

VOLUME 2

DRAFT

ENVIRONMENTAL IMPACT STATEMENT

Eagle Shadow Mountain Solar Project



On Behalf of:
**THE MOAPA BAND
OF PAIUTE INDIANS**

BUREAU OF INDIAN AFFAIRS
Bureau of Land Management
Environmental Protection Agency
US Fish and Wildlife Service
Nevada Department of Wildlife
Nellis Air Force Base

Estimated Lead Agency
Total Costs Associated with
Developing and Producing This EIS
\$ 1,541,000



July 2019

DRAFT
ENVIRONMENTAL IMPACT STATEMENT
(DEIS)

EAGLE SHADOW MOUNTAIN
SOLAR PROJECT

On Behalf of:

**THE MOAPA BAND
OF PAIUTE INDIANS**

BUREAU OF INDIAN AFFAIRS
BUREAU OF LAND MANAGEMENT
ENVIRONMENTAL PROTECTION AGENCY
US FISH AND WILDLIFE SERVICE
NELLIS AIR FORCE BASE
NEVADA DEPARTMENT OF WILDLIFE

July 2019

VOLUME 2

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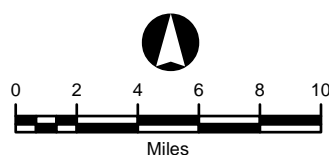
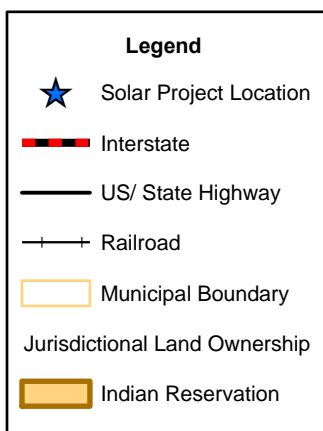
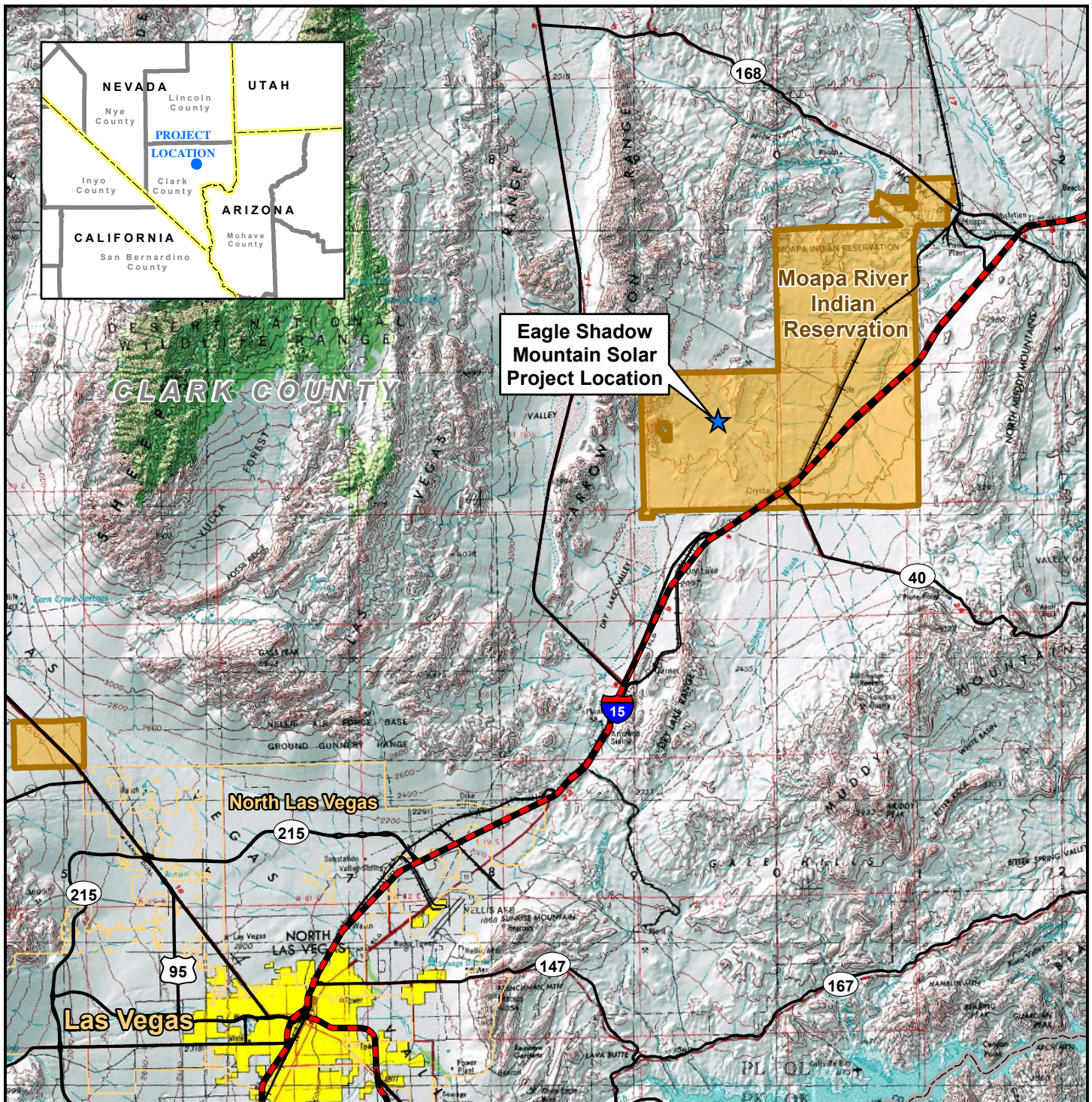
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Universal Transverse Mercator
North American Datum 1983
Zone 11 North, Meters

Eagle Shadow Mountain Solar Project

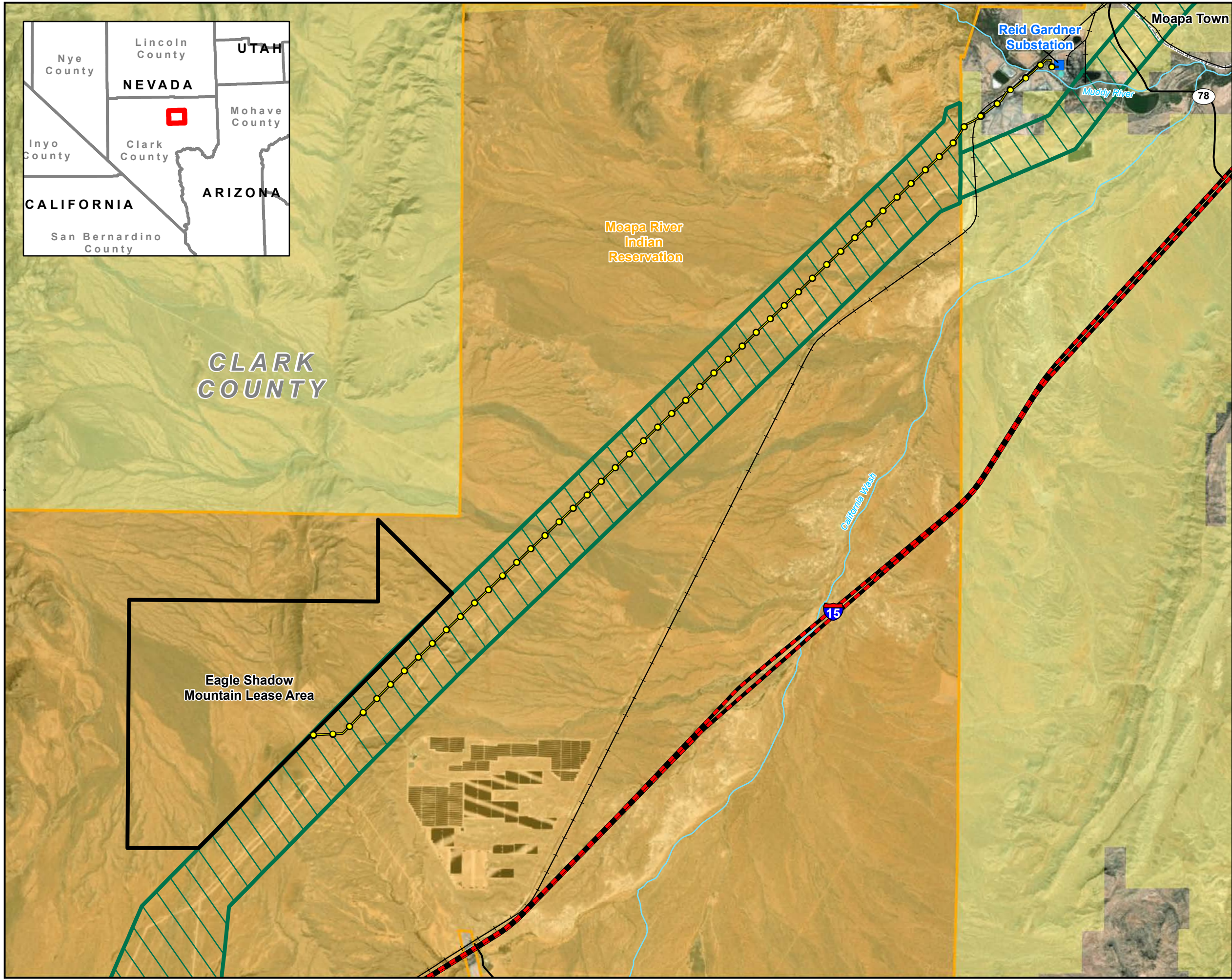
**FIGURE 1-1
PROJECT LOCATION**

Map Extent: Clark County, Nevada

Date: 11-06-18

Author: rnc

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Legend

- Project Components
- ESM Gen-Tie - Alternative
 - Eagle Shadow Mountain Solar Project Area

- General Features
- Existing Substation
 - Interstate
 - Major Highway
 - Railroad
 - Stream or River
 - Designated Utility Corridor
 - Municipal Boundary

- Jurisdictional Land Ownership
- Bureau of Land Management Land
 - Indian Reservation
 - Private Lands



Universal Transverse Mercator
North American Datum 1983
Zone 11 North, Meters

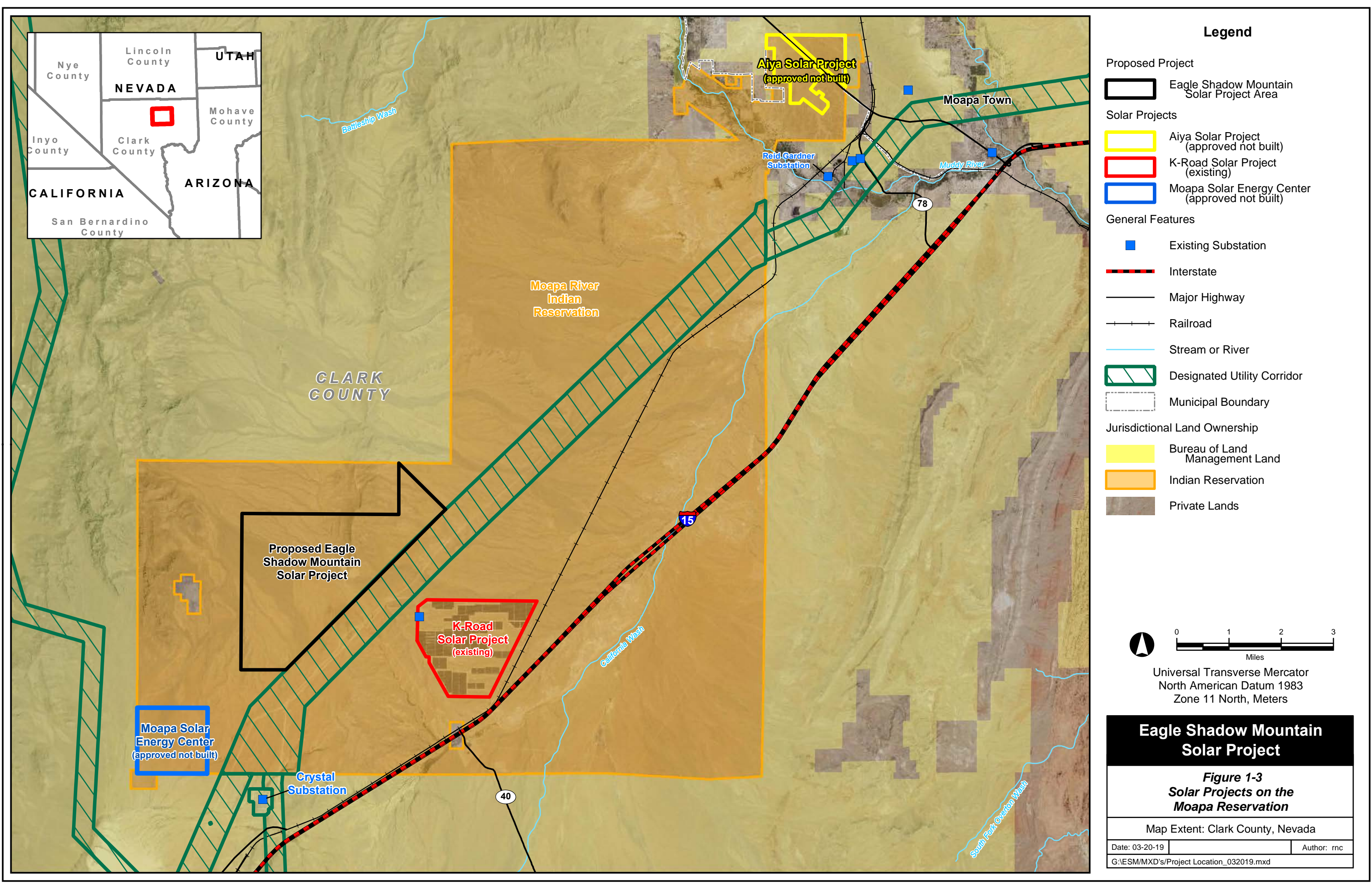
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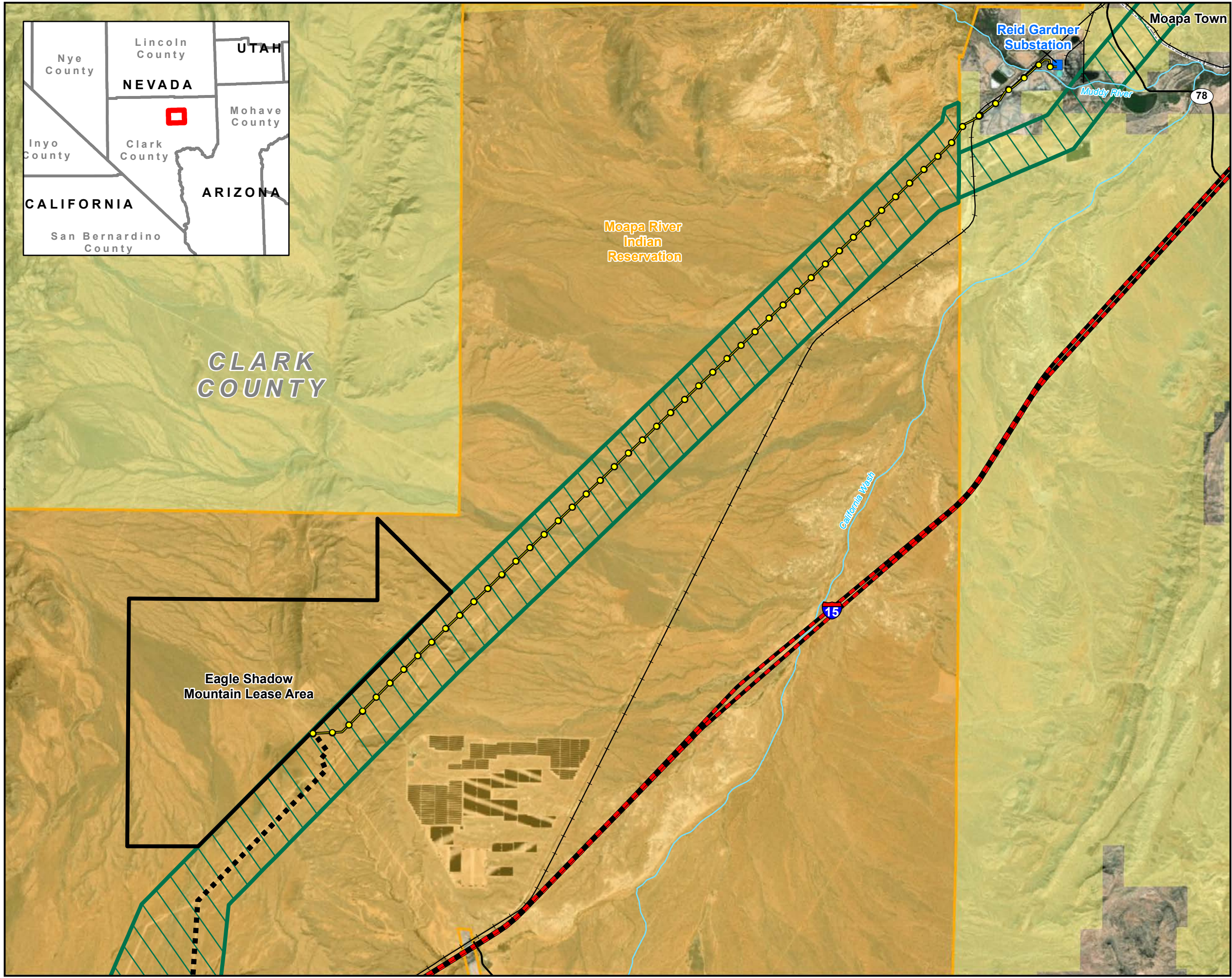
Figure 1-2
ESM Solar Project Components

Map Extent: Clark County, Nevada

Date: 03-20-19	Author: rnc
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Legend

- Project Components
- ESM Gen-Tie - Alternative
 - Eagle Shadow Mountain Solar Project Area
- General Features
- Existing Substation
 - Interstate
 - Major Highway
 - Railroad
 - Stream or River
 - Designated Utility Corridor
 - Municipal Boundary
- Jurisdictional Land Ownership
- Bureau of Land Management Land
 - Indian Reservation
 - Private Lands
- Existing Access Road



Universal Transverse Mercator
North American Datum 1983
Zone 11 North, Meters

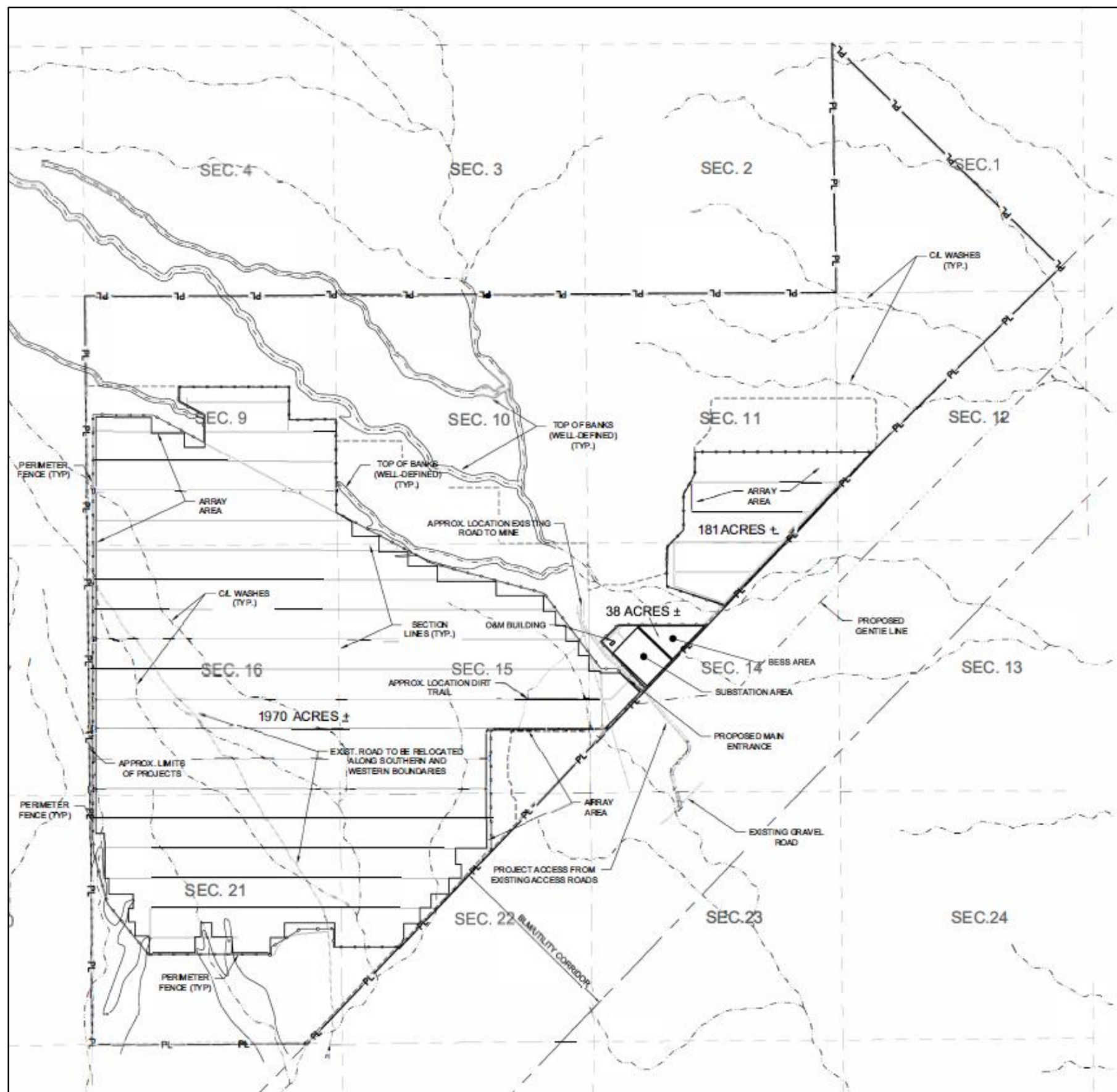
Eagle Shadow Mountain Solar Project

Figure 2-1
ESM Solar Project Components

Map Extent: Clark County, Nevada

Date: 03-20-19 | Author: rnc

G:\ESM\MXD's\Project Location_032019.mxd



GENERAL NOTES

1. ALL DIMENSIONS SHOWN ARE APPROXIMATE AND SUBJECT TO CHANGE.
2. ALL EQUIPMENT SELECTION AND SPECIFICATIONS SUBJECT TO CHANGE WITH FINAL DESIGN.

LEGEND	
EXISTING	NEW
ELECTRICAL/TELEPHONE POLE	
OVERHEAD POWER LINE	
UNDERGROUND POWER LINE	
EXISTING FENCE	
NEW CHAIN LINK FENCE	
PROPERTY LINE	
SETBACK LINE	
CENTERLINE	
STREAM / WATER COURSE	
MAJOR CONTOURS	
MINOR CONTOURS	
SECTION LINE	

PRELIMINARY

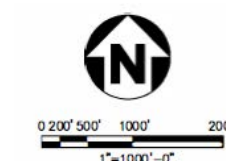


Figure 2-2
Conceptual Site Plan
Eagle Shadow Mountain Solar Project

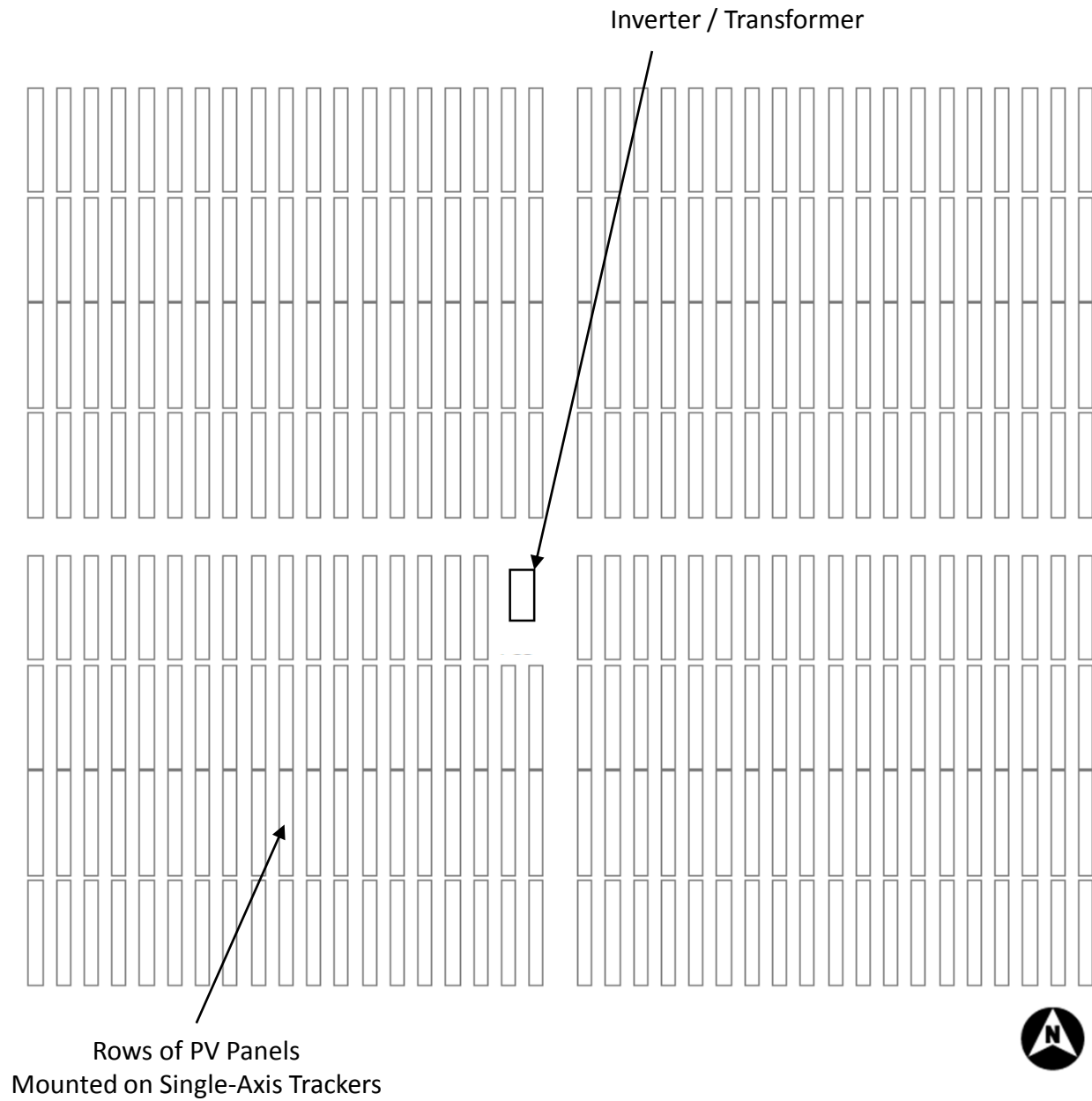


Figure 2-3
Typical Single-Axis Tracker Array Layout

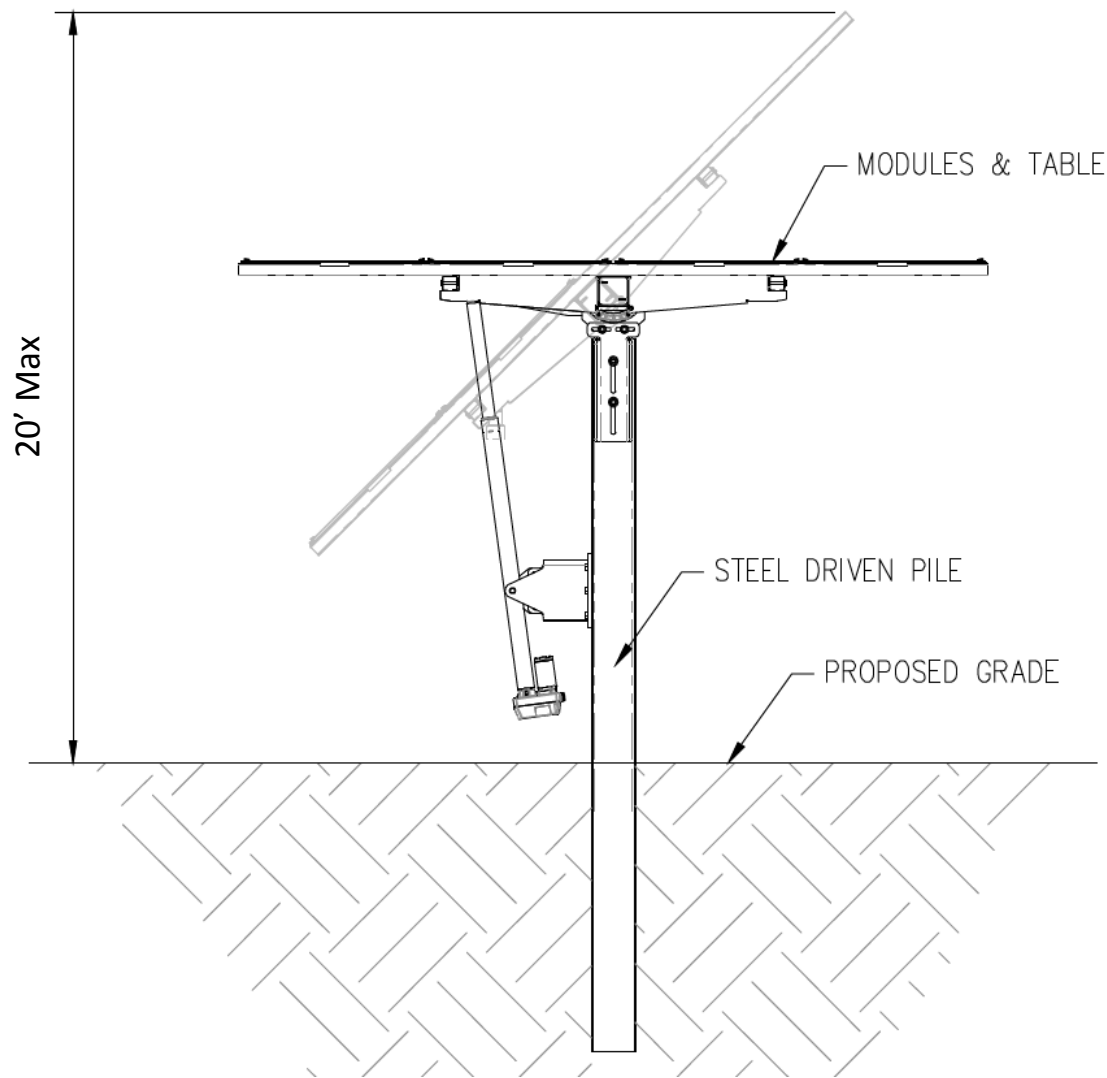
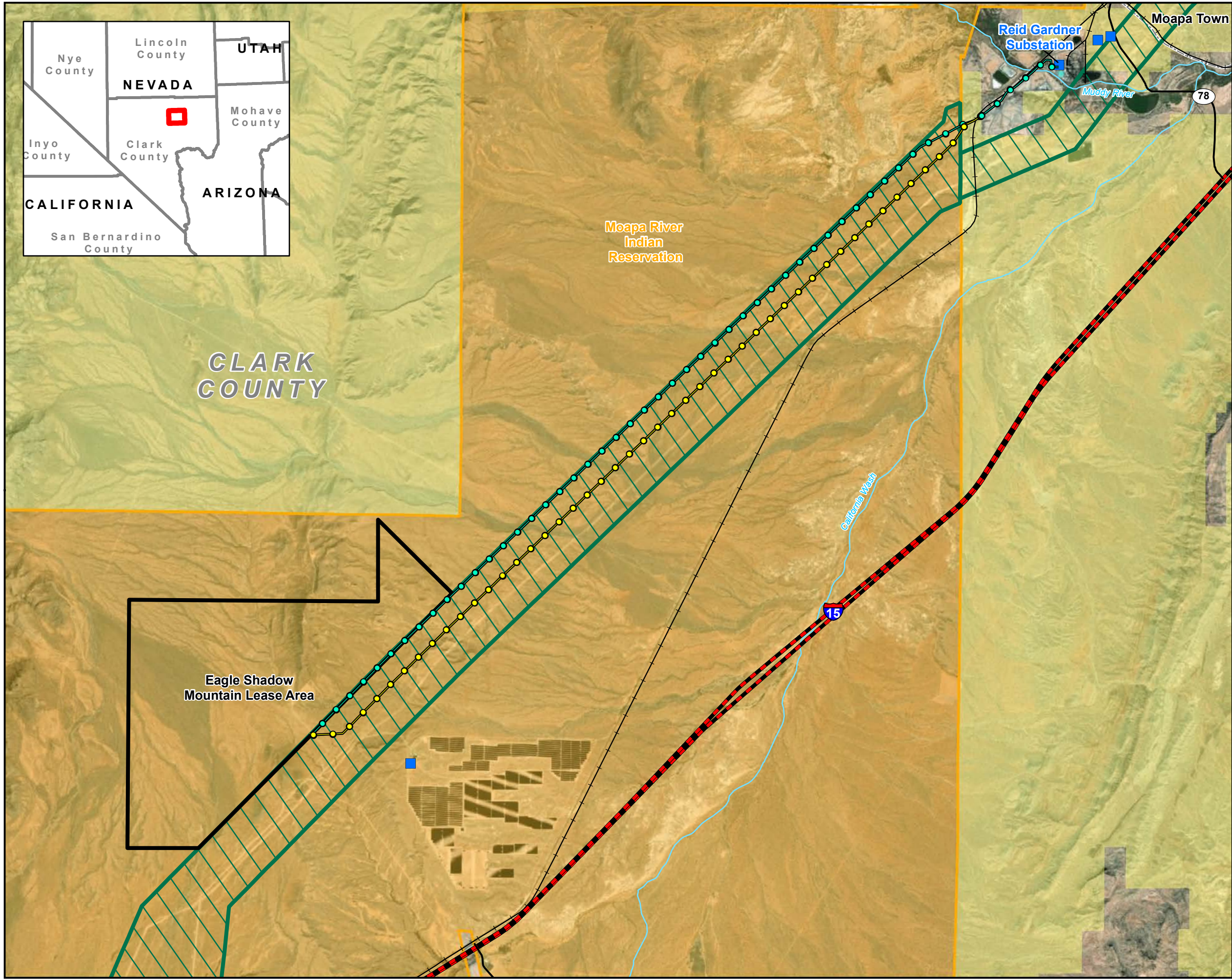


Figure 2-4
Typical Single-Axis Tracker Cross Sectional View



Legend

- Project Components
- ESM Gen-Tie – Proposed
 - ESM Gen-Tie - Alternative
 - Eagle Shadow Mountain Project Area

- General Features
- Existing Substation
 - Interstate
 - Major Highway
 - Railroad
 - Stream or River
 - Designated Utility Corridor
 - Municipal Boundary

- Jurisdictional Land Ownership
- Bureau of Land Management Land
 - Indian Land
 - Private Lands



Universal Transverse Mercator
North American Datum 1983
Zone 11 North, Meters

Eagle Shadow Mountain Solar Project

Figure 2-5 Proposed and Alternative Gen-Tie Routes

Map Extent: Clark County, Nevada

Date:- 04-08-19

Author: mrc

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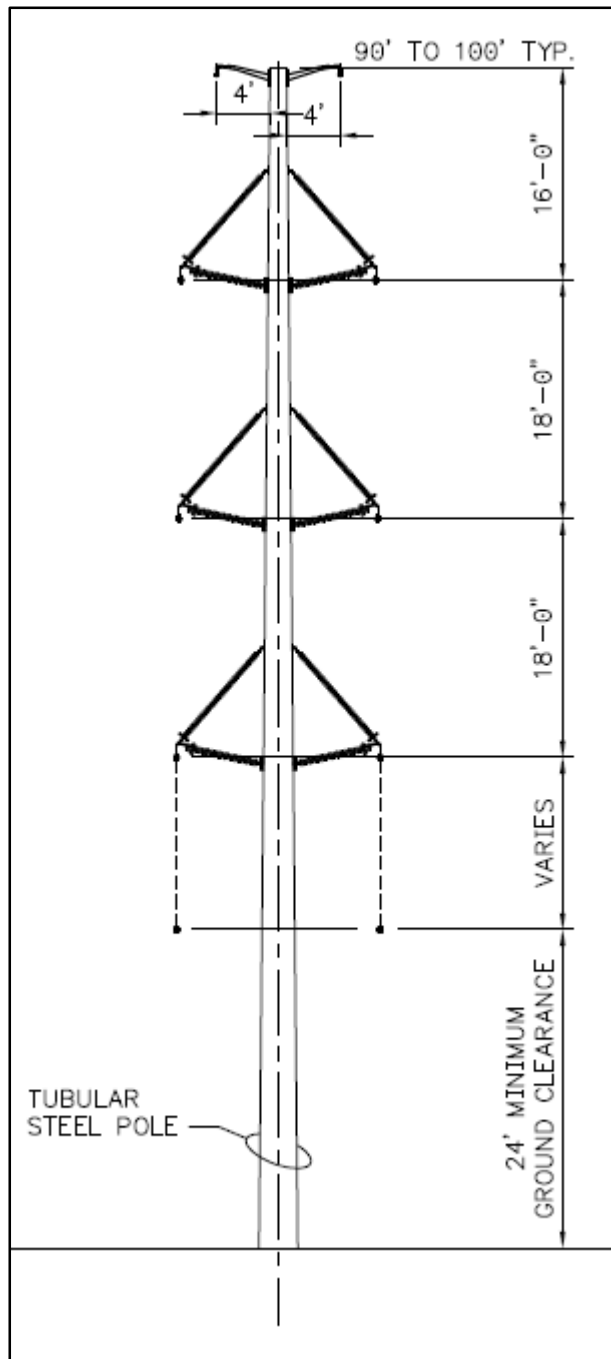
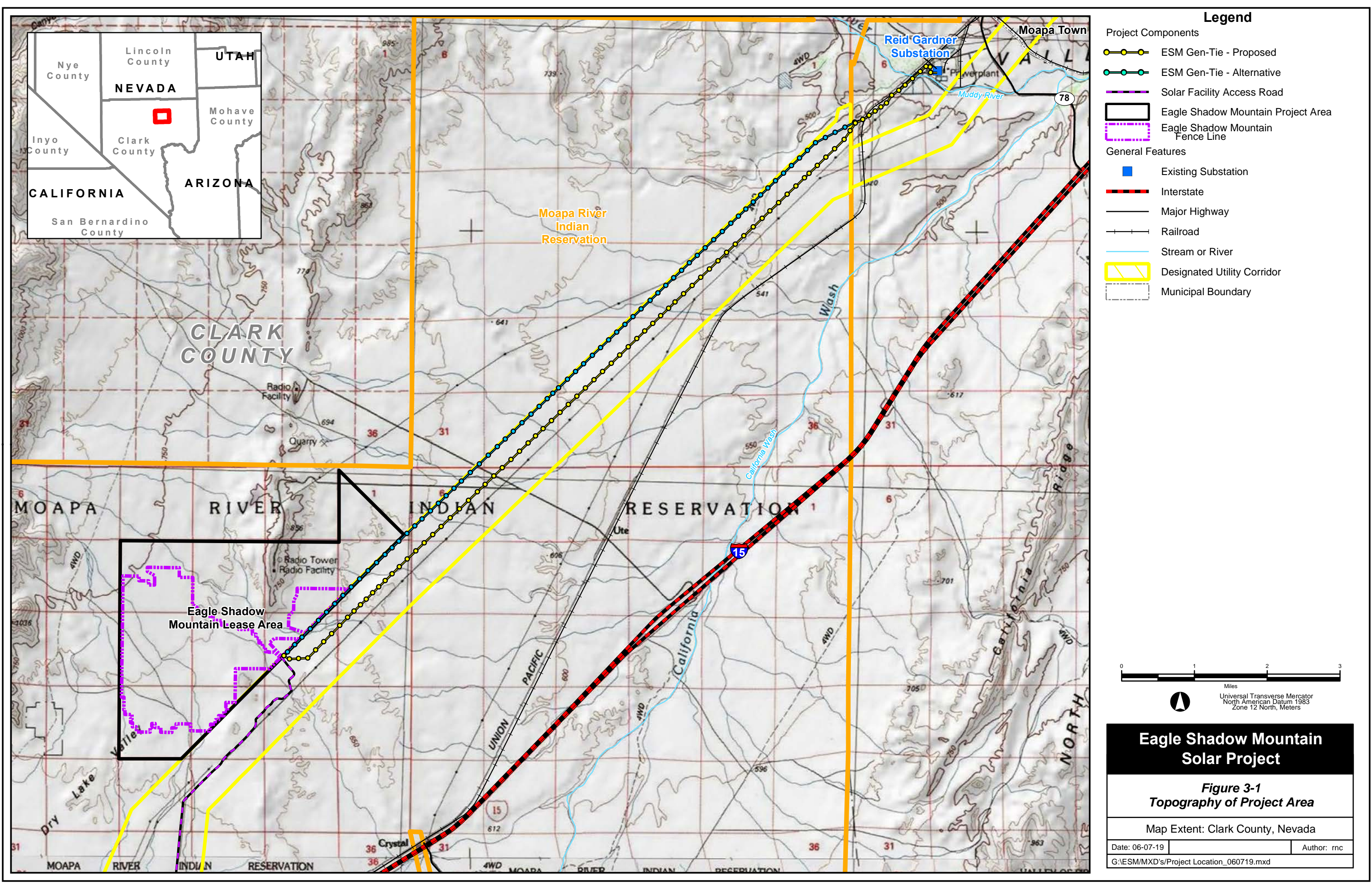
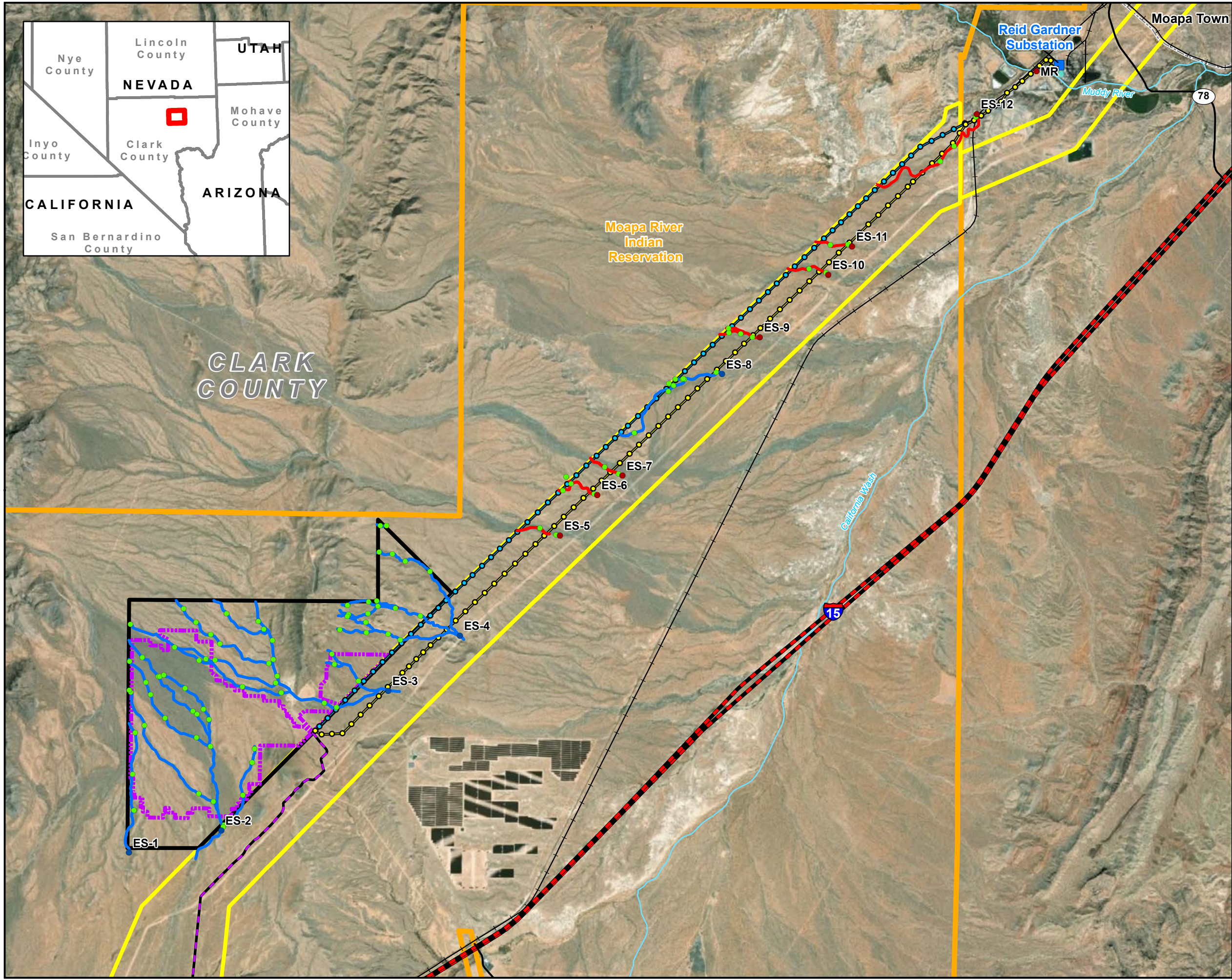


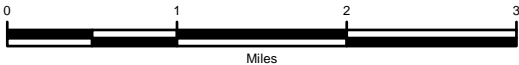
Figure 2-6
Typical Gen-Tie Transmission Structure





Legend

- Project Components
- ESM Gen-Tie - Proposed
 - ESM Gen-Tie - Alternative
 - Solar Facility Access Road
 - Eagle Shadow Mountain Project Area
 - Eagle Shadow Mountain Fence Line
- General Features
- Existing Substation
 - Interstate
 - Major Highway
 - Railroad
 - Stream or River
 - Designated Utility Corridor
 - Municipal Boundary
- Vegetation Cover Types
- JD Sample Points
 - Non-Jurisdictional Drainage Outfall
 - WOUS Jurisdictional Drainage Outfall
 - Non-Jurisdictional Drainage
 - WOUS Jurisdictional Drainage



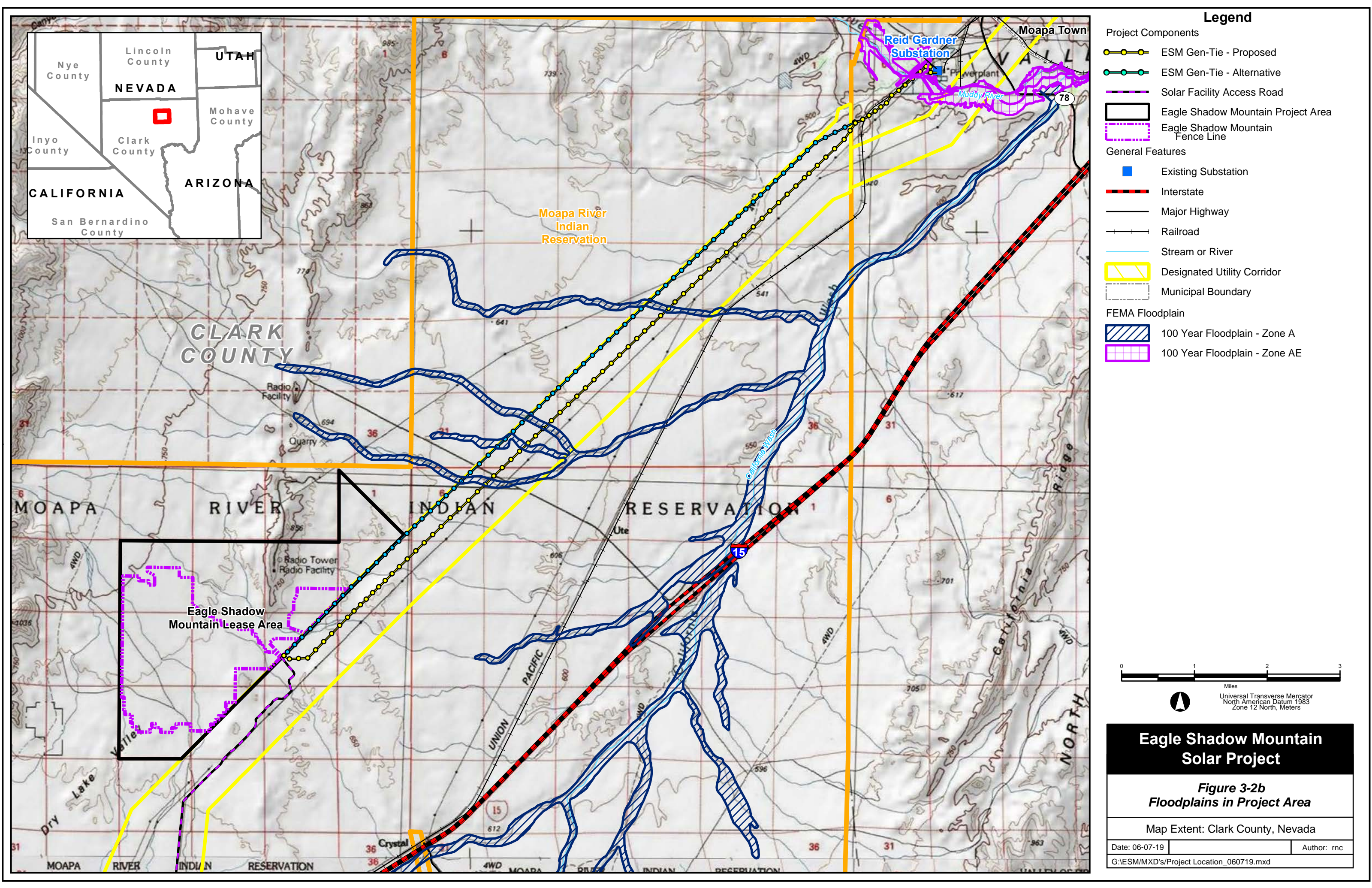
Universal Transverse Mercator
North American Datum 1983
Zone 12 North, Meters

