination.

1. NNHHPD disagrees with SEAS on the site's eligibility determination to the NRHP. NNHHPD maintains that the site may be eligible to the NRHP and;
2. The project design will avoid the site by at least 50-ft from the site boundary.
3. The site boundary will be marked with lathe and flagging placed by a qualified archaeologist before construction begins.
4. Barriers will remain in place throughout construction & removed after project completion.
5. There will be no surface-disturbing activities or vehicle traffic within the barriers.
6. A qualified archaeologist will monitor all ground-disturbing activities within 100-ft of the avoidance zone.
7. The monitoring archaeologist obtains a Class C Permit from NNHHPD before monitoring activities begin.
8. A report of monitoring activities is to be submitted to NNHHPD within 30-days of the completed action.

Sites: AZ-N-5-50, AZ-N-5-51, AZ-N-5-52, AZ-N-11-38

These site locations are outside of the Areas of Potential Effect (APE), avoiding the cultural resources.

Sites: AZ-N-5-49, AZ-N-5-53, AZ-N-6-5, AZ-N-6-12, AZ-N-6-15, AZ-N-6-17, AZ-N-11-23, AZ-N-11-25, AZ-N-11-26, AZ-N-11-32, AZ-N-11-33, AZ-N-11-34, AZ-N-11-35, AZ-N-12-82, AZ-N-12-83, AZ-N-12-84, AZ-N-12-89, AZ-N-12-90, AZ-N-12-95, AZ-N-12-96, AZ-N-12-97, AZ-N-12-100, AZ-N-12-103**

****Site AZ-N-12-82. NNHHPD determines that this site is not eligible to the NRHP, changing SEAS's determination.**

1. No further cultural resources work is not warranted.
2. Site documentation exhausts the sites' potential.

Jischaa

B20075_B.1 & B20075_B.2:

1. The project design will avoid the Jischaa 100-ft from the boundaries.
2. The avoidance zones will be delineated with lathe and flagging placed by a qualified archaeologist before construction begins.
3. Barriers will remain in place throughout construction & removed after project completion.
4. There will be no surface-disturbing activities or vehicle traffic within the barriers.
5. A qualified archaeologist will monitor all ground-disturbing activities within 100-ft of the avoidance zone.
6. The monitoring archaeologist obtains a Class C Permit from NNHHPD before monitoring activities begin.
7. A report of monitoring activities is to be submitted to NNHHPD within 30-days of the completed action.

B20075_B.3 & B20075_B.4:

1. Jischaa are located outside of the APE and will be avoided.
2. All future maintenance activities will avoid the Jischaa.

In-Use Areas/Current Cultural Properties:

IUA 3/CCP 3:

1. A community cemetery is excluded from the project area.

In the event of a discovery ["discovery" means any previously unidentified or incorrectly identified cultural resources including but not limited to archaeological deposits, human remains, or locations reportedly associated with Native American religious/traditional beliefs or practices], all operations near the discovery must cease, and the Navajo Nation Historic Preservation Department must be notified at (928) 871-7198.

FORM PREPARED BY: **Tamara Billie**
FINALIZED: March 11, 2021 – *Revised*

Notification to Proceed Recommended ☑ Yes ☐ No

Conditions: ☑ Yes ☐ No

Richard M. Begay, Dept. Mgr./THPO — 03/12/2024
The Navajo Nation — Date
Heritage & Historic Preservation Department

Navajo Region Approval ☐ Yes ☐ No 8/30/2024

BIA – Navajo Regional Office — 31 MAR 21
Date

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