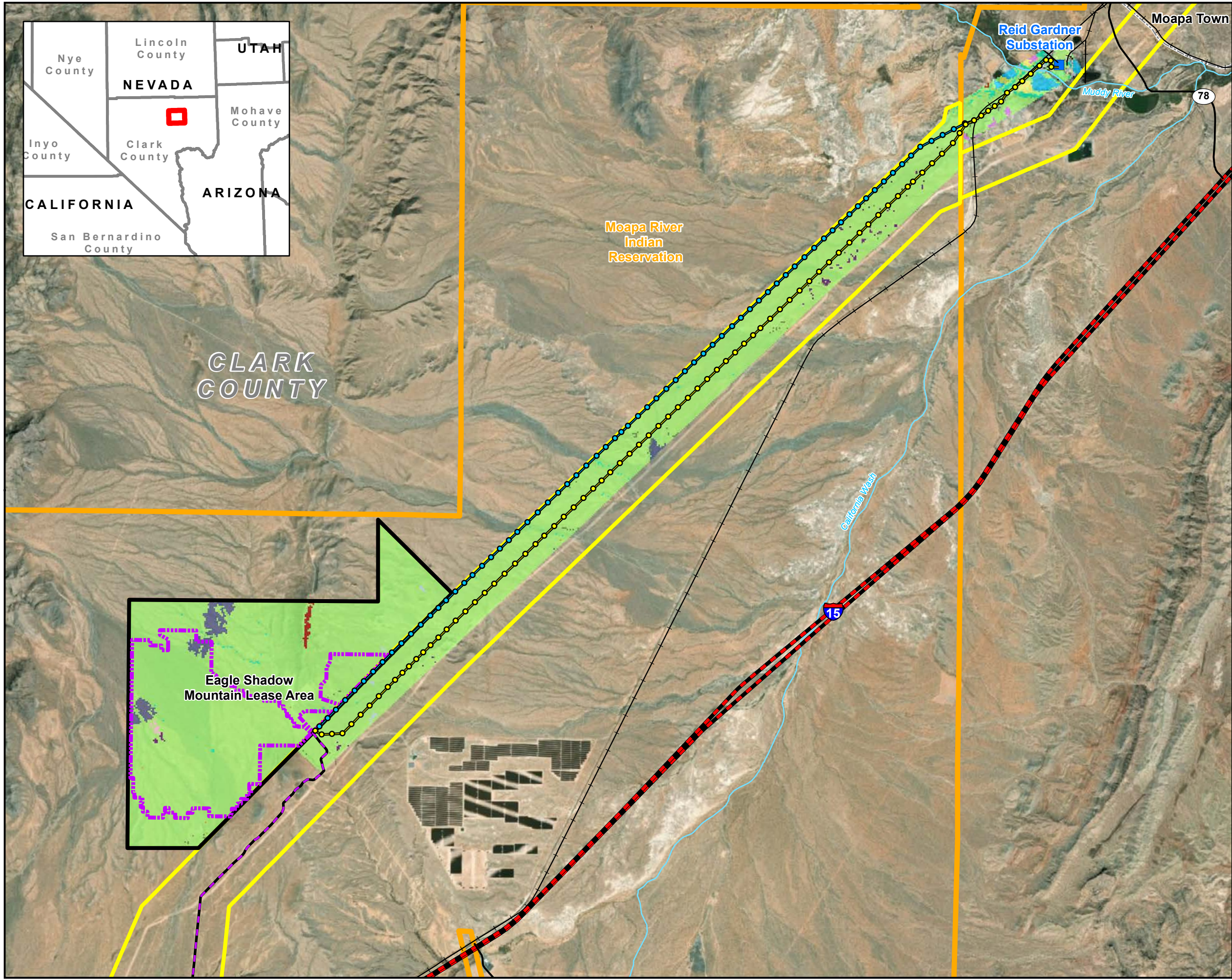
Eagle Shadow Mountain Solar Project

Figure 3-2a
Ephemeral Drainages on the Solar Site Study Area and Along the Gen-tie Routes

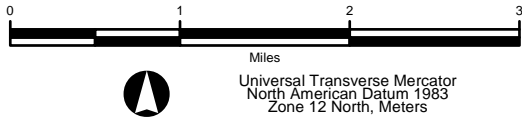
Map Extent: Clark County, Nevada

Date: 06-07-19 | Author: rnc
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- Legend**
- Project Components**
- ESM Gen-Tie - Proposed
 - ESM Gen-Tie - Alternative
 - Solar Facility Access Road
 - Eagle Shadow Mountain Project Area
 - Eagle Shadow Mountain Fence Line
- General Features**
- Existing Substation
 - Interstate
 - Major Highway
 - Railroad
 - Stream or River
 - Designated Utility Corridor
 - Municipal Boundary
- Vegetation Cover Types**
- Agriculture-Cultivated Crops and Irrigated Agriculture
 - Developed, Low Intensity
 - Developed, Medium Intensity
 - Developed, High Intensity
 - Developed, Open Space
 - Introduced Riparian Vegetation
 - Microphytic Playa Sparse Vegetation
 - North American Warm Desert Badland
 - North American Warm Desert Bedrock Cliff and Outcrop
 - North American Warm Desert Pavement
 - North American Warm Desert Riparian Mesquite Bosque
 - North American Warm Desert Riparian Systems
 - North American Warm Desert Sparsely Vegetated Systems
 - Open Water or Aquatic Vegetation
 - Sonora-Mojave Creosotebush-White Bursage Desert Scrub
 - Sonora-Mojave Mixed Salt Desert Scrub



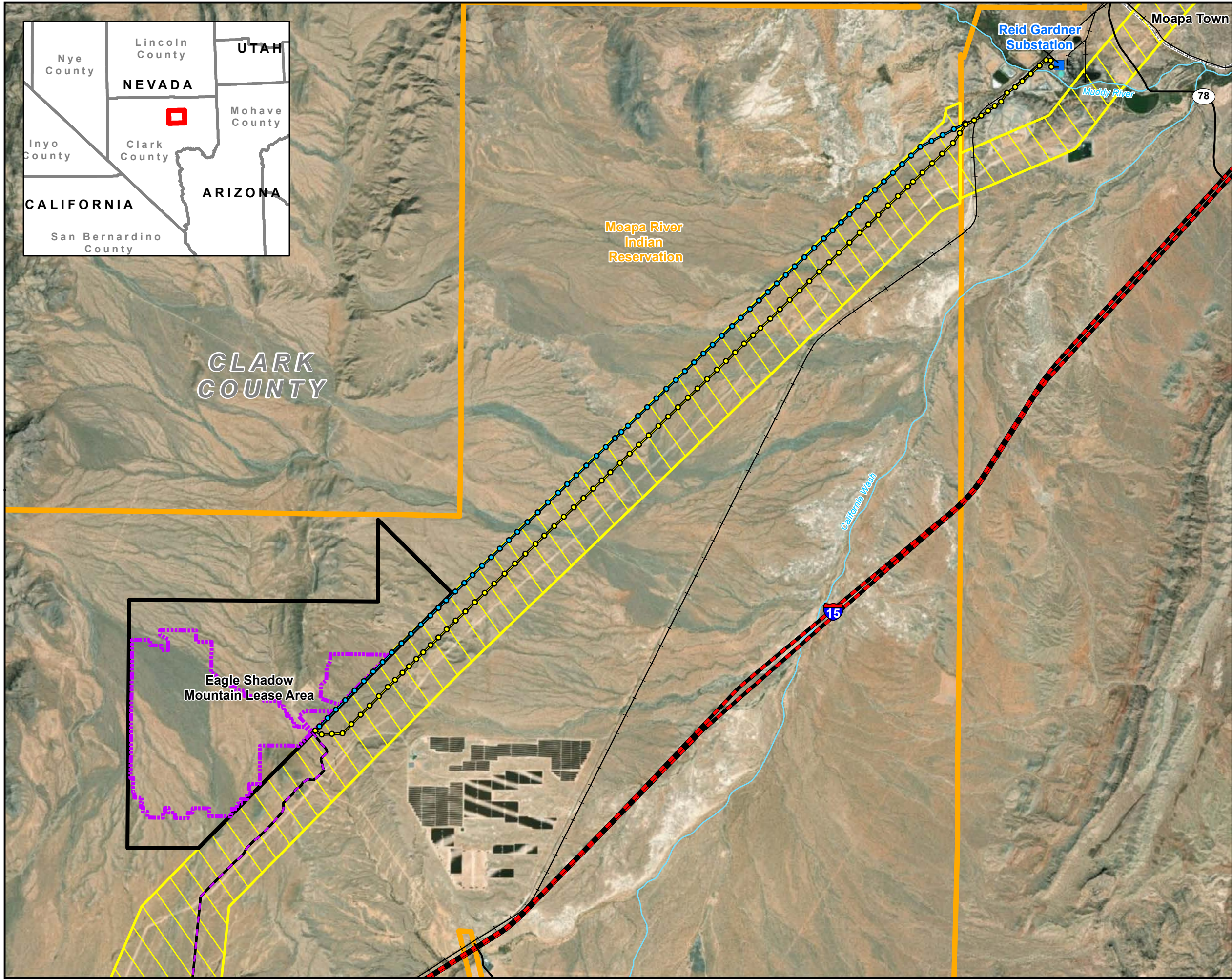
Eagle Shadow Mountain Solar Project

Figure 3-3
Vegetative Cover Types with the Project Area

Map Extent: Clark County, Nevada

Date: 06-07-19 Author: rnc

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Legend

- Project Components
- ESM Gen-Tie - Proposed
 - ESM Gen-Tie - Alternative
 - Solar Facility Access Road
 - Eagle Shadow Mountain Project Area
 - Eagle Shadow Mountain Fence Line
- General Features
- Existing Substation
 - Interstate
 - Major Highway
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 - Stream or River
 - Designated Utility Corridor
 - Municipal Boundary



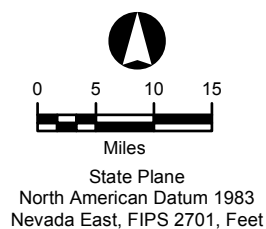
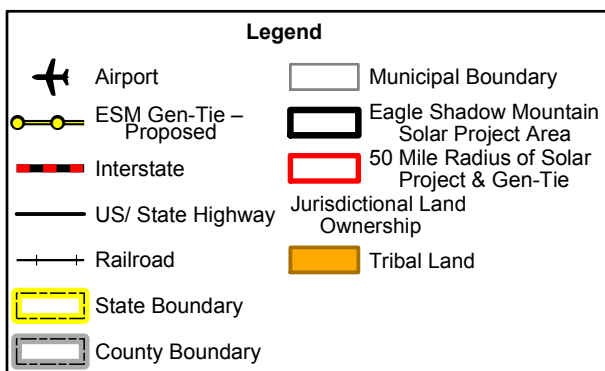
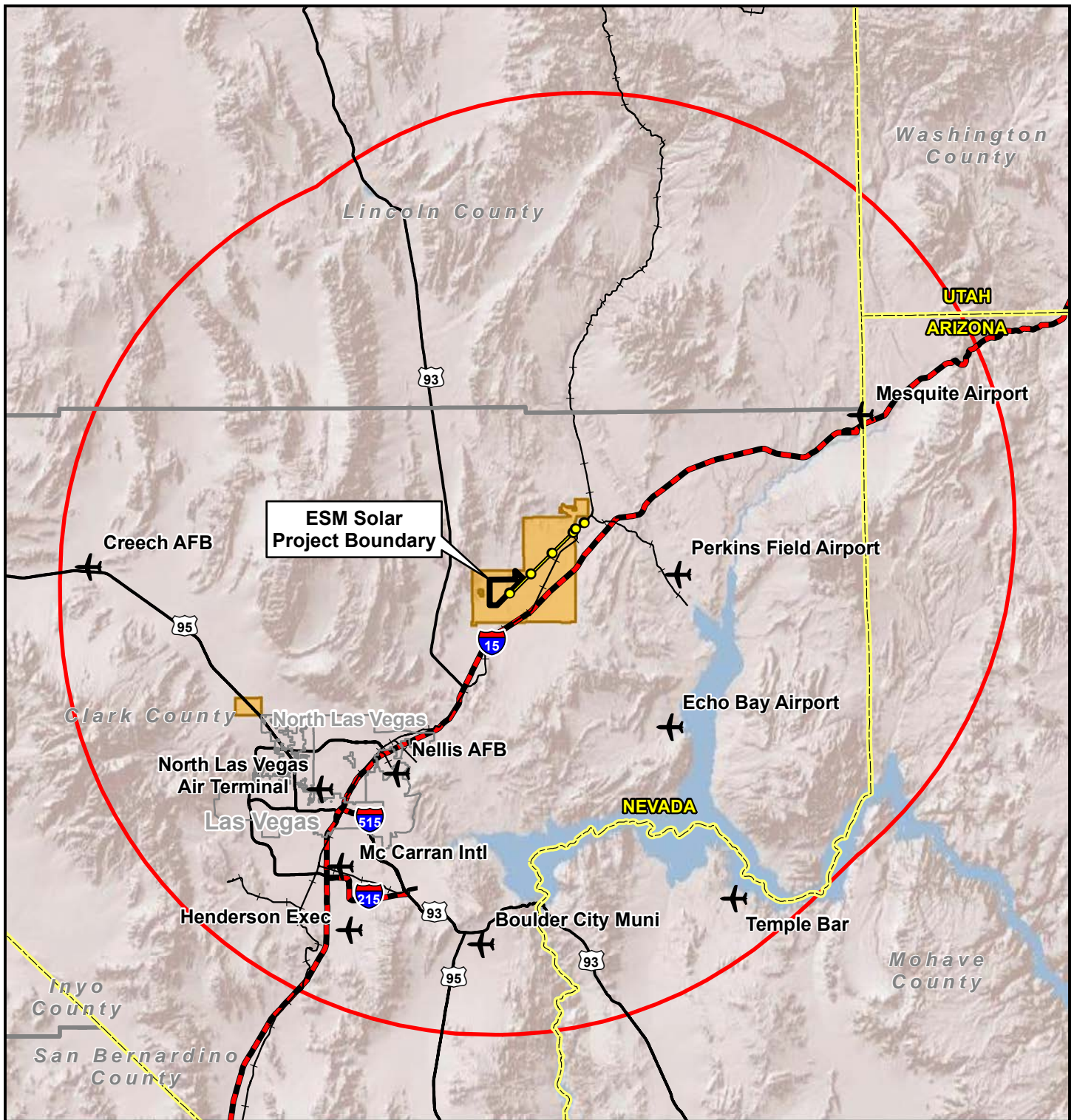
Universal Transverse Mercator
North American Datum 1983
Zone 12 North, Meters

**Eagle Shadow Mountain
Solar Project**

**Figure 3-4
Location of Designated
Utility Corridor**

Map Extent: Clark County, Nevada

Date: 06-07-19	Author: rnc
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Eagle Shadow Mountain Solar Project

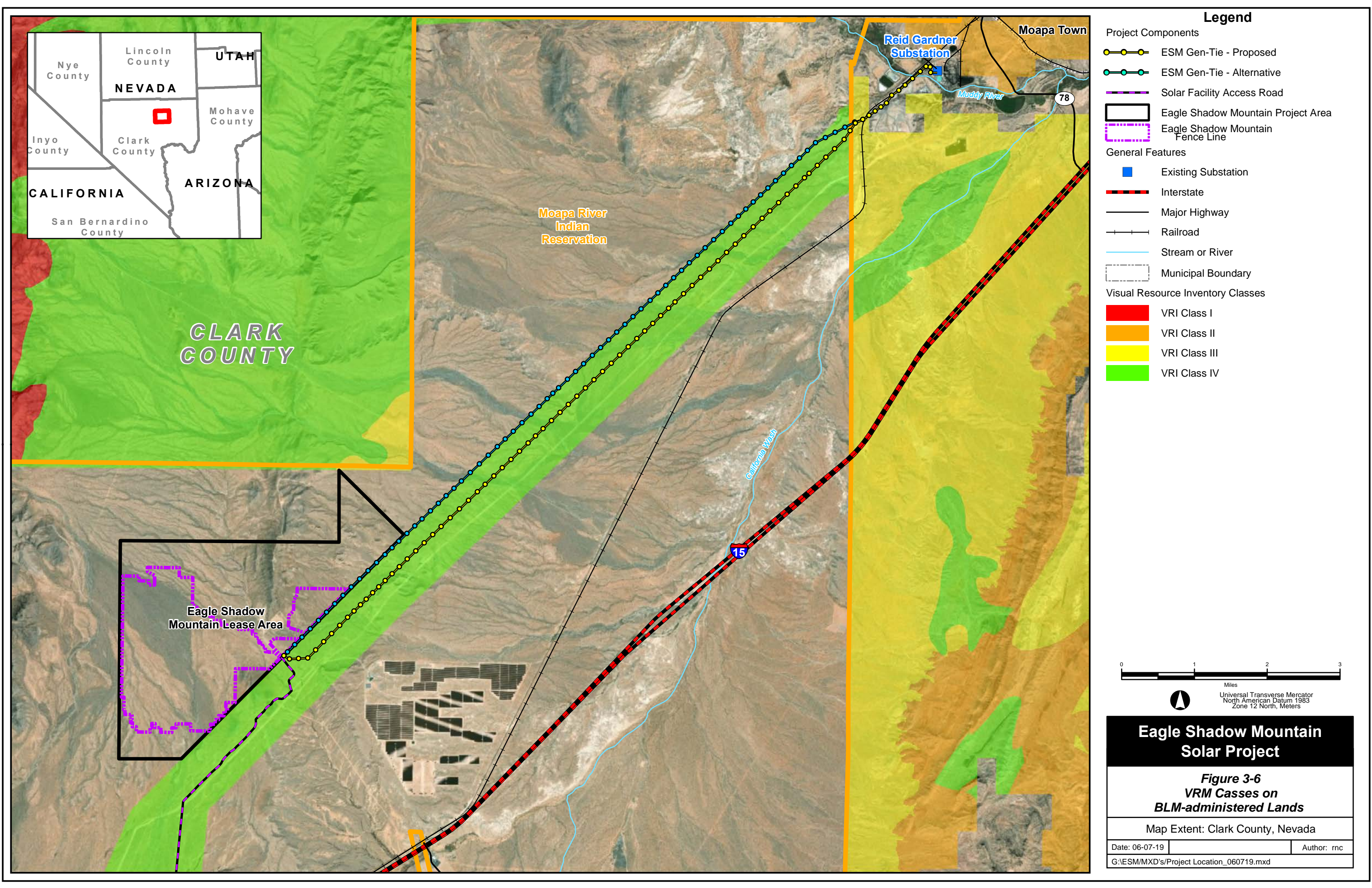
Figure 3-5
Airports in the Vicinity of the Project

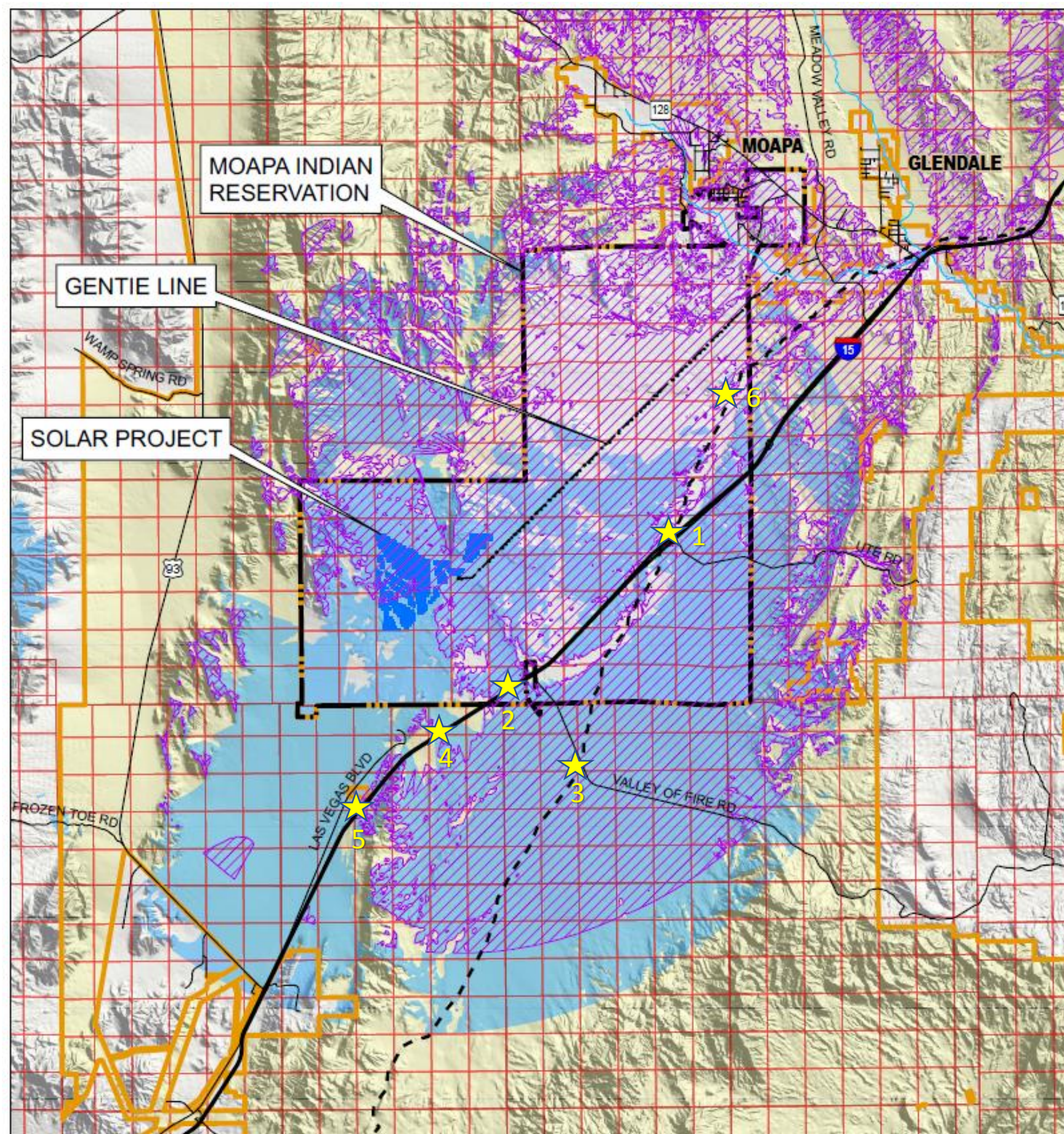
Map Extent: Clark County and
Lincoln County, Nevada

Date: 06-06-19

Author: mc

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Legend

- PROJECT_EXTENTS - 2,600 ACRES
- PROJECT VISIBILITY - 10 MILE RADIUS
- PROJECT GENTIE ROUTE - 12 MILES
- ▨ PROJECT GENTIE LINE VISIBILITY 10 MILE RADIUS
- RESERVATION BOUNDARY LINE
- FEDERAL BLM LAND
- OLD SPANISH TRAIL
- LOCAL ROADS/STREETS
- INTERSTATE HIGHWAY
- STREAMS
- SECTION LINES
- TOWNSHIP LINES
- ★ KOP LOCATIONS



0 0.75 1.5 3 4.5 6 Miles

EAGLE SHADOW MOUNTAIN SOLAR PROJECT

Figure 3-7
Visibility Analysis and KOP Locations



Figure 3-8

Existing View from KOP 1

Looking West from Point where I-15 and the OSNHT intersect about 5.2 miles East of Solar Site



Figure 3-9
Existing View from KOP 2
Looking Northwest from I-15 about 3.2 miles Southeast of Solar Site



Figure 3-10

Existing View from KOP 3

Looking West from Point where the OSNHT crosses the Valley of Fire Road about 6.2 miles Southeast of Solar Site



Figure 3-11
Existing View from KOP 4
Looking North from I-15 about 3.6 miles South of Solar Site



Figure 3-12
Existing View from KOP 5
Looking North from I-15 about 5.2 miles South of Solar Site



Figure 3-13

Existing View from KOP 6

Looking West from Point on the OSNHT about 1.3 miles East of Gen-Tie within Utility Corridor



Figure 3-14

Visual Simulation from KOP 1

Looking West from Point where I-15 and the OSNHT intersect about 5.2 miles East of Solar Site



Figure 3-15
Visual Simulation from KOP 2
Looking Northwest from I-15 about 3.2 miles Southeast of Solar Site



Figure 3-16

Visual Simulation from KOP 3

Looking West from Point where the OSNHT crosses the Valley of Fire Road about 6.2 miles Southeast of Solar Site



Figure 3-17
Visual Simulation from KOP 4
Looking North from I-15 about 3.6 miles South of Solar Site



Figure 3-18
Visual Simulation from KOP 5
Looking North from I-15 about 5.2 miles South of Solar Site



Figure 3-19

Visual Simulation from KOP 6

Looking West from Point on the OSNHT about 1.3 miles East of Gen-Tie within Utility Corridor

Appendix B

Scoping Report



EAGLE SHADOW MOUNTAIN SOLAR PROJECT ENVIRONMENTAL IMPACT STATEMENT

SCOPING REPORT

Prepared for:

Bureau of Indian Affairs
Western Regional Office
2600 North Central Avenue
Phoenix, AZ 85004

April 2019

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APPENDIX C – MEETING MATERIALS
APPENDIX D – COMMENTS RECEIVED

1.0 INTRODUCTION

The Bureau of Indian Affairs (BIA) is the lead Federal agency responsible for the National Environmental Policy Act (NEPA) process for the proposed Eagle Shadow Mountain Solar Project (Project). Additionally, BIA is the lead Federal agency coordinating and assuring compliance with the Endangered Species Act (ESA) and the National Historic Preservation Act (NHPA). The Moapa Band of Paiute Indians (Moapa Band), Bureau of Land Management (BLM), U.S. Environmental Protection Agency (EPA), U.S. Air Force, U.S. Fish and Wildlife Service (USFWS), and Nevada Department of Wildlife (NDOW) are cooperating agencies for the Environmental Impact Study (EIS). Collectively, these agencies intend to prepare an Environmental Impact Statement (EIS) for the proposed Eagle Shadow Mountain Solar Project located on the Moapa River Indian Reservation (Reservation) in Clark County, Nevada.

The NEPA scoping process is designed to encourage involvement by all interested parties and to help agencies make better-informed decisions. This report summarizes all comments received during the scoping period for the EIS. The BIA and cooperating agencies will fully analyze the issues raised by these scoping comments to help shape the environmental analysis and alternatives to be considered in the Draft EIS.

The purpose of this report is to summarize issues raised by individuals, organizations and agencies during the scoping comment period for this project. This report also describes methods used for soliciting input, as well as how comments received were categorized by resource topic. A copy of each individual comment received is contained in Appendix E of this report.

PROJECT DESCRIPTION

325MK 8me, LLC (a 8minuteenergy) has entered into an agreement with the Moapa Band of Paiute Indians (Moapa Band) to lease land, up to 50 years, on the Moapa River Indian Reservation (Reservation) to construct and operate an up-to 300 megawatt (MW) alternating current solar photovoltaic (PV) electricity generation facility on up to 2,300 acres located entirely on the Reservation and specifically on lands held in trust by the Bureau of Indian Affairs (BIA) for the Moapa Band. The proposed project would be located west of I-15 and east of U.S. Highway 93, about 30 miles northeast of Las Vegas in Clark County.

Project infrastructure would include a 230 kilovolt (kV) electric transmission line (gen-tie) that would interconnect the solar generation facility to the electrical grid at or near the existing Reid-Gardner Substation. The proposed gen-tie line would be located on Tribal lands, Federal lands administered and managed by the Bureau of Land Management (BLM), and private lands. Together, the proposed solar energy facility, transmission line, and other associated facilities will make up the proposed solar project.

2.0 SCOPING PROCESS AND SOLICITATION OF COMMENTS

During the scoping period, the BIA informed the public, landowners, Government agencies, tribes and interested stakeholders about the proposed Eagle Shadow Mountain Solar Project and solicited their comments.

The BIA announced the project and scoping process, held public scoping meetings, and invited the public to comment and ask questions. The project and public scoping meetings were publicized in the Federal Register, on the project website, in letters mailed to interested stakeholders, and through public notices/news releases published in local newspapers. These outreach and notification activities are described in more detail in the following subsections.

FEDERAL REGISTER

The public scoping period officially began with the publication of the Notice of Intent (NOI) to prepare an EIS, which described the project, announced the public scoping meetings, and outlined the ways to provide comments for the Eagle Shadow Mountain Solar Project. The NOI was published in the Federal Register on February 4, 2019 and can be found in **Appendix A**.

PROJECT WEBSITE

A project website was established for access by anyone at any time during the EIS process. It provides project information and an opportunity to submit comments. The website will remain active for the duration of the EIS process and can be accessed at <http://www.ESMSolarEIS.com>.

SCOPING NOTIFICATION LETTER

Scoping notification letters were sent by the BIA to Government agencies, elected officials, property owners near the proposed project, various non-Governmental organizations, and other interested stakeholders. The scoping letter briefly explained the project, identified the Federal review process, announced the public scoping meetings, and described the various ways to provide comments. Included with the scoping notification letter were two maps displaying the project location and project area.

Over 70 scoping letters and maps were mailed on February 12, 2019. The scoping letter, maps and the project mailing list can be found in **Appendix B**.

NEWSPAPER ADVERTISEMENTS

A legal notice/public notice announcing the public scoping meetings was published in two local newspapers on February 17, 20, 24 and 27, 2019. The publications included:

- Las Vegas Review Journal
- Moapa Valley Progress

Copies of the published legal notices/public notices can be viewed in **Appendix B**.

METHODS FOR SUBMITTING COMMENTS

The BIA encouraged interested parties to submit comments through a variety of methods:

Individual letters could be hand delivered or mailed via the U.S. Postal Service to Mr. Chip Lewis, Regional Environmental Protection Officer, BIA Western Regional Office, 2600 North Central Avenue, 4th Floor Mailroom, Phoenix, AZ 85004.

Comments could be submitted on the “Getting involved” tab on the project website via the “Submit Your Comment Here” comment form at <http://www.ESMSolarEIS.com> .

Comments could be provided via email to Mr. Chip Lewis at chip.lewis@bia.gov.

Comments could be provided at the public scoping meetings either orally or by filling out a comment form provided at the meetings (that could be handed in at the meeting or mailed in at a later date). A copy of the comment form is provided in **Appendix C**. See below for the details of the scoping meetings.

3.0 PUBLIC SCOPING MEETINGS

The BIA hosted two public information and scoping meetings – one on the Moapa River Indian Reservation and the other in Las Vegas at the Painted Desert Golf Club. These meetings provided a description of the NEPA process, information on the proposed project, and the opportunity to provide public comments. The two public scoping meetings were held at the times and locations listed below.

Meeting Date and Time	City/State/Zip Code	Address	Attendance
March 5, 2019, 5:30PM to 7:30PM	Moapa, NV 89025-0340	Moapa River Indian Reservation Tribal Hall One Lincoln Street	34*
March 6, 2019, 5:30PM to 7:30PM	Las Vegas, NV 89149	Painted Desert Golf Club 5555 Painted Mirage Road North	10*
Total Attendance			44

**Note: These attendance numbers include individuals from BIA, BLM and 8Minuteenergy.*

The public scoping meetings were conducted as a combination of open house and formal presentation. Attendees were greeted at the entrance and asked to sign in. Handouts were available and posters were on display that described the project and NEPA process. Attendees were able to ask questions to the agency and project representatives during the presentation and before/after while viewing posters.

HAND-OUTS

The following handouts were available at the public meetings:

- Two-page Eagle Shadow Mountain Solar Project fact sheet with project area and project location maps
- Comment form

Copies of the handouts available at the meetings can be found in **Appendix C**.

PRESENTATION

At approximately 5:30 pm, a formal presentation was provided followed by time for questions and answers and ending with an open house. Both scoping meetings followed the same agenda.

Each program opened with a welcome and introductions by Mr. Chip Lewis, acting Environmental Protection Officer for the Bureau of Indian Affairs, and project manager for the Eagle Shadow Mountain Solar Project EIS. Ms. Vickie Simmons, Chairwoman of the Moapa Band of Paiute Indians, offered opening remarks at the meeting on the Reservation introducing the Council members and welcoming all visitors. Ms. Simmons also asked everyone in the room to introduce themselves. Mr. Lewis introduced Mr. Jim Williams, the Superintendent for the BIA Southern Paiute agency who welcomed attendees. Next, Mr. Lewis provided an overview of the NEPA process followed by Randy Schroeder of ENValue (the project EIS consultant team) who presented the proposed project with an overview of the technical

aspects and a summary of the environmental issues identified to date. Following the presentation, attendees were invited to provide verbal comments or ask questions about the proposed project.

A court reporter was present at both meetings to record the presentation and the public comments expressed. The scoping meeting presentation and transcripts are provided in **Appendix C**.

INFORMATION STATIONS

Both public meetings included the following posters/ stations arranged around the room:

- Proposed Action
- EIS Process/Schedule
- How to Participate
- Project Location
- Proposed Project Area
- Project Components
- Potentially Impacted Resources

Display boards presented at these stations are included in **Appendix C**.

4.0 COMMENT EVALUATION

COMMENTS RECEIVED

The scoping period began on February 4, 2019, the date the NOI was published in the Federal Register. In addition to comments received at the two scoping meetings and an interagency meeting, there were 6 comment letters/forms received through a variety of means (see “Methods for Submitting Comments” for more details). All comments were reviewed and categorized and are contained in **Appendix D**.

PROCESSING COMMENTS

Each comment letter was read to identify key issues. Commenter contact information and comments were recorded.

SUMMARIZATION

This report summarizes issue areas identified from the scoping comments received. For the purposes of this summary, all comments were given equal weight, regardless of whether they were mentioned once or mentioned several times. This report does not prioritize issue areas or track the number of comments each issue category received. The identified issues and areas of concern will be used to guide the environmental analysis for the EIS.

5.0 ISSUE SUMMARY

This section provides a summary of the key issues identified by the comments provided during scoping for the Eagle Shadow Mountain Solar Project. These issues will be addressed in the EIS analysis.

ISSUE TOPIC	ISSUE/COMMENT
Water Resources	Need to comply with relevant floodplain and stormwater requirements to minimize erosion and sediment production
	Avoid development within major washes
	Describe the source of the water to be used during construction and operation
Soils	Should include measures to minimize soil disturbance to the extent possible
Vegetation	Should include measures to minimize vegetation clearing to the extent possible
	Should include measures to control weeds to the extent possible
Cultural Resources	Configure the project layout to avoid or minimize potentials effects to significant cultural sites in the lease area
	Determine whether the project could impact the Old Spanish National Historic Trail
Land / Resource Use	Need to evaluate the potential impact of development of the Project and associated linear facilities on other existing and planned transmission and pipeline facilities within the designated utility corridor
	Consider the impact of precluding other uses by the Band and its members on these lands for the duration of the Project
Socioeconomics	Describe the economic development opportunity for the Band
	Describe the jobs for tribal members and others in the region that would be created
Wildlife	Describe the potential impacts to threatened and endangered species (including the desert tortoise) and other sensitive wildlife species
	Consider measures that minimize impacts to desert tortoise habitat and connectivity
	Describe the potential impacts to avian species from construction and operation of the project
Visual Resources	Evaluate the impact the project could have on views of the landscape
Air Quality	Measures should be implemented to control and minimize fugitive dust
Cumulative Impacts	Identify impacts from other solar projects and other developments in the area
	Discuss trends of and cumulative impacts to key resources including desert tortoise and desert washes

6.0 NEXT STEPS

The BIA will develop the Draft EIS (DEIS) focusing on the identified issues including evaluating a range of reasonable alternatives, assessing potential impacts, and identifying possible mitigation measures.

Once complete, the BIA will publicly circulate the Draft EIS for review and comment. During this period, the BIA will notify the public of the DEIS availability via a Notice of Availability (NOA) published in the Federal Register and public notices in the local papers. There will also be another round of public meetings.

Any public or stakeholder comments received on the Draft EIS will be addressed in the Final EIS (FEIS). The availability of the FEIS will also be announced via an NOA published in the Federal Register and public notices in the local papers.

The BIA anticipates providing periodic status updates as needed and publishing all project documents on the project website at www.ESMSolarEIS.com.

Appendix A

Notice of Intent

products for customs purposes, in accordance with the provisions of 19 CFR 151.12 and 19 CFR 151.13.

Intertek USA, Inc. (Texas City, TX) is approved for the following gauging procedures for petroleum and certain petroleum products from the American Petroleum Institute (API):

API chapters	Title
3	Tank gauging.
7	Temperature determination.
8	Sampling.
12	Calculations.
17	Maritime measurement.

Intertek USA, Inc. (Texas City, TX) is accredited for the following laboratory analysis procedures and methods for petroleum and certain petroleum products set forth by the U.S. Customs and Border Protection Laboratory Methods (CBPL) and American Society for Testing and Materials (ASTM):

CBPL No.	ASTM	Title
27-01	D287	Standard Test Method for API Gravity of Crude Petroleum and Petroleum Products (Hydrometer Method).
27-02	D1298	Standard Test Method for Density, Relative Density (Specific Gravity), or API Gravity of Crude Petroleum and Liquid Petroleum Products by Hydrometer Method.
27-03	D4006	Standard Test Method for Water in Crude Oil by Distillation.
27-04	D95	Standard Test Method for Water in Petroleum Products and Bituminous Materials by Distillation.
27-05	D4928	Standard Test Method for Water in Crude Oils by Coulometric Karl Fischer Titration.
27-06	D473	Standard Test Method for Sediment in Crude Oils and Fuel Oils by the Extraction Method.
27-07	D4807	Standard Test Method for Sediment in Crude Oil by Membrane Filtration.
27-08	D86	Standard Test Method for Distillation of Petroleum Products.
27-11	D445	Standard Test Method for Kinematic Viscosity of Transparent and Opaque Liquids.
27-13	D4294	Standard Test Method for Sulfur in Petroleum and Petroleum Products by Energy-Dispersive X-ray Fluorescence Spectrometry.
27-46	D5002	Standard Test Method for Density and Relative Density of Crude Oils by Digital Density Analyzer.
27-48	D4052	Standard Test Method for Density and Relative Density of Liquids by Digital Density Meter.
27-50	D93	Standard Test Methods for Flash-Point by Pensky-Martens Closed Cup Tester.
27-53	D2709	Standard Test Method for Water and Sediment in Middle Distillate Fuels by Centrifuge.
27-54	D1796	Standard Test Method for Water and Sediment in Fuel Oils by the Centrifuge Method.
	D70	Density of Semi-solid Bituminous Materials (Pycnometer method).
	D97	Standard Test Method for Pour Point of Petroleum Products.
	D4007	Standard Test Method for Water and Sediment in Crude Oil by the Centrifuge Method (Laboratory Procedure).

Anyone wishing to employ this entity to conduct laboratory analyses and gauger services should request and receive written assurances from the entity that it is accredited or approved by the U.S. Customs and Border Protection to conduct the specific test or gauger service requested. Alternatively, inquiries regarding the specific test or gauger service this entity is accredited or approved to perform may be directed to the U.S. Customs and Border Protection by calling (202) 344-1060. The inquiry may also be sent to CBPGaugersLabs@cbp.dhs.gov. Please reference the website listed below for a complete listing of CBP approved gaugers and accredited laboratories. <http://www.cbp.gov/about/labs-scientific/commercial-gaugers-and-laboratories>.

Dated: January 11, 2019.

Patricia Hawes Coleman,

Acting Executive Director, Laboratories and Scientific Services.

[FR Doc. 2019-00915 Filed 2-1-19; 8:45 am]

BILLING CODE 9111-14-P

DEPARTMENT OF THE INTERIOR

Bureau of Indian Affairs

[190A2100DD/AAKC001030/
A0A501010.999900253G]

Notice of Intent To Prepare an Environmental Impact Statement for the Eagle Shadow Mountain Solar Project on the Moapa River Indian Reservation, Clark County, Nevada

AGENCY: Bureau of Indian Affairs, Interior.

ACTION: Notice of intent.

SUMMARY: The Bureau of Indian Affairs (BIA), as lead agency in cooperation with the Moapa Band of Paiute Indians (Moapa Band), the Bureau of Land Management (BLM), and other agencies, intend to prepare an Environmental Impact Statement (EIS) that will evaluate a photovoltaic (PV) solar energy generation project on the Moapa River Indian Reservation and a transmission line located on Tribal lands, Federal lands administered and managed by BLM, and land owned by NV Energy in Clark County, Nevada. This notice announces the beginning of the scoping process to solicit public comments and identify potential issues related to the EIS. It also announces that two public scoping meetings will be held in Nevada to identify potential issues, alternatives, and mitigation to be considered in the EIS.

DATES: Written comments on the scope of the EIS or implementation of the proposal must arrive by March 6, 2019. The dates and locations of the public scoping meetings will be published in the *Las Vegas Sun*, *Las Vegas Review-Journal*, and *Moapa Valley Progress* 15 days before the scoping meetings.

ADDRESSES: You may mail, email, or hand carry written comments to Mr. Chip Lewis, BIA Western Regional Office, 2600 North Central Avenue, 4th Floor Mailroom, Phoenix, Arizona 85004; telephone: (602) 379-6750; email: Chip.Lewis@bia.gov.

SUPPLEMENTARY INFORMATION: The proposed Federal action, taken under 25 U.S.C. 415, is BIA's approval of a solar energy ground lease and associated agreements entered into by the Moapa Band with 325MK 8me LLC (Applicant), a subsidiary of 8minutenergy. The agreements provide for construction, operation and maintenance (O&M), and decommissioning of a 300-megawatt (MW) alternating current solar photovoltaic (PV) electricity generation facility located entirely on the Moapa River Indian Reservation and specifically on lands held in trust by BIA for the Moapa Band. A proposed 230 kilovolt (kV) generation-tie transmission line required for interconnection of the solar project would be located on Tribal lands, Federal lands administered and managed by BLM, and private lands.

The BIA and BLM would approve rights-of-way (ROWs) authorizing the construction and operation of the transmission line. Together, the proposed solar energy facility, transmission line, and other associated facilities will make up the proposed solar project (Project).

The Project would be constructed on up to 2,300 acres located within a 4,770-acre lease area in Township 16 South, Range 64 East that includes all or parts of Sections 9, 10, 11, 12, 14, 15, 16, 21, and 22 Mount Diablo Meridian, Nevada. Access to the Project would be provided by I-15, US-93, and North Las Vegas Boulevard. The overhead 230kV generation-tie transmission line would be approximately 10 miles long and would connect the solar project to NV Energy's Reid-Gardner 230kV substation.

Construction of the Project is expected to take approximately 16 to 18 months. The Applicant is expected to operate the energy facility for up to 50 years under the terms of the lease. The Project is expected to be built in one phase of 300 MW to meet an existing Power Purchase Agreement (PPA) for the output of the Project. Major onsite facilities include multiple blocks of solar PV panels mounted on fixed tilt or tracking systems, pad mounted inverters and transformers, collection lines, battery storage facilities, project substation, access roads, and O&M facilities. Water will be needed during construction for dust control and a minimal amount will be needed during operations for administrative and sanitary water use and possibly for panel washing. The water supply required for the Project would be leased from the Moapa Band.

The purposes of the proposed Project are, among other things, to: (1) Help to provide a long-term, diverse, and viable economic revenue base and job opportunities for the Moapa Band; (2) help Nevada and neighboring states to meet their State renewable energy needs; and (3) allow the Moapa Band, in partnership with the Applicant, to optimize the use of the lease site while maximizing the potential economic benefit to the Tribe.

BIA will prepare the EIS in cooperation with the Moapa Band, BLM, Environmental Protection Agency (EPA), US Air Force (USAF), and Nevada Department of Wildlife (NDOW) and possibly the U.S. Army Corps of Engineers. In addition, the U.S. Fish and Wildlife Service (USFWS) and National Park Service (NPS) will provide input on the analysis. The resulting EIS will aim to (1) provide agency decision makers, the Moapa Band, and the

general public with a comprehensive understanding of the impacts of the proposed Project and alternatives on the Reservation; (2) describe the cumulative impacts of increased development on the Reservation; and (3) identify and propose mitigation measures that would minimize or prevent significant adverse impacts. Consistent with these objectives, the EIS will analyze the proposed Project and appurtenant features, viable alternatives including generation-tie routing options, modified footprint alternatives, alternate routing for other Project ROWs, and the No Action alternative. Other alternatives may be identified in response to issues raised during the scoping process.

The EIS will provide a framework for BIA and BLM to make determinations and to decide whether to take the aforementioned Federal actions. In addition, BIA will use and coordinate the NEPA commenting process to satisfy its obligations under Section 106 of the National Historic Preservation Act (NHPA) (16 U.S.C. 470f) as provided for in 36 CFR 800.2(d)(3). Native American Tribal consultations will be conducted in accordance with policy, and Tribal concerns will be given due consideration, including impacts on Indian trust assets. Other Federal agencies may rely on the EIS to make decisions under their authority and the Moapa Band may also use the EIS to make decisions under their Tribal Environmental Policy Ordinance. USFWS will review the EIS for consistency with the Endangered Species Act, as amended, and other implementing acts, and may rely on the EIS to support its decisions and opinions regarding the Project.

Issues to be addressed in the EIS analysis may include, but would not be limited to, Project impacts on water resources, biological resources, threatened and endangered species, cultural resources, Native American religious concerns, and aesthetics. In addition to those resource topics identified above, Federal, State, and local agencies, along with other stakeholders that may be interested or affected by the BIA's decision on the proposed Project, are invited to participate in the scoping process to identify additional issues to be addressed.

Submission of Public Comments

Please include your name, return address, and the caption "EIS, Eagle Shadow Mountain Solar Project," on the first page of any written comments. You may also submit comments at the public scoping meetings.

The public scoping meetings will be held to further describe the Project and identify potential issues and alternatives to be considered in the EIS. The first public scoping meeting will be held on the Reservation and the other public scoping meeting will be held in Las Vegas, Nevada. The dates of the public scoping meetings will be included in notices to be posted in the *Las Vegas Sun*, *Las Vegas Review-Journal*, and *Moapa Valley Progress* 15 days before the meetings.

Public Comment Availability

Comments, including names and addresses of respondents, will be available for public review at the mailing address shown in the **ADDRESSES** section during regular business hours, 8 a.m. to 4:30 p.m., Monday through Friday, except holidays. Before including your address, phone number, email address, or other personal identifying information in your comment, you should be aware that your entire comment—including your personal identifying information—may be made publicly available at any time.

Authority

This notice is published in accordance with 40 CFR 1501.7 of the Council of Environmental Quality regulations and 43 CFR 46.235 of the Department of the Interior Regulations implementing the procedural requirements of the NEPA (42 U.S.C. 4321 *et seq.*), and in accordance with the exercise of authority delegated to the Principal Deputy Assistant Secretary—Indian Affairs by part 209 of the Department Manual.

Dated: December 21, 2018.

Tara Sweeney,

Assistant Secretary—Indian Affairs.

[FR Doc. 2019-00899 Filed 2-1-19; 8:45 am]

BILLING CODE 4337-15-P

DEPARTMENT OF THE INTERIOR

Bureau of Land Management

[LLWY-957000-18-L13100000-PP0000]

Notice of Stay of Filing of Plat of Survey, Wyoming

AGENCY: Bureau of Land Management, Interior.

ACTION: Notice of stay of filing of plat of survey, Wyoming.

SUMMARY: The Bureau of Land Management (BLM) has placed a stay on the filing of a plat of survey of the following described land, pending consideration of the protest and/or appeal that was filed within 30 calendar

Appendix B

Scoping Notifications and Mailing List

Appendix B – Scoping Notifications and Mailing List

In addition to the NOI, the public was formed about the scoping period and public meetings by one or more of the following notifications:

- Public notification via U.S. Mail:
 - Mailing list
 - Scoping letter
 - Project overview maps
- Newspaper advertisements
 - Las Vegas Review Journal
 - Moapa Valley Progress

Scoping Letter



United States Department of the Interior
BUREAU OF INDIAN AFFAIRS
Western Region
2600 N. Central Avenue, Fourth Floor Mailroom
Phoenix, AZ 85004-3050

DEPARTMENT OF THE INTERIOR
Bureau of Indian Affairs

Notice of Intent to Prepare an Environmental Impact Statement for the Proposed Eagle Shadow Mountain Solar Project on the Moapa River Indian Reservation, Clark County, NV

AGENCY: Bureau of Indian Affairs, Interior

ACTION: Notice

SUMMARY: The Bureau of Indian Affairs (BIA), as lead agency in cooperation with the Moapa Band of Paiute Indians (Moapa Band), the Bureau of Land Management (BLM), and other agencies, intend to prepare an Environmental Impact Statement (EIS) that will evaluate a photovoltaic (PV) solar energy generation project on the Moapa River Indian Reservation and a transmission line located on Tribal lands, Federal lands administered and managed by BLM, and land owned by NV Energy in Clark County, Nevada.

This notice announces the beginning of the scoping process to solicit public comments and identify potential issues related to the EIS. It also announces that two public scoping meetings will be held in Nevada to identify potential issues, alternatives, and mitigation to be considered in the EIS.

DATES: Written comments on the scope of the EIS or implementation of the proposal must arrive by March 6, 2019. The public scoping meeting on the Moapa River Indian Reservation will be held on March 5, 2019 and the public scoping meeting at the Painted Desert Golf Club in Las Vegas will be held on March 6, 2019.

ADDRESSES: You may mail, email, or hand carry written comments to Mr. Chip Lewis, BIA Western Regional Office, 2600 North Central Avenue, 4th Floor Mailroom, Phoenix, Arizona 85004; telephone: (602) 379-6750; email: Chip.Lewis@bia.gov.

Both public meetings will be held from 5:30 to 7:30 pm. The March 5th public scoping meeting will be held in the Tribal Hall on the Moapa River Indian Reservation, 1 Lincoln Street, Moapa, NV 89025. The March 6th public scoping meeting will be held at the Painted Desert Golf Club, 5555 Painted Mirage Road, Las Vegas, NV 89149. Each meeting is anticipated to last approximately two hours, with a presentation starting at 5:45 pm, and light refreshments provided.

SUPPLEMENTARY INFORMATION: The proposed Federal action, taken under 25 U.S.C. 415, is the BIA approval of a solar energy ground lease for approximately 2,300 acres and associated agreements entered into by the Moapa Band with 325MK 8me LLC (Applicant), a subsidiary of 8minutenergy, for the construction and operation of a 300 megawatt (MW) solar project using PV technology. The solar project would be located entirely on Moapa tribal lands. The project would also include an approximately 10-mile long electric transmission line that would cross Tribal lands, Federal lands administered by the BLM, and private lands owned by NVE to interconnect the project to the regional grid. The EIS will provide a framework for the BIA and the BLM to make determinations and take their respective federal actions. The federal action for the BIA would be to approve or deny a lease and any associated rights-of-way (ROW) on tribal lands for the proposed solar facility, and for the BIA and BLM to approve or deny grants of ROW for the proposed transmission line. Together, the proposed solar energy facility, transmission line, and other associated facilities will make up the proposed solar project (Project). The EPA may adopt the documentation to make decisions under their authority and the Moapa Band may also use the EIS to make decisions under their Tribal Environmental Policy Ordinance. The U.S. Fish and Wildlife Service will review the document for consistency with the Endangered Species Act, as amended and other implementing acts.

AUTHORITY: This notice is published in accordance with 40 CFR 1501.7 of the Council of Environmental Quality regulations and 43 CFR 46.235 of the Department of the Interior Regulations implementing the procedural requirements of the NEPA (42 U.S.C. 4321 et seq.), and in accordance with the exercise of authority delegated to the Principal Deputy Assistant Secretary-Indian Affairs by part 209 of the Department Manual.

Mr. Bryan Bowker
Director, Western Region
Bureau of Indian Affairs

Date: 2/12/19

Mailing List

First	Last	Title	Organization/Affiliation	Address 1	Address 2	City	State	Zip	Notes			
			Center for Biological Diversity	PO Box 710		Tucson	AZ	85702-0710				
			Center for Energy Efficiency and Renewable	1100 11th Street, Suite 311		Sacramento	CA	95814				
		Community Development	City of Mesquite	10 E. Mesquite Blvd.		Mesquite	NV	89027				
			Clark County Department of Comprehensive	Clark County Government Ce	500 South Grand Central Parkw	Las Vegas	NV	89155				
			Clark County Regional Flood Control District	600 South Grand Central Park	Suite 300	Las Vegas	NV	89106-4511				
			Conservation District of Southern Nevada	5820 South Pecos Road A-400		Las Vegas	NV	89120				
			Department of Air Quality and Environment	Clark County Desert Conserva	500 South Grand Central Parkw	Las Vegas	NV	89155-5201				
			Desert Tortoise Council	4654 East Avenue S	#257B	Palmdale	CA	93552				
			Environmental Defense Fund	1107 9th Street	Suite 1070	Sacramento	CA	95814				
Daniel	Shoemaker		Federal Aviation Administration	Air Traffic Airspace Branch, A	2601 Meacham Blvd.	Fort Worth	TX	76137-0520				
		President	Friends of Gold Butte	PO Box 3664		Mesquite	NV	89024				
			Friends of Nevada Wilderness	PO Box 33155		Las Vegas	NV	89133				
			FTV Comm C/O Level 3		1025 Eldorado Way	Broomfield	CO	80023				
			Great Basin Resource Watch	85 Keystone Avenue	#I	Reno	NV	89503				
			Great Basin Transmission, LLC	400 Chesterfield Center	Suite 110	St. Louis	MO	63017				
			Holly Energy Partners	P.O. Box 1260		Artesia	NM	88211				
			Intermountain Power Project	P.O. Box 111		Los Angeles	CA	90051				
			Kern River Gas Transmission Company	P.O. Box 71400		Salt Lake City	UT	84171				
		Attn: Real Estate Gr	KRoad Moapa Solar, LLC	c/o First Solar Electric, LLC	135 Main St. 6th Floor	San Francisco	CA	94105				
			Lahontan Audubon Society	Board of Trustees	P.O. Box 2304	Reno	NV	89505				
			Natural Resource Conservation Service	5820 South Pecos Road	Building A, Suite 400	Las Vegas	NV	89120				
			Natural Resources Defense Council	1314 Second Street		Santa Monica	CA	90401				
			Nellis Air Force Base	6020 Beale Ave	Suite 135	Nellis AFB	NV	89191				
			Nevada Clean Energy Campaign	250 Bell Street		Reno	NV	89503				
			Nevada Conservation League	2275 Renaissance Drive	Suite A	Las Vegas	NV	89128				
			Nevada Department of Air Quality and Envir	Clark County Government Ce	500 South Grand Central Parkw	Las Vegas	NV	89156				
			Nevada Department of Conservation and Na	Carson City	901 S. Stewart St., suite 1003	Carson City	NV	89701				
			Nevada Department of Transportation		1263 South Stewart Street	Carson City	NV	89712				
			Nevada Department of Wildlife	Southern Region	4747 Vegas Drive	Las Vegas	NV	89108				
			Nevada Division of Environmental Protection	901 South Stewart Street, Suite	4001	Carson City	NV	89701-5249				
			Nevada Energy	Environmental Department	PO Box 98910	Las Vegas	NV	89151-0001				
			Nevada Energy	Corporate Headquarters	6226 West Sahara Avenue	Las Vegas	NV	89146				
			Nevada Environmental Coalition, Inc	10720 Button Willow Drive		Las Vegas	NV	89134				
			Nevada Natural Heritage Program	901 South Stewart Street	Suite 5002	Carson City	NV	89701-5245				
			Nevada Natural Resource Education Council	PO Box 4741		Carson City	NV	89702-4741				
			Nevada Power Company		6226 West Sahara Avenue	Las Vegas	NV	89146				
			Nevada State Historic Preservation Office	100 North Stewart Street		Carson City	NV	89701-4285				
			Nevada Wilderness Project	Southern Nevada Office	7465 West Lake Mead Blvd Suite	Las Vegas	NV	89128				
			Nevada Wildlife Federation	PO Box 71238		Reno	NV	89570				
			NV Department of Transportation		1263 S. Stewart St	Carson City	NV	89712				
			NV Energy		P.O. Box 98910 MS # 9	Las Vegas	NV	89151				
			NV Power Company		P.O. Box 98910	Las Vegas	NV	89151				
		Conservation Comm	Red Rock Audubon Society	PO Box 96691		Las Vegas	NV	89193				
			Sierra Club	732 South 6th Street		Las Vegas	NV	89101-6948				
			Sierra Nevada Alliance	PO Box 7989		South Lake Tahoe	CA	96158				
			Sierra Pacific Power Company		P.O. Box 10100	Reno	NV	89520				
			Southern Nevada Water Authority	1001 S. Valley View Blvd		Las Vegas	NV	89153				
			The Conservation Alliance	PO Box 1275		Bend	OR	97709				
			The Nature Conservancy	1771 East Flamingo Road	Suite 104 A	Las Vegas	NV	89199				
The Honorable Dina	Titus	Nevada District 1	U S HOUSE OF REPRESENTATIVES	495 South Main Street	3rd Floor	Las Vegas	NV	89101				
The Honorable Steve	Horsford	Nevada District 4	U S HOUSE OF REPRESENTATIVES	2250 Las Vegas Blvd. North	Suite 500	Las Vegas	NV	89030				
The Honorable Susie	Lee	Nevada District 3	U S HOUSE OF REPRESENTATIVES	8872 S. Eastern Ave.	Suites 210 & 220	Las Vegas	NV	89123				
The Honorable Mark	Amodei	Nevada District 2	U S HOUSE OF REPRESENTATIVES	5310 Kietzke Lane	Suite 103	Reno	NV	89511				
The Honorable Dina	Titus	Nevada District 1	U S HOUSE OF REPRESENTATIVES	401 Cannon House Office Building		Washington	DC	20515				
The Honorable Steve	Horsford	Nevada District 4	U S HOUSE OF REPRESENTATIVES	1330 Longworth House Office Building		Washington	DC	25015				
The Honorable Susie	Lee	Nevada District 3	U S HOUSE OF REPRESENTATIVES	132 Cannon House Office Building		Washington	DC	20515				
The Honorable Mark	Amodei	Nevada District 2	U S HOUSE OF REPRESENTATIVES	222 Cannon House Office Building		Washington	DC	20515				

First	Last	Title	Organization/Affiliation	Address 1	Address 2	City	State	Zip	Notes			
			Union Pacific Railroad Company	1400 Douglas Street		Omaha	NE	68179				
The Honorable Cath	Masto	Senior Senator	UNITED STATES SENATE	333 Las Vegas Boulevard Sou	Suite 8016	Las Vegas	NV	89101				
The Honorable Jacky	Rosen	Junior Senator	UNITED STATES SENATE	8930 West Sunset Road	Suite 230	Las Vegas	NV	89148				
The Honorable Cath	Masto	Senior Senator	UNITED STATES SENATE	204 Russell Senate Office Building		Washington	DC	20510				
The Honorable Jack	Rosen	Junior Senator	UNITED STATES SENATE	324 Hart Senate Office Building		Washington	DC	20510				
			US Army Corps of Engineers	St. George Regulatory Office	321 N Mall Drive, Suite L-101	St. George	UT	84790				
			Western Resource Advocates	204 North Minnesota Street	Suite A	Carson City	NV	89703				
			Friends of Nevada Wilderness	8180 Placid St.		Las Vegas	NV	89123				
Glenn	Shaw	Nevada Director	Old Spanish Trail Association	P.O.Box 68		Blue Diamond	NV	89004				
Lynn	Brittner	Executive Director	Old Spanish Trail Association	P.O.Box 909		Las Vegas	NM	87701				
Vicki	Felmllee	President	Old Spanish Trail Association	178 Glory View Drive		Grand Junction	CO	81503				

Newspaper Notices

AFFIDAVIT OF PUBLICATION

STATE OF NEVADA)
COUNTY OF CLARK) SS:

**ENVALUE LLC
2514 TOURNAMENT DR
CASTLE ROCK CO 80108**

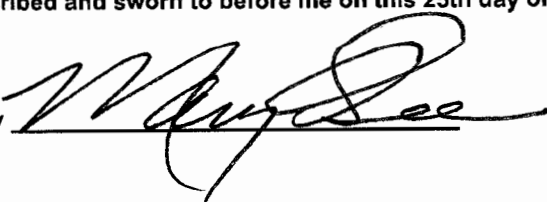
**Account # 179051
Ad Number 0001034315**

Leslie McCormick, being 1st duly sworn, deposes and says: That she is the Legal Clerk for the Las Vegas Review-Journal and the Las Vegas Sun, daily newspapers regularly issued, published and circulated in the City of Las Vegas, County of Clark, State of Nevada, and that the advertisement, a true copy attached for, was continuously published in said Las Vegas Review-Journal and / or Las Vegas Sun in 2 edition(s) of said newspaper issued from 02/17/2019 to 02/24/2019, on the following days:

02 / 17 / 19
02 / 24 / 19


/s/ _____
LEGAL ADVERTISEMENT REPRESENTATIVE

Subscribed and sworn to before me on this 25th day of February, 2019

Notary 



**Public Meeting
Announcement**

The U.S. Bureau of Indian Affairs (BIA) and the Moapa Band of Paiute Indians invite you to attend a scoping meeting to help identify the range and scope of issues related to the proposed Eagle Shadow Mountain Solar Project. The issues identified during the scoping process will be considered and addressed during preparation of the Environmental Impact Statement (EIS).

Please plan to attend one of the following meetings:

Tuesday, March 5, 2019
Moapa River Indian
Reservation Tribal Hall
One Lincoln Street, Moapa, NV
89025-0340

Wednesday, March 6, 2019
Painted Desert Golf Club
5555 Painted Mirage Road,
Las Vegas, NV 89149

Both meetings will be held between 5:30 pm and 7:30 pm with a brief presentation at 5:45 pm. Light refreshments will be served.

The proposed Eagle Shadow Mountain Solar Project will utilize photovoltaic (PV) technology and have a capacity of 300 MW. It will be located within the Moapa River Indian Reservation in Clark County, Nevada, west of Interstate 15 and approximately 40 miles northeast of Las Vegas. The project would also include an approximately 10-mile long electric transmission line that would cross Tribal lands, Federal lands administered by the BLM, and private lands owned by NV Energy to interconnect the project to the regional grid.

For more information on how to participate, contact:

Mr. Chip Lewis,
Regional Environmental
Protection Officer,
at Chip.Lewis@bia.gov
(602.379.6750) -or-
Mr. Randy Schroeder
at rschroeder@envalue.us.

**PUB: February 17, 24, 2019
LV Review-Journal**

Moapa Valley PROGRESS

Laura Robison
Office Manager
PO BOX 430
Overton, NV 89040
Office: (702) 397-6246
Fax: (702) 397-6247
progress2@mvdsl.com

AFFIDAVIT OF PUBLICATION

State of Nevada, Clark County

- I, Laura R. Robison, Office Manager of the Moapa Valley Progress, a weekly newspaper published in Moapa Valley, Clark County, Nevada, being duly sworn hereby certify that the following advertisement appeared in the Moapa Valley Progress:

public meeting announcement
Eagle Shadow Mountain Solar Project
(ENValue LLC)

A copy of the above described advertising is hereon attached.
It was published in the Moapa Valley Progress on this date(s):

Feb 20, 2019 + Feb 27, 2019

Signed before a Notary Public:

Signature: Laura R Robison Date: 3-6-19

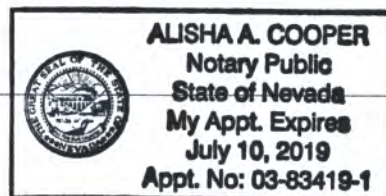
State of Nevada, County of Clark

This instrument was acknowledged before me Alisha A Cooper (notary public)

On 6 March 2019 (date) by Laura R. Robison (person signing

document)

Alisha A. Cooper
Notary Public Signature



Valentine’s Day brings friends together

By CATHERINE ELLERTON
Moapa Valley Progress

February 14 was a gloomy day outside, but as visitors approached the Moapa Valley Recreation/Sr. Center the warmth of friendship, love and memories brightened the atmosphere as folks gathered in celebration of the holiday.

From Okotoks in Alberta, Canada, Gary and Tonia Bills have been coming south for eight years. They attended the dinner along with Bill Young from Panguitch Lake, Utah who came bearing chocolate strawberries for his good friend Deanna Wiley from Moapa Valley.

Wiley said a special of Valentine’s Day was having good friends and being with them.

Sandie Buchholtz from Cheyenne, Wyoming and Neldon Lloyd from Sandy, Utah, agreed that Valentine’s Day brought out memories and love in others.



Line dancers entertain diners at the Valentine’s Day fundraiser dinner held by United Seniors, Inc at the Moapa Valley Recreation/Sr. Center last week.

As all anxiously awaited for dinner to be served, they were entertained by a western band made up of Lloyd and Carol Oster of Montana, Ken Brown from Wyoming, Lyle Lilienthal from Montana and Jason Ham from the Moapa Valley. These musicians entertain at local events and retirement homes.

MVHS National Honor So-

ciety members Katelyn Garlick, Daisy Parra and Ashlyn Western served a delicious meal of beef medallions, shrimp, salad, vegetables and garlic potatoes. Chef Raegan Whited said that her kitchen helpers were Jack and Nikki Bill that evening. She laughingly stated

that the dessert Raspberry Lemon Cake was a fast substitution, as she had no lemon pudding for the recipe so she used Jello instead.

Following dinner the Senior Center Line Dancers took to the to entertain guests. This group meets every Tuesday and Thursday from 9 to 11 a.m. to work on their routines. It is open to all and beginners meet at the 9 a.m. time.

One of the highly anticipated events during the evening was the drawing for gifts donated by local merchants. That evening the prizes that were drawn were from

Inside Scoop, Green Valley Grocers, Fit Therapy, Dr. Lance Robertson, Sage Health, FurBabies Grooming, La Fonda Restaurant and In Vision. They were followed by the 50/50 drawing.

The evening concluded with the band playing and Valentine’s Day celebrants dancing - an evening of shared laughter and good times to the strains of some of the oldies but goodies.

Mayor

from page A1

out the years,” he said. “We will continue to move forward.”

He noted that the current full-time population is now 22,500.

“A city does not run itself,” Litman said. “If it is to run correctly and smoothly, the must be dedicated to the betterment of the city.”

He described the intense dedication and loyalty to the city required by city and city council members as well as the city’s various departments.

He praised the department and recognized new Fire Chief Jason Andrus. He noted that a new engine was placed into service and that reserve grew from two to 10.

Litman discussed the undertaking of a natural gas project and said that the department will be working with Southwest Gas to provide tactical procedures in responding to any natural gas emergency.

Regarding the Department of Athletics and Leisure Services, Litman commended Director Nick Montoya on a job well done. He noted that the department has moved the city’s parks and facilities to a new water control system, saving the city water, money and time.

Litman described the completion of the Town Square Park and noted that the city has acquired a Silver Sneaker Contract that will pay the city to keep seniors healthy and active.

He noted that the department has plans to refurbish the S.E.C. Splash Pad in 2019 as well as obtain grant money for new park projects.

Litman credited City Clerk Tracy Beck with successful preparation and execution of local elections as well as the numerous other tasks performed by Beck.

Regarding the police department, Litman noted the designation of Mesquite as the safest city in Nevada.

“This honor the department’s strong relationship with the community and the combined of our citizens and in creating a proactive policing policy,” he said.

The mayor detailed the many achievements accomplished by the Public Works Department under the direction of Billy Tanner including the upcoming installation.

Litman spoke about many other invaluable departments and employees prior to noting recent city growth. In 2018, the city issued 338 single family residential building permits.

“That is the highest since 2008,” he said. “Our growth is about 4.25 percent annually.”

Litman said that an additional 19 commercial building permits, 40 commercial remodel permits and 52 new business permits were issued for a total of just under \$100 million. He said that 339 new businesses licenses were issued last year which was the most in any year ever.

Due to population growth the mayor said that the goal is to create a planning and zoning commission and that the city council will start that process.

In conclusion, Litman detailed his goals for the city including improved public safety regarding better planning and action for future power outages and city-wide emergencies.

“I don’t want us to just talk about this and hope we do not have an emergency beyond our control,” he said. “We need a real plan that will be in place and publicized to every home in the city.”

He spoke about improvements he hopes to make in community health care, job creation, political leadership and stability, planned, quality growth, sensibility and more.

“I conclude as I began today,” Litman said. “Mesquite is Mesquite is well. Our future is bright. Embrace it for all it has to .”

Public Meeting Announcement

The U.S. Bureau of Indian Affairs (BIA) and the Moapa Band of Paiute Indians invite you to attend a scoping meeting to help identify the range and scope of issues related to the proposed Eagle Shadow Mountain Solar Project. The issues identified during the scoping process will be considered and addressed during preparation of the Environmental Impact Statement (EIS).

Please plan to attend one of the following meetings:

Tuesday, March 5, 2019
Moapa River Indian Reservation Tribal Hall
One Lincoln Street, Moapa, NV 89025-0340

Wednesday, March 6, 2019
Painted Desert Golf Club
5555 Painted Mirage Road, Las Vegas, NV 89149

Both meetings will be held between 5:30 pm and 7:30 pm with a brief presentation at 5:45 pm. Light refreshments will be served.

The proposed Eagle Shadow Mountain Solar Project will utilize photovoltaic (PV) technology and have a capacity of 300 MW. It will be located within the Moapa River Indian Reservation in Clark County, Nevada, west of Interstate 15 and approximately 40 miles northeast of Las Vegas. The project would also include an approximately 10-mile long electric transmission line that would cross Tribal lands, Federal lands administered by the BLM, and private lands owned by NV Energy to interconnect the project to the regional grid.

For more information on how to participate, contact *Mr. Chip Lewis, Regional Environmental Protection Officer, at Chip.Lewis@bia.gov (602.379.6750) or Mr. Randy Schroeder at rschroeder@envalue.us.*

Town & Country in Overton, Nv!

128 N MOAPA BLVD

2017 Ford Expedition XLT 4X4
Duel Turbo Eco boost 8 Passenger
Towing Package & More
\$23,995

2016 Ford Fusion SE
Loaded Tinted Windows
only 33,000 Miles
\$13,495

2017 Chevy Cruze LT
1.4 Turbo Backup-Cam
Custom Tinted Windows
\$11,995

WE'RE THE LITTLE LOT WITH THE LITTLE PRICES!

Call (702) 397-2400

Prices do not include applicable Fees. Must present this card to get prices advertised. Subject to errors & admissions.

Moapa Valley Community Resources Fair

Informational

Saturday February 23, 2019
Fine Arts Building Clark County Fair Grounds
9:00 am to 1:00 pm
Free Admission

Who Can Benefit From These Services?

Children Veterans Caregivers
Young Adults Seniors

No Insurance And I need A Doctor!

Is there help with my taxes?

I need a ride to the doctor!

Job Training

Counseling Services for my Family

Nursing Services

Autism

Supported Living Arrangements?

Respite for Caregiver

Nutrition Counseling Services

I'm a caregiver and I really need a break!!

My son needs help badly!

Please Take The Survey

Come to the Fair and Learn about these Programs!

A Free Mobile Pediatric Medical Clinic will be available for fair attendees

Bring your little ones to see the doctor!

Representatives From • Federal • State • Local Agencies • Non-Profit Organizations • Service Groups

will be at the fair to provide information and answer questions about low or no cost services like the ones above and others.

Moapa Valley

Sponsored By:
Cappalappa Family Resource Center
and
Moapa Valley Revitalization Project

Appendix C

Meeting Materials

Appendix C – Meeting Materials and Sign-In Sheets

Appendix C contains materials available at the public scoping meetings including transcripts:

- Fact Sheets (two pages) plus project map
- Comment forms
- Sign-In sheets from meetings:
 - Moapa River Indian Reservation, Nevada
 - Painted Desert Golf Club, Las Vegas, Nevada
- Display Boards
- Presentation
- Transcripts

Project Fact Sheet



ENVIRONMENTAL IMPACT STATEMENT (EIS)

Fact Sheet

EAGLE SHADOW MOUNTAIN SOLAR PROJECT

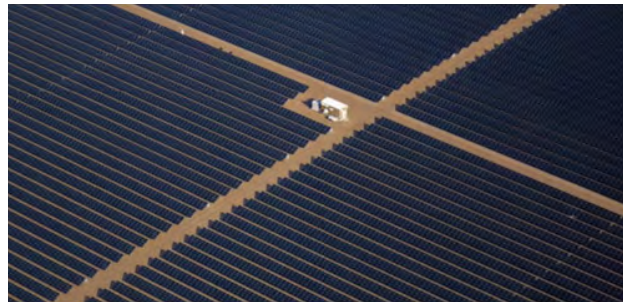
PROJECT OVERVIEW

The Eagle Shadow Mountain (ESM) Solar Project would generate 300MWs of energy using photovoltaic (PV) technology on tribal lands held in trust by the Bureau of Indian Affairs (BIA) within the Moapa River Indian Reservation (Reservation). The Project would lease up to 2,300 acres of land on the Reservation currently under option with the Moapa Band of Paiutes (Moapa Band). The Project also will require a gen-tie line, approximately 10 miles in length, to interconnect to the regional electric grid at NV Energy's Reid Gardner Substation. The gen-tie would be located within an existing utility corridor located on the Reservation but managed by the Bureau of Land Management (BLM) as well as BLM and private land (NV Energy).



PURPOSE AND NEED

The ESM Solar Project would help to provide a long-term, diverse, and viable economic revenue base and job opportunities for the Moapa Band while assisting Nevada and neighboring states to meet their renewable energy needs. The Project would allow the Moapa Band, in partnership with the developer, to optimize the use of the lease site while maximizing the potential economic benefit to the Tribe.



LEAD AND COOPERATING AGENCIES

The BIA is the lead federal agency preparing an Environmental Impact Statement (EIS) that will evaluate the proposed PV solar project on the Reservation in Clark County, Nevada. The Moapa Band, BLM, Environmental Protection Agency (EPA), US Air Force, US Fish and Wildlife Service (USFWS), and Nevada Department of Wildlife will be involved as cooperating agencies for the EIS.





FEDERAL ACTIONS REQUIRED

Below is a summary of the Federal actions required for the Project:

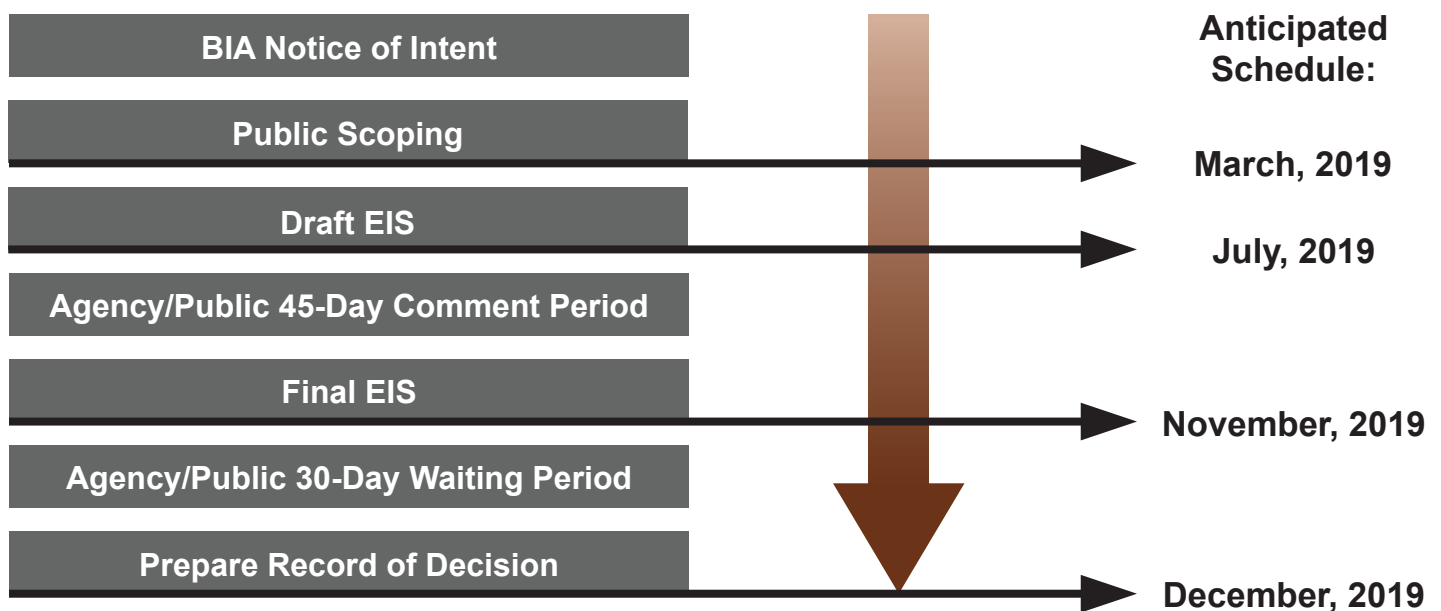
- The BIA's Federal action is the approval or denial of a ground lease and associated rights-of-way (ROW) and other agreements entered into by the Moapa Band for the construction and operation of the portions of the Project that would be located on Moapa tribal lands.
- The BLM's Federal action is to approve or deny grants of ROW for the proposed transmission line.
- The USFWS will issue a Biological Opinion regarding the Project's consistency with the Endangered Species Act, as amended and other implementing acts.
- The EPA may adopt the documentation to make decisions under their authority under the Clean Air and Clean Water Acts.

PUBLIC AND STAKEHOLDER INPUT

There are multiple opportunities for the public and interested stakeholders to provide input as part of the EIS process. Early in the process, the BIA will hold public scoping meetings and request written comments to solicit information on project benefits and impacts, resources of concern, and alternatives that should be considered.

Written comments can be sent to either Mr. Chip Lewis, Regional Environmental Protection Officer, BIA Western Regional Office Branch of Environmental Quality Services, 2600 North Center Avenue, 4th Floor Mail Room, Phoenix, AZ 85004-3008; telephone: (602) 379-6750; fax (602) 379-3833; email: chip.lewis@bia.gov. In addition, comments can be provided directly via the EIS website at www.esmsolareis.com.

EIS PROCESS / SCHEDULE



Meeting Presentation

Eagle Shadow Mountain Solar Project Environmental Impact Statement (EIS)



Scoping Meetings
March 5 and 6, 2019



The NEPA Process



- Chip Lewis
 - Regional Environmental Protection Officer
 - Bureau of Indian Affairs (Western Region)

- Contact Information:
 - BIA
 - Western Region
 - Branch of Environmental Quality Services (EQS)
 - 2600 North Central Avenue
 - 4th Floor Mailroom
 - Phoenix, AZ 85004
 - (602) 379-6750
 - chip.lewis@bia.gov*



Proposed Action



- **Who has proposed:**
 - 325MK 8me LLC and Moapa Band
- **What is proposed:**
 - Up to 50-year land lease on Reservation for operation of up to 300MW photovoltaic solar generation facility and ROWs on Tribal lands, Federal lands administered and managed by BLM, and private land (NV Energy) for transmission
- **Where:** Clark County, NV on Moapa River Indian Reservation and nearby BLM-administered lands and private land
- **Why:** Provide economic development and other benefits such as jobs and a revenue source for the Moapa Band of Paiute Indians and help meet goals for renewable energy



Environmental Impact Statement



EIS Process

Public input and documentation of environmental impacts that would result from implementation of the Proposed Action (Eagle Shadow Mountain Solar Project) to meet the requirements of the National Environmental Policy Act (NEPA) – published in Code of Federal Regulations (CFR 1500-1508). In addition this analysis could be used to satisfy the requirements of other relevant environmental and cultural resource laws and requirements.



Involved Agencies

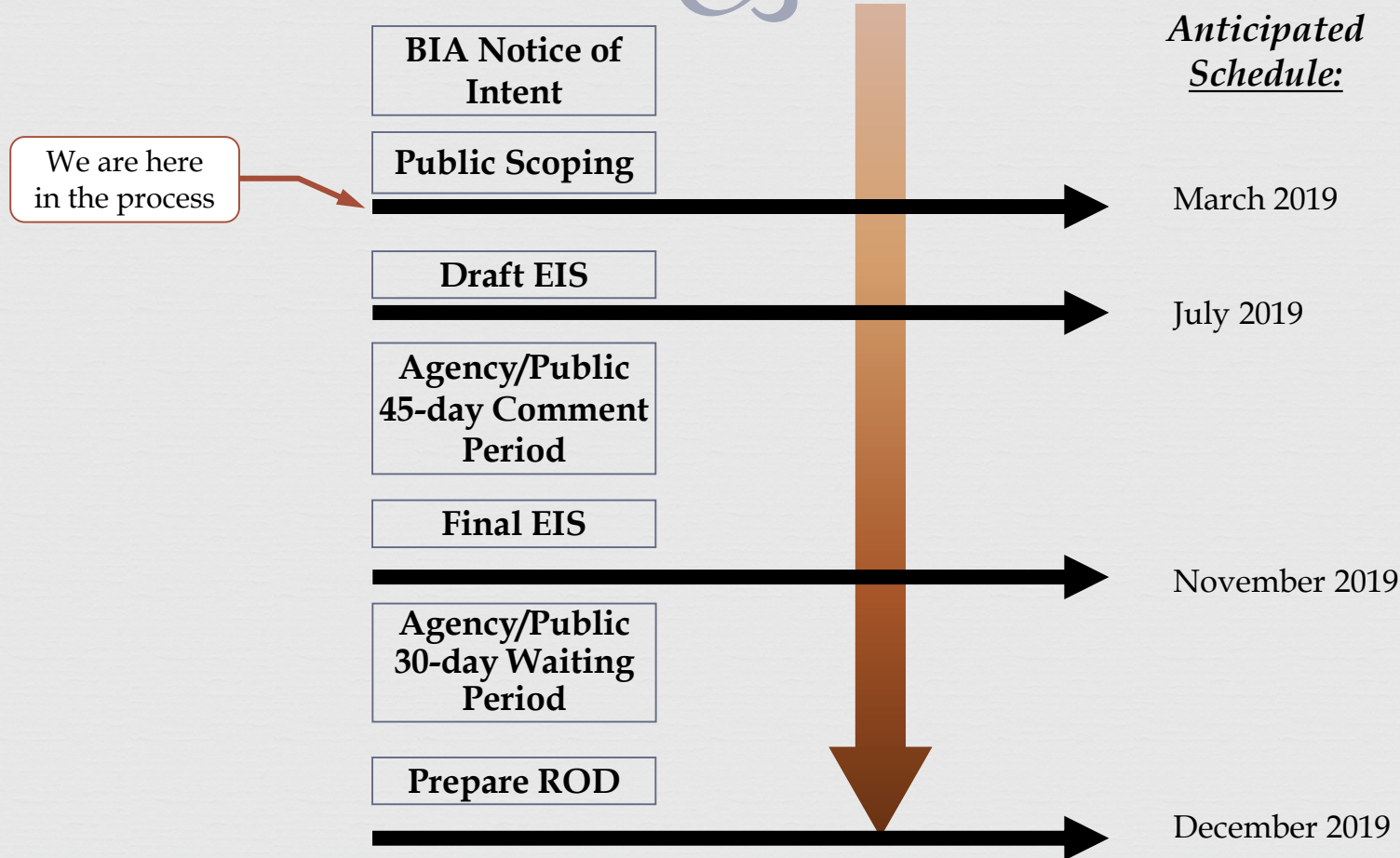


- **Lead Federal Agency**
 - U.S. Department of the Interior, Bureau of Indian Affairs
- **Cooperating Agencies**
 - Moapa Band of Paiute Indians (Moapa Band)
 - Bureau of Land Management (BLM)
 - Environmental Protection Agency (EPA)
 - US Air Force
 - US Fish and Wildlife Service (USFWS)
 - Nevada Department of Wildlife





EIS Process / Schedule





How to Participate



- Submit comment verbally at the end of the presentation
- Submit comment via comment form (leave behind or mail)
- Submit comment directly to court reporter
- Submit comment via email to:
 - chip.lewis@bia.gov
- Submit comment via the Project Website at:
 - www.ESMSolarEIS.com



Project Description



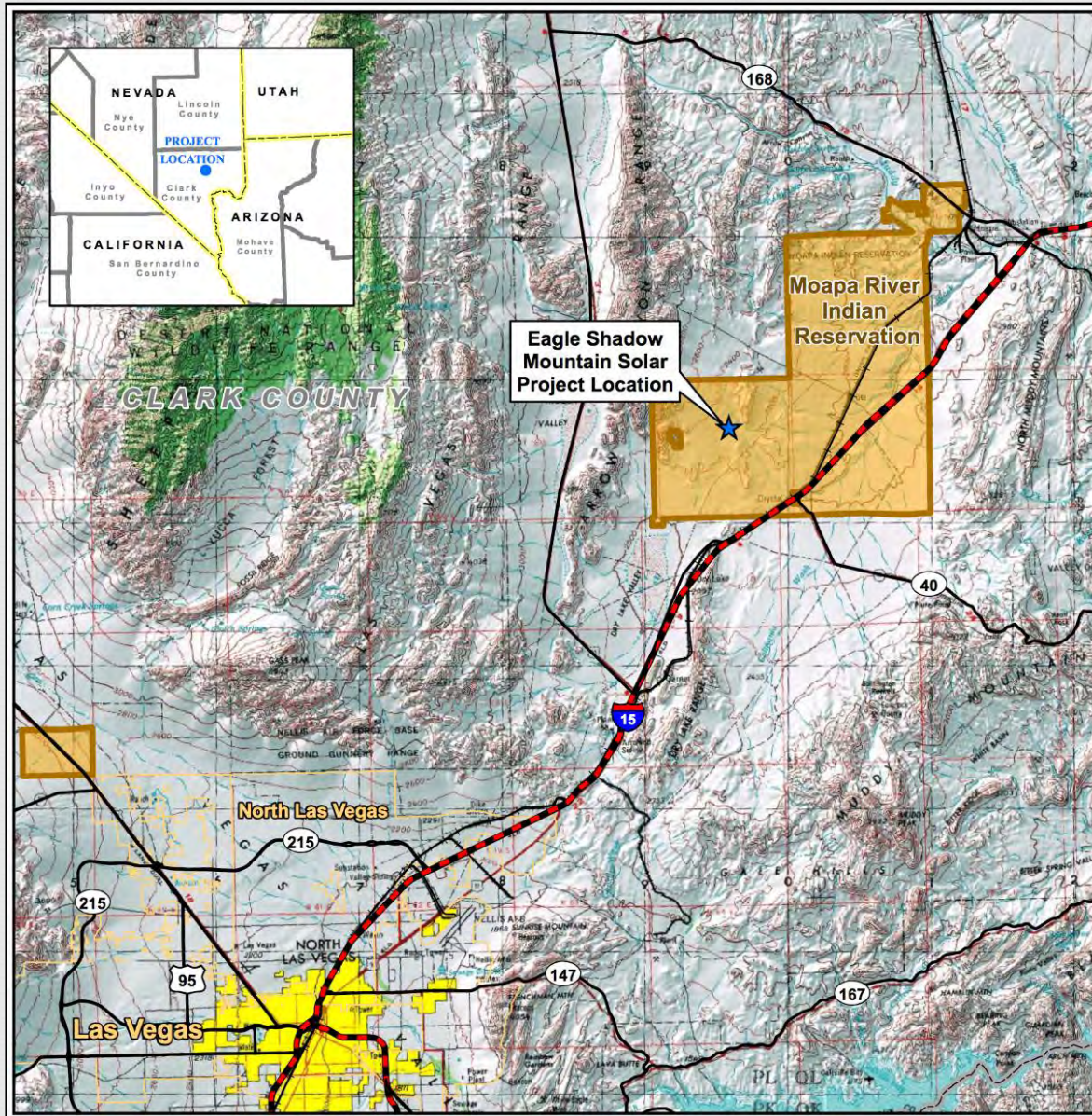
Randy Schroeder, ENValue

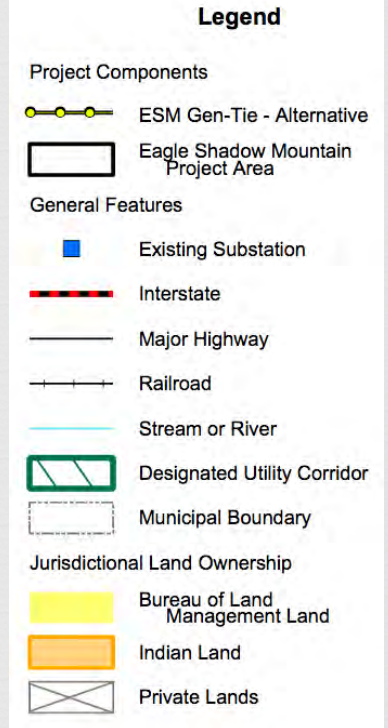
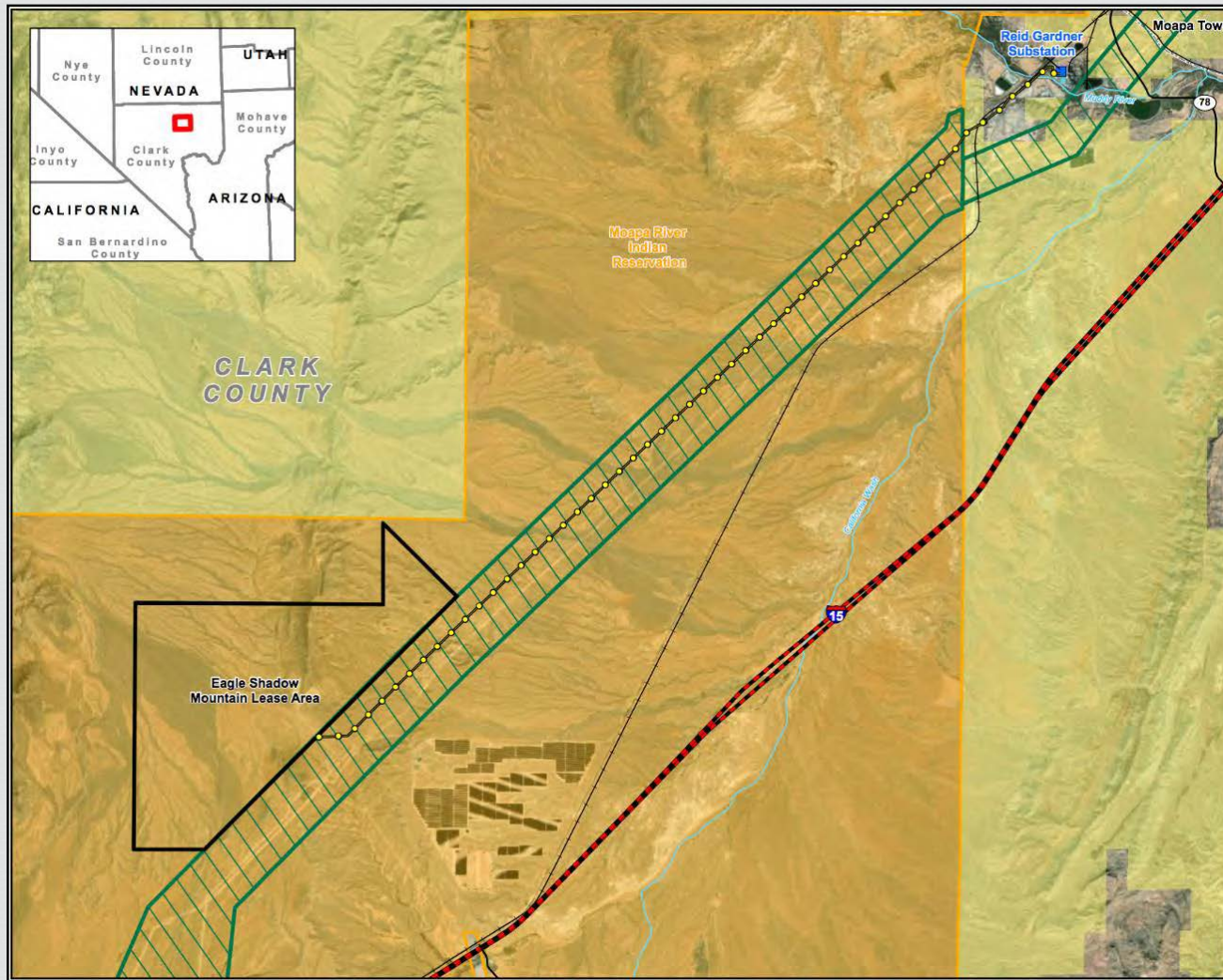
Eagle Shadow Mountain Solar Project

Project Location

Clark County, Nevada

Approximately 40 miles
northeast of Las Vegas





- Up to 2,300-acre solar site on Reservation
- 230kV transmission line on Reservation, BLM, and private
- Water from existing wells
- Existing access from I-15

Proposed Project Area

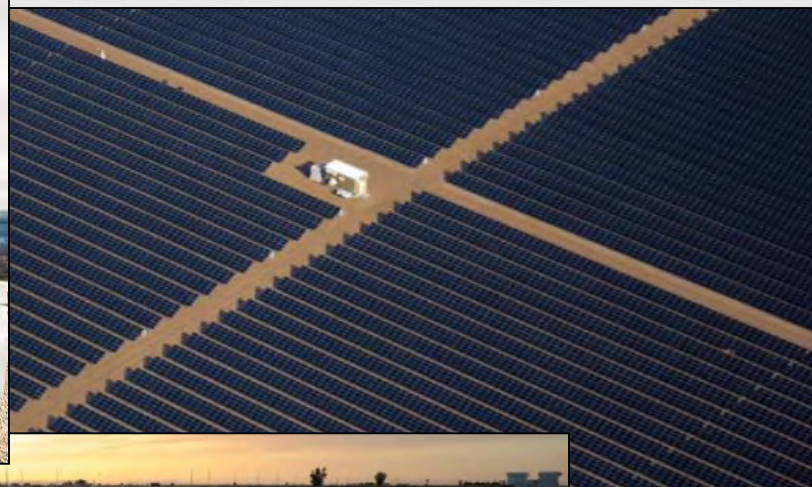


Eagle Shadow Mountain Solar Project Description

- Up to 2,300 acres (on Reservation) plus additional acreage of Right-of-Way for a transmission line on Tribal, BLM, and private lands
- Up to 300 Megawatts
 - Using Solar Photovoltaic (PV) Technology
 - Mounted on Single-Axis Tracking structures



Photovoltaic (PV) Panels





PV Solar Farm



- Solar arrays
- Inverters (converts DC to AC current)
- Electrical collection system
- Operation & Maintenance Building on site
- Fencing around the solar project perimeter
- No water used to generate electricity

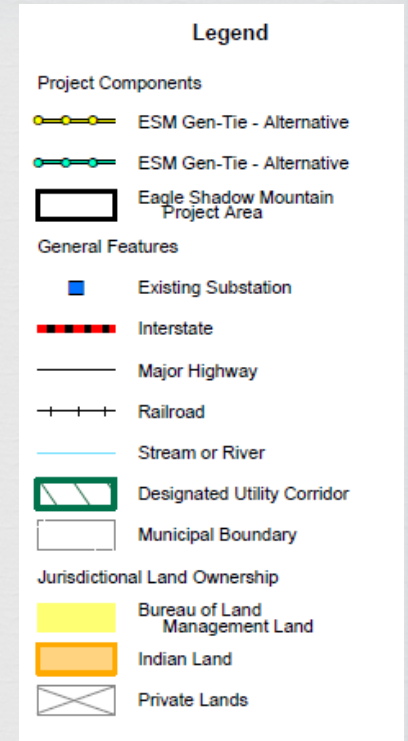
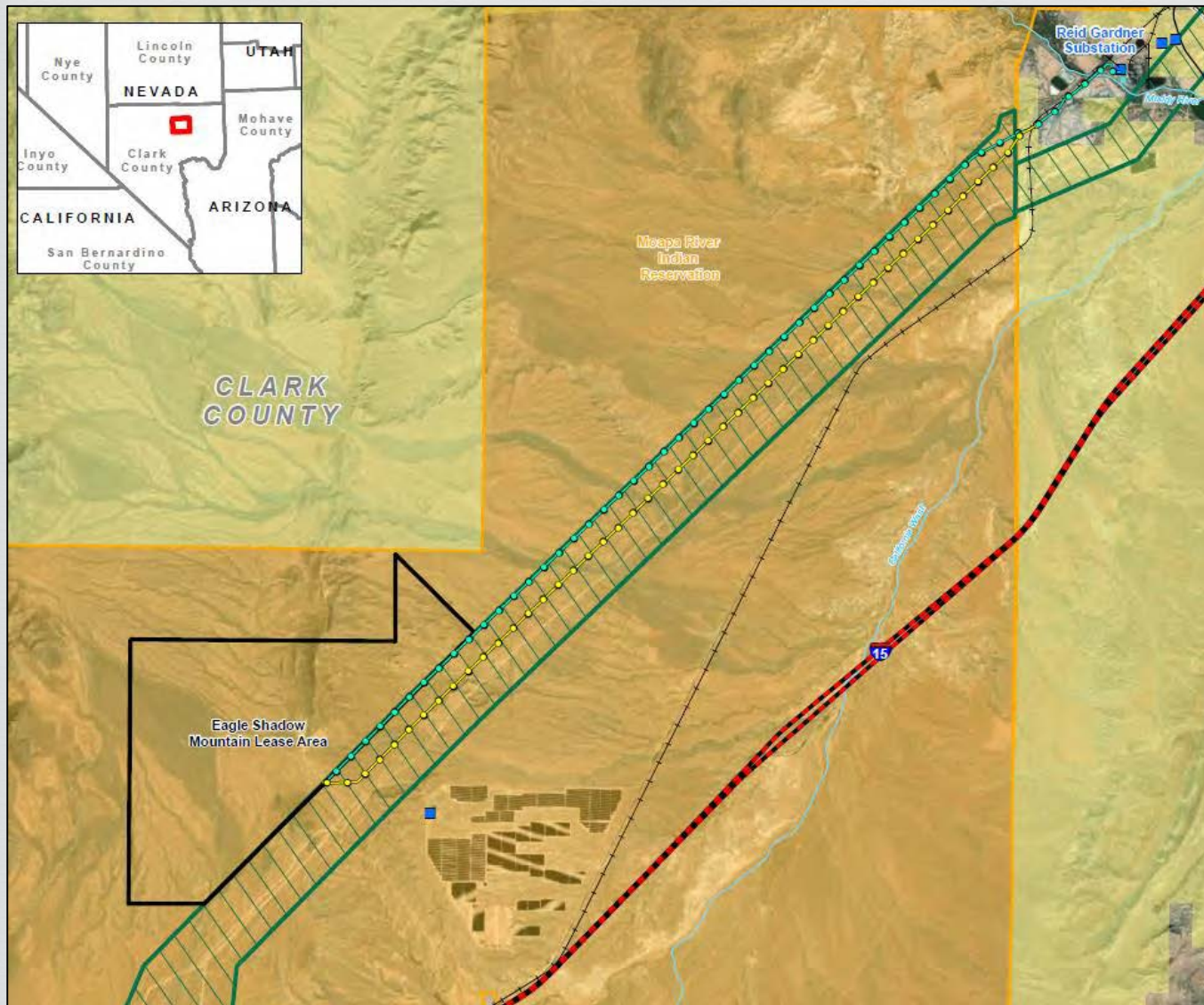


Associated Facilities



- Gen-Tie Transmission Line
 - Within an existing federally designated utility corridor managed by the BLM
 - 230kV line about 10 miles to NV Energy's existing Reid-Gardner Substation
 - Crosses Reservation (within an existing federally designated utility corridor managed by the BLM), BLM lands, and private lands owned by NV Energy
- Water provided by Moapa Band from wells adjacent to site on Reservation
- Existing access from I-15





Gen-Tie Alternative



Potentially Impacted Resources

- Biological Resources
 - Desert Tortoise
 - Desert Vegetation
 - Avian Species
- Cultural Resources
- Visual Resources
- Water Resources
- Socioeconomics



Comments / Questions



? ? ? ? ? ?

- Contact Information:
Chip Lewis
BIA
Western Region
Branch of Environmental
Quality Services (EQS)
2600 North Central Avenue
4th Floor Mailroom
Phoenix, AZ 85004
(602) 379-6750
chip.lewis@bia.gov

- Project Website:
www.ESMSolarEIS.com

Public Comment Form

.....

..... place
stamp
here

Mr. Chip Lewis
Regional Environmental Protection Officer
BIA Western Regional Office
2600 North Central Avenue
4th Floor Mailroom
Phoenix, AZ 85004

Meeting Posters

Eagle Shadow Mountain Solar Project Environmental Impact Statement (EIS)



Scoping Meetings
March 5 and 6, 2019



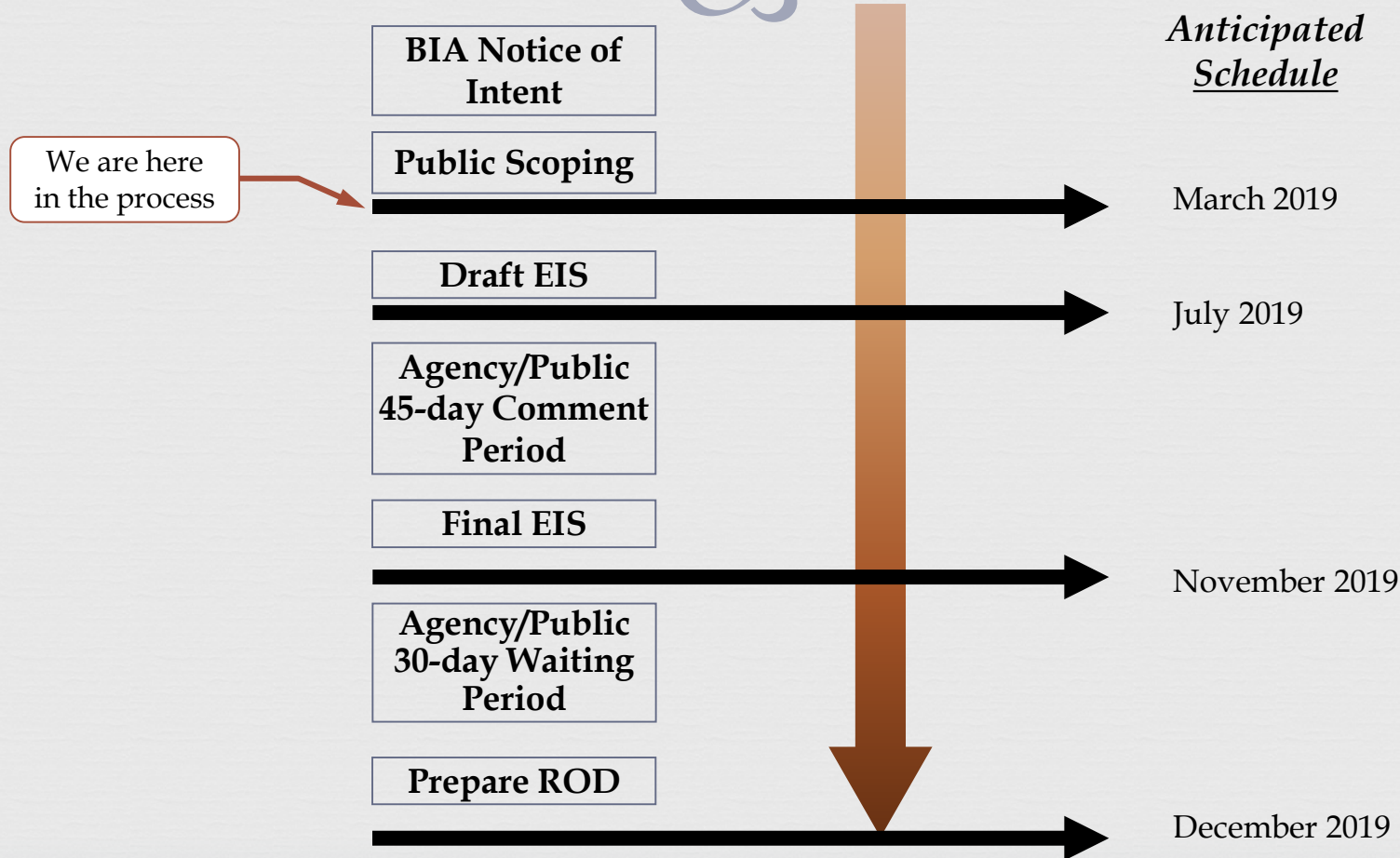
Proposed Action



- **Who has proposed:**
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- **Where:** Clark County, NV on Moapa River Indian Reservation and nearby BLM-administered lands and private land
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EIS Process/Schedule





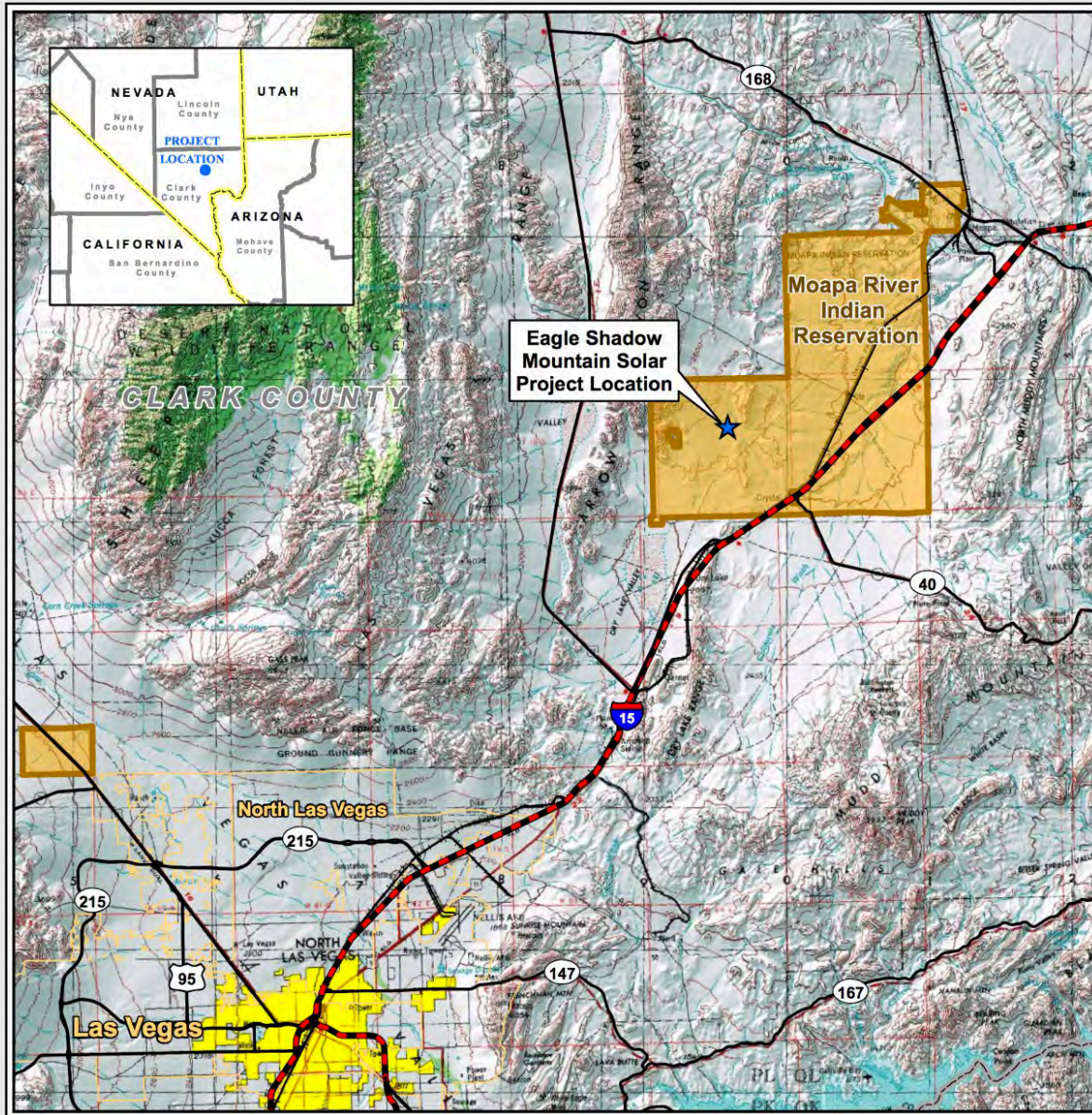
How to Participate

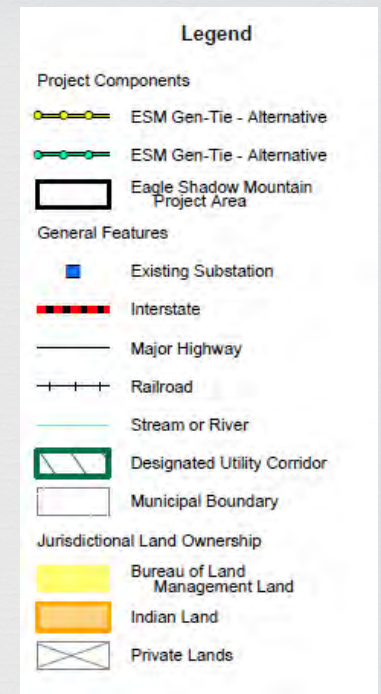
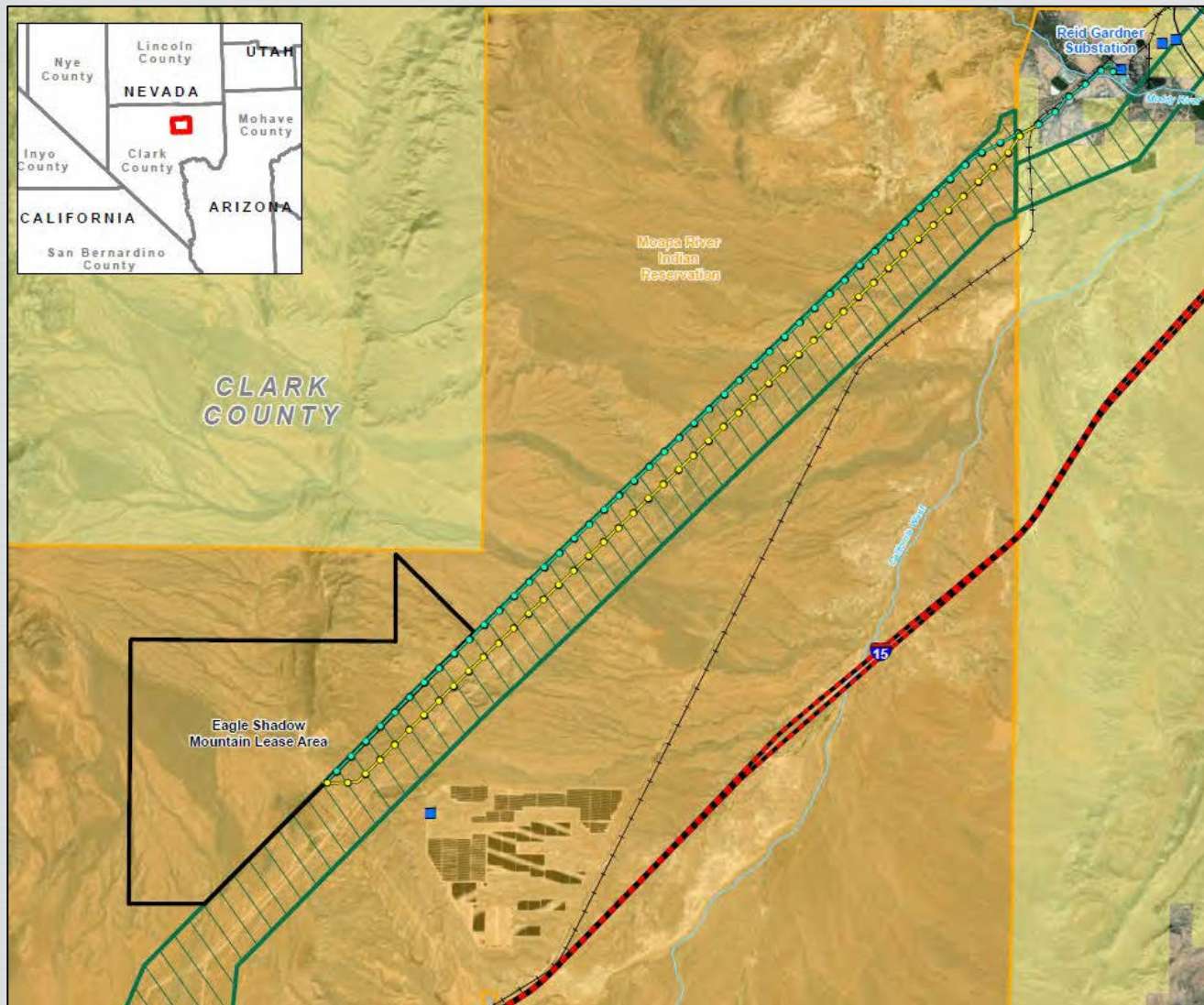


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- Submit comment directly to court reporter
- Submit comment via email to:
 - chip.lewis@bia.gov
- Submit comment via the Project Website at:
 - www.ESMSolarEIS.com

Project Location

Approximately
40 miles northeast
of Las Vegas (I-15)



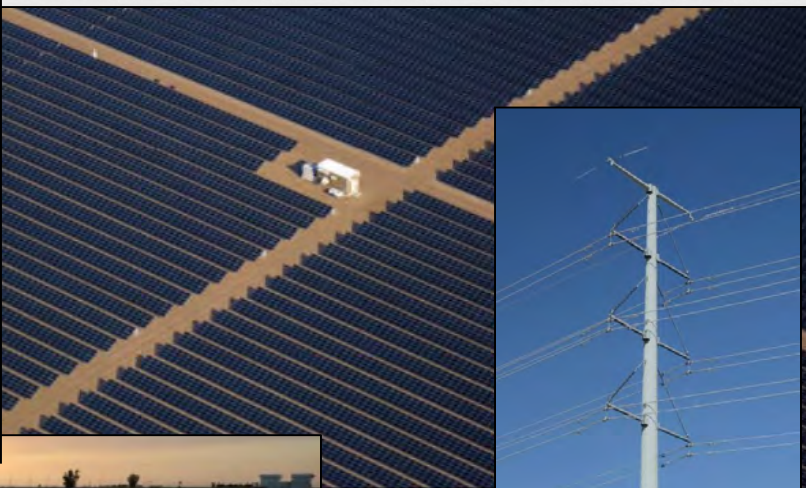


- Up to 2,300-acre solar site on Reservation
- 230kV transmission line on Reservation, BLM, and private
- Water from existing wells
- Existing access from I-15

Proposed Project Area



Project Components





Potentially Impacted Resources

- Biological Resources
 - Desert Tortoise
 - Desert Vegetation
 - Avian Species
- Cultural Resources
- Visual Resources
- Water Resources
- Socioeconomics

Public Scoping Meeting Sign-In Sheets



SIGN-IN SHEET: EAGLE SHADOW MOUNTAIN SOLAR PROJECT

Environmental Impact Statement Scoping Public Meeting – March 5, 2019

Moapa River Indian Reservation Tribal Hall, One Lincoln Street, Moapa, NV 89025-0340

Name/Organization	Mailing Address	Email
Bombercentral Business Services	P.O. Box 234 Moapa NV 89025	OHTE87@gmail.com
Jim Williams	BIA	James.Williams@bia.gov
Dan Moretz	8minutenergy	smoretz@8minutenergy.com
Kelsey Jones	8minutenergy	kjones@8minutenergy.com
Luke Shillington	8minutenergy	lshillington@8minutenergy.com
Chip Lewis	BIA	chip.lewis@bia.gov
Tamara Dawe	BIA	tamara.dawe@bia.gov
Christina Varela	BIA	Christina.Varela@bia.gov



SIGN-IN SHEET: EAGLE SHADOW MOUNTAIN SOLAR PROJECT

Environmental Impact Statement Scoping Public Meeting – March 5, 2019

Moapa River Indian Reservation Tribal Hall, One Lincoln Street, Moapa, NV 89025-0340

Name/Organization	Mailing Address	Email
PATRICIA MCABE LOGAN SIMPSON	51 WEST THIRD ST. #50 TEMPE AZ 85281	PMCCABE@LOGANSIMPSON.COM
Melissa Mayo	PO Box 325 Moapa NV 89025	
Stephanie Osborne	P.O. Box 461 Moapa, NV 89025	
Phil Swain	Moapa Nev	
Randall Simms	Moapa, NV	
DERRICK N. OLTE	Moapa, NV	
VERNON LEE MOAPA BAND MEMBER	N/A	—
Clay Bushhead	Moapa, NV	



SIGN-IN SHEET: EAGLE SHADOW MOUNTAIN SOLAR PROJECT

Environmental Impact Statement Scoping Public Meeting – March 5, 2019

Moapa River Indian Reservation Tribal Hall, One Lincoln Street, Moapa, NV 89025-0340

Name/Organization	Mailing Address	Email
ORION & MARGE SHERWOOD	1055 EASTGATE RD. SALT LAKE CITY, UT 84117-5778	margesher@men.com
Noel OHE		Bombercentral 000 00. Com
Brett Gale Overton Power District #5	bgale@opd5.com	Same
Theresa [Signature]	MBOP	
Vickie Simmons	PO BOX 340 Moapa, NV 89025	chair. mbop @onsapbandofnatives.org
Shane Tom	PO Box 547 Moapa NV 89025	
Laloni Miller	PO Box 391 Moapa, NV 89025	
Brandy Tom	PO Box 547 Moapa, NV 89025	



SIGN-IN SHEET: EAGLE SHADOW MOUNTAIN SOLAR PROJECT

Environmental Impact Statement Scoping Public Meeting – March 5, 2019

Moapa River Indian Reservation Tribal Hall, One Lincoln Street, Moapa, NV 89025-0340

Name/Organization	Mailing Address	Email
Ashly M. Osborne Tribal Member	1116 E Ogden Ave. Apt. 8 LV, NV 89101	missbander67@hotmail.com
Patrick Golden EnvValue	8071 E. 33rd Ave Denver, CO 80238	pgolden@heritage-ec.com
Emily Critchfield ICP/EnvValue	1501 E. 4th St. Long Beach, CA 90802	ecritchfield@Kpenvironmental.com
Sherryl Patterson Business Enterprises	PO Box 427 Moapa, NV. 89025	BEasst@moapabandofpautes.org
Karen Vitrano USEPA		
LB Concrete Const. Eric Lee Sr. - Tribal member	3744 W 625 E Cedar City UT 84721	LandBconcrete construction@gmail.com
ARLON LEVI MOAPA BAND OF PAUTE	P.O. Box 216 MOAPA NV	
Betty Henry	P.O. Box 142 Moapa NV 89025	



SIGN-IN SHEET: EAGLE SHADOW MOUNTAIN SOLAR PROJECT

Environmental Impact Statement Scoping Public Meeting – March 5, 2019

Moapa River Indian Reservation Tribal Hall, One Lincoln Street, Moapa, NV 89025-0340

Name/Organization	Mailing Address	Email
Lanita Bushhead	P.O. BOX 246 MOAPA NV 89025	—
Jennifer Samson	P.O. BOX 26 moapa, NV, 89025	—



SIGN-IN SHEET: EAGLE SHADOW MOUNTAIN SOLAR PROJECT

Environmental Impact Statement Scoping Public Meeting – March 5, 2019

Moapa River Indian Reservation Tribal Hall, One Lincoln Street, Moapa, NV 89025-0340

Name/Organization	Mailing Address	Email
Eric Lee Jr.	P.O. BOX 413	



SIGN-IN SHEET: EAGLE SHADOW MOUNTAIN SOLAR PROJECT
Environmental Impact Statement Scoping Public Meeting – March 6, 2019

Painted Desert Golf Club, 5555 Painted Mirage Road, Las Vegas, NV 89149

Name/Organization	Mailing Address	Email
Christina Varela BIA	St-George UT	christina.varela @bia.gov
BILL CONNORS MDU CONSTRUCTION SERVICES GROUP / BOMBARD	ISSAQUAH, WA	BILL.CONNORS@MDU.COM
ALAN BROOKS BOMBARD ELECTRIC	LAS VEGAS, NV	ALAN.BROOKS@ BOMBARDELEC.COM
PATRICIA MCABE LOGAN SIMPSON	51 WEST THIRD ST. 450 TEMPE AZ 85281	PMCCABE@ LOGANSIMPSON.COM
Mary Burger ENVALUE	Box 1005 Laveen, AZ 85339	burger@enval.com
Jim Williams BIA	13067 E. Highway 66 Valentine, AZ 86437	James.williams@bia.gov
GARRY CANTLEY BLA WRO	2600 N. CENTRAL AVE PHX, AZ 85003	Garry-Cantley@bia.gov



SIGN-IN SHEET: EAGLE SHADOW MOUNTAIN SOLAR PROJECT
 Environmental Impact Statement Scoping Public Meeting – March 6, 2019

Painted Desert Golf Club, 5555 Painted Mirage Road, Las Vegas, NV 89149

Name/Organization	Mailing Address	Email
Tamera Dawes WFO-BIA	2600 N. Central Ave Phoenix AZ 85004	tamera.dawes@bia.gov
Glen Knowler FWS	4701 Torrey Pines Ln NV 89130	glen-knowler@fws.gov
Patrick Golde ENR/Value	8071 E. 33rd Ave Denver, CO 80238	pgolde@heritage-ec.com
Chip Lewis BIA	2600 N. Central Ave 4th Floor Mailroom Phoenix, AZ 85004	chip.lewis@bia.gov
Luke Shillington 8minutenergy Renewables	250 Sutter St., Suite 600 San Francisco, CA 94108	lshillington@8minutenergy.com

Appendix D

Scoping Comments Received

Appendix D – Scoping Comments Received

This Appendix contains all scoping comments received.

Public Meeting Transcripts

Environmental Impact Statement Scoping Meeting

Eagle Shadow Mountain Solar Project

03/05/2019



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Page 1	Page 3
<p>1 EAGLE SHADOW MOUNTAIN SOLAR PROJECT</p> <p>2 ENVIRONMENTAL IMPACT STATEMENT</p> <p>3 (EIS)</p> <hr/> <p>6 SCOPING MEETING</p> <p>8 MARCH 5, 2019</p> <p>9 5:30 P.M.</p> <p>11 MOAPA RIVER INDIAN RESERVATION TRIBAL HALL</p> <p>12 ONE LINCOLN STREET</p> <p>13 MOAPA, NEVADA</p> <p>15 MODERATOR: CHIP LEWIS</p> <p>16 ENVIRONMENTAL PROTECTION OFFICER FOR THE WESTERN</p> <p>17 REGIONAL OFFICE OF THE BUREAU OF INDIAN AFFAIRS</p> <p>25 REPORTED BY: KEVIN WM. DANIEL, FAPR, RDR, CRR, CCR 711</p>	<p>1 I, too, am with the Bureau of Indian Affairs. I'm the</p> <p>2 regional archeologist out of Phoenix.</p> <p>3 MARY BARGER: I'm Mary Barger. I'm an</p> <p>4 archeologist, and I'm assisting Gary Cantley.</p> <p>5 PATRICIA McCABE: I'm Patricia McCabe, and I'm</p> <p>6 helping Chip.</p> <p>7 TAMARA DAWES: Good evening. I'm Tamara</p> <p>8 Dawes. I'm your regional realty specialist for the BIA</p> <p>9 in Phoenix.</p> <p>10 CHRISTINA VARELA: I'm Christina Varela. I'm</p> <p>11 the realty specialist at Southern Paiute agency.</p> <p>12 JIM WILLIAMS: Good evening. I'm Jim</p> <p>13 Williams. I'm the Agency Superintendent for the</p> <p>14 Southern Paiute and Truxton Canon agencies.</p> <p>15 BRETT GALE: Brett Gale, Overton Power</p> <p>16 District.</p> <p>17 DEBBIE OSBORNE: Debbie Osborne, member.</p> <p>18 ASHLEY OSBORNE: Ashley Osborne, Tribal</p> <p>19 member.</p> <p>20 BRANDY TOM: Brandy Tom, wife.</p> <p>21 (Laughter)</p> <p>22 MARTHA MAYO: Martha Mayo, member.</p> <p>23 MARGE SHERWOOD: Marge Sherwood. I'm a</p> <p>24 snowbird from Mesquite.</p> <p>25 ORION SHERWOOD: I'm Orion Sherwood. My</p>
Page 2	Page 4
<p>1 P-R-O-C-E-E-D-I-N-G-S</p> <p>2 VICKIE SIMMONS: Good evening, everybody.</p> <p>3 We'll get started right now, so I'm going to say a few</p> <p>4 words before they get the video started.</p> <p>5 Council, we'd like to welcome all visitors</p> <p>6 here. The entire Council is here tonight. There's</p> <p>7 Randall Simmons in the background. Randall? Tyler</p> <p>8 Samson, Vice Chairman. There's Shane Tom, Councilman.</p> <p>9 There's Kami Miller, Council, and I believe Laurie Kay</p> <p>10 is in the red jacket. She's in the office there. So I</p> <p>11 welcome all the dignitaries here.</p> <p>12 I would like, if you don't mind, to hurry up</p> <p>13 and pass the mic around so we can see who everybody is,</p> <p>14 if that won't take too long.</p> <p>15 RANDY SCHROEDER: My name is Randy Schroeder,</p> <p>16 assisting the Bureau of Indian Affairs with the</p> <p>17 Environmental Impact Statement.</p> <p>18 CHIP LEWIS: My name is Chip Lewis. I'm with</p> <p>19 the Bureau of Indian Affairs in the Western Region in</p> <p>20 Phoenix, and I'm the Project Manager for the</p> <p>21 Environmental Impact Statement.</p> <p>22 PATRICK GOLDEN: Pat Golden, also with</p> <p>23 ENValue, assisting BIA with the Environmental Impact</p> <p>24 Statement.</p> <p>25 GARY CANTLEY: Good afternoon. Gary Cantley.</p>	<p>1 interest in solar goes back to about 1956 when I did a</p> <p>2 mechanical engineering thesis on solar energy</p> <p>3 utilization in heating and cooling, and I followed this</p> <p>4 as electric solar panels have developed. I do have 26</p> <p>5 panels on a triplex that I own in Salt Lake City. So</p> <p>6 I'm here very much interested in how these solar panel</p> <p>7 projects can really make the Southwest, particularly,</p> <p>8 an energy producer for the nation.</p> <p>9 LALLOVI MILLER: Lalovi Miller, Tribal member.</p> <p>10 VERNON LEE: Vernon Lee, Tribal member.</p> <p>11 PHIL SWAIN: Jose Canseco, retired ballplayer.</p> <p>12 (Laughter)</p> <p>13 LUKE SHILLINGTON: I am Luke Shillington. I'm</p> <p>14 with 8minutenergy, project performance. I am doing</p> <p>15 all the permitting on the projects. I've been working</p> <p>16 with consultants and the BIA.</p> <p>17 KELSEY JONAS: Kelsey Jonas with</p> <p>18 8minutenergy as well, working for our team.</p> <p>19 JASON MORETZ: Jason Moretz with 8minutenergy,</p> <p>20 and I'm the Project Manager for the project.</p> <p>21 DENNIS HARPER: Good evening. I'm Dennis</p> <p>22 Harper with 8minutenergy. I handle the real estate</p> <p>23 acquisition work for 8minutenergy.</p> <p>24 VICKIE SIMMONS: I think everybody knows</p> <p>25 Cheryl back there. She's been working for the business</p>

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<p>1 management for a while.</p> <p>2 CHERYL PATTERSON: Cheryl Patterson. Again,</p> <p>3 most of you all know me. Thank you for coming.</p> <p>4 VICKIE SIMMONS: Okay. We're ready. Thank</p> <p>5 you, everybody, for participating.</p> <p>6 CHIP LEWIS: In place of an invocation, we'd</p> <p>7 just like to have a moment of silence, if we can,</p> <p>8 please.</p> <p>9 (Moment of silence observed.)</p> <p>10 Thank you very much.</p> <p>11 JIM WILLIAMS: Welcome. Once again, I'm Jim</p> <p>12 Williams. I'm the agency superintendent, and just</p> <p>13 welcoming everybody to the public scoping meeting for</p> <p>14 your chance to comment on the EIS program or paper. I</p> <p>15 find I learn something all the time, so welcome. If</p> <p>16 you want to comment, there's plenty of places to do</p> <p>17 this. There's another scoping meeting tomorrow evening</p> <p>18 in Las Vegas as well. Thank you.</p> <p>19 CHIP LEWIS: Thanks, Jim. I'm just going to</p> <p>20 forget the mic, so hopefully you all can hear me. I'll</p> <p>21 stand up here and wave around and do my thing, I guess.</p> <p>22 So the Federal Government is required to</p> <p>23 prepare what's called an Environmental Impact</p> <p>24 Statement. That arises out of the National</p> <p>25 Environmental Policy Act, and it's basically an</p>	<p>1 be involved, although I don't think they're here. They</p> <p>2 might be coming to tomorrow's meeting. The Fish and</p> <p>3 Wildlife Service, because of the endangered species</p> <p>4 that are located on the Reservation. They'll be</p> <p>5 working with us to come up with ways to protect those</p> <p>6 species as much as we can.</p> <p>7 Nevada's Department of Wildlife is on board</p> <p>8 for the same reason, the non-named species like the</p> <p>9 tortoise that's involved, and since the project does</p> <p>10 slightly leave the Reservation, is on BLM land, then</p> <p>11 they would actually have the authority for the</p> <p>12 tortoises on that BLM land, so they're partners in the</p> <p>13 preparation of the big environmental report that we'll</p> <p>14 be doing.</p> <p>15 So the proposal that came to us, to BIA from</p> <p>16 the Tribe and 8Minute, is, as you see here, Randy, do</p> <p>17 you want to take this part over and talk about it, or</p> <p>18 Luke, or do you just want me to keep going, summarize?</p> <p>19 RANDY SCHROEDER: Go ahead. I'll provide more</p> <p>20 detail.</p> <p>21 CHIP LEWIS: Okay. So what it amounts to, for</p> <p>22 our purposes here, is the lease, so the second bullet</p> <p>23 there, the 50-year lease on the Reservation, that's the</p> <p>24 last full action before the BIA that requires approval</p> <p>25 out of realty, and that's what's triggering having to</p>
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<p>1 environmental report that we have to prepare that</p> <p>2 analyzes the impacts of a decision we have to make or</p> <p>3 if we're funding, the Federal Government is funding a</p> <p>4 project or issuing a permit.</p> <p>5 In this case, the Tribe has approached the</p> <p>6 BIA, saying they'd like to engage with the company,</p> <p>7 8minute solar, to build a solar project on Tribal lands</p> <p>8 to generate income and serve the Tribe, and so we're</p> <p>9 preparing this document.</p> <p>10 We also have some partners on board, because</p> <p>11 it's kind of a communal, multi-agency document.</p> <p>12 So first and foremost, the first partner and</p> <p>13 cooperator in this effort to prepare the document is</p> <p>14 the Moapa Band as a government agency. Moapa Band has</p> <p>15 opted to help in the preparation and review of the</p> <p>16 document. We also have the BLM involved, because the</p> <p>17 big corridor that has all the power lines is managed by</p> <p>18 BLM, and also a little tiny piece of the project does</p> <p>19 go on BLM land, so they have something before them they</p> <p>20 have to do, which is issuing the right-of-way for that</p> <p>21 line. EPA is also, they're always involved in</p> <p>22 Environmental Impact Statements because they have a</p> <p>23 reviewing commitment to just participation because</p> <p>24 they're the EPA and help protecting the environmental.</p> <p>25 We also have the Air Force say they wanted to</p>	<p>1 prepare the environmental document under all the</p> <p>2 various environmental laws. So that's why we're here,</p> <p>3 to start that process of a preparation of the document.</p> <p>4 As you know, of course, the project's here on</p> <p>5 the Reservation to provide economic benefit for the</p> <p>6 Tribe, so it's not off, like the Gemini project, a few</p> <p>7 miles away. It's on the Reservation, for folks that</p> <p>8 aren't Tribal members, and its obvious purpose is to</p> <p>9 provide economic benefit to the Tribe.</p> <p>10 Like I said, I'm the manager for the BIA</p> <p>11 that's managing the process of preparing the document,</p> <p>12 making sure that BIA complies with all the federal</p> <p>13 environmental regulations that are driving the</p> <p>14 preparation of the document. So we're, BIA people move</p> <p>15 to all the federal environmental laws, and so therefore</p> <p>16 we have to go ahead and go through this process.</p> <p>17 The EIS process is really a public process.</p> <p>18 It's a process of discovery. We know what the project</p> <p>19 is to build a solar project. It has some certain</p> <p>20 amount of impact, and, of course, it has benefits. And</p> <p>21 so the EIS process, the National Environmental Policy</p> <p>22 Act, requires us to explore those impacts and benefits</p> <p>23 and disclose them and help them, help us make the best</p> <p>24 decision we can moving forward, and that all has to be</p> <p>25 done before the actual document like the lease can be</p>

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<p>1 approved.</p> <p>2 The EIS process starts out with scoping, which</p> <p>3 is interaction with the public to find out what issues</p> <p>4 anybody might have or opportunities, concerns, anything</p> <p>5 you might think about it. And so the BIA is holding a</p> <p>6 series of public meetings, one here on the Reservation</p> <p>7 tonight, and one tomorrow down in Las Vegas, with the</p> <p>8 whole point being, we want to share the information of</p> <p>9 what's proposed and what we're doing, and then really</p> <p>10 getting input from you all. So we want to know what</p> <p>11 you think about it, if you have any ideas, if there's</p> <p>12 some issue.</p> <p>13 We've tried to think of everything we know</p> <p>14 about that might arise from building the solar project,</p> <p>15 but you all live here and know what is here, know the</p> <p>16 scenery, know what plants and animals are here, or know</p> <p>17 how, in your mind, or as a community, this project</p> <p>18 might affect you, good or bad.</p> <p>19 And so what we're doing tonight is really</p> <p>20 asking for your input and comment, and I think, in a</p> <p>21 slide or two we'll tell you how you can do that.</p> <p>22 So like I said, we're kind of in the</p> <p>23 beginning. The first box or two are just the</p> <p>24 formalities of publishing in kind of the official</p> <p>25 government newspaper, our declaration and intent to</p>	<p>1 functionally. And that's basically the process in a</p> <p>2 nutshell.</p> <p>3 How to participate: We have a court reporter</p> <p>4 here. He is recording everything we say, and he's</p> <p>5 especially reporting what you all have to say or your</p> <p>6 comments, because they are, indeed, the most important.</p> <p>7 That's what we're here for. So you can, when we're</p> <p>8 kind of done with the presentation, you can stand up or</p> <p>9 stay sitting down, whatever your preference is, and</p> <p>10 talk to us about whatever it is you want to say, and it</p> <p>11 will be recorded for the official record and become</p> <p>12 part of this document.</p> <p>13 If you're a little bit too shy to do that, you</p> <p>14 can fill out a comment form. You can also e-mail me.</p> <p>15 I think my e-mail address is up there, or you can go</p> <p>16 onto the project website and also leave a comment</p> <p>17 there. So we're trying to make it easy as we can to</p> <p>18 make sure that we are inclusive and get as much input</p> <p>19 as we can from the public.</p> <p>20 I'll turn it over to Randy now. He's going to</p> <p>21 go into the detail a little bit more on the actual</p> <p>22 project.</p> <p>23 PHIL SWAIN: Question?</p> <p>24 CHIP LEWIS: Yes, sir.</p> <p>25 PHIL SWAIN: I'm confused. I haven't been to</p>
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<p>1 prepare this document, because it is mandated to be</p> <p>2 public. We had to do that to let everybody in the</p> <p>3 country know that we're going to prepare this document.</p> <p>4 And now we're literally at the second box,</p> <p>5 which is public scoping, and we're kicking that off</p> <p>6 here tonight.</p> <p>7 After we gather all the information we can,</p> <p>8 we'll proceed on preparing a draft EIS, it's called,</p> <p>9 where we put together the whole document as best we</p> <p>10 can, and then we put it out for public comment again.</p> <p>11 Like I said, the idea is to involve the</p> <p>12 public, so this document will be made available for you</p> <p>13 all to review and comment on.</p> <p>14 We'll have another round of meetings after</p> <p>15 appropriate time is given to allow for that review, and</p> <p>16 we'll get your comments once again on whether or not we</p> <p>17 got everything right in that document.</p> <p>18 And then, after that, we proceed on with the</p> <p>19 final publication after any comments or address or</p> <p>20 corrections made or anything that might need to be done</p> <p>21 to make the document as good as it can be.</p> <p>22 Then once again, we have to post a notice in</p> <p>23 that federal paper, the Federal Register, declaring</p> <p>24 we're done, we have the final document, and we're about</p> <p>25 to make our decision to go ahead and approve the lease</p>	<p>1 many meetings about the project. So looking at this</p> <p>2 map, what is all this dark figures here?</p> <p>3 CHIP LEWIS: That's the existing other Moapa</p> <p>4 solar project, the one that was already built, the</p> <p>5 K Road Moapa solar project. And then this is all the</p> <p>6 power lines, that corridor where they are. And this is</p> <p>7 the new area that encompasses where it's proposed to be</p> <p>8 in this area.</p> <p>9 PHIL SWAIN: So this is a new solar project?</p> <p>10 CHIP LEWIS: Correct.</p> <p>11 PHIL SWAIN: So you're starting the whole</p> <p>12 project over.</p> <p>13 CHIP LEWIS: At the very beginning, from the</p> <p>14 very beginning. I think we have the map, which he'll</p> <p>15 be talking about that here on the screen.</p> <p>16 PHIL SWAIN: I guess I'm confused.</p> <p>17 CHIP LEWIS: All right. Well, we'll see if we</p> <p>18 can get you unconfused.</p> <p>19 RANDY SCHROEDER: I just want to run through a</p> <p>20 real quick summary of the project and what it is.</p> <p>21 Basically this just shows the general location</p> <p>22 and where it's at on the Reservation. You'll see that</p> <p>23 it's there in kind of the northwest corner of the</p> <p>24 southern quadrant of the Reservation there. We're</p> <p>25 currently right up here at this meeting location, and</p>

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<p>1 that just gives you kind of the general sense of where 2 it sits on the Reservation itself.</p> <p>3 PHIL SWAIN: So how many acres?</p> <p>4 RANDY SCHROEDER: So this right here will show 5 you where the lease area is. This lease area here is 6 roughly 5,000 acres.</p> <p>7 PHIL SWAIN: Wait, wait, wait. Project will 8 be 2300 acres --</p> <p>9 RANDY SCHROEDER: Okay.</p> <p>10 PHIL SWAIN: -- land on the Reservation. 11 The lease area here is approximately 12 5,000 acres, within which the project will be located. 13 And the project will basically cover around 2300 acres, 14 or a little less than half of this leased area. But 15 this is --</p> <p>16 PHIL SWAIN: But you have 2300 acres here --</p> <p>17 RANDY SCHROEDER: That's correct.</p> <p>18 PHIL SWAIN: -- on this sheet.</p> <p>19 RANDY SCHROEDER: It is going to be 20 2300 acres, within this 5,000-acre area. So not, not 21 even half of this area will be used ultimately for the 22 project. But this is the area that's being evaluated 23 for the best place to locate that 2300-acre project. 24 And then, in addition to the solar project, 25 and then this here was just mentioned by Chip a moment</p>	<p>1 way up north to where it leaves the Reservation there 2 for a short distance on BLM land, and then on private 3 land owned by NV Energy near the Reid Gardner power 4 plant and substation.</p> <p>5 Access to the project is actually on an 6 existing access road that goes here to the gravel 7 operation, and the wells also provides access to the 8 existing K Road solar project. And so this existing 9 access goes south, follows Las Vegas Boulevard frontage 10 road next to the highway, and so that's how access 11 would be provided.</p> <p>12 So those are the primary components of the 13 project. The solar project, within this area, using 14 about half of this area; a transmission line 15 approximately 10 miles or so up here to the existing 16 Reid-Gardner Substation, and existing access provided 17 off of I-15.</p> <p>18 PHIL SWAIN: Well, you know, I've been looking 19 at that annual report that's given out to the Tribal 20 members, and there's like a little checkerboard that 21 comes down like this, and there's another line that 22 goes over that says they need an additional 2,000 more 23 acres, because the Power Purchase Agreement was only 24 for that one section of 2300 acres. 25 It's my understanding -- I can't speak for the</p>
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<p>1 ago, this is the existing K Road or First Solar 2 project, that's located here, just immediately west of 3 the highway. This is I-15 here.</p> <p>4 And then this project is on the other side of 5 this transmission corridor where all those existing 6 transmission lines are located. That's where this 7 lease area is located.</p> <p>8 And as another point of reference, roughly 9 this area right here is where the Tribal has well 10 locations and also an aggregate operation right in that 11 area as well, for those of you who might be familiar 12 with it.</p> <p>13 So in addition to the solar field, which would 14 be located within this overall lease area, there is 15 also a proposed transmission line that would 16 interconnect the solar project to the existing 17 substation up here at Reid Gardner. And so you'll see 18 this yellow line, basically, is within this utility 19 corridor, which as Chip mentioned a moment ago, this 20 utility corridor, this portion of it, is located on the 21 Reservation but it's managed by the Bureau of Land 22 Management.</p> <p>23 And this line that's proposed for this project 24 would actually follow and be adjacent to some of those 25 existing transmission lines, and follow them all the</p>	<p>1 Tribe -- but my understanding that the Tribe said no 2 more leases unless you have approved purchase 3 agreement. So you went out and got one for that one 4 particular area. So what you did is you went out and 5 got it for the 5,000 acres, but you didn't have that 6 included in your lease, so now you want more land to be 7 attached to this Eagle project.</p> <p>8 That's what I understand. That's why I was 9 questioning that, why do you want 5,000 more acres, 10 when actually you needed to have that Power Purchase 11 Agreement. And the Tribe's experience is that, you 12 know, with several projects saying that, "Oh, we need a 13 six-month delay," or, "We're still working on that 14 agreement," that agreement never materializes, but yet 15 that firm is still holding onto that lease. And we're 16 saying it's okay, you know, and we may have somebody 17 else in there.</p> <p>18 So that's, now, see that's my understanding. 19 That's why I'm looking at this thing and I'm saying, 20 "Why do you want 5,000 more acres when you already have 21 this in place?" And I asked Vernon, and like the 22 gentleman said, they already started that process, you 23 know the EIS and everything else like this, that has 24 already been done on the previous project. 25 And so now, because your Power Purchase</p>

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<p>1 Agreement included 5,000 acres, you wanted 5,000 more 2 acres, and another 500 acres of water to work on that 3 project. 4 And that's where my confusion came in, because 5 I was sitting over there eating lunch and I was looking 6 at that map. In fact, I had asked the Chairman today 7 for a copy of all the maps that the Tribe negotiated 8 with the various firms, starting with First Solar and 9 all the way up, and I'm wondering how many are 10 overlapping? Or are they overlapping? 11 RANDY SCHROEDER: No. 12 PHIL SWAIN: I'm saying, you know, maybe 13 they're not, if I looked at that map. In fact, I did 14 ask Gary Bose for a copy of that map, which he hasn't 15 produced yet, and so I'm still wondering now. But what 16 I seen was that's where my confusion came in. 17 RANDY SCHROEDER: No, I understand that. And 18 I went back to this map, because I think you were 19 talking about this extreme southwest corner of the 20 Reservation? 21 PHIL SWAIN: No. 22 RANDY SCHROEDER: There is a project that was 23 previously approved there. 24 PHIL SWAIN: Well, when I looked at that 25 map -- see we had planned a cement plant up there on</p>	<p>1 effectively, they were looking at this larger area to 2 find the best place to suit the 2300 acres. So they're 3 out doing all sorts of environmental studies, cultural 4 resource studies, species studies, and using that to 5 best define the best area for the project. So at the 6 end of the day, they're only allowed to, and will only 7 utilize 2300 acres. But to your question about a Power 8 Purchase Agreement, is that something that -- 9 PHIL SWAIN: I don't know. That's just 10 speculation. That's -- there's no validity -- 11 VICKIE SIMMONS: Phil? You know, they were 12 going to have that vote -- oh, Jose. When they were 13 first looking at having the vote for Nevada to go to a 14 higher renewable portfolio, and so we did get 15 approached by a lot of companies at that time. 16 8minute wanted to be a little bit closer to 17 Nevada Power because the power was going to run from 18 there to Nevada Power. And where they wanted to locate 19 was too close to, it was covering the turtle habitat, 20 and so then we said, "Hey, you can't do it there, 21 because that's where our tortoise" -- in that vicinity. 22 So this made them go further south. So I think that's 23 where the acreage increased, because we said, "This is 24 where you could start. Here's no good, but right here 25 is where you could start." So that land is very -- has</p>
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<p>1 that mountain, and it was kind of right up from where 2 the proposed project is now and it went around that 3 mountain. And it went back away, and there, when they 4 did the testing and drilling, they found the gypsum 5 they needed, but for other reasons it fell through. 6 But, it covered that area north of the signal 7 plant and such. And I'm saying well that, that would 8 be okay. I don't have a problem with that. 9 My problem is that, you know, if you're asking 10 for more land, then the question came up, if you're 11 asking for more land, then you have to go through the 12 whole EIS process all through again. So I'm assuming 13 that's what's happening now with this arrow, whatever, 14 piece. And I'm saying, well -- and I guess to me 15 that's -- I don't know. I just -- it's like somebody's 16 pulling a fast one, and my leg hurts already. And 17 that's my concern. 18 RANDY SCHROEDER: Sure. And I'll say just one 19 thing, and maybe 8minute can speak to one of the 20 questions you asked. 21 PHIL SWAIN: Well, I can go out and get my map 22 on my report. 23 RANDY SCHROEDER: Okay. This project, as I 24 said, has an opportunity to lease 2300 acres from the 25 Tribe for this project. But to do that the most</p>	<p>1 a lot of caliche or it's bad, really hard rock there. 2 So I think that would be the reason for the increase 3 amount of acres because of the bad terrain. 4 So that was Eagle Shadow Mountain 1, they 5 call, that's the name of the plant, and the company is 6 8minutenergy. 7 But there's another one, the very first one 8 that we did was RES Americas. RES Americas turned into 9 EDF. EDF has, it has everything done, but no Power 10 Purchase Agreement. And then this one, we said we want 11 a Power Purchase Agreement and we got one for this 12 Eagle Shadow Mountain 1 made by 8minutenergy. So 13 we're just at the very beginning process of the 14 Environmental Impact Statement. So that's called Eagle 15 Shadow Mountain 1. 16 If there's another one from the same company, 17 we have to call it a different name. It can't be Eagle 18 Shadow Mountain 2. It has to have a different name, so 19 the Tribe will be needing another name should we go 20 forward with another project. 21 RANDY SCHROEDER: Okay. So those are the 22 primary components of the project. As we discussed, 23 the project will impact up to 2300 acres within that 24 larger potential lease area. 25 Then in addition to the lease on those</p>

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<p>1 2300 acres, there will also be rights-of-way for the 2 transmission line that we looked at, and then there 3 will also be a right-of-way on the transmission line 4 from both the Tribe -- or excuse me -- the BIA, the 5 BLM, and there will be a right-of-way from the private 6 land where it crosses NV Energy's land.</p> <p>7 So the project in total will produce about 8 300 megawatts of power using photovoltaic technology, 9 PV panels, and they're going to be mounted on 10 single-axis trackers. And what that means is the 11 existing project that's out there now is fixed-tilt, 12 where all the rows are lined east-west and the panels 13 south face into the southern sky.</p> <p>14 On a single-axis tracking project, the panels 15 are mounted on a rotating axis in rows that go north 16 and south, and every morning they start tilted and 17 facing east, and then they rotate to follow the sun 18 during the course of the day, until the evening, and 19 then at night they go back again to the east so that 20 they track the sun each day, sunrise to sunset.</p> <p>21 These are just some photographs kind of 22 showing what that technology looks like. These are 23 kind of close-ups of the panels. You'll see these are 24 in the flat position. These are single-axis trackers, 25 and they're stowed flat. A lot of times they're stowed</p>	<p>1 will be a fence around the perimeter of the project, 2 and obviously PV panels and photovoltaic technology 3 takes no water to generate electricity. So the only 4 water really used during the project is during 5 construction for dust control, and a little bit for 6 operations and maintenance and perhaps occasional panel 7 washing.</p> <p>8 So the associated facilities: As we 9 mentioned, the transmission line will go from the solar 10 site up to the existing Reid-Gardner Substation. That 11 will be a 230kV line, a single steel pole very similar 12 to this, and similar to some of the other lines that 13 are already out there. And as we said, it crosses 14 Tribal land, BLM land, and private land, as you get 15 close to Reid-Gardner. And even where it crosses 16 Tribal land, it's within that designated utility 17 corridor that's managed by the BLM.</p> <p>18 The water that we talk about for construction 19 will be provided as part of the contract by the Tribe 20 from the wells that are located nearby, and as we 21 mentioned earlier, the existing access is via the 22 existing roads that exist there from I-15 on up to the 23 site.</p> <p>24 So there is one alternative that's been 25 identified to date. As we talked about this yellow</p>
Page 22	Page 24
<p>1 that way at night because you don't want the panels 2 tilted to catch the wind.</p> <p>3 And here you'll see the tracking units. So 4 these panels are just on this rotating, has a 5 rotational motor, and they just rotate again from east 6 to west every day.</p> <p>7 And so this is what an overall project looks 8 like. This is a collection of panels in the various 9 rows, referred to as an array, and that solar array 10 collects all of the DC power generated by these panels 11 into an inverter and transformer where it's transformed 12 to AC power, which eventually makes its way to the grid 13 and is transmitted on the transmission line.</p> <p>14 But that's basically what it looks like, what 15 a single-axis tracker, PV installation looks like.</p> <p>16 So as we said, that solar farm, or the solar 17 project itself has the solar arrays or groups of panels 18 that goes to the inverters. That converts the DC 19 energy the panels create to AC. Then there's a 20 collection system within the solar project, the solar 21 field, and it's collected to an on-site substation. 22 From that on-site substation it's transmitted via the 23 transmission line.</p> <p>24 There would be a small operation maintenance 25 building on the site, and it will be fenced. There</p>	<p>1 line is the proposed transmission line or gen-tie line, 2 generation tie, and it basically follows and parallels 3 adjacent to those existing lines.</p> <p>4 Another one that's been asked to be evaluated 5 is one that stays within this designated utility 6 corridor, but just hugs the western edge of the 7 corridor. So basically very, very similar to the 8 proposed line, but slightly different in its position 9 within that designated utility corridor.</p> <p>10 So as far as developing the environmental 11 impact analysis, through this process and other 12 communications with other agencies and whatnot, here's 13 what's been identified to date as the topics of focus 14 of the EIS that will be evaluated.</p> <p>15 Biological resources we talked about. There's 16 Desert Tortoise out there, which occur on the site and 17 in the area. There's desert vegetation and cacti out 18 there, which will be evaluated and the potential 19 impacts to those, and then the potential impact of 20 birds and other avian species out there as well.</p> <p>21 Also, cultural resources. We mentioned that 22 there have been surveys done already. Those are being 23 used to define the final footprint of the project so 24 that they can be successfully avoided to the extent 25 possible.</p>

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<p>1 Visual resources. We'll be looking at that to</p> <p>2 see what impact that might have and how visible it</p> <p>3 might be from identified key locations.</p> <p>4 Water resources. Fairly straightforward here,</p> <p>5 given the fact that the Tribe's going to provide the</p> <p>6 water from their existing wells, but that will also</p> <p>7 include an evaluation of the arroyos and washes and</p> <p>8 potential flood events and how that could affect the</p> <p>9 project or be affected by the project.</p> <p>10 And then socio-economics. Again, that's the</p> <p>11 biggest driver of the project, it's providing economic</p> <p>12 benefit to the Tribe. But that will be identified and</p> <p>13 evaluated in the EIS.</p> <p>14 Okay. With that, that's pretty much the end</p> <p>15 of the presentation. We'd just like to open it up here</p> <p>16 for questions that anyone might have, and we do have a</p> <p>17 microphone that can come around to help the court</p> <p>18 reporter hear your questions. And then, again, this is</p> <p>19 Chip's contact information, should you want to contact</p> <p>20 him with any comments or questions you might have.</p> <p>21 That's up here on the screen. So any comments?</p> <p>22 GARY CANTLEY: Make note of the posters.</p> <p>23 RANDY SCHROEDER: Oh, yes. Thanks, Gary.</p> <p>24 Yes, we do have posters. Some of these slides are</p> <p>25 around the room on posters, so if you want to go get a</p>	<p>1 or get clarification, so we can do that too.</p> <p>2 RANDALL SIMMONS: Just, could you amplify or</p> <p>3 explain further potential, what potential mitigation</p> <p>4 plans that you have for endangered species, the</p> <p>5 turtles? Because I'm not sure -- of course, I was with</p> <p>6 you guys this afternoon, and I just want to know what</p> <p>7 the plans are for any type of -- because they are an</p> <p>8 endangered species, so I'm just wondering, what -- I</p> <p>9 heard something like you might plan to leave them in</p> <p>10 place or within their existing natural habitat versus</p> <p>11 mitigation. Can you amplify or discuss that?</p> <p>12 CHIP LEWIS: Sure. So first off, when the</p> <p>13 construction is going on, we know we could maybe run</p> <p>14 over some, or when we're clearing a little bit or doing</p> <p>15 the actual construction. So before construction, we'll</p> <p>16 actually have biologists go in and survey and find as</p> <p>17 many or all of the tortoises that are in the</p> <p>18 construction area, and they will be lifted out and</p> <p>19 taken out of harm's way, and they'll either be put</p> <p>20 somewhere to go on their way wherever they want to, or</p> <p>21 we'll hold them somewhere safe until we're done.</p> <p>22 We're also looking at having monitors that</p> <p>23 escort in the vehicles, because they'll be going across</p> <p>24 the access road, because lots of construction vehicles</p> <p>25 and all, they could run over some, because the</p>
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<p>1 closer look, particularly at some of the maps to get a</p> <p>2 better idea of where this is located relative to some</p> <p>3 of the other features. And we also talk through the</p> <p>4 schedule and the process of some of these boards to,</p> <p>5 and the different ways to make comments.</p> <p>6 RANDALL SIMMONS: Is there any comment we can</p> <p>7 do online?</p> <p>8 RANDY SCHROEDER: Yes. Yes, you can.</p> <p>9 Basically you can send an e-mail directly to Chip, if</p> <p>10 you would prefer, but there's also a private website</p> <p>11 that's been developed for this EIS, and you can go to</p> <p>12 that, and as we publish documents, there are already a</p> <p>13 few documents, and some of these maps are already on</p> <p>14 the website, but there's also a comment location on the</p> <p>15 website where you can actually make a comment right</p> <p>16 there.</p> <p>17 CHIP LEWIS: And also, when we're done with</p> <p>18 the presentation and maybe some of the comments</p> <p>19 immediately from folks in attendance, we also are going</p> <p>20 to be here for a while. So we can split up into</p> <p>21 groups. You know, there's a biologist here, there are</p> <p>22 archeologists here. The 8minute people that know about</p> <p>23 the actual building of it, the electricity. So we can</p> <p>24 go to any of the boards, or we can just be available</p> <p>25 individually and privately to talk to and ask questions</p>	<p>1 tortoises don't know. They'll just go on the road.</p> <p>2 The vehicles are escorted, I think, every</p> <p>3 morning, every evening, and in intervals in between. A</p> <p>4 biologist does make a check. And if there's one in the</p> <p>5 road, they'll move them out of harm's way.</p> <p>6 We're also looking at some design features.</p> <p>7 We're exploring and we'll be meeting with U.S. Fish and</p> <p>8 Wildlife Service to perhaps make the whole project area</p> <p>9 be conducive to the tortoises where we leave vegetation</p> <p>10 and cover for them and allow them to still be able to</p> <p>11 move through the site and go wherever they want to go</p> <p>12 naturally.</p> <p>13 We're not sure of all of the mitigating</p> <p>14 measures. We're in the process of working those out.</p> <p>15 But those are some of the main ones.</p> <p>16 RANDALL SIMMONS: What you plan on reservation</p> <p>17 mitigation or reservation -- preservation of the</p> <p>18 tortoise, are you going to apply that same plan to the</p> <p>19 corridor?</p> <p>20 CHIP LEWIS: Well, limited. Only inasmuch as</p> <p>21 it addresses construction, for the most part, because</p> <p>22 the corridor, the only actual impact, I mean when you</p> <p>23 go out there now, you just see the tower is on a</p> <p>24 concrete pedestal, so each of those pedestals, once</p> <p>25 it's all said and done, tortoises can still roam back</p>

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<p>1 and forth. It's not a barrier. So the mitigation is</p> <p>2 during construction. So it will be the same thing.</p> <p>3 Someone will be out there surveying, making sure that</p> <p>4 they're not right in the area where you're building the</p> <p>5 actual tower.</p> <p>6 RANDALL SIMMONS: I'm just curious about the</p> <p>7 corridor tortoises. Because I'm wondering what the</p> <p>8 existing mitigation plans are for them right now.</p> <p>9 CHIP LEWIS: As it exists now?</p> <p>10 RANDALL SIMMONS: Is there anything?</p> <p>11 CHIP LEWIS: I don't think there is, other</p> <p>12 than -- I think any time there seems to be activity</p> <p>13 going on, there's some kind of monitor maybe or</p> <p>14 escorting.</p> <p>15 RANDALL SIMMONS: There seem to be some people</p> <p>16 just zipping right through there. This is a</p> <p>17 BLM-maintained road. And I was just saying, well, if</p> <p>18 we're going to do all this stuff on Reservation for</p> <p>19 making sure that we preserve and take care of the</p> <p>20 tortoise. But what's going on right now in the</p> <p>21 corridor? These guys are just racing through there.</p> <p>22 CHIP LEWIS: Okay. That's good for us to</p> <p>23 know. That's exactly what we're asking for. So that</p> <p>24 can be something we address as part of the process with</p> <p>25 BLM.</p>	<p>1 UNIDENTIFIED SPEAKER: Well, the technology.</p> <p>2 I heard a terrorist (inaudible).</p> <p>3 CHIP LEWIS: I guess I would say the same</p> <p>4 thing.</p> <p>5 UNIDENTIFIED SPEAKER: Who do I call? I mean,</p> <p>6 if anyone was planning to shut the power plant down.</p> <p>7 (inaudible) How do I keep a terrorist off? So we got</p> <p>8 solar -- eyes burned out of his head -- (inaudible) So</p> <p>9 who do I call?</p> <p>10 VICKIE SIMMONS: We can write that up and ask</p> <p>11 it for you. Find out.</p> <p>12 UNIDENTIFIED SPEAKER: Can I get a card?</p> <p>13 CHIP LEWIS: Sure.</p> <p>14 RANDALL SIMMONS: Do you have an e-mail</p> <p>15 address?</p> <p>16 CHIP LEWIS: Sure. My e-mail address.</p> <p>17 RANDY SCHROEDER: On the screen, it's also on</p> <p>18 the boards in the back.</p> <p>19 TYLER SAMSON: So like this other solar</p> <p>20 project, they had a turtle fence around it. You're</p> <p>21 thinking about not doing that?</p> <p>22 JASON MORETZ: One of the things that U.S.</p> <p>23 Wildlife Services asked us to explore is putting up</p> <p>24 Desert Tortoise exclusion fence during construction,</p> <p>25 moving the tortoises out of harm's way, and then after</p>
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<p>1 RANDALL SIMMONS: Of course, additional</p> <p>2 construction will increase all that traffic. You'll</p> <p>3 address that, but I don't know if the BLM, what they're</p> <p>4 doing right now for the existing corridor. And just</p> <p>5 maintain a speed area, or any type of -- I've seen</p> <p>6 Desert Tortoise signs, but does the BLM that you work</p> <p>7 for -- and they might have some representatives here --</p> <p>8 can they do anything to slow down the speed of the cars</p> <p>9 just blazing through this BLM corridor? Is there</p> <p>10 anything that can be done?</p> <p>11 CHIP LEWIS: I do not know, sir. That is</p> <p>12 certainly, that's what we'll explore with them for, or</p> <p>13 during this process.</p> <p>14 RANDALL SIMMONS: Because I'm wondering -- so</p> <p>15 I'm kind of wondering if this will address the</p> <p>16 long-term impact. If they built something, how is that</p> <p>17 going to impact the existing tortoises within the</p> <p>18 corridor?</p> <p>19 CHIP LEWIS: Thank you.</p> <p>20 RANDALL SIMMONS: Question for -- that's a</p> <p>21 question.</p> <p>22 UNIDENTIFIED SPEAKER: I got a question. What</p> <p>23 if I got a threat from a terrorist? Who do I call?</p> <p>24 CHIP LEWIS: As it relates to a threat against</p> <p>25 the solar project?</p>	<p>1 construction having that perimeter fence be permeable</p> <p>2 or semi-permeable, have holes cut in it, or maybe in</p> <p>3 intervals, or maybe bending back the bottom of it to</p> <p>4 allow tortoises to use the site.</p> <p>5 CHIP LEWIS: Or there will be like a little</p> <p>6 opening, you know, they hit the fence, go along it and</p> <p>7 they'll come to the opening and they can continue on,</p> <p>8 hit the other side, go to the opening and continue on.</p> <p>9 TYLER SAMSON: The ones that are already in</p> <p>10 the burrows though, you got to go and excavate them</p> <p>11 out, right? So you'd be in there, probably, maybe, I</p> <p>12 don't know how many burrows you'd destroy by</p> <p>13 excavating, but you'd probably take 20 homes.</p> <p>14 CHIP LEWIS: I think you know a little bit</p> <p>15 more about that and what actually goes on, right? They</p> <p>16 try and pretty much make sure we get them out or know</p> <p>17 which ones are active. You can tell whether a tortoise</p> <p>18 is actually in one and it's active and being used. And</p> <p>19 some of these hardcore tortoise biologists guys know</p> <p>20 what to do. They can recognize them in an instant, and</p> <p>21 then they excavate them and get them out.</p> <p>22 There are certain rules and protocols, and we</p> <p>23 have to handle them, have gloves on, all kinds of</p> <p>24 things, and then they'll take care of them.</p> <p>25 But I think the success rate is pretty good on</p>

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<p>1 not actually crushing any or doing anything to them.</p> <p>2 And that's part of our negotiation of what we do with</p> <p>3 the Fish and Wildlife Service. Since it is endangered</p> <p>4 and that's what they're in charge of, they say you can</p> <p>5 do your project, but you can only hurt one or two</p> <p>6 during the, your whole project. So there will be a</p> <p>7 whole group of folks out there making sure that we</p> <p>8 don't reach that threshold of hurting more than we're</p> <p>9 allowed to.</p> <p>10 RANDALL SIMMONS: Is that really feasible?</p> <p>11 What type of success rates do you have for opening it</p> <p>12 up after construction? Because they're put back in the</p> <p>13 same solar array field. What's -- I'm wondering what</p> <p>14 the success rate is, because it seems like you almost</p> <p>15 have to monitor every turtle on that site.</p> <p>16 CHIP LEWIS: Right.</p> <p>17 RANDALL SIMMONS: I'm wondering what type of</p> <p>18 science has been done in that regard?</p> <p>19 JASON MORETZ: Just real quick wanted to</p> <p>20 mention that once the plant is actually constructed, in</p> <p>21 operation, the activities that actually take place</p> <p>22 inside the fence line are very minimal. Very limited</p> <p>23 vehicle traffic. There's not tens of thousands of</p> <p>24 workers in there. I mean, it's a couple of people, and</p> <p>25 those people will be trained to look for and avoid</p>	<p>1 connectivity, it forces maybe more to the site, because</p> <p>2 of it. So allowing them to move through without a</p> <p>3 permanent physical barrier is what wildlife agencies</p> <p>4 are --</p> <p>5 PATRICK GOLDEN: And I'd like to just add too,</p> <p>6 that this idea, as everybody is saying, is relatively</p> <p>7 new. Nobody really knows, but it's almost certain that</p> <p>8 the agencies will require any tortoise that is removed</p> <p>9 from the construction footprint during construction to</p> <p>10 be fitted with a transmitter. I mean, we haven't had</p> <p>11 these negotiations yet, but it's likely. Usually in</p> <p>12 this part of the desert, when one is translocated, they</p> <p>13 are fixed with a transmitter and then they're tracked,</p> <p>14 you know, for years, not just during construction,</p> <p>15 so --</p> <p>16 RANDALL SIMMONS: There's construction, and</p> <p>17 after construction, how can we watch out for them?</p> <p>18 It's one thing to watch out from running them over.</p> <p>19 It's another thing to see that they thrive afterward.</p> <p>20 Because like you said, I mean, we don't want to mess up</p> <p>21 their mating rituals and habits, you know, whatever</p> <p>22 they do.</p> <p>23 PATRICK GOLDEN: Absolutely.</p> <p>24 TYLER SAMSON: Is it just because when you</p> <p>25 translocate them a distance, are you just trying to</p>
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<p>1 Desert Tortoise when they're inside the plant and the</p> <p>2 project is operational.</p> <p>3 RANDALL SIMMONS: Well, I can see that. I</p> <p>4 mean, that's common sense, they'll try to avoid them,</p> <p>5 but those turtles you can't see out of your truck. I'm</p> <p>6 just wondering if it's feasible. It's cheaper, I know</p> <p>7 that, but I'm just trying to figure out if that's</p> <p>8 feasible for -- if there is actually evidence that</p> <p>9 that's --</p> <p>10 CHIP LEWIS: Well, it's pretty new, so we're</p> <p>11 kind of developing and going to -- I guess it's worked</p> <p>12 for some other animals, you were saying, Luke, in</p> <p>13 California? So there seems to be some success.</p> <p>14 LUKE SHILLINGTON: It's worked with kit foxes</p> <p>15 in California, and recently, I mean, this is something</p> <p>16 that wildlife agencies -- it's been new to us as well.</p> <p>17 It's something that they brought up recently because</p> <p>18 they've done some pilot programs and had good success</p> <p>19 with tortoises actually using the sites following</p> <p>20 construction. So, you know, again it's something that</p> <p>21 we're looking at as an alternative. It may be the best</p> <p>22 thing for the species to continue to use the site.</p> <p>23 The big other factor is that there's concerns</p> <p>24 about if you've got a perimeter fence around the whole</p> <p>25 project cutting off connectivity of, you know, genetic</p>	<p>1 save money? I mean, I know, I understand when you're</p> <p>2 going to do the site, you're going to build the fence</p> <p>3 and do work in there. But there's going to be</p> <p>4 tortoises in there, and they're going to be in the</p> <p>5 ground. For those ones, you're going to have to tear</p> <p>6 down the burrow, right?</p> <p>7 PATRICK GOLDEN: Yes.</p> <p>8 TYLER SAMSON: Pull them out, do your</p> <p>9 husbandry, check the blood and tag them. But if you</p> <p>10 let them go, they're going to try to come back to that</p> <p>11 place.</p> <p>12 PATRICK GOLDEN: Yes. So I guess during</p> <p>13 translocation activities, as Chip was mentioning</p> <p>14 earlier, you find burrows, they don't dig up every</p> <p>15 single burrow. They use scopes to get in there,</p> <p>16 borescopes to see if there's an animal in there. If</p> <p>17 they can confirm that there's not, that burrow remains</p> <p>18 intact.</p> <p>19 You know, there would be some burrows</p> <p>20 destroyed, but there would also be others that would</p> <p>21 remain, and I think that's what Fish and Wildlife</p> <p>22 Services' idea is. If we can preserve some level of</p> <p>23 suitable habitat for these animals to have after</p> <p>24 construction, and there's a fence that's permeable, the</p> <p>25 hope is that they would come back in and reinhabit the</p>

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<p>1 area. They could still use it to move through instead 2 of being blocked by an exclusion fence.</p> <p>3 TYLER SAMSON: I mean, I've worked on plenty 4 of jobs where, even when we get escorted -- I had an 5 escort in a buggy run over the tortoise, because it's 6 not a kit fox. They're camouflaged, you can't see 7 them. They're about that big. So, I mean, I can 8 understand foxes, right? They're trying to get out of 9 the way and they're quick, but a slow-moving tortoise, 10 I'm just trying to get a better picture of how -- 11 because letting them go and come back, and if you're 12 going to have tanks on the project --</p> <p>13 CHIP LEWIS: Well, one thing we know, I used 14 to do a lot of research. I used to work for Arizona 15 Game and Fish in their research and study all around 16 with radio telemetry and recording their home range. 17 When you move an animal out of its core area and then 18 the bigger area is the home range and you put it 19 somewhere else, it generally doesn't do as well as if 20 it can be back within its home range.</p> <p>21 So it could be, and probably the premise is, 22 even if there's still something that's going to happen 23 down the road, it might be preferable to when you move 24 it to a whole new area, that to make a new home range. 25 So --</p>	<p>1 don't know who was saying, somebody used to be the 2 turtle monitor, you know, making sure that when you 3 went down that road, that you went down, I guess you 4 were saying, like 5 miles an hour so you don't run over 5 a turtle. And we're kind of like turtle experts 6 ourselves, because they tell us not to pick them up and 7 move them or do this or do that.</p> <p>8 So what you're saying is you discussed it with 9 the new owners that have come in there and spent their 10 money to make sure these things don't happen, because 11 if you run over one too many turtles, then they're shut 12 down. That's the way I understand it.</p> <p>13 CHIP LEWIS: Pretty close, yeah.</p> <p>14 PHIL SWAIN: That brings up the next question, 15 is how many EIS projects has the Bureau done on the 16 Reservation that could probably just talk to these 17 people and tell them that, you know, this is what you 18 need to look out for, or that this is my fifth project 19 here on the Reservation. We're starting out with, 20 what, First Solar, you know, that you have the EIS 21 process, and this is what we're going to do and how 22 we're going to do it.</p> <p>23 The proposal comes in and says this is what 24 we're going to do, and I don't know what point we hear 25 from the owners to say, "Yeah, we agree with everything</p>
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<p>1 TYLER SAMSON: We should have the analytics on 2 that as far as the numbers, because we have a 3 designated tortoise area. So I'd be interested to 4 know, after the transportation, how many survived, and 5 I guess maybe that would tell you a little bit about 6 the home range, right?</p> <p>7 CHIP LEWIS: Yeah. That will be part of the 8 discovery process. Everything we'll do in the analysis 9 in this EIS document, that will help lead us to what is 10 the best thing we can do.</p> <p>11 TAMARA DAWES: Chip, you might want to remind 12 the Tribe that we do have, from the First Solar 13 project, we do have that five-year plan in the summary 14 that has occurred from the original translocation of 15 those tortoises, so we can look to that and see what 16 the return rates, if they actually returned to that 17 particular area, because they did track those tortoises 18 that were translocated.</p> <p>19 CHIP LEWIS: That was followed after that.</p> <p>20 PHIL SWAIN: Well, you know, I can see, what 21 you're saying, but you're from the government. The 22 people that are going to run this project are these two 23 people here. Are they agreeing to everything what 24 you're saying about you're going to watch this and 25 you're going to watch that? Because I know like, I</p>	<p>1 the Bureau says." But I keep on thinking that now that 2 First Solar's completely done, I don't know if we have 3 any BIA police out there monitoring the travels of the 4 tortoise, you know. And what we're saying is, to them, 5 if you run over a turtle and he's still mature and 6 still kicking and alive, bring it over to the Tribe, 7 because the Tribe can throw it in the pot and have 8 turtle soup.</p> <p>9 So those are the things they need to be told 10 that this is what we need to do. You're talking up 11 there like we've done this and you're not, you're not 12 the biologist; right? Or are you the biologist?</p> <p>13 CHIP LEWIS: Not for this project, no.</p> <p>14 PHIL SWAIN: That's what I'm saying. That 15 person would be on site while this project is being 16 built. And I know that once the lease is signed, that 17 becomes off limits to everybody, except those people 18 working there. So myself as a Tribal member, I can't 19 go onto that project just to observe or look around.</p> <p>20 So, you know, all the land that we lease, we 21 lose control of. You know, we don't have no say any 22 more once that comes into being. And I can understand 23 why, but still, you know, that's what we end up losing.</p> <p>24 That's why I asked for a map of all the 25 projects that were going on on the Reservation to make</p>

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<p>1 sure they weren't, you know, overlapping or -- because</p> <p>2 we've got one up here on the hill, you know, and I</p> <p>3 don't know where the hell that's at, but that's one of</p> <p>4 the projects, and then we've got another one over</p> <p>5 there, we got one over here, over there, and we got one</p> <p>6 in the far corner, so there's like five or six going on</p> <p>7 all at the same time, and if we had that many going on,</p> <p>8 we would have BIA here on a permanent basis, making</p> <p>9 sure everything was proper, and I don't see that. And</p> <p>10 you have those EIS reports for all those other</p> <p>11 projects.</p> <p>12 CHIP LEWIS: Well, ultimately, to get kind of</p> <p>13 to the root of your question, we are working with</p> <p>14 8minute, and they'll be doing -- you know, we don't</p> <p>15 dictate and say, "You will do this," but in the end, in</p> <p>16 the lease package, the mitigation, the basic plans that</p> <p>17 we come up, as all the agencies together, including the</p> <p>18 Tribe, those will be appended to the lease agreement.</p> <p>19 And that -- so they become a term and condition, just</p> <p>20 like any other term and condition for like worker</p> <p>21 safety and everything else that goes on with a normal</p> <p>22 construction project.</p> <p>23 So if there is something like, even after it's</p> <p>24 done, those couple or three workers are there, they can</p> <p>25 only go 10 miles an hour, that will be a part of the</p>	<p>1 wanted him to be here today to talk about the</p> <p>2 construction issues. He is unable to make it. But he</p> <p>3 has been out to the site. Engineers are engaged in</p> <p>4 looking at it. The plan is to leave as much of that</p> <p>5 topsoil and vegetation intact as possible.</p> <p>6 So there will be some places where minimal</p> <p>7 grading needs to take place, the associated foundation,</p> <p>8 the perimeter access road. For the arrays, they're</p> <p>9 looking at, you know, trimming some of the vegetation,</p> <p>10 you know, not mowing it down to the ground even, but</p> <p>11 leaving it as much intact as possible and just driving</p> <p>12 piles.</p> <p>13 RANDALL SIMMONS: Could you comment on the</p> <p>14 culture site, planning to build on? Because there's</p> <p>15 been -- there's 2300 acres, but 5,000 are out there</p> <p>16 right now available. Are you going to build around</p> <p>17 those?</p> <p>18 LUKE SHILLINGTON: Yes, so there -- I don't</p> <p>19 have the exact numbers of how many sites were</p> <p>20 identified, but there were a number identified.</p> <p>21 There's the large one we were at this morning. The big</p> <p>22 significant ones we are planning on completely</p> <p>23 avoiding. There are some other sites that are</p> <p>24 currently within, you know, the proposed footprint of</p> <p>25 the project so that's something we have to discuss.</p>
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<p>1 agreement we work out with those folks.</p> <p>2 PHIL SWAIN: So how many projects has the</p> <p>3 Bureau been involved with here on the Reservation?</p> <p>4 CHIP LEWIS: We've been involved in three</p> <p>5 prior.</p> <p>6 PHIL SWAIN: Which ones are they?</p> <p>7 CHIP LEWIS: The original K Road, the</p> <p>8 RES Americas, and the Aiya.</p> <p>9 TAMARA DAWES: Of those three, there's only</p> <p>10 two executed leases.</p> <p>11 PHIL SWAIN: That's the First Solar?</p> <p>12 TAMARA DAWES: First Solar and --</p> <p>13 VICKIE SIMMONS: Which EDF is the name now.</p> <p>14 TYLER SAMSON: Have there been any discussions</p> <p>15 about -- I know we talked about grubbing the site</p> <p>16 instead of, you know, for dust control. Instead of</p> <p>17 going with a blade and taking the topsoil off the whole</p> <p>18 area, I mean, it's just left bare, no vegetation,</p> <p>19 especially if you're planning on wanting the tortoises</p> <p>20 to run back in there, so maybe grubbing the site,</p> <p>21 taking all the topsoil off, because that's what keeps</p> <p>22 all the dust down is the topsoil, especially out there.</p> <p>23 LUKE SHILLINGTON: Our construction guy</p> <p>24 unfortunately fell ill and wasn't able to be here</p> <p>25 tonight. The thing is that our construction -- we</p>	<p>1 VICKIE SIMMONS: For the most part, would the</p> <p>2 Tribe receive reports on those, and they're</p> <p>3 confidential and they're not marked and they're only</p> <p>4 property of the Tribe and they stay in the Tribal</p> <p>5 Council chambers, so they are not something that we</p> <p>6 tell everybody about or share with everybody.</p> <p>7 We do have that in record in the Tribal</p> <p>8 Council chambers for each project. I don't know if we</p> <p>9 have time to look at them. I looked for pictures, but</p> <p>10 some of the ones that I seen are so interesting, they</p> <p>11 go back on the whole history of the area. They have</p> <p>12 reports on who was living here, census markers and all</p> <p>13 types of stuff, especially for up here on the Aiya one.</p> <p>14 So they're very interesting, if some people would want</p> <p>15 to read those documents. But for the young people that</p> <p>16 are here, you know, someday that could be a goal of</p> <p>17 ours, you know, for other people to take a look at</p> <p>18 those books that we have with regard to cultural sites.</p> <p>19 TYLER SAMSON: I like the yellow proposed</p> <p>20 transmission line.</p> <p>21 LUKE SHILLINGTON: We do too.</p> <p>22 PHIL SWAIN: Does it go north? To where?</p> <p>23 RANDY SCHROEDER: To Reid-Gardner. That</p> <p>24 substation is still there and active. It was</p> <p>25 interconnected to that substation.</p>

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<p>1 LALOE MILLER: (Inaudible)</p> <p>2 THE COURT REPORTER. I can't hear.</p> <p>3 LALOE MILLER: (Inaudible)</p> <p>4 VERNON LEE: I was going to mention that I</p> <p>5 guess one -- he liked the one yellow marked line out</p> <p>6 there. My question is how many -- has anybody</p> <p>7 forecasted how many -- it's kind of a Tribal</p> <p>8 question -- how many potential solar sites that we</p> <p>9 might build, and how much room is in the corridor which</p> <p>10 you have to include FERC and anybody else -- I think</p> <p>11 the TransWest is going in there -- how many potential</p> <p>12 power lines can fit in the corridor, and can the</p> <p>13 corridor be expanded if it needs to be expanded? So</p> <p>14 it's kind of a forecast.</p> <p>15 You know, I can't see that, but I think</p> <p>16 there's four or five lines out there now, plus this</p> <p>17 one. Projecting forward, how many solar sites -- how</p> <p>18 many is going to go to Reid-Gardner, how many to</p> <p>19 Crystal? In other words, the layout of where are all</p> <p>20 these power lines going to go?</p> <p>21 We've got another potentially four or five</p> <p>22 solar sites, I think, that could be developed? Are</p> <p>23 they going to fit in?</p> <p>24 RANDALL SIMMONS: That's a Tribal question,</p> <p>25 and that was asked this afternoon. We didn't know,</p>	<p>1 know somebody, they're going to be needing biologists,</p> <p>2 they're going to need, we're going to -- we don't have</p> <p>3 trained biologists, maybe, but we're going to need</p> <p>4 folks to be -- that might do additional cultural logs</p> <p>5 and additional turtle monitors, even biologists.</p> <p>6 So that's -- there might be needs out there</p> <p>7 and hopefully these, the companies that come in will</p> <p>8 work with us and employee these guys. We'll let Carol</p> <p>9 know so Carol can start planning for that so we can get</p> <p>10 employment for our people.</p> <p>11 VERNON LEE: I got another question. That is</p> <p>12 like in the future, you know, technology is going</p> <p>13 forward so fast, what happens if they come out with new</p> <p>14 solar, or PVs that are twice as efficient? And let's</p> <p>15 say, I mean, there's all kind of PV south of Vegas, and</p> <p>16 if they start upgrading theirs, at what point are we</p> <p>17 going to upgrade these so we can stay in the market, so</p> <p>18 we don't fall behind?</p> <p>19 JASON MORETZ: So we have a Purchase Power</p> <p>20 Agreement for 25 years with NV Energy. We are required</p> <p>21 to provide NV Energy with 300 megawatts of power every</p> <p>22 year for 25 years. So regardless what the new</p> <p>23 technology looks like, there will be no mandate for us</p> <p>24 to go and upgrade. Doesn't mean that there might not</p> <p>25 be an opportunity in the future, but in terms of our</p>
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<p>1 because right now we said, "Where is this one going to</p> <p>2 go? Where is TransWest going to go?" It's in the</p> <p>3 planning stages. It's not final yet. They have to do</p> <p>4 their reviews, and then we'll find out where TransWest</p> <p>5 goes and where this 8minutenergy goes.</p> <p>6 Also, that's a huge corridor. I thought it</p> <p>7 was near where all electrical are, and I thought they</p> <p>8 were going to deal with that inside that. No. I think</p> <p>9 it's almost -- almost a mile wide.</p> <p>10 So basically the existing corridor, it's</p> <p>11 almost, you almost got to lease that same size coming</p> <p>12 out of it, that they have built on.</p> <p>13 VERNON LEE: Right now there is plenty of</p> <p>14 room?</p> <p>15 RANDALL SIMMONS: Right now, yes.</p> <p>16 VERNON LEE: We're going to cross that bridge,</p> <p>17 presumably the Tribe and the BLM can come to terms</p> <p>18 about expanding it.</p> <p>19 RANDALL SIMMONS: And right now those two</p> <p>20 lines, TransWest and this one, are just coming.</p> <p>21 They're going to figure out based upon everything</p> <p>22 that's being put in right now where they're going to</p> <p>23 put those two lines. So we're studying those.</p> <p>24 As far as Tribal members that get employed,</p> <p>25 just a quick announcement for Tribal members. If you</p>	<p>1 current Purchase Power Agreement, there's nothing in</p> <p>2 there that would either require us to or, you know,</p> <p>3 motivate us to change that technology.</p> <p>4 RANDALL SIMMONS: If that were the case,</p> <p>5 Vernon, I think that would be a First Solar problem.</p> <p>6 VERNON LEE: Yeah, we're locked in. As a</p> <p>7 tribe, we're locked in with what we agreed to.</p> <p>8 RANDALL SIMMONS: I just think if they get</p> <p>9 better technology, I think we might have a green world.</p> <p>10 VERNON LEE: Yeah, I know.</p> <p>11 TYLER SAMSON: Are all the panels going to be,</p> <p>12 are they going affixed, or are they going to be like</p> <p>13 those ones that move like that?</p> <p>14 LUKE SHILLINGTON: They'll be trackers.</p> <p>15 TYLER SAMSON: How come the one out there</p> <p>16 right now doesn't do that? The one that moves, is it</p> <p>17 better. Seems like those rams or something always keep</p> <p>18 going out.</p> <p>19 JASON MORETZ: So there's -- I can't remember</p> <p>20 exactly how old that project is, but essentially every</p> <p>21 project, you know, they do analyses to optimize the</p> <p>22 cost of the project, also production of the project,</p> <p>23 how much sun and where it is, and we run through all</p> <p>24 those. In the past five or six years, tracker systems</p> <p>25 have come down so much in price that they -- and they</p>

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<p>1 outperformed fixed, so that makes sense to install 2 those. It's economics and production. They just 3 produce more power because they track the sun optimal 4 angles. 5 TYLER SAMSON: Someone mentioned to me about 6 the solar panels when the panels, like when they get 7 old, they bleed out. 8 LALLOVI MILLER: It was on TV a couple of years 9 that the solar panels only last not very long. So what 10 are these guys going to do after that? That was on TV 11 two years ago. 12 JASON MORETZ: So a couple of questions there. 13 So the technology in solar panels has improved 14 quite a bit, not only just in the last decade, but even 15 within the last 4 years. And to her point, some of the 16 older solar panels, there were concerns about whether 17 materials were leaching from the panels. Today's 18 panels, with the studies, that's one of the things that 19 goes into the environmental document, environmental 20 analyses. We have spec sheets that list out all the 21 components in panels, what the panel is made of. And 22 all our panels are guaranteed by the manufacturers. 23 So, to your question of how long do they last? 24 They do degrade over time in terms of how much energy 25 they produce, but essentially what this project will do</p>	<p>1 have, and we'll be glad to do whatever needs to be 2 done. 3 VICKIE SIMMONS: Is tomorrow night another 4 scoping meeting in Las Vegas? 5 CHIP LEWIS: Yes. It's at the same time, 5:30 6 to 7:30. 7 VICKIE SIMMONS: And that's probably when the 8 BLM and the Fish and Wildlife will be over there? 9 CHIP LEWIS: Right. They'll be there and 10 they'll help answer questions or be involved. 11 VICKIE SIMMONS: When are they having that 12 interagency meeting? 13 CHIP LEWIS: That is from 2:00 to 4:00. 14 VICKIE SIMMONS: Can we go to that one, too? 15 CHIP LEWIS: That's the interagency for all 16 the agencies I had up earlier that are actually 17 participating in the preparation. So -- 18 VICKIE SIMMONS: All right. Thank you. 19 (Proceedings adjourned at 7:01 p.m.) 20 21 22 23 24 25</p>
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<p>1 will be to install the panels, that we make sure we 2 meet our Purchase Power Agreement for the next 25 3 years. 4 So in 25 years from now, you're not going to 5 go out there and see panels falling apart. 6 VERNON LEE: This may be a little too far out 7 of the box, but is there -- what happens in the event 8 that there's a gamma burst at the sun, eight minutes 9 later it comes in and here it fries all the panels? 10 You know, I mean -- that theoretically could happen. 11 What would happen? I mean, do you still pay us, even 12 though the panels are all fried? 13 JASON MORETZ: We pay you, regardless of what 14 happens. Our lease with you is a 25-year lease, with 15 additional options that take us to 50 years. We pay 16 you each and every year. If the solar plant, something 17 happens, a big hailstorm comes and all the panels are 18 damaged, the site's insured, and it will be insured to 19 the point you keep receiving your revenue. 20 CHIP LEWIS: Well, unless there's any other 21 direct questions, I think this concludes our formal 22 presentation and question and answer, but like I said, 23 I think we're staying here until 7:30; right? So we'll 24 be here until 7:30 and talk to us, answer questions, go 25 look at the map or go through any of the materials we</p>	<p>1 CERTIFICATE OF REPORTER 2 STATE OF NEVADA) 3 COUNTY OF CLARK) 4 I, Kevin Wm. Daniel, Certified Court Reporter, 5 do hereby certify: 6 That I reported in shorthand the proceedings had 7 in the above-entitled matter at the place and date 8 indicated. 9 That I thereafter transcribed my said shorthand 10 notes into typewriting, and that the typewritten 11 transcript is a complete, true and accurate 12 transcription of my said shorthand notes. 13 I further certify that I am not a relative or 14 independent contractor of counsel, of any of the 15 parties; nor a relative, employee, or independent 16 contractor of the parties involved in said action; nor 17 do I have any other relationship with any of the 18 parties or with counsel of any of the parties involved 19 in the action that may reasonably cause my impartiality 20 to be questioned. 21 IN WITNESS WHEREOF, I have set my hand in my 22 office in the County of Clark, State of Nevada this 23 12th day of March, 2019. 24 25 KEVIN WM. DANIEL, CCR #711</p>

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Environmental Impact Statement Scoping Meeting

Eagle Shadow Mountain Solar Project

03/06/2019



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1	EAGLE SHADOW MOUNTAIN	1	MR. SHILLINGTON: Luke Shillington,
2	ENVIRONMENTAL IMPACT STATEMENT	2	8minutenergy Renewables on the land and title.
3	(EIS)	3	MS. VARELA: Christina Varela, realty
4		4	specialist at Southern Paiute Agency.
5	SCOPING MEETING	5	MS. BARGER: Mary Barger, I'm an
6		6	archeologist, and I'm assisting BIA.
7	MARCH 6, 2019	7	MS. DAWES: I'm Tamera Dawes. I'm the
8	5:30 P.M.	8	regional realty specialist, western region BIA.
9		9	MR. KNOWLES: Glen Knowles. I'm with
10	PAINTED DESERT GOLF CLUB	10	FWS Services.
11	5555 PAINTED MIRAGE ROAD	11	MR. SCHROEDER: I'm Randy Schroeder, I'm
12	LAS VEGAS, NEVADA	12	with ENValue, contractor assisting BIA.
13		13	MR. CANTLEY: Garry Cantley, regional
14	MODERATOR: CHIP LEWIS	14	archeologist, BIA out of Phoenix.
15	ENVIRONMENTAL PROTECTION OFFICER FOR THE WESTERN	15	MR. LEWIS: Thank you. So as part of the
16	REGIONAL OFFICE OF THE BUREAU OF INDIAN AFFAIRS	16	preparation of the EIS, we want to present what the
17		17	project is so we have a little bit of information,
18		18	you know, know what's going on.
19		19	It is on the reservation wholly, a
20		20	proposed 2,300-acre project lead for the -- about
21		21	300 megawatt project, and it includes about a
22		22	10 mile pipeline in an established utility corridor
23		23	on up to the Reid Gardner Substation, and the
24	REPORTED BY: JENNIFER M. DALY, CRR, RPR, CCR, CSR	24	crossover line that goes from the towers over to the
25	LICENSE NO.: 766	25	substation does, indeed, cross a little piece of BLM
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1	P-R-O-C-E-E-D-I-N-G-S	1	land, so BLM is also a partner involved in this
2	MR. LEWIS: Good evening. Thank you for	2	process.
3	coming for our public scoping meeting for the Eagle	3	The purpose of the project is to provide
4	Shadow Mountain Solar Project Environmental Impact	4	economic benefit to the tribe. Reservations are
5	Statement. We're here tonight to gather information	5	held in trust for their economic gain and use and
6	from any interested or affected public and talk a	6	benefit, and entering into lease agreements and
7	little bit about the project so we know what's going	7	getting lease revenue is a way for them to utilize
8	on, and, more importantly, get feedback.	8	their land for their purposes.
9	So the project is on the Moapa River	9	The EIS process, Environmental Impact
10	Indian Reservation in a partnership between	10	Statement, an environmental document required by the
11	8minutenergy --	11	National Environmental Policy Act, requires us to
12	MR. SCHROEDER: Do you want to do	12	take a look at the project since it has -- requires
13	introductions so we know who all is here?	13	federal approval. BIA will be approving the lease
14	MR. LEWIS: However you want to handle	14	agreement between 8minute and the tribe.
15	it.	15	BLM will be granting rights of ways,
16	So we have Bureau -- we need to do that	16	Fish & Wildlife Service is -- has their section,
17	to be formal.	17	Endangered Species Act, permitting-type situation.
18	I'm Chip Lewis; I'm with BIA in Phoenix,	18	So they have to have something to go by, and it's
19	western region office, and I'm the environmental	19	contained within the EIS.
20	specialist and the project manager for the	20	And let's see, who else has an action
21	Environmental Impact Statement.	21	before us?
22	MS. McCABE: Patricia McCabe, assistant.	22	So other folks that are on board, EPA,
23	I'm going to assist Chip in the AI process.	23	they are obligated to document, review, and be part
24	MR. GOLDEN: I'm Patrick Golden with	24	of the process, the environmental review process.
25	ENValue, the third-party contractor assisting BIA.	25	Nevada Department of Wildlife became a

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<p>1 cooperater because of their interest in any wildlife 2 that is a particularly endangered species and -- or 3 more specific than that, the desert tortoise. 4 The U.S. Air Force opted in to be a 5 cooperater because of any impacts in their flight 6 zone at all related to Nellis, that, perhaps, a 7 solar project could have on their operations. 8 Where we're at in the process is pretty 9 much at the beginning. The public scoping process 10 began on March 4th -- or February 4th, right, and it 11 expires the -- today, actually. This is the last 12 step of the scoping. 13 So if you have comments, go ahead and get 14 them in, then we'll move on to the other stages, 15 which is preparing an official draft, or the whole 16 document, environmental report, which is the Impact 17 Statement. 18 It will go out for public review. We'll 19 have another round of public meetings, get input on 20 that draft, then we'll be issuing the final 21 documents and the decision that allows it to go 22 forward. 23 You can be brave and talk out loud in 24 front of all these folks here. 25 If you're shy, you can fill out the</p>	<p>1 that, basically, follows. Also, this corridor down 2 off of tribal land onto BLM land then becomes 3 actually the Frontage Road along I-15 or 4 North Las Vegas Boulevard. 5 So, as we said, about 2,300 acres of land 6 on the reservation that's totally for the solar 7 project with rights of way off the reservation 8 within that designated utility corridor on tribal 9 lands, but managed by the Bureau of Land Management 10 and also crossing a little bit of BLM land and a 11 very small amount of private land right up by 12 Reid Gardner that Nevada Energy owns. 13 So it will be a PV project, single access 14 tracking technology. These are just photos of what 15 single access trackers look like. 16 The solar farm, like I said, includes the 17 panels and the single access trackers in groups 18 called solar arrays. 19 There's inverters that convert the 20 DC power into AC, then it's collected through a 21 collection system on site to the site substation 22 from which the gen-tie line emanates to leave the 23 site, and the project would be fenced. 24 There's an O&M building that will likely 25 be located on the site, and we make this point for</p>
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<p>1 written form, or you can e-mail me or go to the 2 website. 3 I'll turn it over to Randy. 4 MR. SCHROEDER: All right. This will 5 just be a short summary of what the project is. 6 Starting here with this location, it's 7 about 40 miles north of Las Vegas up here on the 8 Moapa Indian Reservation. 9 It's very near an existing solar project, 10 the KRoad, our first solar project, which you can 11 see better on this map. 12 So this project has a potential lease 13 area that they've been evaluating, 8minute has been 14 evaluating, of about 5,000 acres, as shown in this 15 outline, and within that 5,000 acres, ultimately, 16 2,300 acres would be developed for this 300 megawatt 17 project. 18 In addition, there is a, roughly, a 19 10-mile long transmission line that's going to be 20 built from the solar site up to the existing 21 Reid Gardner Substation, and this line would 22 parallel the multiple existing transmission lines 23 that occur within this hatched area that's a 24 designated utility corridor. 25 Access to the site is on an existing road</p>	<p>1 members of the public just to emphasize that 2 PV technology doesn't use any water to generate 3 electricity. 4 So the gen-tie line, like I said, is 5 about 10 miles long, crossing tribal, BLM, and 6 private lands owned by NV Energy. Almost all of the 7 distance -- all of the distance on tribal land is 8 within that designation utility corridor managed by 9 the BLM, and the water for construction and the 10 little bit required for O&M will come from the Moapa 11 band; they will provide the water. And then the 12 access, as we described earlier, is existing and in 13 place and comes off of I-15. 14 One alternative's been identified for the 15 gen-tie line, basically, very similar to the 16 proposed line, which is the yellow -- this green 17 line. Instead of going into the corridor, where the 18 other existing lines are currently located, would 19 just hug the western edge of the corridor all the 20 way up, and then across the small section of the BLM 21 lands, and then on to NV Energy land up by 22 Reid Gardner. 23 These are the environmental resources 24 that will be evaluated. Biology is a big topic. 25 Desert tortoise is probably the most significant of</p>

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<p>1 the biological topics, as we were just discussing a 2 little while ago.</p> <p>3 But we'll also look at all biological 4 resources, cultural resources. There have been 5 surveys done on the whole 5,000 acres to help define 6 where the best 2,300 acres would be located, and 7 then we'll also look at visual resources and water 8 resources, potential impacts to them, and 9 socioeconomics, as that being the focus of the 10 project to provide economic benefit to the tribe.</p> <p>11 That's the end of our little 12 presentation.</p> <p>13 MR. LEWIS: The principal component of 14 airing the Environmental Impact Statement is to 15 determine what issues may, you know, arise in this 16 investigation part, scoping part of the project, and 17 so all the agencies get together, and we come up 18 with what we think the issues are, but this is a 19 public process, so the point of this meeting is to 20 reach out to the public and have you let us know if 21 there are any issues, opportunities, concerns, that 22 you may have that we may not have thought of.</p> <p>23 And so that's really the heart and soul 24 of preparing -- coming up with those issues, and 25 that's what gets analyzed in the document.</p>	<p>1 REPORTER'S CERTIFICATE 2 STATE OF NEVADA) 3) ss: 4 COUNTY OF CLARK)</p> <p>5 I, JENNIFER M. DALY, a duly commissioned 6 and licensed Court Reporter, Clark County, State of 7 Nevada, do hereby certify: That I reported the 8 proceedings had in the above entitled matter, 9 commencing on March 6, 2019, at the hour of 10 5:30 p.m.</p> <p>11 That I thereafter transcribed my said 12 shorthand notes into typewriting and that the 13 typewritten transcript of said proceedings is a 14 complete, true, and accurate transcription of my 15 said shorthand notes.</p> <p>16 I further certify that I am not a 17 relative or employee of an attorney or counsel of 18 any of the parties, nor a relative or employee of an 19 attorney or counsel involved in said action, nor a 20 person financially interested in the action.</p> <p>21 IN WITNESS HEREOF, I have hereunto set my 22 hand, in my office, in the County of Clark, State of 23 Nevada, this 19th day of March, 2019.</p> <p>24 JENNIFER M. DALY, CRR, RPR, CCR, CSR 25 CSR No. 766</p>
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<p>1 So if there's anything that you have or 2 wish to comment on or bring to our attention that we 3 may not know about, that's why we're here.</p> <p>4 Feel free, you can speak up, speak on the 5 record. You can go up and visit at the poster 6 boards and talk privately to -- you know, we have a 7 realty specialist, biologist, archaeologist, and the 8 8minute folks are here.</p> <p>9 So however you choose to participate, 10 you're welcome.</p> <p>11 MR. CONNORS: Thank you. I don't have 12 any comments. I'm Bill Connors; I'm vice president 13 with MDU Construction Services Group.</p> <p>14 One of our subsidiaries is Bombard 15 Electric, and we did install on the Moapa Solar 16 Project. We also installed -- we were talking 17 earlier the Valley Electric Project, which is an 18 active desert tortoise habitat, and we're here 19 interested in all solar projects in Nevada and 20 interested in any way we can help out to move the 21 projects forward. Thank you.</p> <p>22 MR. SCHROEDER: Thanks. 23 (Proceedings adjourned at 6:03 p.m.) 24 25</p>	

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Act (2)	Bombard (1)	< D >	February (1)
action (3)	Boulevard (1)	DALY (3)	federal (1)
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Individual Comments



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX

75 Hawthorne Street
San Francisco, CA 94105-3901

February 28, 2019

Mr. Chip Lewis
BIA Western Regional Office
2600 North Central Avenue
4th Floor Mailroom
Phoenix, Arizona 85004

Subject: Scoping comments for the proposed Eagle Shadow Mountain Solar Project on the Moapa River Indian Reservation, Clark County, Nevada

Dear Mr. Lewis:

The U.S. Environmental Protection Agency (EPA) has reviewed the Federal Register Notice published on February 4, 2019 requesting comments on the Bureau of Indian Affairs' (BIA) decision to prepare an Environmental Impact Statement (EIS) for the subject project. Our comments are provided pursuant to the National Environmental Policy Act (NEPA), Council on Environmental Quality (CEQ) regulations (40 CFR Parts 1500-1508) and our NEPA review authority under Section 309 of the Clean Air Act.

The proposed project would consist of a 300-megawatt (MW) solar photovoltaic (PV) electricity generation facility on up to 2,300 acres located on the Moapa River Indian Reservation. A proposed 10-mile long 230 kilovolt (kV) generation-tie transmission line would connect the solar project to NV Energy's Reid-Gardner 230kV Substation and would be located on Tribal lands, Federal lands administered and managed by BLM, and private lands. The Project is expected to be built in one phase of 300-MW to meet an existing Power Purchase Agreement.

EPA is a NEPA cooperating agency on the project. To assist in the scoping process, we have the following recommendations for your attention in the preparation of the EIS. These are based on our review of the NOI and the preliminary Table 3-1 provided to cooperating agencies which outlines all the resources/uses proposed for evaluation in this EIS and the rationale for eliminating some resources/uses for further analysis. Because the proposed Eagle Shadow Mountain Solar Project (ESMSP) would be the fourth utility-scale PV solar project on the Moapa River Indian Reservation evaluated in an EIS, BIA intends to "incorporate by reference" some analyses from the K-Road Moapa Solar EIS (2012), the Moapa Solar Energy Center EIS (2014), and the Aiya Solar Project EIS (2016). EPA supports this streamlining effort, intended to meet new Department of Interior NEPA streamlining guidelines including a one-year completion deadline, so long as the EIS in preparation effectively discloses what environmental impacts this particular project will have, and what measures will be taking to reduce those impacts.

While we support this strategy in general, we have the following recommendations for implementing it in the DEIS:

Incorporation by reference

- Ensure that any material incorporated by reference includes a citation and brief description, and ensure the referenced documents are readily available to the public (40 CFR 1502.21), such as including them on the project website with specific page numbers for each that will

assist the reader in retrieving the analyses. BIA should be prepared to furnish copies to central locations or send copies directly to commenters upon request.

- Ensure the analyses have been reviewed to determine they are still relevant and not dated. CEQ recommends that EISs that are more than 5 years old should be carefully reexamined to determine whether preparation of an EIS supplement is warranted (CEQ's 40 Most Asked Questions about the NEPA, No. 32), and, as such, suggests this time period as when analyses could begin to become dated. The K-Road EIS is more than 5 years old and the Moapa Solar Energy Center EIS is approaching 5 years old. Any analyses incorporated by reference from these documents should be reviewed for relevancy before incorporation.
- Ensure that any mitigation and monitoring plans are specific to the ESMSP site. We understand these plans will be appended to the DEIS, even if the resource area will not be evaluated further.

In addition, we have the following recommendations for your consideration in preparation of the EIS:

Alternatives analysis

In addition to the potential alternatives identified in the Notice of Intent (generation-tie routing options, modified footprint alternatives, alternate routing for other Project ROWs, and the No Action), EPA recommends that the BIA and the Tribe consider alternative mountings, alternative capacities, and alternative photovoltaic technologies. EPA strongly encourages siting renewable energy projects on disturbed, degraded, and contaminated sites before considering large tracts of undisturbed lands.

Impacts to floodplains/flood hazards

Table 3-1 indicates that floodplain impacts will not be further evaluated in the EIS and states that the project site is not located in a floodplain but the northern end of the gen-tie line would cross a 100-year floodplain near where it connects with the Reid-Gardner Substation. It states that the gen-tie line would span the drainage channels, but one or two transmission structures could be located within the floodplain; however, this would not result in any modification of a floodplain that would impede or redirect flood flows resulting in property damage on- or off-site. It states that the flood-carrying capacity of the floodplain, the pattern, or the magnitude of the flood flow would not be affected, and if any gen-tie structures would be located within the floodplain, foundations would be designed to withstand the low-velocity flooding in accordance with Clark County and associated floodplain requirements. Because the project is on Tribal land where County requirements do not apply, we recommend that the project description identify that the project will be designed and will voluntarily conform with local County floodplain requirements. See also our comment below regarding sizing stormwater infrastructure.

Water Resources

Table 3-1 indicates that impacts to surface and groundwater resources will be evaluated in the EIS.

Impacts to ephemeral drainages

The main project site contains numerous ephemeral drainages or desert washes. We recommend avoiding the larger drainages through careful micro-siting of project components to the maximum extent possible. Desert washes perform a diversity of hydrologic, biochemical, and geochemical functions that directly affect the integrity and functional condition of higher-order waters downstream. Healthy ephemeral waters with characteristic plant communities control rates of sediment deposition

and dissipate the energy associated with flood flows. These values are present regardless of whether the washes are deemed jurisdictional waters of the U.S. under Section 404 of the Clean Water Act.

We recommend: 1) avoiding placement of support structures in washes; 2) utilizing existing natural drainage channels on site, such as earthen berms or channels, rather than concrete-lined channels; 3) committing to the use of natural washes, in their present location and natural form, and including adequate natural buffers, to the maximum extent practicable, 4) minimizing the number of road crossings over washes and designing necessary crossings to provide adequate flow-through during storm events, and 5) avoiding complete clearing and grading of the site by evaluating the mounting of PV panels at sufficient height above ground to maintain natural vegetation and reduce impacts to drainages. Please identify in the DEIS the extent to which these elements have been incorporated into the project design.

In comparing alternatives, we recommend the discussion of impacts to ephemeral drainages include the acreages and channel lengths, habitat types, values, and functions of the waters that would be affected. Describe in the DEIS the extent to which desert washes are being cumulatively impacted by existing and planned large-scale solar projects (and other non-energy projects, if applicable) in region.

Water Quality

Erosion and sedimentation impacts

Table 3-1 indicates that implementation of required Best Management Practices (BMPs) would reduce erosion impacts to negligible levels. These would include physical soil stabilization and revegetation as outlined in plans included as design features for the ESMSP, such as the stormwater pollution prevention plan (SWPPP) and fugitive dust control plan. Because K-Road has already been constructed, there is the opportunity to observe the effects and adjust BMPs and design features in response. The K-Road EIS indicated that adaptive management would be utilized if erosion and sediment measures were found to be insufficient. We recommend a brief discussion of what adaptive management measures were necessary for the K-Road project. Please also see sizing stormwater infrastructure comment below.

We recommend larger drainages be given wide buffers so the channels may adjust to the new hydraulic conditions without the need for major human-made structures. In the DEIS, identify specific on-site drainages that will be targeted for avoidance. Consider establishing permanent sediment and channel elevation monitoring stations to assist in the adaptive management of erosion and sedimentation and commit to low-impact development techniques, such as bioretention, to ensure drainage patterns remain in the most natural state feasible.

Clean Water Act Section 303(d)

The drainages on the ESMSP site flow into the California Wash and then into the Muddy River. The Muddy River is considered an impaired waterway under the Clean Water Act, Section 303(d) and does not meet water quality standards¹. The Muddy River is impaired for Iron and Dissolved Oxygen from Glendale to Well Siding Diversion, and in addition to these, for *Escherichia coli* and fecal coliform from Well Siding Diversion to the mouth of Lake Mead. Disclose this in the DEIS and indicate whether any discharges from the site, during construction or operation, could contribute to these impairments, and how changes in hydrology and discharges at the project site could contribute to cumulative impacts to the Muddy River.

¹Water Quality Integrated Report available at: <https://ndep.nv.gov/water/rivers-streams-lakes/water-quality-standards/303d-305b-water-quality-integrated-report>

Sizing stormwater infrastructure

We recommend the BIA consider the impacts of changing precipitation patterns on the project, as part of its analysis of impacts to water resources. Identify design considerations needed to accommodate future anticipated effects such as increased intensity and severity of storms, such as upsizing the stormwater management system. As a reference, the large storm in 2014 disrupted the construction of the K-road solar project and lessons learned might be applicable for this project. We recommend including any monitoring data or observations from the completed K-Road Solar Project, including whether any wash-outs or flooding incidents during large storms since 2014 occurred, to inform the stormwater management system at the ESMSP site.

Water supply

Estimate the quantity of water the project will require during the construction phase and during operations (cleaning the PV panels during routine maintenance, administration and sanitation uses in offices, etc.). Describe the source of this water and potential effects on other water users. The NOI indicates that groundwater would be used. Identify the affected groundwater basin and impacts to groundwater recharge, springs or other surface water bodies, biologic resources, and the potential for subsidence. Identify available technologies to minimize or recycle water and utilize xeric native plants in any landscaping around buildings. Describe water reliability for the proposed project and clarify how existing and/or proposed sources may be affected by changing precipitation patterns.

Topography / Geology

Table 3-1 indicates that “Construction, operation/maintenance, or decommissioning of the proposed Project would not alter the soil stability of the solar site” and this resource topic has been eliminated from further analysis in this EIS. While Table 3-1 indicates grading will only occur where necessary, if large-scale grading will occur at the site, or if soils will be sterilized with pesticides to prevent weed growth under the panels, we recommend BIA fully analyze the impacts to soil stability in the DEIS. Grading or sterilizing soils prevents the natural revegetation of native plants that could minimize erosion. Additionally, in arid areas, disturbed vegetation is slow to recover.

Air quality

Table 3-1 indicates that the analysis of impacts to air quality will be incorporated by reference from the other solar project EISs. Table 3-1 identifies fugitive dust as an impact and that dust control BMPs would be utilized. We understand these practices and a Dust Control Plan will be incorporated in the EIS as appendices. BIA and the Tribe should consider requiring contractors to attend a Dust Control Class, held twice monthly, by the Clark County Department of Air Quality, and utilizing the resources in their Dust Control Handbook. See <http://www.clarkcountynv.gov/airquality/Pages/default.aspx>.

Table 3-1 indicates that a portion of the vegetation could be cleared on 2,300 acres of the Reservation. EPA recommends that BIA quantify the fugitive dust impact that would be generated from grading the soil. It is just as important to prevent unnecessary dust generation as it is to control it, and preserving desert vegetation under the arrays should be considered. We are aware that other solar projects are experimenting with leaving in vegetation, since desert vegetation is very slow to recover and disturbance encourages invasive species. It is now possible to mount PV panels at sufficient height above ground to maintain vegetation and minimize erosion. For example, Ivanpah Solar Electric Generating System mowed most of the site, instead of using bulldozers to scrape away all vegetation, which allowed vegetation to regrow beneath the panels. In addition, the NOI indicates the project construction will not be phased but will occur in one phase. If full grading will occur on site, despite our recommendations to the contrary, we recommend phasing construction to minimize fugitive dust.

Biological Resources

Vegetation Management

Table 3-1 indicates that impacts to vegetation will receive full analysis in the EIS. The DEIS should discuss general locations of rare plants and describe how potential impacts will be minimized. Consider impacts associated with an increase of shade on vegetation and species in the desert environment, and impacts associated with constructing fences around the project site. Indicate whether pesticides and herbicides would be used for vegetation treatment. We recommend maintaining the presence of native plants under PV panels, to the greatest extent possible.

Invasive Plants and Noxious Weeds

Table 3-1 indicates that impacts from noxious weeds will not be further evaluated in the EIS and the analysis of the projects potential impacts to spreading invasive and noxious weeds will be incorporated by reference from the other solar project EISs. Table 3-1 states that all applicable BMPs associated with weed management specified by BIA and BLM policies to reduce or prevent impacts from weed species would be implemented as design features for the ESMSP as outlined in a weed management plan developed to address construction, operation, and decommissioning of the Project. The presence of a completed solar project near the ESMSP site offers a unique opportunity to observe how the predictions regarding noxious weeds and mitigations to address them are working. We recommend conducting these observations at the completed K-Road solar site and integrating the results into the weed management plan for ESMSP.

Protected Species and Habitat

Table 3-1 indicates that impacts to threatened and endangered species, as well as BLM sensitive species, will be evaluated in the EIS. The DEIS should identify all petitioned and listed threatened and endangered species and critical habitat that might occur within the project area and identify and quantify which species or critical habitat might be directly or indirectly affected by each alternative. EPA recommends that BIA and the Tribe coordinate with the U.S. Fish and Wildlife Service to determine whether consultation under Section 7 of the Endangered Species Act is required. Disclose in the DEIS the status of such coordination efforts, as well as any potential impacts of construction and operations activities on habitat and species, and any mitigation measures that would be implemented to protect important wildlife habitat areas.

The project location contains habitat for the threatened Mojave Desert tortoise, a species that is experiencing negative impacts from multiple sources, including multiple renewable energy projects. The DEIS should fully present the direct and cumulative impacts that this project, along with other solar projects proposed in the Mojave Desert, is expected to have on this species. The potential long-term effects of utility-scale energy development in fragmenting or isolating desert tortoise conservation areas and restricting gene flow should be considered.

Analysis of impacts and mitigation for listed species should include: 1) baseline conditions of habitats and populations of the covered species; 2) a clear description of how avoidance, mitigation, and conservation measures will protect and encourage the recovery of the covered species and their habitats in the project area; and 3) monitoring, reporting and adaptive management efforts to ensure species and habitat conservation effectiveness.

Impacts to Birds

Table 3-1 indicates that impacts to migratory birds will be evaluated in the EIS. Describe in the DEIS whether there is increased fatality risk to birds, particularly water fowl, associated with solar PV

arrays. Birds may mistake the PV panels for water – the so-called lake effect – resulting in unexpected deaths of birds from collisions with the solar panels. Discuss the issue of avian mortality and describe measures to minimize potential impacts. We recommend that the Bird and Bat Conservation Strategies include avian mortality monitoring and adaptive management measures.

Include assurances that the design of the transmission line would comply with current standards and practices that reduce the potential for raptor fatalities and injuries. The commonly referenced source of such design practices is found within the Avian Power Line Interaction Committee documents: *Suggested Practices for Avian Protection on Power Lines: State of the Art in 2006* manual and *Reducing Avian Collisions with Power Lines: The State of the Art in 2012*.

Public Health and Safety - Valley fever

The project site is located in an area that the Centers for Disease Control has determined is suspected endemic for *Coccidioides immitis*, a fungus causing Valley Fever in humans². Ground disturbing activities associated with the proposed action may result in dispersal of *Coccidioides* spores. EPA recommends that BIA discuss this potential health and safety impact in the DEIS and identify measures to prevent or reduce the risk of exposure to workers and local residents.

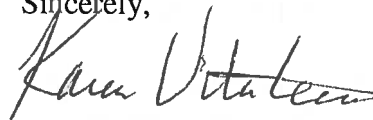
Cumulative impacts

Describe the methodology used to assess cumulative impacts. We recommend BIA consider the methodology developed jointly by EPA, the Federal Highway Administration, and the California Department of Transportation³. While this methodology was developed for transportation projects, the principles and steps in this guidance offer a systematic way to analyze cumulative impacts for any project.

There are currently many solar energy projects being proposed and constructed on public and private lands in the desert southwest. Consider impacts from these other projects, in addition to other developments in the area, on the resources that would be affected by the proposed project, as well as general resource trends. As mentioned, desert washes and ecosystems are experiencing cumulative effects from multiple large solar installations in the desert, as are the desert tortoise, and these are relevant to the cumulative impact assessment.

We appreciate the opportunity to provide comments on the preparation of the DEIS. We may have additional comments after attending the cooperating agency site visit, scheduled for March 5th. If you have any questions, please contact me at (415) 947-4178 or vitulano.karen@epa.gov.

Sincerely,



Karen Vitulano
Environmental Review Section

² See: <http://www.cdc.gov/fungal/diseases/coccidioidomycosis/causes.html>

³ Available at: http://www.dot.ca.gov/scr/cumulative_guidance/approach.htm.



NEVADA
**STATE HISTORIC
PRESERVATION OFFICE**

Department of Conservation and Natural Resources

Brian Sandoval, Governor
Bradley Crowell, Director
Rebecca L. Palmer, Administrator, SHPO

November 20, 2018

Bryan Bowker
Western Regional Office Director
Bureau of Indian Affairs
2600 North Central Avenue
Phoenix, AZ 85004-3008

Re: Lease and Rights-Of-Way for the Eagle Shadow Mountain Solar Project and Associated Infrastructure, Clark County, Nevada (Project No. 2018-126)
Environmental Quality Services MS620-EQS / SHPO Undertaking #2019-5682

Dear Mr. Bowker:

The Nevada State Historic Preservation Office (SHPO) has reviewed the subject documents received in hard copy on October 23, 2018 and via email on November 20, 2018 in accordance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended.

Project Description

The SHPO understands this undertaking to be the Bureau of Indian Affairs' (BIA) approval of a lease and rights-of-way for the construction of a 300 megawatt solar photovoltaic electrical generation facility with associated infrastructure and access on the Moapa River Indian Reservation.

Area of Potential Effect (APE)

The BIA has determined that the direct effects as a result of this undertaking will be contained within a 2,500-acre area. Furthermore, the BIA has determined that indirect and cumulative effects as a result of this undertaking will be contained within a 5-mile radius of the solar field's direct APE or to the visual horizon, whichever is closer. The indirect APE is defined as a 1-mile radius from the centerline of the transmission line extending from the solar field. Since the BLM did a visual analysis of the Gemini solar field's visibility during their CRINA process, it may be helpful for the public if the BIA also does a viewshed analysis to further refine the indirect APE for this undertaking.

The SHPO **concurs** with the BIA's determination that this APE accounts for all potential direct, indirect, and cumulative effects that may result from this undertaking in keeping with 36 CFR §800.4(a)(1) and 36 CFR §800.16(d).

Identification Effort for Historic Properties

The SHPO notes that the proposed identification effort for archaeological properties within the direct APE is adequate for this undertaking. However, it is unclear what efforts the BIA is taking to identify other historic properties (e.g., architectural or traditional cultural properties) that could be within the indirect APE. If BIA is seeking SHPO review and comment on the proposed identification effort for the indirect APE, please submit additional information to our office.

901 S. Stewart Street, Suite 5004 ✦ Carson City, Nevada 89701 ✦ Phone: 775.684.3448 Fax: 775.684.3442

www.shpo.nv.gov

Native American Consultation

The SHPO notes that consultation with the affected Native American tribes has been identified per 36 CFR §800.2(c)(2)(i)(B). If this consultation results in the identification of properties of religious and/or cultural significance that could be affected by the undertaking, the SHPO looks forward to consulting with the BIA on the National Register eligibility and possible effects of the undertaking per 36 CFR §800.4(c) and 36 CFR §800.4(d). In order to maintain a complete and accurate record of consultation, please forward a brief narrative summary of the results of this consultation to our office so this may be added to the administrative record for this undertaking.

Consulting Parties and Public Consultation

The SHPO notes that consultation with the public and representatives of organizations that have a demonstrated interest in historic properties have been identified for consultation on this undertaking by the BIA in keeping with 36 CFR Part §800.2(c)(5). If this consultation results in the identification of historic properties that could be affected by the undertaking, the SHPO looks forward to consulting with the BIA concerning the National Register eligibility and possible effects of the undertaking. In order to maintain a complete and accurate record of consultation, please forward a brief narrative summary of the results of this consultation to our office so this may be added to the administrative record for this undertaking.

Should you have any questions concerning this correspondence, please contact Jessica Axsom at (775)684-3445 or by email at jaxsom@shpo.nv.gov or SHPO staff architectural historian Kristen Brown at (775) 684-3439 or by email at knbrown@shpo.nv.gov.

Sincerely,



Robin K. Reed
Deputy State Historic Preservation Officer

cc via email: Garry J. Cantley, BIA



Basin and Range Watch Western Watersheds Project

February 28th, 2019

To: Mr. Chip Lewis, BIA Western Regional Office, 2600 North Central Avenue, 4th Floor Mailroom, Phoenix, Arizona 85004; email: Chip.Lewis@bia.gov.

Re: Comments on the proposed Eagle Shadow Mountain Solar Project Agency/Docket Number: 190A2100DD/AAKC001030/A0A501010.999900253G

Basin and Range Watch is a 501(c)(3) non-profit working to conserve the deserts of Nevada and California and to educate the public about the diversity of life, culture, and history of the ecosystems and wild lands of the desert. Federal and many state agencies are seeking to open up millions of acres of unspoiled habitat and public land in our region to energy development. Our goal is to identify the problems of energy sprawl and find solutions that will preserve our natural ecosystems, open spaces, and quality of life for local communities. We support energy efficiency, better rooftop solar policy, and distributed generation/storage alternatives, as well as local, state and national planning for wise energy and land use following the principles of conservation biology.

Western Watersheds Project (WWP) works to protect and conserve the public lands, wilderness, wildlife, and natural resources of the American West through education, scientific study, public policy initiatives, and litigation. WWP has offices and staff in Nevada and other western states.

The Eagle Shadow Mountain Solar Project is a reservation project being reviewed by the Bureau of Indian Affairs. The decisions on the reservations should definitely be made by the people who are directly affected by the proposed action, but because this has made a full NEPA review in the Federal Register, we would like to offer the following ideas and ask you to consider the following impacts:

Purpose and Need: The Purpose and Need Statement should include a need to conserve resources. Those would be desert tortoise, all wildlife, rare plants, avian fauna, air quality and cultural sites.

Alternatives: While a No Action Alternative is required, other alternatives that would help the tribe economically without the environmental impacts of a big solar project could be considered.

Affected Environment/Environmental Consequences

Air Quality/Fugitive Dust:

If you build roads, transmission, large scale renewable projects and scrape up the Mojave Desert habitat, you will have fugitive dust. When deserts are scraped, a Pandora's Box of air quality issues is opened. Biological soil crust, desert pavement and old growth vegetation will all be lost. This is an Environmental Justice issue. The health impacts that will arise from airborne particulates from construction dust could have very negative on the local residents of the area. Dust control in hot, arid climates is very problematic. The removal of established vegetation, biological soil crusts and centuries old desert pavement creates opportunities for dust to be airborne every time the wind blows. Not only does fugitive dust create problems for visual and biological resources, it creates issues for public health as well. Coccidioidomycosis (Valley Fever) is a common issue in the desert regions when too much land is disturbed. There have been hundreds of cases of Valley Fever in Clark County and 33 cases reported in Clark County alone in 2016. ¹The rapid growth creates quite a bit of dust. The cumulative impact of scraping 10 square miles will only add a cumulative

The land rush of large solar projects all over the southwestern US has resulted in approval of many of these projects. In most of the cases, the developers have not adequately mitigated the fugitive dust that has resulted in the removal of large acreages of vegetated desert lands.

Visual Resources:

The project would dramatically change the view of the landscape and would impact adjacent public lands, wilderness areas and national park units. This impact is almost impossible to avoid.

Battery Storage:

How will the batteries on the site be cooled? In a building? Will this require power off the grid. Are remote solar sites the most efficient way to produce solar energy?

¹ <http://nvophie.weebly.com/home/valley-fever>

Biological Resources:

Terrestrial life forms such as the Desert Tortoise, Gila monster, American badger, Kangaroo rat, Desert iguana, Kit Fox, etc would all be impacted. The Lake Effect produced by solar power could also create a death trap for birds that mistake the panels for water and collide with them.

Desert Tortoise:

The 2017 and 2018 desert tortoise for the proposed nearby Gemini Solar Project surveys found 172 live tortoises, and based on density calculations, estimate that the project site contains 273 live tortoises. In addition to the live tortoises, biologists observed 2,774 desert tortoise burrows, 391 pellets, 323 carcasses, and 241 scats. Because of the high number of tortoises found here, we recommend that BLM and US Fish and Wildlife Service consider designating this area as new Critical Habitat and an Area of Critical Environmental Concern, since so many Critical Habitat Units are now no longer viable (see discussion below).

The project site is located between two recovery units and is considered an important connectivity corridor or least cost pathway due to suitable topography. The surrounding Areas of Critical Environmental Concern (ACEC's) that contain designated desert tortoise Critical Habitat include the Mormon Mesa, Gold Butte, and Coyote Springs Desert Wildlife Management Areas.

The Eagle Shadow Mountain site is closer to the Moapa Solar Project which was concluded to have an even higher population density than the Gemini site.

Recent modeling by Sanchez-Rameriz et al. (2018) using single nucleotide polymorphism markers and spatial data consistently associated genetic connectivity with least-cost distance, based on multiple landscape features associated with tortoise habitat, despite landscape distance. Spatial and landscape genetics identified cluster 5 as tortoise inhabiting northeastern Mojave Desert in California, through southern Nevada, to southwestern Utah. The Eagle Shadow Mountain Project could contribute to disconnecting this genetic population and fragment habitats, which have already undergone major development pressures. The cumulative impacts have stacked up in this region for the desert tortoise. The area has a major Interstate highway running through it and there are also several transmission utility corridors in the area. The Dry Lake South Solar Energy Zone (Designated Leasing Area) has filled up 3,000 acres and BLM wants to approve the Dry Lake East DLA which would be built on over 1,500 acres hugging a mountain range. The Moapa Solar Project was built on almost 2,000 acres very close by and there is a proposal to build 7,000 acre Gemini Solar Project on BLM lands as well. This project would be close to 10 square miles in size and 260 tortoises are estimated to be on the development site, the Red Flats Solar Project near Glendale would be 4,000 acres, the Ayia Solar Project on 900 acres of the Moapa Reservation and the Red Flats Solar Project on 2,000

acres near the Moapa Reservation. To the southwest is Las Vegas, Nevada which is experiencing a big economic urban growth boom now and thousands of acres of undeveloped public lands are being converted to housing subdivisions under the Clark County Multi Species Habitat Conservation Plan. Recently, the county passed a resolution which approved the transfer of over 40,000 acres of BLM lands to the county which would be used for housing subdivisions. If the Senate and Congress agree to this, that would add considerably to the cumulative loss of tortoise habitat in the region. To the north in the St. George, Utah area, the Northern Corridor highway project is proposed to slice directly through the Red Cliffs Tortoise Preserve, further leading to unmitigated mortality. At this rate of growth, there will not be much left for the tortoise if BLM approves the Gemini Solar Project.

At the most recent Desert Tortoise Management Oversight Group (MOG) meeting in Las Vegas, NV, Raul Morales, Deputy Director at Nevada of planning and resources for BLM said on February 27, 2019, that only one Recovery Unit is in an upward trend, and that the MOG needs to consider the future.

The Eagle Shadow Mountain Solar Project is proposed for the crucial linkage in the Northeastern Mojave Recovery Unit, in addition to a contiguous high-quality habitat block-- these blocks are becoming increasingly rare. Fragmentation is an increasing threat.

Cumulative development projects, solar proposals, urbanization, and a proposed airport in the linkage near Jean threaten the functionality of this linkage corridor. The Clark County lands bill could further remove linkages. The connectivity between Recovery Units needs to be better protected.

The Management Oversight Group (MOG) is wrestling with solar energy development especially with rising renewable energy state RPS pushes.

Crucial connectivity corridors need to be better conserved, or if development occurs in them, better mitigation should be done.

The Desert Tortoise Council in recent letters to Congress opposing the Northern Corridor in Utah have stressed that these cumulative impacts, coupled with range-wide declines to the desert tortoise warrant uplisting to Endangered status under the federal Endangered Species Act.

US Fish and Wildlife Service in its latest status review (USFWS 2015), based on surveys and sampling from 2004 to 2014, found that 10 of 17 populations of the Mojave desert tortoise declined over that ten year period, and that 11 of 17 populations of the Mojave desert tortoise are no longer viable. These 11 populations represent 89.7 percent of the range-wide habitat in Critical Habitat Units/Tortoise Conservation Areas.

Avian Mortality/Lake Effect:

There are updated numbers that confirm there are significant numbers of bird mortalities found at solar projects. Photovoltaic project companies are turning in many of these numbers. Since the projects are very large, these numbers only likely represent a smaller percentage of what is actually taking place. Updated information about avian-solar interactions by US Fish and Wildlife Service shows this is a concern. Solar projects can have significant impacts to sensitive species, and those listed under the federal Endangered Species Act. Data reported and gathered from seven solar projects in the southern California desert and arid grassland habitats from 2012 through April 2016 show that 183 bird species have been killed at solar projects, a number that rises with new information. 3,545 individual birds were reported dead at solar projects, from a mix of incidental finds and systematic surveys (Dietsch 2016). This is likely an underestimate.

The Fish and Wildlife Service has identified several Birds of Conservation Concern that use the vicinity of the Eagle Shadow Mountain Solar Project. The 1988 amendment to the Fish and Wildlife Conservation Act mandates the U.S. Fish and Wildlife Service (USFWS) to “identify species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing under the Endangered Species Act (ESA) of 1973.

Birds that are of concern have been found dead at solar projects, and may be impacted by the Eagle Shadow Mountain Solar Project, including these Birds of Conservation Concern:

- Federal Endangered/Threatened – Yuma Ridgeway’s (Clapper), Willow flycatcher, and Yellow-billed cuckoo.
- Birds of Conservation Concern – Eared grebe, American white pelican, Burrowing owl, Calliope hummingbird, Bald Eagle, Ferruginous Hawk, Golden Eagle, Peregrine Falcon, Snowy Plover, Long-billed Curlew, Black Swift, Calliope Hummingbird, Lewis's Woodpecker, Willow Flycatcher, Loggerhead Shrike, Virginia's Warbler, and Sage Sparrow.

Many of these Birds of Conservation Concern have been found in or in the vicinity of Lake Mead, the Muddy River and the Pahrangat National Wildlife Refuge as migrants or permanent residents (in the case of the burrowing owl). The arid regions between these water sources (Dry Lake Valley, Muddy Mountains, etc.) serve as flyways and a potential false lake could create issues. The Eagle Shadow Mountain Solar Project could potentially create this lake effect and polarized light may attract birds to photovoltaic solar projects as they mistake the panels for water. US Fish and Wildlife Service says many of these birds of conservation concern may be at risk.

Burrowing Owls/Kit Fox:

In a recent survey for the nearby proposed Gemini Solar Project on BLM lands, 99 kit fox burrows were found and 14 burrowing owl burrows were found. This could indicate a very large population on the site of the Eagle Shadow Mountain Solar Project. The burrowing owl is a sensitive species that is impacted by too much human activity.

Bighorn Sheep:

Is this site used by desert bighorn? Will this be surveys for?

Conclusion:

Large-scale solar projects do leave a major environmental impact that really can't be mitigated. Do you want all your open space converted to energy harvest areas? Should the landscape be converted to industrial energy or can there be economic alternatives that have fewer environmental impacts?

Thank you,

Kevin Emmerich
Co-Founder
Basin and Range Watch
P.O. Box 70
Beatty, Nevada 89003

Laura Cunningham
California Director
Western Watersheds Project
Cima CA 92323
Mailing: P.O. Box 70
Beatty NV 89003

References:

Dietsch, Thomas. May 2016. Update on Solar-Avian Interactions in Southern California. Migratory Bird Division US Fish and Wildlife Service. Presentation given at MultiAgency Avian-Solar Collaborative Working Group Public Meeting Sacramento, CA, May 10, 2016, http://blmsolar.anl.gov/program/aviansolar/docs/Avian-Solar_CWG_May_2016_Workshop_Slides.pdf.

Hagerty, B. E. and Tracy, C. R. 2010. Defining population structure for the Mojave Desert tortoise. *Conserv. Genet.* 11, 1795–1807.

Sanchez-Ramirez, S., Y. Rico, K. H. Berry, T. Edwards. A. E. Karl, B. T. Henen, and R. W. Murphy. 2018. Landscape limits gene flow and drives population structures in Agassiz's desert tortoise (*Gopherus agassizii*). *Nature Online Scientific Reports*.

February 26, 2019

Mr. Chip Lewis
BIA Western Regional Office
Southern Paiute Agency
2600 North Central Avenue
Phoenix, Arizona 85004

E-mail: Chip.Lewis@bia.gov

Re: Notice of intent to prepare an Environmental Impact Statement (EIS) that will evaluate a photovoltaic (PV) solar energy generation project on the Moapa River Indian Reservation and a 10-mile transmission line that would connect the solar project to Nevada Energy's Reid-Gardner substation.

Dear Mr. Lewis:

Thank you for providing the Notice of Intent concerning the preparation of an Environmental Impact Statement (EIS) for the proposed Eagle Shadow Mountain Solar Project. This project will be located on the Moapa River Indian Reservation and will include a transmission line approximately 10 miles long that would connect the solar project to Nevada Energy's Reid-Gardner substation. The project will be located on Tribal lands, Federal lands administered and managed by BLM and land owned by Nevada Power in Clark County Nevada. This letter provides Clark County Department of Air Quality's (DAQ) assessment of the project's conformity with Clark County Air Quality Regulations (AQRs).

As stated in your notice, the project will be constructed on up to 2,300 acres located within a 4,770 acre area lease area in Township 16 south, Range 64 east that includes all or part of Sections 9, 10, 11, 12, 14, 15, 16, 21 and 22 (Hydrographic Areas 216 and 218). Based upon the locations in your proposal, the project location is in attainment or is unclassified area for all criteria pollutants. (DAQ) does not have jurisdiction for enforcing air quality regulations within the Moapa River Indian Reservation or the other areas you specified.

In preparing an EIS for the proposed project, regulatory requirements may apply depending upon the type of activities that will take place at the construction site. Particulate Matter with an aerodynamic diameter of 10 microns or less (PM₁₀) is the pollutant primarily associated with construction activities and there are several provisions of the (AQRs) that regulate proposed construction within Clark County:

Section 94 of the AQRs requires that a dust control permit be obtained prior to: (i) soil disturbing or construction activities impacting 0.25 acres or more in overall area, (ii) mechanized trenching of 100 feet or more in length, or (iii) mechanical demolition of any structure 1,000 square feet or more in area. When construction activities exist, Best Available Control Measures (BACM) must be employed. More information about the dust control regulations and required forms can be found at the link below:

Construction activities include, but are not limited to, the following practices: (i) land clearing, (ii) soil and rock excavation or removal, (iii) soil or rock hauling, (iv) soil or rock crushing or screening, (v) initial landscaping, (vi) establishing and/or using staging areas, parking areas, material storage areas, or access routes to or from a construction site.

Section 94 of the AQRs requires that a construction project of ten (10) or more acres, trenching activities of one mile or greater, or structure demolition using implosive or explosive blasting techniques, include a detailed supplement to the Dust Mitigation Plan. The supplement must be in the form of a written report and must, at minimum, provide a project description, the area and schedule of the phases of land disturbance, and the control measures and the contingency measures to be used for all construction activities. The supplement will become part of the dust control permit as an enforceable permit condition.

Section 94 of the AQRs also requires that any construction project of fifty (50) or more actively disturbed acres have in place an individual designated as the Dust Control Monitor to ensure that dust control measures are implemented, pursuant to the provisions of Section 94.7.5. In addition, an application for a Dust Control Permit for 50 acres or more shall contain a soil analysis of the entire project.

The following provisions of AQRs (90, 91, 92) shall apply to areas located in a PM₁₀ non-attainment area, an area subject to a PM₁₀ maintenance plan as defined under U.S. Code 7595a, or in the Apex Valley (Hydrographic Areas 216 and 217), and areas which are not regulated by section 94.

- Section 90 limits the emission of particulate matter into the ambient air from open areas or parking lots.
- Section 91 of the AQRs restricts the emission of particulate matter into the ambient air from unpaved roads, unpaved alleys, unpaved road easements, and unpaved access roads for utilities and railroads.
- Section 92 limits fugitive dust from parking lots and storage areas.

Section 12 of the AQRs requires the issuance of a stationary source permit for any applicable source located in Clark County that has a potential to emit a regulated pollutant that is equal to or greater than the thresholds listed in that section.

Clark County's air quality regulatory program is not applicable Moapa tribal lands. However, DAQ notes that particulate emissions from construction of the Eagle Shadow Mountain Solar Project will most directly affect the Moapa tribal lands. The BIA may therefore want to consider incorporating BACM into the project EIS in order to mitigate these impacts. We also note that good soil stabilization or use of a paved surface on the facility site may reduce the cost of operations by minimizing frequency of cleaning/dust removal of the solar equipment.

For further assistance please contact me at (702) 455-1665, Russell Merle at (702) 455-1662 or the Small Business Assistance Program at (702) 455-1524.

Sincerely,

A handwritten signature in cursive script, reading "Brenda Whitfield". The signature is written in a dark ink and is positioned below the word "Sincerely,".

Brenda Whitfield, Air Quality Specialist II
Clark County Department of Air Quality
Planning Division
4701 W. Russell Road
Las Vegas, NV 89118

From: [Lewis, Charles](#)
To: [Randy Schroeder](#); ESMSolar@logansimpson.com
Subject: Fwd: [EXTERNAL] RE: Eagle Shadow Mountain Solar Project
Date: Friday, March 08, 2019 12:55:42 PM

Chip Lewis
Regional Environmental Protection Officer
DOI-BIA/WRO/EQS
(602) 379-6750

----- Forwarded message -----

From: **Gonzalez, Brian** <Brian.Gonzalez@ladwp.com>
Date: Fri, Mar 8, 2019 at 11:37 AM
Subject: [EXTERNAL] RE: Eagle Shadow Mountain Solar Project
To: Lewis, Charles <chip.lewis@bia.gov>
Cc: Holloway, Chuck <Charles.Holloway@ladwp.com>, Parker, Nadia <Nadia.Parker@ladwp.com>

Thank you so much, Chip!

It was a pleasure speaking with you this morning. The files you sent will help the LADWP determine whether our agency has any utility interests that run through the Moapa Reservation.

As discussed, the LADWP is also kindly requesting that the following contact be added to future notification distribution lists related to this project:

Mr. Charles Holloway, Manager

Los Angeles Department of Water and Power

Environmental Planning and Assessment

111 N. Hope Street, Room 1044

Los Angeles, CA 90012

Thanks again for your help,

--Brian

BRIAN GONZALEZ

Environmental Planning and Assessment

Los Angeles Department of Water and Power

111 N. Hope Street, Room 1044

Los Angeles, CA 90012

213.367.2612

brian.gonzalez@ladwp.com

From: Lewis, Charles [mailto:chip.lewis@bia.gov]

Sent: Friday, March 8, 2019 9:58 AM

To: Gonzalez, Brian

Subject: Eagle Shadow Mountain Solar Project

Mr. Gonzalez,

Per our discussion, attached is a project fact sheet and two illustrations/maps that may help you with determining interest and involvement.

Chip Lewis

[Chip Lewis](#)

Regional Environmental Protection Officer

DOI-BIA/WRO/EQS

(602) 379-6750

-----Confidentiality Notice-----

This electronic message transmission contains information from the Los Angeles Department of Water and Power, which may be confidential. If you are not the intended recipient, be aware that any disclosure, copying, distribution or use of the content of this information is prohibited. If you have received this communication in error, please notify us immediately by e-mail and delete the original message and any attachment without reading or saving in any manner.



CUSTOMERS FIRST

Eric Garcetti, Mayor
Board of Commissioners
Mel Levine, President
Cynthia McClain-Hill, Vice President
Jill Banks Barad
Christina E. Noonan
Aura Vasquez
Barbara E. Moschos, Secretary
David H. Wright, General Manager

May 14, 2019

Mr. Chip Lewis
BIA Western Regional Office
2600 North Central Avenue, 4th Floor Mailroom
Phoenix, Arizona 85004

Chip.Lewis@bia.gov

Dear Mr. Lewis:

Subject: Bureau of Indian Affairs Regarding Notice of Intent to Prepare Environmental Impact Statement for the Eagle Shadow Mountain Solar Project
Intermountain – Adelanto Poles 1 and 2
Navajo-McCullough Line 1
LADWP File No. T-08509

This letter is written in response to a notice from the Bureau of Indian Affairs (BIA) dated February 12, 2019 regarding the Environmental Impact Statement (EIS) for the Eagle Shadow Mountain Solar Project. The project is within the Los Angeles Department of Water and Power (LADWP) and Intermountain Power Agency (IPA) Transmission Line Right of Way (TLRW). The property is located in Clark County, Nevada and generally described by the following Assessor Parcel Numbers (APNs):

067-00-001-009, 067-00-001-010, 067-00-001-011, 067-00-001-012, 067-00-001-016, 067-00-001-017, 067-00-001-018, 067-00-002-003, 067-00-002-004

On behalf of LADWP's Power System, the Right of Way Engineering (ROWE) Group reviewed the notice and has the following comments and conditions.

Comments

1. BIA referenced herein shall pertain to its employees, agents, consultants, contractors, or officers; agents, patrons, or invitees of BIA; or any other BIA affiliated entities.
2. The information provided to date is inadequate for properly reviewing the proposed project. LADWP therefore reserves the right to comment until more

detailed information is provided regarding the proposed solar project. The more detailed information shall include dimensioned plans of all existing and proposed improvements, clearances of all improvements from LADWP/IPA towers, grading and utility plans illustrating impacts to the LADWP/IPA TLRW, and property lines.

3. The Operating Agent for the Navajo-McCullough Line is the Nevada Power Company. Please forward this request to the addresses below:

Kiley Moore
NV Energy
6100 Neil Road M/S S3B40
Reno, NV 89511

William Muir
NV Energy
7155 S. Lindell Road M/S BS7SC
Las Vegas, NV 89118

Please note, Intermountain – Adelanto Poles 1 and 2 is operated and maintained by LADWP.

Conditions

1. BIA shall acknowledge that LADWP and IPA TLRW are an integral component of the transmission line system which provides electric power to the City of Los Angeles and other local communities. Their use is under the jurisdiction of the Federal North American Electric Reliability Corporation (NERC). Safety and protection of critical facilities are primary factors used to evaluate secondary land use proposals. The rights of way serve as platforms for access, construction, maintenance, facility expansion, and emergency operations. Therefore, the proposed use may from time to time be subject to temporary disruption caused by such operations.
2. No grading, improvements, or construction activities of any kind whatsoever will be allowed within the APNs stated above without written approval of LADWP.
3. No equipment shall be allowed to set up directly under LADWP and IPA transmission lines.
4. No equipment over 14 feet high shall be used near LADWP and IPA transmission lines without written permission of LADWP. Equipment higher than 14 feet will require submittal of a Conductor Survey to LADWP Overhead Transmission Engineering Group to ensure clearances meet the California Public Utilities Commission (CPUC), General Order No. 95 or the National Electrical Safety Code (NESC), whichever is more restrictive. Conductor Clearances will be subject to review and approval by LADWP Overhead Transmission Engineering Group. See the LADWP Conductor Survey Instructions attached.
5. Utilities agencies within the proposed excavation sites shall be notified of impending work. BIA shall be responsible for coordinating the relocation of

utilities, if any, within the project boundaries. Before commencing any excavations, contact Underground Service Alert (a.k.a DigAlert).

6. All ground elevations are to remain unchanged from existing conditions after construction associated with the BIA proposed improvements is completed. Cut and fill slopes inside LADWP and IPA TLRW steeper than 2 horizontal to 1 vertical require retaining structures or geotechnical report approval.

Note: Grading activity resulting in a vertical clearance between the ground and the transmission line conductor elevation less than 35 feet or as noted in the CPUC General Order 95 or NESC, whichever is more restrictive, within the LADWP and IPA TLRW is unacceptable.

7. Ground cover for all below ground utilities shall not be less than four feet.
8. An area of at least 100 feet around the base of each transmission tower must remain open and unobstructed for necessary maintenance.
9. A permanent, unobstructed 20 foot wide roadway, accessible at all times by LADWP maintenance personnel, shall be provided and maintained. The roadway must remain open and unobstructed, excluded from any watering and kept as dry as possible at all times. See the Access Road Design Criteria attached.
10. Additional conditions may be required following review of final detailed site plans, grading/draining plans, etc.
11. Standard Conditions for Construction shall apply. See attached.
12. This reply shall in no way be construed as an approval of any project.

Ms. Oriana Hone of the ROWE Group is assigned to handle this matter and is available at (213) 367-0062 should you require additional information.

Sincerely,



Gregory S. Huynh
Intermountain Power Project Operating Agent Manager
Los Angeles Department of Water and Power, Operating Agent

Mr. Chip Lewis
Page 4
May 14, 2019

GSH/OH:md

Enclosures: Conductor Survey Instructions
Access Road Design Criteria
Standard Conditions for Construction

c/enc: Ms. Oriana Hone
Mr. Thomas Honles
Mr. Nick Demos
Mr. David Nevarez
Mr. Edgar Perez
Mr. Tamer Ellyahky



PUBLIC COMMENT FORM
Bureau of Indian Affairs

EAGLE SHADOW MOUNTAIN SOLAR PROJECT
www.esmsolareis.com/
Scoping Comments

NAME: Sherryl Patterson

ADDRESS: PO Box 427

Moapa, Nu. 89025

- ☐ I have no comments, please keep me informed.
- ☐ Please remove me from your mailing list for this Project.
- ☒ I have the following comments about the Eagle Shadow Mountain Solar Project:

As a member of the Moapa Valley community
i am excited to know that the Moapa Band of
Paintes are using their land to not only benefit
their members, but to do their part in protecting
our environment with renewable energy.

Our community also benefits with much needed
jobs.

This is a win win for the area and the world
I hope to see more projects coming our way.
As stewards of their land i am proud of the
Tribe for moving forward with solar projects.

Return to: Mr. Chip Lewis, Regional Environmental Protection Officer, BIA Western Regional
Office, 2600 North Central Avenue, 4th Floor Mailroom, Phoenix, AZ 85004 Email:
chip.lewis@bia.gov

(Or fold, seal, and add a stamp to the back of the sheet)

From: [Lewis, Charles](#)
To: [Randy Schroeder](#)
Subject: Fwd: [EXTERNAL] Eagle Shadow Mountain solar project shapefile?
Date: Wednesday, February 06, 2019 2:41:03 PM

Chip Lewis
Regional Environmental Protection Officer
DOI-BIA/WRO/EQS
(602) 379-6750

----- Forwarded message -----

From: **Pasha Feinberg** <PFeinberg@defenders.org>
Date: Wed, Feb 6, 2019 at 1:18 PM
Subject: [EXTERNAL] Eagle Shadow Mountain solar project shapefile?
To: Chip.Lewis@bia.gov <Chip.Lewis@bia.gov>

Good afternoon,

I am a renewable energy analyst for the non-profit Defenders of Wildlife. I am hoping for more information on the proposed Eagle Shadow Mountain solar project, specifically a shapefile of its proposed footprint or, if that's not available, a map of the proposed project. If you're not the appropriate person to ask, my apologies, although I'd be grateful if you could share the correct contact.

Many thanks,

- Pasha



Pasha Feinberg
Renewable Energy & Wildlife
Policy Analyst

Defenders of Wildlife
1130 17th Street N.W. Washington D.C. 20036
Tel: 202-772-3244 | **Fax:** 202-682-1331
pfeinberg@defenders.org | www.defenders.org

February 26, 2019

Mr. Chip Lewis
BIA Western Regional Office
Southern Paiute Agency
2600 North Central Avenue
Phoenix, Arizona 85004

E-mail: Chip.Lewis@bia.gov

Re: Notice of intent to prepare an Environmental Impact Statement (EIS) that will evaluate a photovoltaic (PV) solar energy generation project on the Moapa River Indian Reservation and a 10-mile transmission line that would connect the solar project to Nevada Energy's Reid-Gardner substation.

Dear Mr. Lewis:

Thank you for providing the Notice of Intent concerning the preparation of an Environmental Impact Statement (EIS) for the proposed Eagle Shadow Mountain Solar Project. This project will be located on the Moapa River Indian Reservation and will include a transmission line approximately 10 miles long that would connect the solar project to Nevada Energy's Reid-Gardner substation. The project will be located on Tribal lands, Federal lands administered and managed by BLM and land owned by Nevada Power in Clark County Nevada. This letter provides Clark County Department of Air Quality's (DAQ) assessment of the project's conformity with Clark County Air Quality Regulations (AQRs).

As stated in your notice, the project will be constructed on up to 2,300 acres located within a 4,770 acre area lease area in Township 16 south, Range 64 east that includes all or part of Sections 9, 10, 11, 12, 14, 15, 16, 21 and 22 (Hydrographic Areas 216 and 218). Based upon the locations in your proposal, the project location is in attainment or is unclassified area for all criteria pollutants. (DAQ) does not have jurisdiction for enforcing air quality regulations within the Moapa River Indian Reservation or the other areas you specified.

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For further assistance please contact me at (702) 455-1665, Russell Merle at (702) 455-1662 or the Small Business Assistance Program at (702) 455-1524.

Sincerely,

A handwritten signature in cursive script, reading "Brenda Whitfield". The signature is written in a dark ink and is positioned below the word "Sincerely,".

Brenda Whitfield, Air Quality Specialist II
Clark County Department of Air Quality
Planning Division
4701 W. Russell Road
Las Vegas, NV 89118

Appendix C

Project Design Features / BMPs

APPENDIX C

Applicant-Proposed Mitigation and Best Management Practices (BMPs) EAGLE SHADOW MOUNTAIN SOLAR PROJECT

SOILS / EROSION

Grading on the solar site would be minimized to only those areas where necessary to meet the construction and operational requirements of the Project.

Construction and operational activities will be conducted in compliance with a stormwater pollution prevention plan (SWPPP) that would include BMPs and other erosion-control measures designed to minimize soil erosion and limit sheet flow and downstream sedimentation. The SWPPP would also incorporate adaptive management actions if erosion and sedimentation control measures are found to be insufficient to control surface water at the site.

To minimize wind erosion, all construction activities shall comply with the Fugitive Dust Control Plan that would be developed and implemented for the Proposed Project.

A Site Restoration would be implemented as needed to limit impacts to temporary disturbance areas as much as practicable.

HYDROLOGY / WATER QUALITY

The drainage plan will be designed to maintain existing drainage patterns and control the rate and amount of surface water runoff.

Final grading and drainage plans will be completed and submitted for approval prior to construction and would demonstrate that downstream flows would not be adversely impacted as a result of proposed changes to natural washes from proposed grading, drainage management measures or the addition of retention ponds.

The paths for all stormwater flows would be identified and modeled as part of the final grading and drainage plan.

The number of drainage crossings would be minimized to the extent possible and each would be designed to accommodate adequate flow.

Post-storm monitoring of erosion and sedimentation would be conducted during construction. If localized gullies were to develop or result in increased rates of erosion and sedimentation, repairs would be made and erosion and sedimentation control measures would be updated.

All large ancillary facilities (e.g., project substation) will be located outside of drainages. Some PV supports could be placed within ungraded drainages where technically feasible.

A SPCC plan would be developed and implemented during construction and the operations phase of the Proposed Project. Adequately-sized secondary spill containment would be incorporated around the transformers at the on-site substation to ensure proper capture and control measures for potential spills. The Plan would also provide for hazardous material spill prevention and clean-up measures, were a spill to occur.

AIR QUALITY

The Project would obtain a dust control permit from Clark County for activities outside tribal land including any required supplements.

The area of grading and vegetation removal would be limited to only that area required for Project construction and operation.

Ground disturbing activities would be undertaken in accordance with the approved dust control plan(s) to minimize the amount of time areas would be exposed to wind erosion.

Vehicular speeds on non-paved roads would be limited 25 miles per hour.

Grading operations would be phased where appropriate to limit the amount of disturbance at any one time, and water would be used for stabilization of disturbed surfaces under windy conditions.

Water would be applied to disturbed areas to control dust and facilitate soil compaction, where necessary. Water will be applied using water trucks and application rates would be monitored to prevent runoff and ponding. Approved palliatives would be used to control dust as required.

Exposed stockpiled material areas would be covered and excavation and grading would be suspended during windy conditions (forecast or actual wind conditions of approximately 25 miles per hour or greater).

APPENDIX C

Applicant-Proposed Mitigation and Best Management Practices (BMPs) EAGLE SHADOW MOUNTAIN SOLAR PROJECT

Open storage piles and disturbed areas would be stabilized by covering and/or applying water to stockpile to form a crust or organic dust palliative where appropriate at the completion of activity.

All trucks hauling soil and other loose material would be covered or at least 2 feet of freeboard would be maintained.

All paved roads would be kept clean of objectionable amounts of mud, dirt, or debris, as necessary. Gravel or other similar material would be used where non-paved access roads intersect paved roadways to prevent mud and dirt track-out.

A traffic and parking management plan would be finalized to minimize traffic interference and maintain traffic flow.

Unnecessary idling of equipment would be limited.

BIOLOGICAL RESOURCES

Prior to construction, a Weed Management Plan will be developed that includes measures designed to reduce the propagation and spread of designated noxious weeds, undesirable plants, and invasive plant species, or as determined by the agencies (BIA, BLM, etc.) in coordination with the Band.

The Applicant will implement controls at entry locations to facilitate weed management and invasive species control in order to minimize infestation to the project site from an outside source. Trucks and other large equipment will be checked before entering the site for any invasive species debris or seed.

To minimize activities that attract prey and predators during construction and operations, garbage will be placed in approved containers with lids and removed promptly when full to avoid creating attractive nuisances for wildlife. Open containers that may collect rainwater will also be removed or stored in a secure or covered location to not attract birds.

All work area boundaries will be conspicuously staked, flagged, or otherwise marked to minimize surface disturbance activities. All workers, equipment, vehicles, and construction materials shall remain within the ROW, existing roads, and designated areas. Staging areas will be located in previously disturbed areas whenever possible.

All transmission towers and poles will be designed to be avian-safe in accordance with the *Suggested Practices for Avian Protection on Power Lines: the State of the Art in 2006* (Avian Power Line Interaction Committee [APLIC] 2006) and the Avian Power Line Interaction Committee (APLIC 2006) and *Reducing Avian Collisions with Power Lines* by the U.S. Fish and Wildlife Service and the APLIC (APLIC 2012).

If construction activities are scheduled to commence during the breeding season for western burrowing owls (February 1 through August 31), a qualified biologist will conduct pre-construction surveys within 30 days prior to construction for Western Burrowing Owls within suitable habitat. All areas within 250 feet of ground disturbing activities will be surveyed, per USFWS 2007 Burrowing Owl guidance.

Lighting would be designed to provide the minimum illumination needed to achieve O&M objectives and not emit excessive light to the night sky by installing light absorbing shields on top of all light fixtures and focusing desired light in a downward direction.

A Facility Decommissioning Plan would be finalized and provided to the Band, BIA, and BLM addressing the Project facilities under their respective management. This plan would be submitted for approval at least six months prior to commencement of site closure activities.

Potential closure activities could include re-grading and restoration of original site contours and re-vegetation of areas disturbed by closure activities in accordance with the Site Reclamation Plan. Revegetation seed mixes will be composed of native plant species.

Worker environmental awareness training will be required for all maintenance and operation staff for the duration of the project. In addition to an overview of minimization measures for all biological resources, the training will include specific best management practices designed to reduce effects to the desert tortoise.

Prior to construction, temporary tortoise-proof fencing will be installed around the boundary of the solar facility. Biological monitors or biologists approved to handle and relocate tortoises will be present during fence installation to relocate all tortoises in harm's way to outside the permitted ROW.

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Fence specifications will be agreed to in consultation with USFWS. Tortoise guards will be placed at all road access points where desert tortoise-proof fencing is interrupted to exclude desert tortoises from the project footprint. Gates or tortoise exclusion guards will be installed with minimal ground clearance and shall deter ingress by desert tortoises. Monitoring and maintenance will include regular removal of trash and sediment accumulation and restoration of minimal ground clearance between the ground and the bottom of the fence, including re-covering the subsurface portion of the fence if exposed.

The temporary desert tortoise fencing will be inspected monthly during periods of high tortoise activity (April 1 – May 31 and September 1 – October 31).

The Applicant will implement the Raven Management Plan (BLM 2014) to be provided by the BLM for portions of the Proposed Project on BLM-administered lands. The Applicant will inspect transmission structures annually for nesting ravens and other predatory birds and report observations of nests to the Service, BLM, and BIA.

No overnight hazards to desert tortoises (e.g., auger holes, trenches, pits, or other steep-sided depressions) will be left unfenced or uncovered; such hazards will be eliminated each day prior to the work crew and monitoring biologists leaving the site. All excavations will be inspected for trapped desert tortoises at the beginning, middle, and end of the workday, at a minimum, but will also be continuously monitored by a biological monitor or authorized biologist.

CULTURAL RESOURCES

A Memorandum of Agreement (MOA) between the Band, BIA, BLM, and SHPO will be required to define the steps that shall be taken to lessen, resolve, and/or mitigate the effects to cultural resources that may be adversely affected by the project.

Archaeological and Tribal monitors will be employed during construction in the vicinity of cultural resource sites to ensure that cultural resources are not directly affected by the project.

Fencing or other protective barriers will be placed to protect historic properties during construction as needed.

Should any unrecorded and unanticipated cultural resources be discovered during construction, all activities within the immediate area of discovery shall cease. Any unanticipated discoveries of cultural resources or changes to the Project APE would be managed in accordance with an *Unanticipated Discoveries Plan* that would be developed in consultation with the Tribe, BIA, BLM, and SHPO.

Should any unrecorded cultural resources be discovered during construction, all activities within the immediate area of discovery would cease. The Chairman of the Moapa Tribal Council, or his or her designated representative, and the BIA Regional Archeologist shall be notified immediately and, consulting with BLM and SHPO as appropriate, would make arrangements to assess the nature of discovered cultural resources and, if feasible, avoid the resources to the fullest extent practicable. If avoidance is not possible, the Applicant would minimize and mitigate any damages to any unanticipated discoveries before construction would be allowed resume in the immediate vicinity of the find/discovery.

TRANSPORTATION

A Traffic Management Plan would be finalized and approved by the Tribe and BIA that identifies BMPs to minimize construction-related traffic impacts.

Deliveries of materials would be scheduled for off-peak hours, when practical, to reduce effects during periods of peak traffic.

Truck traffic would be phased throughout construction, as much as practical.

Carpooling or mass transportation options for construction workers would be encouraged.

Before construction, the Applicant and agency representatives will document the pre-construction condition of the access route, noting any existing damage. After construction, any damage to public roads will be repaired to the road's pre-construction condition, as determined by the agency representatives.

PUBLIC HEALTH AND SAFETY

The Project would be designed in accordance with all applicable federal and industrial standards including the American Society of Mechanical Engineers (ASME), National Electrical Safety Code (NESC), International Energy

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Conservation Code (IECC), International Building Code (IBC), Uniform Plumbing Code (UPC), Uniform Mechanical Code (UMC), the National Fire Protection Association (NFPA) standards, and OSHA regulations.

All employees and contractors would be required to adhere to appropriate health and safety plans and emergency response plans. All contractors would be required to maintain and carry health and safety materials including the MSDS of hazardous materials used on site.

An Emergency Response Plan would be developed and implemented based on the results of a comprehensive facility hazard analysis.

A Hazardous Waste Storage Plan would describe the storage, transportation, and handling of wastes and emphasize the recycling of construction wastes where possible.

The Project would coordinate with the holders of all existing ROWs that would be crossed or paralleled by the Project ROWs (transmission lines and access roads) to minimize encroachment conflicts and possible effects to existing transmission lines and pipelines.

Appendix D

Bird and Bat Conservation Strategy

Eagle Shadow Mountain Solar Project

Bird and Bat Conservation Strategy

June 2019

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- A Mortality Reporting Form
- B Nest Reporting Form

1 Introduction

This Bird and Bat Conservation Strategy (BBCS) is a voluntary, project-specific document that outlines a plan to reduce the risks that result from bird and bat interactions with components of the Proposed Project. The goal of this, and any, BBCS is to reduce bird and bat mortality (USFWS 2012). The statutory authority for addressing effects to birds stems primarily from the Migratory Bird Treaty Act (MBTA), the Bald and Golden Eagle Protection Act (BGEPA), as well as the Endangered Species Act (ESA); for bats, the United States Fish and Wildlife Service's (USFWS) statutory authority arises primarily from the ESA (USFWS 2010a).

1.1 Purpose

This BBCS has been prepared in compliance with state and federal regulations to outline project-specific practices and measures for reducing avian and bat impacts potentially resulting from operation of the Moapa Solar Energy Center (MSEC or the "Proposed Project"). Two of the greatest concerns with respect to the Project is the potential for avian and, to a lesser degree, bat collision with power lines, as well as the permanent loss of golden eagle (*Aquila chrysaetos*) foraging habitat.

1.2 Goals

Implementation of this BBCS would fulfill multiple goals in an effort to reduce avian and bat mortality throughout construction of this Project. The goals specific to this BBCS are to:

1. Identify and isolate where avian and bat mortality has the potential to occur and reduce the potential for avian and bat mortality by implementing specific mortality reduction actions;
2. Design Project electric lines to be raptor safe in accordance with Avian Power Line Interaction Committee (APLIC) design standards (APLIC 2006, 2012), including ensuring that electrified systems do not present an electrocution risk and minimizing the risk of collisions with transmission lines and associated infrastructure;
3. Conduct preconstruction surveys to avoid impacts to nesting birds;
4. Establish an avian and bat reporting system to document incidents of electrocution and collision mortality during construction;

2 Laws, Regulations, and Cultural Traditions

Native birds and bats in Nevada are protected primarily under three pieces of legislation: the ESA, MBTA, and BGEPA. The Moapa Band of Paiutes (Tribe) does not have tribal guidance or regulations concerning birds and bats within the Moapa River Indian Reservation (Reservation).

2.1 Migratory Bird Treaty Act

The Migratory Bird Treaty Act of 1918 (16 US Code [USC] 703-712) is administered by the U.S. Fish and Wildlife Service (USFWS 1998) and is the cornerstone of migratory bird conservation and protection in the U.S. The Act authorizes the Secretary of the Interior to regulate the taking of migratory birds; and provides that it shall be unlawful, except as permitted by regulations, “to pursue, take, or kill any migratory bird, or any part, nest or egg of any such bird” (16 USC 703). The list of species protected by the Act was revised in March 2010, and includes almost all bird species that are native to the US. The updated memorandum to the MBTA, M-37050 and guidance memorandum, conclude that “the take of birds resulting from an activity is not prohibited by the MBTA when the underlying purpose of that activity is not to take birds.” Therefore, incidental take (takings and/or killings that directly and foreseeably result from, but are not the purpose of, an activity) of migratory bird species is not strictly prohibited by the MBTA. The ESA and Bald and Golden Eagle Protection Act are not changed by M-37050.

2.2 Endangered Species Act

Section 9 of the ESA prohibits everyone, private person and federal agency alike, from “taking” endangered and threatened wildlife. “Take” is defined to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in any such conduct. “Harm” is further defined by USFWS to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, or sheltering. “Harass” is defined by USFWS as actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding or sheltering (USFWS 1998). Any activity that may result in the “incidental take” of threatened or endangered species requires permission from the USFWS under ESA Sections 7 or 10.

2.3 Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act of 1940 (as amended 1959, 1962, 1972, and 1978) prohibits the take, disturbance or possession of bald and golden eagles with limited exceptions. Take, in the Act, is defined as “to pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb.” Disturb is defined in the Act as, “to agitate or bother a bald or golden eagle to a degree that causes or is likely to cause, based on the best scientific information available, 1) injury to an eagle, 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding or sheltering behavior, or 3) nest abandonment, by substantially interfering with normal breeding,

feeding or sheltering behavior.” Important eagle-use areas include eagle nests, foraging areas, or roost sites that eagles rely on for breeding, sheltering, or feeding, and the landscape features surrounding such nests, foraging areas, or roost sites that are essential for the continued viability of the site for breeding, feeding, or sheltering eagles.

3 Proposed Project

3.1 Project Area and Description

The Project would be located approximately 30 miles northeast of Las Vegas in Clark County, Nevada (**Figure 1-1**), west of I-15 and east of U.S. Highway 93. The Proposed Project site is accessible from Exit 64 on I-15. Traffic would exit I-15 and travel less than one mile and exit to the north on North Las Vegas Boulevard until reaching the solar site. These existing roads on the Reservation include the road built to provide access to the nearby existing K Road Solar Facility and the road providing access to the existing tribal aggregate operation and water wells that would be adjacent to the ESMSP. There is currently little traffic on any of the roads in the immediate vicinity of the project. No upgrades to these existing roads are anticipated to be necessary to provide the access needed for this Project, other than maintenance during construction and operations, as required. The Reservation in Clark County, Nevada, consists of 71,954 acres of land located approximately 25 miles northeast of Las Vegas. Clark County extends over 8,091 square miles.

325MK 8me LLC (Applicant), a subsidiary of 8minutenergy, has entered into an agreement with the Moapa Band of Paiute Indians (Tribe) to lease land, up to 50 years, on the Moapa River Indian Reservation (Reservation) for the purposes of constructing, operating, and maintaining the Eagle Shadow Mountain Solar Project (ESMSP), a 300-megawatt (MW) AC solar generating facility using photovoltaic (PV) technology and associated infrastructure (the Proposed Project or Project).

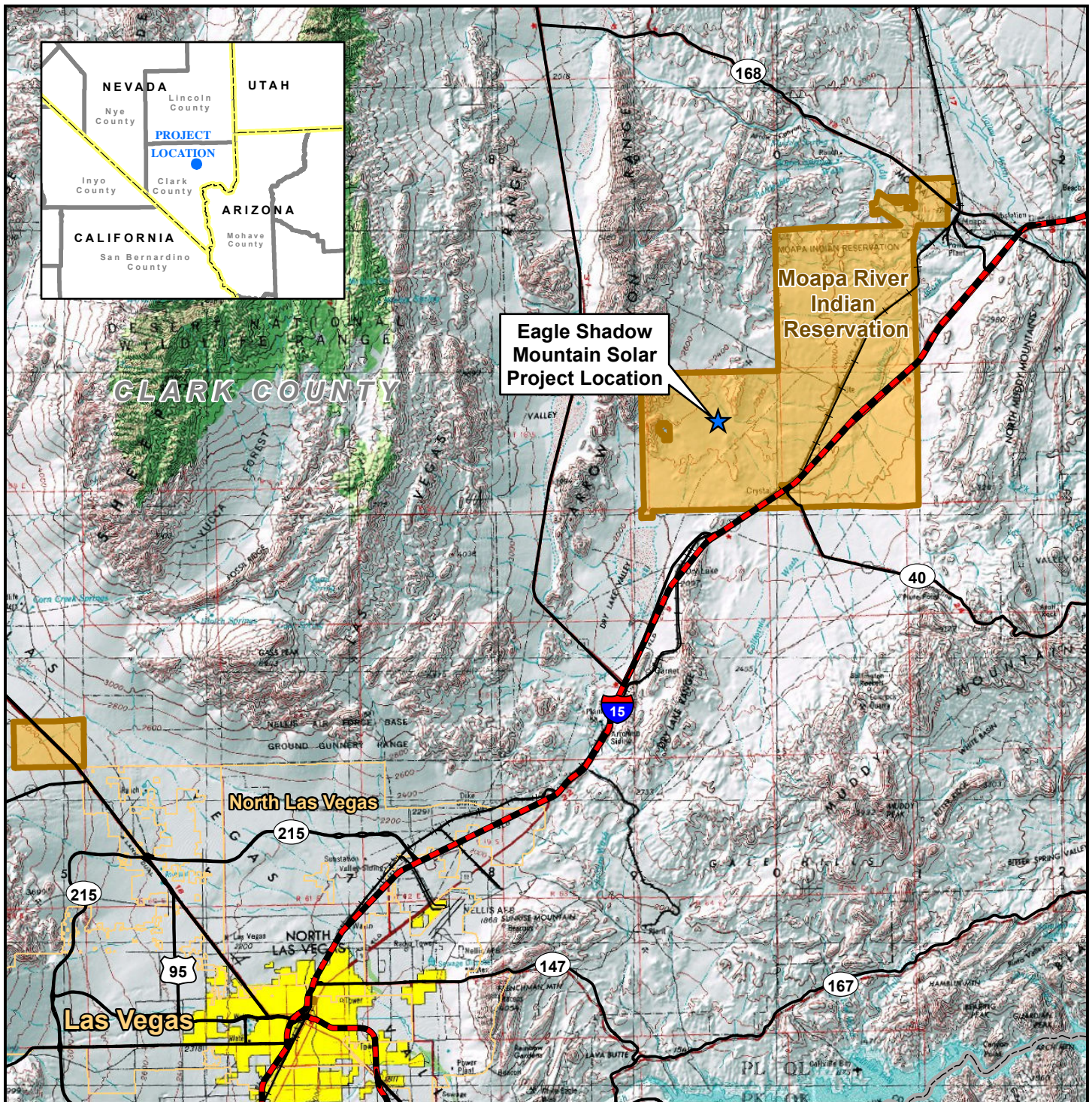
The proposed solar generating facility would be constructed on up to 2,200 acres within a study area of approximately 4,770 acres of tribal trust land within the Reservation. The Project infrastructure would include a 230 kilovolt (kV) electric transmission generation interconnection (gen-tie) line. Main access to the ESMSP site for construction and through operations and decommissioning would be provided via existing roads. Access to this portion of the Reservation would be via I-15, US Highway 93, and North Las Vegas Boulevard to existing improved roads on the Reservation. These existing roads on the Reservation include the road built to provide access to the nearby existing K Road Solar Facility and the road providing access to the existing tribal aggregate operation and water wells that would be adjacent to the ESMSP.

The Project is located in the Basin and Range physiographic province in the north central portion of the Mojave Desert. Basin and Range structure in the Mojave Desert is characterized by abrupt mountain ranges, generally of moderate height. The Project site is situated in the north end of the Dry Lake Valley. The site consists primarily of low-profile bajada slopes and ephemeral washes, which drain to Dry Lake, a closed basin playa, and California Wash.

The general ecological setting of the Project is consistent with Mojave Desert scrub. The area is dominated by open stands of creosote bush (*Larrea tridentata*) and white bursage (*Ambrosia*

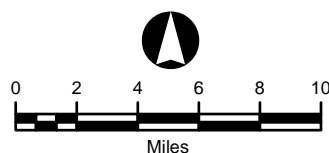
dumosa). Desert saltbush (*Atriplex* spp) scrub habitat and cactus-yucca scrub are also present and concentrated within ephemeral washes. A more detailed description of the project area can be found in the Draft Environmental Impact Statement for the Project.

The Project facilities would temporarily disturb up to 2,112 acres and permanently disturb up to 107 acres. Temporarily disturbed areas would be mowed to a height no less than 18 inches and drive an crush construction techniques would be implemented in order to retain native vegetation during operations. Almost all disturbance would occur on the Reservation except for 0.3 miles of gen-tie line on BLM land. The 230kV transmission line corridor would have a length of approximately 16 miles. The Project location allows efficient connection of the energy from solar resources to existing transmission infrastructure. The selected site is adjacent to an existing transmission corridor that has a direct path to the existing Reid Gardner Substation.



Legend

- ★ Solar Project Location
- Interstate
- US/ State Highway
- Railroad
- Municipal Boundary
- Jurisdictional Land Ownership
- Indian Reservation



Universal Transverse Mercator
North American Datum 1983
Zone 11 North, Meters

Eagle Shadow Mountain Solar Project

**FIGURE 1-1
PROJECT LOCATION**

Map Extent: Clark County, Nevada

Date: 11-06-18

Author: rnc

G:\Eagle Shadow Mountain Solar Project\MXD's\Project Location 8.5x11 110618.mxd

3.2 Project Components

The Project would include the following main elements:

- Solar Field with Single-axis Tracking Systems
- On-site Electrical Collection System and Substation
- Site Security and Fencing
- Communication Systems Infrastructure
- Operations and Maintenance Area
- Internal Project Roads
- An approximately 12.4-mile interconnection to the Reid Gardner substation via a 230kV transmission line and associated access roads
- Modifications to the Reid Gardner substation
- Energy Storage System
- Lighting
- Water Supply
- Wastewater Treatment
- Waste and Hazardous Materials Management
- Fire Protection

3.2.1 Substation, Transmission Line and Interconnections

The Project includes the construction of an on-site substation (within the up to 2,200-acre solar facility) with medium voltage (12.5-kV, 34.5-kV, or 66-kV) to high voltage (230-kV) step-up transformer(s) with mineral oil, breakers, buswork, protective relaying, supervisory control and data acquisition (SCADA), and associated substation equipment.

3.2.1.1 230-kV Gen-Tie Transmission Line

The 230 kV-line to Reid Gardner would head northeast from the ESM site for approximately 12.4 miles to the Reid Gardner Substation (**Figure 1-1**).

3.2.1.2 Transmission Line Poles

The Project is considering steel monopole transmission structures for the 230-kV line to Reid Gardner Substation (**Figure 1-2**). The structures for the 230-kV line would range in height from 90 feet to 150 feet.

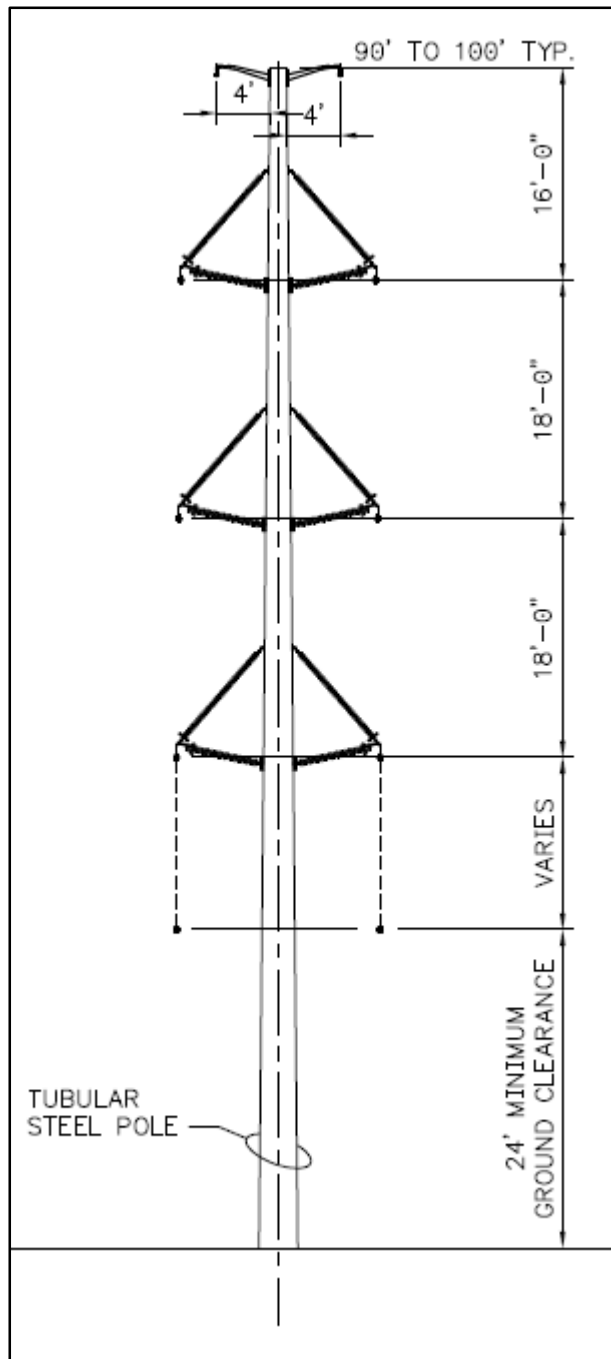


Figure 1-2
Typical Gen-Tie Transmission Structure

3.2.2 Solar Field

The solar field would utilize PV technology and would cover approximately up to 2,220 acres on the Reservation. The PV modules, inverters, and transformers would be grouped into approximately 1 to 3 megawatts of alternating current (MWac) blocks.

3.2.3 Artificial Lighting

The Project's lighting system will provide operation and maintenance personnel with illumination for both normal and emergency conditions near the main entrance and the Project substation. Lighting will be designed to provide the minimum illumination needed to achieve safety and security objectives and will be downward facing and shielded to focus illumination on the desired areas only. There will be no lighting in the solar field. Therefore, light trespass on surrounding properties will be minimal. If lighting at individual solar panels or other equipment is needed for night maintenance, portable lighting will be used.

3.2.4 Access Road

The Project would require vehicular access for construction, operation, and maintenance. An existing approximately 5-mile gravel access road connecting the ESM to North Las Vegas Boulevard would be used to provide access to the solar facility. Existing and new access roads would be used or constructed to facilitate construction, operations, and maintenance of the gen-tie within the BLM Moapa Utility Corridor, on BLM administered lands, and private lands owned by NV Energy (**Figure 2**).

4 Species of Concern

The Proposed Project site supports suitable nesting and/or foraging habitat for several avian species and potentially suitable foraging habitat for several species of bat. The following section describes the known and predicted occurrences of avian and bat resources in and around the Proposed Project site.

4.1 Bat Species

No bats are currently listed by the USFWS or the Nevada Natural Heritage Program as threatened or endangered in Clark County, Nevada (USFWS 2013; Nevada Natural Heritage 2010). Twelve species of bat could occur within the Proposed Project site, and the BLM has designated all twelve as sensitive species. If present at all, these species are only expected to be present within the Proposed Project site during nocturnal foraging events and are addressed in **Table 1**. Based on surveys of the site and surrounding areas, there are no known or expected roosting locations or hibernacula within or in the immediate vicinity of the Proposed Project site.

TABLE 1 – BAT SPECIES WITH THE POTENTIAL TO OCCUR IN THE PROJECT AREA

Common Name	Scientific Name	Status	Habitat	Potential to Occur
California leaf-nosed bat	<i>Macrotus californicus</i>	N, NP	Inhabits low deserts, caves, mines, buildings.	Low potential to occur. Occurs at lower elevations.
California myotis	<i>Myotis californicus</i>	N	Semiarid deserts and grasslands, forests, coastal forests and montane forests.	Moderate potential to occur. Common. May forage within Project Area.
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>	N, NP	Salt desert scrub, sagebrush and pinyon-juniper mahogany. Will not live in extreme desert environments	Low potential to occur. Mine and cave obligates. Foraging habitat not present within the project area.
Western red bat	<i>Lasiurus blossevillii</i>	N, NP	Woodland habitats, Muddy River area.	Low potential to occur. No suitable habitat.
Big free-tailed bat	<i>Nyctinomops macrotis</i>	N	Inhabits rocky terrain, roosts in rocky cliffs, weather rock fissures including desert shrubs.	Low potential to occur. Rare.

Fringed myotis	<i>Myotis thysanodes</i>	N, NP	Low desert scrub to high elevation coniferous forests.	Low potential to occur. Reliance on cave roosts.
Cave myotis	<i>Myotis velifer</i>	N,	Cave dwelling; will roost in rock or wall crevices, old buildings and under bridges.	Low potential to occur. Rare.
Pallid bat	<i>Antrozous pallidus</i>	N, NP	Arid deserts and grasslands. Shallow caves and crevices, rock outcrops buildings, and tree cavities.	Low potential to occur. Reliance on tree roosts.
Spotted bat	<i>Euderma maculatum</i>	N, NP	Desert scrub to forest habitats. Roosts in caves and crevices.	Low potential to occur, prefer riparian areas for foraging.
Allen's lappet-eared bat	<i>Idionycteris phyllotis</i>	N, NP	Uses a variety of habitats including Mojave desert scrub, coniferous forests, and riparian woodlands.	Low potential to occur. Prefers high coniferous forest.
Western pipistrelle	<i>Pipistrellus hesperus</i>	N	Desert habitats of blackbrush, creosote bush, salt desert shrub and sagebrush	Moderate potential to occur. Common.
Brazilian free-tailed bat	<i>Tadarida brasiliensis</i>	N, NP	Roosts in caves, man-made structures. Found from low desert to high mountains.	Moderate potential to occur. Abundant species in southern Nevada.

Altenbach et al 2002, NNHP 2010

N BLM Nevada Special Status Species - designated Sensitive by State Office

NP Nevada State Protected Species protected under NRS 501.

4.2 Federally Protected Avian Species Likely to Occur in the Project Area

4.2.1 Golden Eagles

The golden eagle is protected under the BGEPA, which includes the September 11, 2009 Eagle Rule (Rule) 50 CFR parts 13 and 22, as well as the MBTA. Periodic helicopter surveys by NDOW indicate that suitable nesting and remnant nests occur in the approximately 2.5 to 4.5 miles north and west of the Proposed Project.

The entire Proposed Project site is considered suitable foraging habitat for golden eagles and the

species is likely to occasionally forage within the Proposed Project site. No suitable nesting habitat is present in the Proposed Project site and no known active nests occur closer than 2.5 miles from the project area. The construction and O&M of the Project is not expected to result in take. However, the potential for collision would be increased by the construction of this project if proper precautions are not taken.

4.3 Special Status Avian Species

In addition to the BGEPA and MBTA, the BLM and the State of Nevada have additional protection for endemic avian species. **Table 2** addresses these special status species that could be found in the Proposed Project site, the protection afforded these species, the associated habitat and the likelihood of occurrence.

TABLE 2 – SPECIAL STATUS AVIAN SPECIES WITH THE POTENTIAL TO OCCUR IN THE PROJECT AREA

Common Name	Scientific Name	Status	Habitat	Potential to Occur
Golden eagle	<i>Aquila chrysaetos</i>	NP, N, BGEPA	Mountainous and open terrain. Generally nests in rocky outcrops	Moderate likelihood to occur. See in depth discussion below.
Yellow-billed cuckoo	<i>Coccyzus americanus</i>	C, NP	Open woodland, parks, deciduous riparian woodland; nests in tall cottonwood and willow riparian woodland.	Low likelihood to occur. No suitable habitat.
Western burrowing owl	<i>Athene cunicularia hypugaea</i>	NP, N	Open grasslands, desert scrub, agricultural lands and open stages of pinyon-juniper habitat. Utilizes abandoned burrows.	Moderate likelihood to occur. May forage or nest in the Project Area. None detected during biological surveys.
Ferruginous hawk	<i>Buteo regalis</i>	N, NP	Open grasslands, sagebrush flats, low foothills and fingers of pinyon-juniper habitat	Low likelihood to occur. Little suitable habitat present.
Swainson's hawk	<i>Buteo swainsoni</i>	N, NP	Agricultural valleys with cotton, elm or other suitable nest trees.	Low likelihood to occur. No suitable habitat present.
Western snowy plover	<i>Charadrius alexandrinus nivosus</i>	N, NP	Beaches, dry mud or salt flats, sandy shores of rivers, lakes, and ponds.	Low likelihood to occur. No suitable habitat present.
Southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	LE, S, NP	Thickets, scrubby and brushy areas, open second growth, swamps, and open woodland.	Low likelihood to occur. No suitable habitat present.
Peregrine falcon	<i>Falco peregrinus</i>	N, NP	Mountains, open forested regions, and human population centers	Low likelihood to occur. Little suitable foraging habitat present; no suitable nesting habitat.

Pinyon jay	<i>Gymnorhinus cyanocephalus</i>	N, NP	Pinyon-juniper woodland, less frequently pine, also occurs in scrub oak and sagebrush	Low likelihood to occur. No suitable habitat present.
Loggerhead shrike	<i>Lanius ludovicianus</i>	N, NP	Open country with scattered trees and shrubs, savanna, desert scrub.	Moderate likelihood to occur. May forage within the Project Area.
Lewis' woodpecker	<i>Melanerpes lewis</i>	N, NP	Open forest and woodland, often logged or burned, including oak, coniferous forest.	Low likelihood to occur. No suitable habitat present.
Yuma clapper rail	<i>Rallus longirostris yumanensis</i>	LE, S, NP	Freshwater marshes containing dense stands of cattails and bulrushes.	Low likelihood to occur. No suitable habitat present.
LeConte's thrasher	<i>Toxostoma lecontei</i>	N, NP	Habitat consists of sparsely vegetated desert flats, dunes, alluvial fans, or gently rolling hills.	Moderate likelihood to occur. Suitable habitat present.
Brewer's sparrow	<i>Spizella breweri</i>	NP	Strongly associated with sagebrush in areas with scattered shrubs and short grass.	Low likelihood to occur. Little suitable habitat present.
Bald eagle	<i>Haliaeetus leucocephalus</i>	S, BGEPA	Large bodies of water for feeding. Mature trees for roosting.	Low likelihood to occur. No suitable habitat present.
Bendire's thrasher	<i>Toxostoma bendirei</i>	NP	Variety of desert habitats with fairly large shrubs or cacti and open ground, or open woodland with scattered shrubs and trees	Low likelihood to occur. Rare.

NatureServe 2013, NNHP 2010

S BLM Nevada Special Status Species - USFWS listed, proposed or candidate

N BLM Nevada Special Status Species - designated Sensitive by State Office

NP Nevada State Protected Species protected under NRS 501.

LE USFWS Listed Endangered

C USFWS Candidate

BGEPA Bald and Golden Eagle Protection Act

5 Areas of Risk

This section outlines potential risks to bird and bats resulting from the Proposed Project. **Section 6** provides methods to avoid or minimize these risks through Project design, construction, and operation measures.

Based on the results of the wildlife surveys completed for the Project, potential Project related risks associated with the construction and operation would include collision with overhead electric lines, solar panels and other features, electrocution, loss of foraging habitat and habitat fragmentation, nest and roost site disturbance, and disturbance due to ongoing human presence at the facility.

5.1 Collision Risk

Vulnerability to collision depends on many factors including bird behavior and maneuverability, topography, weather, and power line design and placement. Bird collision with power lines has been documented for decades, and risk of collision is considered highest in areas where birds congregate, such as power lines that bisect daily flight paths to meadows, wetlands and river valleys (APLIC 2006).

Birds may have significant “blind spots,” increasing risk of collision even during daylight hours. Scanning below for prey or roost sites can render them blind to objects in the direction of travel (Martin and Shaw 2010). Transmission lines are the Project components that present the greatest risk of avian collision. Given that the utility corridor is currently populated with seven electric transmission lines ranging in size from 230-kV to 500-kV it is assumed that the addition of one additional line on the west side of the existing utility corridor would not have a cumulative effect on in-air collisions. The existing lines have been in place for many years and foraging flight patterns have most likely adapted to the vast size of the utility infrastructure.

5.2 Electrocution

Power lines are present in many wildlife habitats and may result in the electrocution of raptors and other bird species (APLIC 2006; Lehman et al., 2010; and references therein). The potential for electrocutions depends on the arrangement and spacing of energized and grounded components of poles and towers that are sometimes used for perching, nesting and other activities (APLIC 2006, 2012). However, nearly all electrocutions occur on smaller, more tightly spaced residential and commercial electrical distribution lines that are less than 69-kV (APLIC 2006, 2012).

To protect avian species from electrocution, APLIC has established guidelines for electric line design. Incorporating appropriate design standards into the Gen-Tie Line and collector lines on the SPGF will minimize electrocution risk. The Gen-Tie Line and overhead collector lines will have clearances between electrical components as recommended by APLIC (2006, 2012), e.g., at least 60 inches of horizontal separation and a vertical separation of 40 inches between phase

conductors, which is greater than the physical dimensions of all large birds, including eagles, that could potentially use the structures for perching. In situations where particular hardware would present an electrocution risk (e.g., jumpers, cutouts, arrestors, transformers, etc.), perch guards and/or insulators will be installed, per APLIC guidelines, to minimize electrocution risk. Therefore, electrocution of all birds including raptors would be highly unlikely.

5.3 Territory Abandonment and Nest Disturbance

The Tribe, Bureau of Indian Affairs (BIA) or the BLM do not have regulations quantitatively limiting noise generation or effects from the Project during the temporary construction phases or operational phase. The EPA has developed and published a criterion to be used as an acceptable guideline when no other local, tribal, county, or state standard has been established. The Project would affect ambient noise and vibration levels if it would result in the generation of noise levels or exposure of sensitive species to noise levels or ground-borne vibration in excess of standards established in applicable federal, state, and local general plans or noise ordinances.

There is the potential for golden eagles, as well as other bird species, to use the Project area for foraging and other birds for nesting. Birds would be susceptible to noise disturbance as described above, potentially resulting in alteration of foraging and/or nesting behaviors. There is potential for nest disturbance of migratory birds including burrowing owl burrows during the construction phase of the project due to noise, removal of vegetation, and leveling the ground. Known golden eagle nesting areas are located 2.5 to 4.5 miles from the Project. It is not expected that noise and other construction activity would affect nesting behavior of these known nests at this distance.

Short term impacts could result to birds; however, the area within the fenced solar facility would be void of sensitive or listed species. Impacts to vegetation and presence of humans and machinery would deter most birds from within the solar facility and therefore noise impacts to wildlife would be focused upon species immediately adjacent to the facility. Given the location of the facility, it is assumed that only short-term impacts would occur from noise and vibration during the construction phase. Most non-listed bird species would return to the area after construction if significant habitat and foraging opportunity exists.

5.4 Habitat Loss and Fragmentation

An estimated 107 acres is considered suitable foraging habitat for Golden Eagles and other avian/bat species discussed in this BBCS would be permanently affected by the Project, with additional temporary losses of an estimated 2,112 acres foraging habitat during construction activities. Loss of foraging habitat could impact foraging behaviors of these avian and bat species. The Proposed Project permanent impact of 107 acres of this habitat is very small (<0.01% assuming 10-mile foraging area) in comparison to available habitat within the area.

The Project Area currently supports suitable nesting and foraging habitat for some avian species, and foraging habitat for some bats. These species could potentially be adversely affected during

construction and operation activities. Bird nesting could also occur in the limited vegetation in the Project Area and in ground burrows in or near the Project Area. In the vicinity of the Project, the avian nesting season for most bird species is from late February to early July. The human activity at the ESM site or along the Gen-Tie Line could attract undesired species, such as ravens, that could affect the ability of other species to nest in the area. Workers will be trained to avoid activities that attract ravens and other scavengers/predators such as coyotes (*Canis latrans*) to the Project Area, per the Project's Raven Control Plan.

Bat roosts or nursery colonies can occur in a variety of natural substrates or manmade structures that provide specific thermal properties and protection from predators. Typically these are large, stable structures, uninhabited or with minimal use by humans, such as buildings, barns, bridges, or caves, mines, and trees. Likewise, aquatic features that produce insects can be an important resource for foraging bats. No bat roosting habitat currently exists for sensitive bat species within or near the Proposed Project site but the site potentially provides bat foraging habitat. Because bats do not forage during daylight hours the potential for Project-related construction or operations impacts on bats is limited but some nighttime construction could occur.

Direct habitat loss will occur from the Project, and habitat fragmentation may reduce the functionality of this area for birds and bats; however, because an abundance of similar lands are available in the vicinity to provide habitat for any avian individuals displaced from the Project site, and since this Project site is not located in a sensitive, unique, or significant area of ecological importance to bird or bat species, the impacts are likely to be small and have no significant population level effects on any bird or bat species in the area.

5.5 Artificial Lighting

Additional light sources during the operation of the MSEC could result in concentrated foraging locations of avian and bat species that feed on insects nocturnally since the artificial lighting could attract insects. Artificial lighting also has the potential to negatively affect migration patterns of migratory birds and bats that move through the area. Lighting impacts would be reduced by focusing light sources downward. If lighting at individual solar panels or other equipment is needed for night maintenance, portable lighting will be used.

5.6 Ongoing Human Disturbance

Maintenance would consist of dust control and grounds upkeep, cleaning and repair of modules, repair and upkeep of all transformers, inverters and wiring collection systems, control systems upkeep, building maintenance and water treatment, and permanent storm water controls and maintenance.

Routine Preventative Maintenance (PM) activities would be scheduled in accordance with the frequencies outlined in the Original Equipment Manufacturer (OEM) specifications. O&M would require the use of vehicles and equipment including but not limited to welding, re-fueling,

lubricating, panel washing equipment, forklifts, manlifts, and chemical sprayers for weed abatement. Flatbed trucks and pick-up trucks as well as utility vehicles would be used on a daily basis during construction at the facility and on-site.

Major equipment maintenance and overhauls would be completed at intervals of approximately 5-10 years. Replacement of non-functioning equipment may require the use of heavy haul transport equipment and large overhead cranes. Noise and activity disturbance would occur as a result of the O&M activities, but the impacts would be minor and intermittent in nature and are expected to have little or no added impacts to birds or bats in the area.

6 Mitigation Measures

As discussed in **Section 4**, the Proposed Project Area supports suitable habitat avian species, thereby creating a potential for impacts on these species from construction and O&M activities. The potential for impacts to bats is low because they are not known to breed in the Proposed Project Area.

The following construction and operation measures will be implemented to minimize potential impacts on avian and bat species.

6.1 Electrocutation

All transmission towers and poles would be designed to be avian-safe in accordance with the *Suggested Practices for Avian Protection on Power Lines: the State of the Art in 2006* (APLIC 2006) and *Reducing Avian Collisions with Power Lines* by the U.S. Fish and Wildlife Service and the APLIC (APLIC, 2012). All aspects of the substations, switching stations, transformers and power lines (steel monopole structures) would be constructed utilizing avian-safe practices as suggested by APLIC using industry standards (APLIC 2006). Any potential electrocution caused mortality to avian or bat species would be captured under the reporting system (**Appendix A**).

6.2 Anti-Perching and Nesting

To reduce perching along segments of the transmission line, perch deterrents would be installed during construction. Anti-perching and nesting devices are important tools for reducing the risk of avian electrocution, protecting desert tortoise from increased predation, and keeping the entire electrical system running smoothly. Because conductor spacing on the 230-kV transmission line would be so great as to preclude avian electrocution, perch deterrents are expected to be used primarily to eliminate the use of transmission lines and transmission line towers as hunting perches for raptor species. Deterring this kind of perching would limit the predation of other avian species or animals which use surrounding vegetation for foraging and nesting.

Inspections of lines and other areas where raptor or corvids (crows and ravens) might nest along the transmission lines would be conducted monthly during the breeding season (February 15 to August 31st) for the first 3 years of operation. Inactive nests are not protected by MBTA and removal would be conducted prior to the next breeding season. Should nesting activity become a long-term issue, alternate measures to discourage nesting activities should be implemented. Prior to removing or relocating any nests, facility personnel would consult with USFWS and when necessary, proper USFWS permits would be obtained. Reporting of nests and nest relocation would be completed using forms found in **Appendix B**. Removal of inactive nests discovered by O&M staff would occur for the life of the project.

Any hollow mine claim markers discovered on site would also be removed to prevent birds from becoming entrapped.

6.3 Habitat Loss and Fragmentation

Construction of the electric transmission line would have a temporary effect on vegetation, but the areas would be allowed to re-vegetate, and wildlife species would be able to utilize them for habitat and foraging. Use of the existing utility corridor for access and transmission largely restricts the impact to a previously impacted area, and aids in reduction of impacts to historically undisturbed areas within the Reservation and on BLM-managed lands.

A Weed Management Plan (WMP) has been prepared and will be submitted to the BIA, BLM and the Tribe for review and approval before construction begins. Methods of noxious weed and invasive species identification, prevention and treatment for the Project are outlined in the WMP. The WMP recognizes the Project's impact on vegetation and defines the expected treatments and activities necessary to both maintain the determined desired conditions for the vegetation community within the Reservation, and control the weeds that may arise within the up to 2,200-acre ESM footprint.

6.4 Lighting

Lighting would be designed to provide minimum illumination needed to achieve O&M objectives and not emit excessive light to the night sky by installing light absorbing shields on top of all light fixtures, and focusing desired light in a downward direction (Reed et al. 1985). This would reduce the visibility of the lights to migratory birds traveling through the area. Downward facing lights would also reduce the number of insects attracted to lights resulting in a decrease of potential concentrated feeding areas for bats. Any additional lighting needed to perform activities such as repairs would be kept to a minimum and only used when these actions are in progress.

6.5 Nest Disturbance and Territory Abandonment

Vegetation clearing and ground disturbing activities would be conducted outside the migratory bird nesting season when practical. If ground-disturbing activities cannot be avoided during this time period, pre-construction nest surveys shall be conducted by a qualified biological monitor within 3 days prior to the initiation of ground disturbing activities. For all non-raptor bird species, surveys would cover all potential nesting habitat in and within 300 feet of the area to be disturbed. Any disturbance or harm to active nests would be reported within 24 hours to the USFWS and the BLM, if on BLM lands. The biological monitor would halt work if it is determined that active nests are being disturbed by construction activities and the appropriate agencies would be consulted.

If vegetation clearing is proposed to begin during the breeding season, a qualified biologist would conduct pre-construction nest surveys within 3 days prior to any vegetation clearing activities to identify all active nests within the construction area, and the vegetation and habitat type in which each nest is found will be recorded. Nest locations would be marked using handheld GPS (but not marked in the field in order to avoid attracting potential nest predators); an avoidance area would be clearly marked on the ground in order to prevent equipment from impacting the nest. Environmental monitors would be in place during initial ground-disturbing activities during the construction period

to minimize impacts to natural resources. During clearing activities associated with construction, qualified biologists would destroy bird nests only after young have fledged and perform any mitigation measures necessary to reduce or eliminate negative effects on avian species inhabiting the construction area. Activities associated with the removal of nests or relocation of Burrowing Owls are regulated by the USFWS under the MBTA.

If construction is scheduled to commence during the breeding season, a qualified biologist would conduct pre-construction surveys within 30 days prior to construction for western burrowing owl within suitable habitat prior to breeding season. All areas within 250 feet of the Project would be surveyed, per USFWS 2007 Burrowing Owl guidance. If an active nest is identified, there would be no construction activities within 250 feet of the nest location to prevent disturbance until the chicks have fledged or the nest has been abandoned, as determined by a qualified biologist. The occurrence and location of any Western Burrowing Owl would be documented by biological monitors in daily reports and submitted to the authorized biologist on a daily basis. The authorized biologist would report all incidents of disturbance or harm to Western Burrowing Owls within 24 hours to the USFWS and report any incidence of mortality on the proper form (**Appendix A**).

When removal of occupied burrows is unavoidable, the following mitigation measures shall be implemented outside of the breeding season:

- Passive relocation methods are to be used by the biological monitors to move the owls out of the impact zone. This includes covering or excavating all unoccupied burrows and installing one-way doors into occupied burrows. This will allow any animals inside to leave the burrow, but will exclude any animals from re-entering the burrow. A period of at least 48 hours is required after the relocation effort to allow the birds to leave the impacted area before excavation of the burrow can begin. The burrows should then be excavated and filled in to prevent their reuse.

6.6 Litter Disposal and Removal

To minimize activities that attract prey and predators during construction and operations, garbage will be placed in approved containers with lids and removed promptly when full to avoid creating attractive nuisances for birds and bats. Open containers that may collect rainwater will also be removed or stored in a secure or covered location to not attract birds.

7 Monitoring

Bird mortalities observed during construction of the Project would be documented and reported to the USFWS within 48 hours.

7.1 Pre-construction Avian Monitoring

Biological monitors would be assigned to the Project in areas of sensitive biological resources. The monitors would be responsible for ensuring that impacts to special status species, native vegetation, wildlife habitat, or unique resources would be avoided to the fullest extent possible. Where appropriate, monitors would flag the boundaries of areas where activities would need to be restricted to protect the species of concern discussed in this BBSCS as well as other plant and animal species not listed. Those restricted areas would be monitored to ensure their protection during construction.

7.2 Permit Compliance

The Proponents may find it necessary in some situations to obtain federal and state permits regarding avian and bat species, including nest removal or relocation permits (depredation permit). In such situations, the Proponent may seek to obtain them by working with the federal and state resource agencies to determine which permits are necessary. Under no circumstances would the Proponent perform any activity requiring a permit without first obtaining the proper permit or authorization to do so.

7.3 Training

A Worker Environmental Awareness Program (WEAP) would be prepared and implemented. All construction crews and contractors would be required to participate in WEAP training prior to starting work on the Project. The WEAP training would include a review of the special status species and other sensitive resources that could exist in the Project area, the locations of sensitive biological resources and their legal status and protections, and measures to be implemented for avoidance of these sensitive resources. A record of all trained personnel would be maintained.

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Appendix A – Mortality Reporting Data Form

EAGLE SHADOW MOUNTAIN SOLAR PROJECT

MORTALITY REPORTING FORM

DATE: _____ TIME: _____ OBSERVER: _____

PROXIMAL TO PROJECT COMPONENT: _____

CARCASS POSITION

GPS COORDINATES East: _____ North: _____

BEARING (degrees) to PROJECT COMPONENT: _____

DISTANCE (meters) to PROJECT COMPONENT: _____

CARCASS DESCRIPTION

SPECIES: _____

SEX (*circle*): M F U AGE (*circle*): A J U Tag/Band Number: _____

CONDITION (*circle*): intact scavenged dismembered feather spot injured

ESTIMATED TIME SINCE DEATH/INJURY (no. of days): <1 1 2 3 4 5 6 7 7+

CAUSE OF DEATH: _____

OBSERVABLE INJURIES: _____

SUBSTRATE/GROUND COVER (*at carcass location*): _____

DISPOSITION OF CARCASS¹ (*circle*): left in place removed collected for trials collected for other:

SHIPPED TO:

[name of institution] _____

[physical address] _____

[phone/email] _____

WEATHER CONDITIONS

AIR TEMPERATURE (degrees Fahrenheit): _____

PRECIPITATON (last 24 hours, *circle*): none light rain rain heavy rain hail snow

CLOUD COVER (*circle*): clear mostly clear partly cloudy mostly cloudy cloudy

WIND DIRECTION: _____ SPEED (mph, *circle*): 0-10 10-20 20-30 30+ gusty

NOTES (describe noteworthy weather conditions since last search, including high wind, fog, precipitation, and storm events):

PHOTOGRAPHS²:

Close Up: Photo 1 _____

Photo 2 _____

Landscape: Photo 3 _____

Photo 4 _____

PHOTO NOTES: _____

NOTIFICATION³:

DATE: _____

TIME: _____

NAME: _____

AGENCY/ASSOCIATION: _____

NOTES:

¹ Permit required to handle bird carcasses.

² At least four photographs should be taken. Two should be close-in shots of the carcass and should be taken from at least two different angles. Two should be shots taken farther away showing the landscape (project components, surrounding habitat, etc.) and should be taken from at least two different angles).

³ Indicate who was notified of the event, date, time, etc.

Appendix B – Nest Reporting Data Form

EAGLE SHADOW MOUNTAIN SOLAR PROJECT
NEST REPORTING FORM

DATE: _____ TIME: _____ OBSERVER: _____

PROXIMAL TO PROJECT COMPONENT: _____

NEST POSITION

GPS COORDINATES East: _____ North: _____

BEARING (degrees) to PROJECT COMPONENT: _____

DISTANCE (meters) to PROJECT COMPONENT: _____

NEST DESCRIPTION

SPECIES: _____

SEX OF INDIVIDUALS AT NEST (*circle all that apply*): M F U

AGE (*circle all that apply*): A J U

ESTIMATED NUMBER OF EGGS/CHICKS (IF APPLICABLE) _____

GENERAL DESCRIPTION OF NEST SITE

Substrate (e.g., cliff or outcrop [rock type], tree/shrub [species, live/dead], ground, artificial structure [type]):

Estimated height of substrate: _____(m) Estimated height of nest above ground: _____(m)

Nest type and location on substrate (e.g., stick nest in upper/lower canopy stick nest on/in ledge, pothole, or crevice; scrape on/in ledge, pothole, or crevice; stick nest on artificial platform mounted in tree; tree cavity; burrow; etc.):

Protection from weather (YES/NO; describe nature of protection, e.g., tree canopy, cliff backdrop, pothole/crevice, burrow, etc.):

Approximate compass direction of exposure to elements (wind, sun, etc.): _____

Nest size—indicate whether estimated or measured: _____

Height (top to bottom)_____ Width (left to right)_____ Depth (back to front)_____ (meters)

Known or probable alternative nests within territory and associated nest #'s:

PHOTOGRAPHS¹:

Close Up: Photo 1 _____

Photo 2 _____

Landscape: Photo 3 _____

Photo 4 _____

PHOTO NOTES: _____

NOTIFICATION²:

DATE: _____

TIME: _____

NAME: _____

AGENCY/ASSOCIATION: _____

NOTES:

¹ At least four photographs should be taken. Two should be close-in shots of the nest and should be taken from at least two different angles. Two should be shots taken farther away showing the landscape (project components, surrounding habitat, etc.) and should be taken from at least two different angles).

² Indicate who was notified of the event, date, time, etc.

Appendix E

Gen-Tie Plan of Development (POD)

Eagle Shadow Mountain Gen-Tie Project

Plan of Development

Submitted to:

Bureau of Land Management
Las Vegas Field Office
4701 North Torrey Pines Drive
Las Vegas, NV 89130

Submitted by:

Eagle Shadow Mountain Solar Project
325MK 8me LLC
250 Sutter Street, Suite 600
San Francisco, CA 94108

May 2019

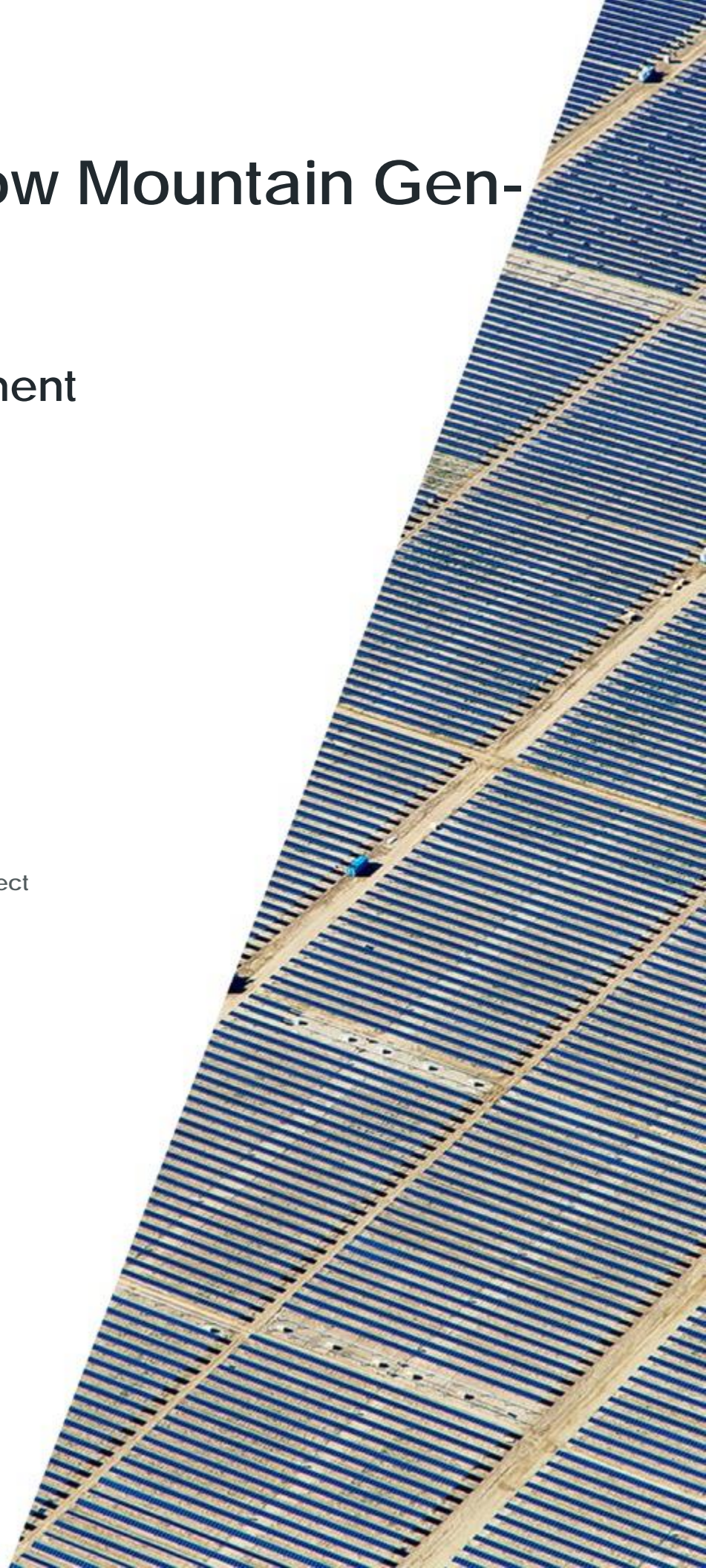


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OVERVIEW

325MK 8me LLC (the Applicant) proposes to construct and operate an electrical generator intertie (gen-tie) transmission line (Proposed Project) that would be partially located on lands administered by the Bureau of Land Management (BLM). The gen-tie would cross BLM-owned land, lands held in trust by the Bureau of Indian Affairs (BIA) for the Moapa Band of Paiutes (MBOP) and administered by the BLM, and private lands located in Clark County, NV. The Proposed Project would interconnect an up to 300 megawatt alternating current (MWac) solar photovoltaic (PV) electric generation facility (Eagle Shadow Mountain Solar Project or solar facility), located on the Moapa River Indian Reservation, to the regional electrical grid at the NV Energy Reid Gardner Substation. The Proposed Project would be designed to accommodate transmission of energy generated by the Eagle Shadow Mountain Solar Project and potential future solar energy generation and storage projects, with a combined total capacity of up to 800 MWac.

The Proposed Project would involve construction, operation, and eventual decommissioning of a 230 kilovolt (kV) single- or dual-circuit gen-tie line that would run northeastward from the Eagle Shadow Mountain Solar Project substation for up to 12.4 miles to the Reid Gardner Substation, which is located on private land in unincorporated Clark County. The Applicant is evaluating two alternative routes concurrently, both of which would require a right-of-way (ROW) across lands managed by the BLM. This Plan of Development (POD) was prepared as part of the SF-299 application process for a ROW Grant from the BLM for the portions of the two gen-tie alternatives that would cross BLM-administered lands.

Components of the Proposed Project on BLM-administered lands would be limited to transmission line structures, electrical conductors and communication lines strung between structures, and roads to access transmission structures. Both gen-tie alternatives would require a BLM ROW up to about 11.1 miles in length. The proposed ROW for the gen-tie would be 125 to 200 feet wide. The entire approximately 11.11-mile proposed BLM ROW for the gen-tie is within a designated utility corridor (Moapa Corridor, P.L. 96-491), which currently includes at least 11 BLM-authorized linear ROWs (Table 1). All portions of the gen-tie that would be on lands administered by BLM would be constructed above ground.

Table 1– Authorized Rights-of-Way within BLM Moapa Utility Corridor

Serial No.	Proponent/Holder	Project	ROW Width
NVN 082385	Holly Energy Partners	UNEV Pipeline	50'
NVN 042581	Kern River Gas Transmission Co	Natural Gas Pipeline	75'
NVN 089176	K-Road Moapa Solar LLC	500 kV Transmission Line	Varies – 100' – 200'
NVN 091072	K-Road Moapa Solar LLC	Road and Drainage	27'
NVN 010683	Los Angeles Department of Water and Power	500 kV Transmission Line	Varies – 200' – 400'

Table 1– Authorized Rights-of-Way within BLM Moapa Utility Corridor

Serial No.	Proponent/Holder	Project	ROW Width
NVN 004790	LADWP / BOR / Nevada Energy	Navajo - McCullough 550 kV	200'
NVN 039815	NV Energy	Pecos - Harrisburg 345 kV Transmission Line	Varies – 150' – 330'
NVN 0061985	NV Energy	230 kV Transmission Line	Varies – 100' – 230'
NVN 0067348	NV Energy	230 kV Transmission Line	100'
NVN 091614	Overton Power District	Arrow Canyon Powerline	50'
NVN 086732	TransWest Express LLC	600 / 500 kV Transmission Line	Varies – 200' – 300'

Applicant's Purpose and Need

The purpose of the Proposed Project is to facilitate transmission of the energy produced at the Eagle Shadow Mountain Solar Project and potential future solar energy generation and storage projects to the regional electrical grid. The need for the Proposed Project is to:

1. Provide a means of conveying up to 800 MWac of renewable energy to the electric grid to meet increasing demand for in-state generation;
2. To complement the Applicant's dedication to environmental stewardship through environmentally sensitive project siting;
3. To assist the Moapa Band of Paiutes by promoting economic development and bring living-wage jobs to the region throughout the life of the Proposed Project.

Project Location

The Eagle Shadow Mountain Solar Project's energy generation facilities would be located entirely on Moapa River Indian Reservation lands in Clark County, west of Interstate-15, approximately 4 miles northwest of the intersection of I-15 and the Valley of Fire Highway, and approximately 1.5 miles west of the Moapa Southern Paiute solar facility. The Proposed Project (i.e., gen-tie line) would be located on a combination of private lands, MBOP lands held in trust by the BIA, and on lands administered by the BLM (Figure 1).

Origin and Destination Routing

The Proposed Project would originate at the Eagle Shadow Mountain Solar Project substation on lands held in trust by the BIA for the MBOP located adjacent to the BLM-administered Moapa Utility Corridor. The two gen-tie ROW alternatives would proceed eastward from the Eagle Shadow Mountain Solar Project substation and enter BLM-administered land in the Lot 11, Section 14, Township 16S, Range 64E, Mount Diablo Base Meridian. From there the route would proceed northeast on BLM administered-land for approximately 11.1 miles, eventually exiting BLM-administered land in Lot 2, Section 7, Township 15S, Range 66E, Mount Diablo Base Meridian, and terminate at the Reid Gardner substation on private

land in NW¼SW¼ Section 5, Township 15S, Range 66E, Mount Diablo Base Meridian. The following alternatives will be carried forward for detailed analysis under the National Environmental Policy Act (NEPA):

Alternative 1 (No Action Alternative): Under NEPA, the BLM must consider the effects that would occur if the ROW application is denied. Under this alternative, a combination of lands held in trust by the BIA for the MBOP and private land would be used for construction, operation, and decommissioning of the gen-tie line. The environmental effects of the No Action Alternative would likely be similar to those associated with the BLM alternatives, albeit greater due to the longer lengths associated with avoiding BLM-administered lands.

Alternative 2 (Proposed Action): The Proposed Action would cross up to 11.1 miles of BLM-administered land primarily within a designated utility corridor (Attachment 1). Of the 11.1 miles of the Proposed Action that would cross BLM-administered land, about 0.34 miles would be located on BLM land outside of the utility corridor in the Lot 2, Section 7, Township 15S, Range 66E, Mount Diablo Base Meridian. The gen-tie ROW on BLM-administered lands would be up to 125 to 200 feet wide, totaling up to 267.2 acres. This route would be centrally located within the utility corridor, staying as close as possible to the westernmost existing or authorized (approved but not yet constructed) linear ROW within the corridor.

In addition to the proposed gen-tie ROW, the Proposed Action would require ROWs for use of existing access roads. One ROW would be for use of an existing access road that would be used as the primary access road for the solar facility, and the other ROW would be for use of new and existing access roads, outside of the proposed gen-tie ROW, to facilitate construction and operation of the gen-tie.

Alternative 2, Proposed Action, Legal Description for Gen-Tie Right-of-Way

T. 16 S., R. 64 E.,

sec. 12, Lots 1, 8, 9, and 14, SE¼SW¼, NW¼SE¼, SE¼NE¼

sec. 13, NW¼NW¼

sec. 14, Lots 1, 8, 9, and 11, SE¼NE¼, and NW¼SE¼

Acres: 56.6

T. 16 S., R. 65 E.,

sec. 5, Lot 7

sec. 6, Lot 8

sec. 7, Lot 7

Acres: 40.2

T. 15 S., R. 65 E.,

sec. 12, Lots 6, 7, and 14, SW¼SE¼, SE¼SE¼, NE¼SE¼

sec. 13, Lot 1, SW¼NW¼, SE¼NW¼, NE¼NW¼, NW¼NE¼

sec. 14, Lots 6, 7, and 14, SW¼SE¼, NE¼SE¼

sec. 22, Lots 7, 8, 9, 16, and 17

sec. 23, Lots 4, 5, and 7

sec. 27, Lots 4, 5, and 7
sec. 28, Lots 12, 13, 14, 21, and 22
sec. 32, Lots 1, 11, 12, 17, and 18, SW $\frac{1}{4}$ SE $\frac{1}{4}$, NW $\frac{1}{4}$ SE $\frac{1}{4}$, NE $\frac{1}{4}$ SE $\frac{1}{4}$, SE $\frac{1}{4}$ NE $\frac{1}{4}$
sec. 33, Lots 4, 5, and 6
Acres: 162.4

T. 15 S., Range 66E
sec. 7, Lot 2
Acres: 7.9

Total Alternative 2 Gen-Tie ROW Acreage: 267.2 acres

Legal Description for Primary Solar Facility Access Road

T. 16 S., R. 64 E.,
sec. 1, Lot 7, NE $\frac{1}{4}$ SW $\frac{1}{4}$, SE $\frac{1}{4}$ SW $\frac{1}{4}$, SE $\frac{1}{4}$ NW $\frac{1}{4}$
sec. 14, Lots 9, 11, and 12, SE $\frac{1}{4}$ SW $\frac{1}{4}$
sec. 22, SW $\frac{1}{4}$ SE $\frac{1}{4}$, NW $\frac{1}{4}$ SE $\frac{1}{4}$, SE $\frac{1}{4}$ SW $\frac{1}{4}$, SE $\frac{1}{4}$ NE $\frac{1}{4}$, NE $\frac{1}{4}$ SE $\frac{1}{4}$
sec. 23, SW $\frac{1}{4}$ NW $\frac{1}{4}$, NW $\frac{1}{4}$ NW $\frac{1}{4}$, NE $\frac{1}{4}$ NW $\frac{1}{4}$
sec. 27, NE $\frac{1}{4}$ NW $\frac{1}{4}$, NW $\frac{1}{4}$ NW $\frac{1}{4}$, SW $\frac{1}{4}$ NW $\frac{1}{4}$
sec. 28, SE $\frac{1}{4}$ NE $\frac{1}{4}$, NE $\frac{1}{4}$ SE $\frac{1}{4}$, SE $\frac{1}{4}$ SE $\frac{1}{4}$
sec. 33, SW $\frac{1}{4}$ SE $\frac{1}{4}$, SE $\frac{1}{4}$ SE $\frac{1}{4}$, SE $\frac{1}{4}$ NE $\frac{1}{4}$, NE $\frac{1}{4}$ NE $\frac{1}{4}$, NE $\frac{1}{4}$ SE $\frac{1}{4}$
Acres: 17.9

Total Primary Solar Facility Access Road ROW Acreage: 17.9 acres

Alternative 2, Proposed Action, Legal Description for Gen-Tie Access Roads (outside of Gen-Tie ROW)

T. 16 S., R. 64 E.,
sec. 12, Lots 1, 8, 9, and 14, SE $\frac{1}{4}$ SW $\frac{1}{4}$, NW $\frac{1}{4}$ SE $\frac{1}{4}$, SE $\frac{1}{4}$ NE $\frac{1}{4}$, SW $\frac{1}{4}$ SE $\frac{1}{4}$
sec. 13, NW $\frac{1}{4}$ NW $\frac{1}{4}$
sec. 14, Lots 1, 8, 9, and 11, SE $\frac{1}{4}$ NE $\frac{1}{4}$, SE $\frac{1}{4}$ SW $\frac{1}{4}$, NW $\frac{1}{4}$ SE $\frac{1}{4}$
Acres: 5.1

T. 16 S., R. 65 E.,
sec. 5, Lot 7
sec. 6, Lot 8
sec. 7, Lot 7
Acres: 5.3

T. 15 S., R. 65 E.,
sec. 12, Lots 6, SW $\frac{1}{4}$ SE $\frac{1}{4}$, SE $\frac{1}{4}$ SE $\frac{1}{4}$, NE $\frac{1}{4}$ SE $\frac{1}{4}$
sec. 13, SW $\frac{1}{4}$ NW $\frac{1}{4}$, NW $\frac{1}{4}$ SW $\frac{1}{4}$, SE $\frac{1}{4}$ NW $\frac{1}{4}$, NE $\frac{1}{4}$ NW $\frac{1}{4}$, NW $\frac{1}{4}$ NE $\frac{1}{4}$
sec. 14, SW $\frac{1}{4}$ SE $\frac{1}{4}$, NE $\frac{1}{4}$ SE $\frac{1}{4}$, SE $\frac{1}{4}$ SE $\frac{1}{4}$
sec. 22, Lots 7, 8, 9, 16, and 17
sec. 23, Lots 3, 4, 5, and 7

sec. 27, Lots 4, 5, and 7
sec. 28, Lots 12, 13, 14, 21, and 22
sec. 32, SW¼SE¼, NW¼SE¼, NE¼SE¼, SE¼NE¼
sec. 33, Lots 4, 5, and 6
Acres: 11.7

T. 15 S., Range 66E
sec. 7, Lots 1, 2, NE¼NW¼
Acres: 1.0

Total Alternative 2 Gen-Tie Access Roads ROW Acreage: 23.0 acres

Alternative 3 (Alternative BLM Alignment): The Alternative BLM Alignment would roughly follow the same alignment as Alternative 2, but rather than being centrally-located within the corridor, it would stay as close as possible to the northern edge of the utility corridor (Attachment 2). Alternative 3 would cross up to 11.0 miles of BLM-administered land, primarily within a designated utility corridor (with the exception of about 0.34 miles located on BLM land outside of the utility corridor in the Lot 2, Section 7, Township 15S, Range 66E, Mount Diablo Base Meridian). The Alternative 3 gen-tie ROW would also be up to 125 to 200 feet wide, totaling up to 266.5 acres.

Similar to the Proposed Action, Alternative 3 would also require ROWs for use of existing access roads. One ROW would be for use of an existing access road that would be used as the primary access road for the solar facility, and the other ROW would be for use of new and existing access roads, outside of the proposed gen-tie ROW, to facilitate construction and operation of the gen-tie.

Alternative 3, Alternative BLM Alignment, Legal Description for Gen-Tie Right-of-Way

T. 15 S., R. 65 E.,
sec. 12, Lots 6, 7, 9, 12, and 14, NE¼SE¼
sec. 13 Lot 1
sec. 14, Lots 1, 4, 6, 7, 9, 12, 14
sec. 22, Lots 1, 5, 7, 9, 11, 14, and 16
sec. 23, Lot 5
sec. 27, Lot 5
sec. 28, Lots 1, 8, 10, 12, 15, 17, and 20
sec. 29, Lot 10
sec. 31, Lot 10
sec. 32, Lots 1, 3, 9, 11, 12, 14, and 17
Acres: 171.0

T. 15 S., R. 66 E.,
sec. 7, Lot 2
Acres: 6.8

T. 16 S., R. 64 E.,
sec. 10, Lot 6

sec. 11, Lot 4
sec. 12 Lot 1, 3, 6, 8, 9, 11, and 14
sec. 14, Lots 1, 3, 6, 8, 9, 10, 11, and 12
Acres: 3.5

T. 16 S., R. 65 E.,
sec. 6, Lot 8
Acres: 28.7

Total Alternative 3 Gen-Tie ROW Acreage: 266.5 acres

Legal Description for Primary Solar Facility Access Road

T. 16 S., R. 64 E.,
sec. 1, Lot 7, NE $\frac{1}{4}$ SW $\frac{1}{4}$, SE $\frac{1}{4}$ SW $\frac{1}{4}$, SE $\frac{1}{4}$ NW $\frac{1}{4}$
sec. 14, Lots 9, 11, and 12, SE $\frac{1}{4}$ SW $\frac{1}{4}$
sec. 22, SW $\frac{1}{4}$ SE $\frac{1}{4}$, NW $\frac{1}{4}$ SE $\frac{1}{4}$, SE $\frac{1}{4}$ SW $\frac{1}{4}$, SE $\frac{1}{4}$ NE $\frac{1}{4}$, NE $\frac{1}{4}$ SE $\frac{1}{4}$
sec. 23, SW $\frac{1}{4}$ NW $\frac{1}{4}$, NW $\frac{1}{4}$ NW $\frac{1}{4}$, NE $\frac{1}{4}$ NW $\frac{1}{4}$
sec. 27, NE $\frac{1}{4}$ NW $\frac{1}{4}$, NW $\frac{1}{4}$ NW $\frac{1}{4}$, SW $\frac{1}{4}$ NW $\frac{1}{4}$
sec. 28, SE $\frac{1}{4}$ NE $\frac{1}{4}$, NE $\frac{1}{4}$ SE $\frac{1}{4}$, SE $\frac{1}{4}$ SE $\frac{1}{4}$
sec. 33, SW $\frac{1}{4}$ SE $\frac{1}{4}$, SE $\frac{1}{4}$ SE $\frac{1}{4}$, SE $\frac{1}{4}$ NE $\frac{1}{4}$, NE $\frac{1}{4}$ NE $\frac{1}{4}$, NE $\frac{1}{4}$ SE $\frac{1}{4}$
Acres: 17.9

Total Primary Solar Facility Access Road ROW Acreage: 17.9 acres

Alternative 3, Alternative BLM Alignment, Legal Description for Gen-Tie Access Roads (outside of Gen-Tie ROW)

T. 15 S., R. 65 E.,
sec. 12, Lots 4, 6, 7, 9, 12, and 14, SW $\frac{1}{4}$ SE $\frac{1}{4}$, SE $\frac{1}{4}$ SE $\frac{1}{4}$, NE $\frac{1}{4}$ SE $\frac{1}{4}$
sec. 13 Lot 1, SW $\frac{1}{4}$ NW $\frac{1}{4}$, NW $\frac{1}{4}$ SW $\frac{1}{4}$, SE $\frac{1}{4}$ NW $\frac{1}{4}$, NW $\frac{1}{4}$ NE $\frac{1}{4}$, NE $\frac{1}{4}$ NW $\frac{1}{4}$
sec. 14, Lots 1, 4, 6, 7, 9, and 14, SW $\frac{1}{4}$ SE $\frac{1}{4}$, NE $\frac{1}{4}$ SE $\frac{1}{4}$, SE $\frac{1}{4}$ SE $\frac{1}{4}$
sec. 22, Lots 1, 7, 8, 9, 16, and 17
sec. 23, Lots 3, 4, 5, and 7
sec. 27, Lots 4, 5, and 7
sec. 28, Lots 12, 13, 14, 19, 20, 21, and 22
sec. 29, Lots 9 and 10
sec. 31, Lot 10
sec. 32, Lots 1, 2, 11, 12, 17, and 18, NE $\frac{1}{4}$ SE $\frac{1}{4}$, NW $\frac{1}{4}$ SE $\frac{1}{4}$, SE $\frac{1}{4}$ NE $\frac{1}{4}$, SW $\frac{1}{4}$ SE $\frac{1}{4}$
sec. 33, Lots 4, 5, and 6
Acres: 16.9 acres
T. 15 S., R. 66 E.,
sec. 7, Lots 1 and 2, NE $\frac{1}{4}$ NW $\frac{1}{4}$
Acres: 1.2

T. 16 S., R. 64 E.,

sec. 11, Lot 4

sec. 12, Lot 1, 3, 8, and 14, NW $\frac{1}{4}$ SE $\frac{1}{4}$, SE $\frac{1}{4}$ NE $\frac{1}{4}$, SE $\frac{1}{4}$ SW $\frac{1}{4}$, SW $\frac{1}{4}$ SE $\frac{1}{4}$

sec. 13, NW $\frac{1}{4}$ NW $\frac{1}{4}$

sec. 14, Lots 1, 3, 6, 8, 9, 10, 11, and 12

Acres: 3.5

T. 16 S., R. 65 E.,

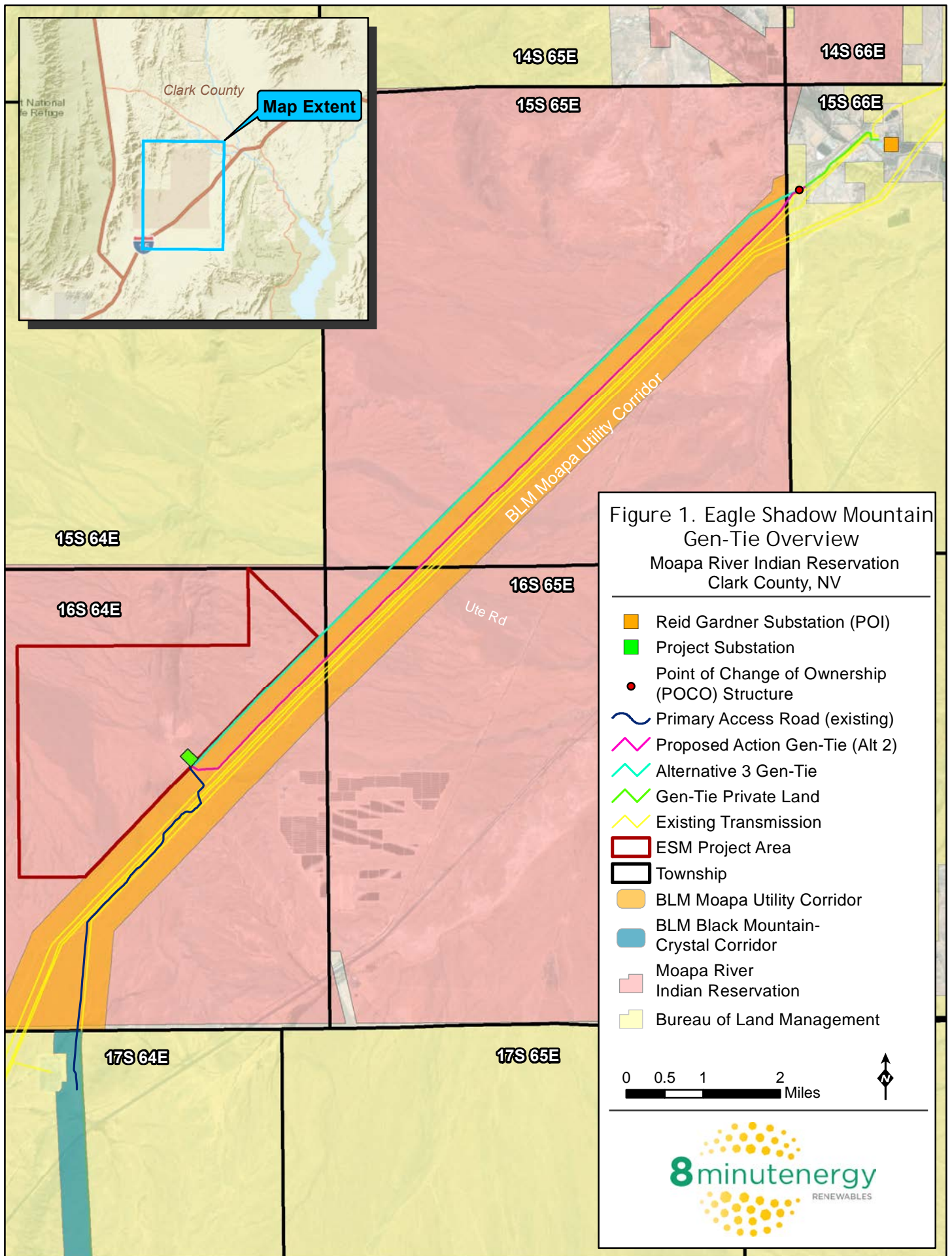
sec. 5, Lot 7

sec. 6, Lot 8

sec. 7, Lot 7

Acres: 6.2 acres

Total Alternative 3 Gen-Tie Access Road Acreage : 30.3 acres



Major Users Along the Route

Existing electric transmission lines, a high-pressure natural gas pipeline, and associated access roads parallel the proposed gen-tie routes on BLM-administered lands. Both alternatives would cross a gravel road used to access several telecommunications facilities. All other lands along the proposed gen-tie route are vacant. Other than an aggregate mine, located approximately 0.5 miles northwest of the project substation site, there appears to be no active grazing, mining, industrial, or agricultural uses near the proposed route.

PROJECT DESCRIPTION

The Proposed Project involves construction, operation, and decommissioning of an up to 230 kilovolt (kV) single- or dual-circuit gen-tie line from the Proposed Eagle Shadow Mountain Solar Project, located on land held in trust by the BIA for the MBOP, to the existing Reid Gardner Substation, located on private land owned by NV Energy. Assuming one of the Action Alternatives (e.g., Alternative 2 or 3) is selected, the portion of the gen-tie on BLM-administered lands would be up to 11.5 miles long within a 125 to 200-foot wide ROW corridor, resulting in a gen-tie ROW of up to 267.2 acres. Except for an about 0.34-mile segment in the Lot2, Section 7, Township 15S, Range 66E, Mount Diablo Base Meridian, the entire BLM ROW is within a designated utility corridor.

Because the proposed Eagle Shadow Mountain Solar Project would be located entirely on land held in trust by the BIA for the MBOP, it is not subject to BLM discretionary approval. The Eagle Shadow Mountain Solar Project may include the following components: solar arrays comprised of PV panels and inverters, on-site substation(s), electrical collection lines connecting the inverters to the on-site substation(s), an operations and maintenance building, energy storage systems, and other related infrastructure such as access roads, fences, and telecommunication systems.

ELEMENTS COMMON TO BOTH ACTION ALTERNATIVES

The energy generated by the solar facility would be sold to NV Energy under a long-term power purchase agreement. The Proposed Project would provide a direct connection between the solar facility substation and the existing NV Energy Reid Gardner Substation.

Solar Facility Access Road

Main access to the solar facility site and gen-tie ROW would be provided via existing roads. The existing roads include the road built to provide access to the nearby existing Moapa Southern Paiute Solar Project and the road providing access to the existing tribal aggregate operation and wells that would be adjacent to the solar facility (Figure 1). No upgrades to these existing roads are anticipated to be necessary to provide the access needed for this project, other than maintenance during construction and operations, as required.

Transmission Support Structures

Assuming the Proposed Project is approved for construction, transmission support structures (towers and poles) would be erected within the ROW and would typically be spaced 700 feet to 900 feet apart (center to center), depending on the topographic, hydrologic, and geologic conditions of the underlying lands. Either of the Action Alternatives may utilize three different types of transmission structures: single- or dual-circuit steel mono-pole tangent structures, single- or dual-circuit steel mono-pole vertical dead-end structures, and single- or dual-circuit steel 3-pole dead-end crossing structures. Transmission structure heights will generally range from about 90 feet high to about 150 feet high. The minimum ground clearance of the conductor cable will be 25 feet. Communications cable or fiber cable will also be installed on the transmission structures.

Gen-Tie Service Road

The Action Alternatives were designed with an emphasis on providing the smallest ground disturbance footprint on BLM lands and are sited to follow existing roads. Where feasible, spur roads would be constructed from existing roads and/or existing transmission structure footprints to access work areas for new gen-tie transmission structures. The permanent disturbance estimates for each of the Action Alternatives (Tables 1 and 2) conservatively assume new transmission structure access roads would be 14 ft-wide. New and existing gen-tie access roads outside of the proposed up to 200 ft-wide gen-tie ROW would require a separate ROW grant. Access to the Point of Change of Ownership (POCO) structure (see below) would be via a permanent ROW constructed from an existing access road on NV Energy-owned land across BLM land in Lot 2, Section 7, Township 15S, Range 66E.

Point of Change of Ownership Structure

The Applicant would be responsible for constructing either of the Action Alternatives from the Eagle Shadow Mountain Project Substation to the POCO dead-end structure and 230-kV switch, located in Lot 2, Section 7, Township 15S, Range 66E, Mount Diablo Base Meridian (NAD83, UTM Zone 11N, 709709 m E, 4058311 m N). From the POCO structure, the remaining transmission structures would be constructed by NV Energy on NV Energy-owned lands and continue to the point of interconnection terminal within the existing 230-kV Reid Gardner Substation. The BLM ROW required from the POCO structure to the next structure on NV Energy land would be up to 0.10 miles long.

NV Energy Transmission Provider's Interconnection Facilities

From the POCO structure, 230-kV single- or dual-circuit transmission structures would be installed on NV Energy-owned land to facilitate installation of approximately 1.37 miles of overhead 2-954 aluminum conductor steel-reinforced cable bundled conductor per phase, including optical fiber composite overhead ground wire or equivalent, between the POCO structure and the Reid Gardner Substation. Dedicated relays, and supervisory control and data acquisition required for protection equipment and connection to dual fiber feeds, would be installed at the Reid Gardner 230-kV Switching Station for the gen-tie.

Telecommunications and Metering at the Eagle Shadow Mountain Solar Project Substation

Telecommunications would be installed at the Eagle Shadow Mountain Solar Project Substation consisting of a remote terminal unit (RTU) and necessary communications equipment for the Generating Facility (i.e., the Eagle Shadow Mountain Solar Project) including a multiplexer on the communications line (i.e., T-1 line) and miscellaneous communication cables and link equipment, as required. Support equipment (i.e., metering class current transformers and potential transformers) would be installed inside the Eagle Shadow Mountain Solar Project Substation to facilitate metering of all applicable energy outputs.

NV Energy Network Upgrades

The 230-kV terminal addition would be located on private property at the Reid Gardner Substation. The network upgrades include: reuse of two existing 230-kV breakers and associated switches, replacing existing control cables associated with the 230-kV breakers, a new relay and control enclosure, three 230-kV coupling capacitor voltage transformers for internal metering and operation of protective relays, a new line, breaker, RTU, and bus differential relay panels, and improvements to substation grounding and conduit/cable trench systems in the area surrounding the new relay and control enclosure.

PROJECT FEATURE SPECIFICATIONS AND DISTURBANCE AREAS

Permanent disturbance areas will be those areas where the surface of the ground is not restored to its existing condition after construction, such as those relating to foundations or new access roads. Temporary disturbance areas include those where construction activity will take place but where restoration of the surface will be possible, such as those relating to temporary work areas, pull sites, and lay-down areas. In some places, areas of temporary disturbance will overlap with areas previously disturbed by prior transmission line installations. A temporary construction ROW may include an area beyond the permanent ROW for the gen-tie route and access roads. These areas may be necessary to facilitate the safe operation of equipment.

Table 2 – Proposed Action (Alternative 2) Specifications

Electrical Specifications for 230-kV Line	
Nominal Voltage	230 kV ac
Circuit Configuration	Vertical
Ground Clearance of Conductor	25 ft. minimum per RUS at Designed Thermal Limit for Emergency Line Loading Conditions (212 deg F)
Type of Pole	Single- or dual-circuit steel mono-pole tangent structures, single- or dual-circuit steel mono-pole vertical dead-end structures, and single- or dual- circuit steel 3-Pole dead-end Xing structures
Pole Height	Ranges from 90 ft. to 150 ft.
Assumed Pole diameter at Base	8 ft.
Right of Way Width	125 – 200 ft
Span Length	Typically 700 ft. to 900 ft.

Project Feature	Description	BLM-Administered Property
Length of Lines	Total length of line on BLM-administered lands.	11.1 miles
Number of Poles	Total number of dead-end, angle, or tangent poles on BLM-administered Property	73
Structure Erection Sites	Typically 125 ft. x 50 ft. at each structure location	73
Wire Pulling and Tensioning Sites	100 ft. wide by 400 ft. long, generally extends past each dead-end or angle structure. Necessary for conductor stringing equipment and placement of wire reels.	7
New Construction/ Maintenance Access Road	Typically bladed 14 ft. wide only where necessary and not maintained after construction is complete. Disturbance is assumed permanent to account for future access requirements.	2.7 miles

Table 3 – Proposed Action (Alternative 2) Disturbance Acreages

Project Feature	Temporary Disturbance	Permanent Disturbance
New Gen-Tie Access Road	2.0 acres	4.5 acres
Gen-Tie Structure Work Area	9.2 acres	0.8 acres
Wire Pulling and Tensioning Sites	5.7 acres	0 acres
<i>Total</i>	<i>16.9 acres</i>	<i>5.3 acres</i>

Table 4– Alternative BLM Alignment (Alternative 3) Specifications

Electrical Specifications for 230-kV Line		
Nominal Voltage	230 kV ac	
Circuit Configuration	Vertical	
Ground Clearance of Conductor	25 ft. minimum at Designed Thermal Limit for Emergency Line Loading Conditions (212 deg F)	
Type of Pole	Single- or dual-circuit steel mono-pole tangent structures, single- or dual-circuit steel mono-pole vertical dead-end structures, and single- or dual- circuit steel 3-Pole dead-end Xing structures	
Pole Height	Ranges from 90 ft. to 150 ft.	
Assumed Pole diameter at Base	8 ft.	
Right of Way Width	125 – 200 ft	
Span Length	Typically 700 ft. to 900 ft.	
Project Feature	Description	BLM PROPERTY
Length of Lines	Total length of line on BLM-administered lands.	11.0 miles
Number of Poles	Total number of dead-end, angle, or tangent poles excluding structures within interconnecting substations and structures on BLM-administered property	73
Structure Erection Sites	Typically 125 ft.x50 ft. at each structure locations	73
Wire Pulling and Tensioning Sites	100 ft. wide by 400 ft. long, generally extends past each dead-end or angle structure. Necessary for	6

	conductor stringing equipment and placement of wire reels.	
New Construction/ Maintenance Access Road	Typically bladed 12 ft. wide only where necessary and not maintained after construction is complete. Disturbance is assumed permanent to account for future access requirements.	11.0 miles

Table 5 – Alternative BLM Alignment (Alternative 3) Disturbance Acreages

Project Feature	Temporary Disturbance	Permanent Disturbance
New Gen-Tie Access Road	6.4 acres	15.3 acres
Gen-Tie Structure Work Area	7.3 acres	0.8 acres
Wire Pulling and Tensioning Sites	4.6 acres	0 acres
<i>Total</i>	<i>18.3 acres</i>	<i>16.1 acres</i>

GOVERNMENT AGENCIES INVOLVED

Federal

- Bureau of Land Management
- United States Fish and Wildlife Service
- Bureau of Indian Affairs
- United States Army Corps of Engineers
- Environmental Protection Agency

Tribal

- Moapa Band of Paiutes

State

- Public Utilities Commission of Nevada
- State Historic Preservation Office
- Nevada Department of Wildlife

Local

- Clark County

CONSTRUCTION OF THE FACILITIES

Site Engineering Surveys

After a preferred gen-tie route alternative is selected through the National Environmental Policy Act (NEPA) process, on-ground investigations will be completed to accurately locate the centerline of the ROW within the selected alternative. The exact centerline will be chosen to best implement design criteria and to satisfy any NEPA mitigation measures. Required permits to survey on federal lands will be obtained prior to the surveying effort. Survey work will consist of centerline location and ROW

boundaries, where necessary. Support structure locations, access roads, and the gen-tie route centerline will be flagged and staked, where necessary.

Timing of Activities

Heavy construction is expected to occur between 6:00 am and 5:00 pm, Monday through Friday.

Additional hours may be necessary to make up schedule deficiencies or to complete critical construction activities. Some activities may require construction activities 24 hours per day, seven days per week.

Low level noise activities may potentially occur between the hours of 10:00 pm and 7:00 am. Nighttime activities could potentially include, but are not limited to, refueling equipment, staging material for the following day's construction activities, quality assurance/control, and commissioning.

Access Roads

Where possible the two Alternative routes are sited to follow existing roads to minimize the ground disturbance footprint on BLM-administered lands. Where feasible, existing roads will provide access for project construction, operation, and maintenance. Construction of the gen-tie would begin with construction of access roads and spur roads. New access roads and spur roads would typically be 14 feet wide and bladed. If necessary, new roads would be compacted to ensure stability. Access roads parallel to the gen-tie alignment and spur roads would not be maintained following construction. Access to the POCO structure would be via a permanent ROW constructed from an existing access road on NV Energy-owned land across BLM land in Lot 2, Section 7, Township 15S, Range 66E.

Transmission Structure Erection Sites

Temporary transmission structure erection sites, typically 125 feet long x 50 feet wide would be established at each transmission structure location. These areas would be cleared of vegetation. Each transmission structure would be set within an augured hole (tangent structures) or concrete pier foundation (dead-end structures). The primary equipment used in setting foundations will be concrete trucks, auger rigs, pickup trucks, crane and front-end loaders. Holes would be excavated using a truck-mounted drill rig or a standalone auger rig if required. Poles would be delivered on a flat-bed trailer and hoisted into place by a crane. The annular space between the poles and holes would be backfilled with concrete or soil. Excavated spoil material would be spread around the temporary work areas.

Conductor Pulling and Tension Sites

Multiple pulling and tensions sites would be required for installing the conductors on the transmission structures. Pulling and tension sites would be approximately 100 feet wide x 400 feet long and would be located within and adjacent to the gen-tie service road. Conductors would be strung between transmission structures with heavy duty trucks and a telescoping boom lift. If necessary, to avoid seasonal washes some sections of conductors may be strung by either using a helicopter or by first 'walking' a light pulling rope between structures that is then used to pull in the heavier conductor. Cables will be pulled through one segment of the transmission line at a time. To pull cables, truck-mounted cable-pulling equipment is placed alongside the first and last towers or poles in a segment. Power pulling equipment is used at the front end of the segment, while power braking or tensioning

equipment is used at the back end. The conductors are then pulled through the segment and attached to the insulators. Equipment is then moved to the next segment; the front end pull site previously used becomes the back end pull site for the next segment. After conductors have been pulled into place in a section, the conductor tension is increased to achieve a ground clearance of at least 25 feet prior to moving to the next section. The northernmost tension and pulling site on BLM land would be located just northeast of the POCO structure in Lot 2, Section 7, Township 15S, Range 66E.

Water Use

Water would be used for dust suppression and soil compaction during construction. Water would be obtained from two existing wells owned by the MBOP on the solar facility site.

Industrial Wastes and Toxic Substances

The transmission line will have minimal levels of materials that have been defined as hazardous under 40CFR, Part 261. Hazardous materials spill kits would be carried in vehicles for any small spills that could occur. Hazardous materials would not be disposed of on-site, released onto the ground, underlying groundwater, or any surface water. Fully enclosed containment would be provided for all refuse. All construction waste, including trash, solid waste, petroleum products, and other hazardous materials, would be disposed of at a properly licensed waste disposal facility.

Personnel and Vehicles

The workers and vehicles expected to be required to construct the proposed transmission line are estimated below (per structure):

Table 6 – Gen-Tie Line Construction Equipment and Construction Workforce

Equipment Type	Quantity	PERSONNEL
Survey Gen-Tie Route		
Off-highway trucks	2	2: Driver
Clear and Grade Tower Structures and Roads		
Crawler Tractor	1	2: Driver + Spotter
Grader	1	2: Driver + Spotter
Drum Roller Compactor	1	2: Driver + Spotter
Off-highway trucks	3	3: Driver
Foundation Installation		
Drilling Rig	1	3: Driver + Operator + Support
Crane	2	6: 2 Drivers + 2 Operators + 2 Spotters
Boom Truck	1	1: Operator
Flat Bed Truck	1	1: Operator
Crew Truck(s)	6	6: Crew
Concrete Truck	1	1: Driver/Operator
Pole Erection		
Bucket Lift Truck	1	2: Driver + Operator
Boom Truck(s)	1	3: Driver + Operator + Support
Crew Truck(s)	6	6: Linemen/Groundmen
Cable Pulling		
Heavy-duty Truck (Puller)	1	2: Driver + Operator

Heavy-duty Truck (Tensioner)	1	2: Driver + Operator
Crew Truck(s)	6	6: Linemen/Groundmen
Crew Truck(s)	6	3: Spotters
Helicopter	1	2: Pilot + Spotter

In addition, the project will require the following:

- Engineering Surveys – Truck(s) and 3 crew
- Cleanup and Restoration – Truck(s) and 4 crew

Final design characteristics – and thus, final equipment and personnel requirements – will be determined in the detailed design phase of the project.

STABILIZATION AND REHABILITATION

Soil Replacement and Stabilization

Construction areas and access roads will be kept in an orderly condition throughout the construction period. Refuse and trash, including stakes and flags, will be removed from the sites and properly disposed of. Construction equipment will be oiled and fueled in designated areas with appropriate protections to prevent and/or contain accidental spills. No construction equipment oil or fuel will be drained on the ground. Oils or chemicals will be hauled to an approved site for disposal.

Construction will be completed by restoring temporary disturbance areas to the original contour of the land surface to the extent determined by the BLM. Dirt excavated for the foundations will be spread on the ground, on access roads, or taken off site for disposal in a permitted disposal site. Compaction may take place for the access roads that will remain during transmission line operation.

Disposal of Vegetation

Vegetation will be left in place wherever possible to avoid excessive root damage and allow for re-sprouting. Any vegetation that is removed will be transported to a suitable regional landfill, in covered trucks, to prevent any fugitive emissions of plant materials en-route to the disposal facility.

Seeding Specifications

Salvaged native plants will be used for revegetation, if appropriate, along with seeding using BLM-recommended seed mixes. Re-seeding or revegetating with native plants will occur in suitable areas, as necessary. Re-seeding will take place during appropriate months following transmission line construction. Seed will be planted using drilling, straw mulching, or hydromulching, as directed by the BLM.

Construction Roads

Roads that are built for the construction of the transmission line may be reclaimed upon construction completion or may be actively maintained for use during the operational life of the transmission line.

Individual portions of construction roads to be reclaimed will be determined at the end of construction, to be dictated by operational needs and considerations.

OPERATIONS AND MAINTENANCE

Gen-Tie Operation

The Proposed Project would operate continuously throughout the life of the Eagle Shadow Mountain Solar Project. Following construction, activities associated with the gen-tie would be restricted to inspection and occasional maintenance and repair. Bi-annual visual inspections would be conducted by ground crews to inspect insulators, overhead grounds, and transmission structure hardware. Shared service roads would be maintained pursuant to a road maintenance agreement entered into among the parties that share the service road. Gen-tie access roads would not be regularly maintained, but as-needed grading may be conducted to provide access to transmission structures for maintenance activities.

Additional operations and maintenance activities may include insulator washing, periodic air inspections, repair or replacement of lines), replacement of insulators, painting tower or pole identification markings or corroded areas, response to emergency situations (e.g., outages) to restore power (infrequent/as needed).

With the exception of emergency situations and outages, most maintenance work would take place between 7 am and 6 pm, Monday through Friday, but may also take place 24 hours a day, 7 days a week. Transmission line conductors may occasionally need to be upgraded or replaced over the life of the line. Old cables will be taken down and new cables will be strung on the insulators.

Safety

Safety precautions and emergency systems will be implemented as part of the design and construction of the transmission line to ensure safe and reliable operation. Administrative controls may include classroom and hands-on training in operating and maintenance procedures, general safety items, and a maintenance program plan. These controls will compliment transmission line design and monitoring features to enhance safety and reliability.

DECOMMISSIONING

Following the useful life of the Proposed Project, project components would be decommissioned and removed from the ROW. Prior to dismantling or removal of equipment, staging areas would be delineated along the gen-tie as appropriate. All decommissioning activities would be conducted within designated areas. Work to decommission the transmission line is anticipated to be conducted within the boundaries of existing easements and rights of way.

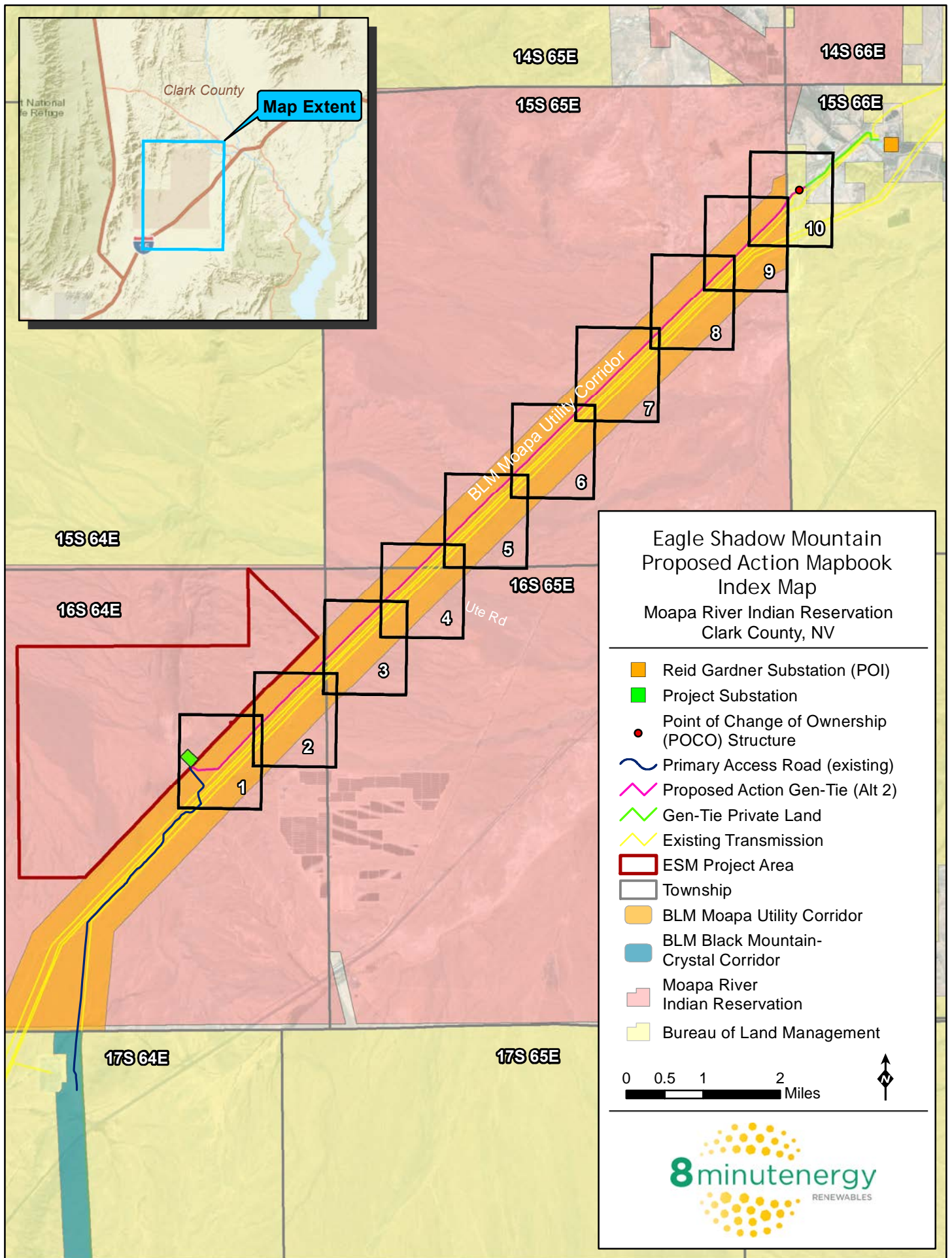
All decommissioning of transmission structures, electrical devices, equipment, and wiring/cabling will be in accordance with local, state and federal laws. Any electrical decommissioning will include obtaining

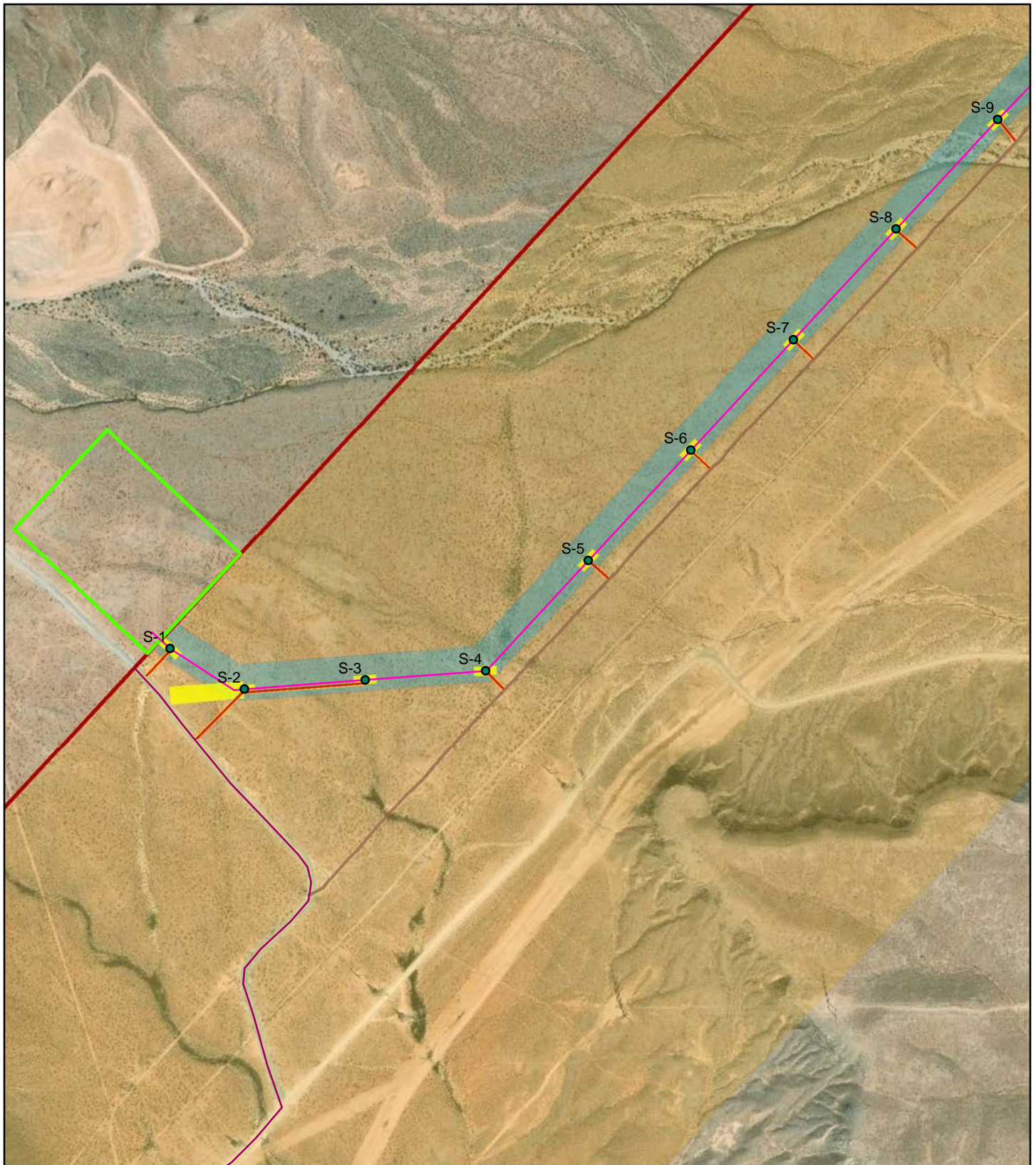
required permits, and following applicable safety procedures before de-energizing, isolating, and disconnecting electrical devices, equipment and cabling.

Restoration will be completed by restoring disturbed access road surfaces to the original contour and character of the land. Any compacted ground will be roughened, mixed with suitable subgrade materials and levelled, including the spreading of topsoil as necessary to ensure suitable conditions for vegetation regrowth.

Following decommissioning of the transmission line components, the site will be stabilized. Native plants will be used for revegetation, if appropriate, along with seeding using BLM-recommended seed mixes. Re-seeding will take place during appropriate months. Seed will be planted using drilling, straw mulching, or hydromulching, as appropriate.

Attachment 1 - Proposed Action Mapbook



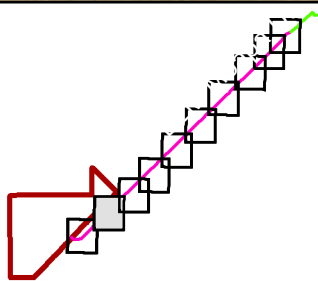


Proposed Action Mapbook 1 of 10

- | | |
|----------------------------------|------------------------------|
| ● Gen-Tie Structure | ■ Permanent Disturbance |
| ~ Primary Access Road | ■ Temporary Disturbance |
| — Gen-Tie Centerline | ■ ESM Project Area Boundary |
| □ ESM Substation | ■ 200-ft Gen-Tie ROW |
| — Gen-Tie Access Road (existing) | ■ BLM Moapa Utility Corridor |

0 250 500 1,000
Feet



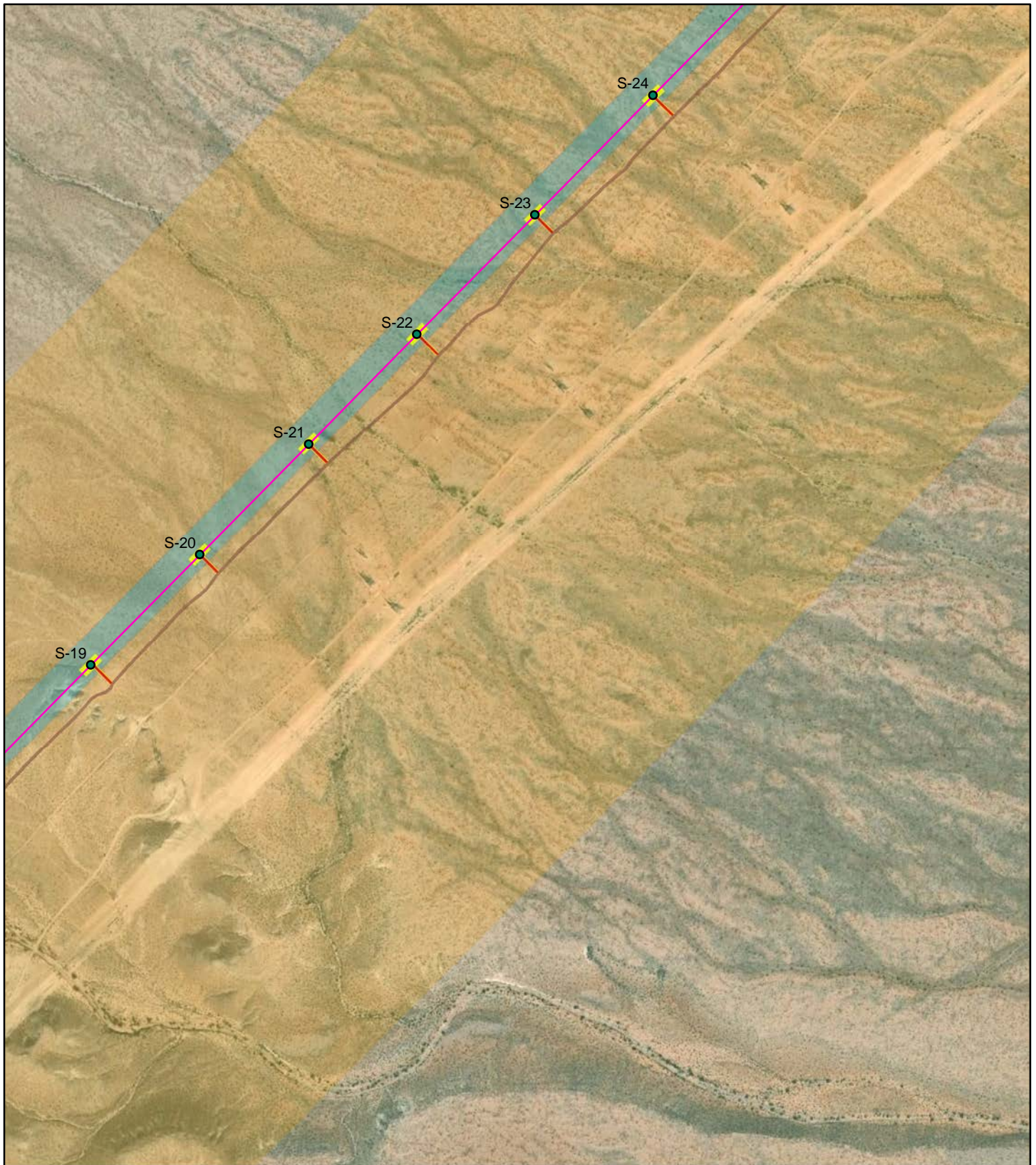


Proposed Action Mapbook 2 of 10

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|----------------------------------|------------------------------|
| ● Gen-Tie Structure | ■ Permanent Disturbance |
| — Primary Access Road | ■ Temporary Disturbance |
| — Gen-Tie Centerline | ■ 200-ft Gen-Tie ROW |
| — Gen-Tie Access Road (existing) | ■ BLM Moapa Utility Corridor |

0 250 500 1,000
Feet

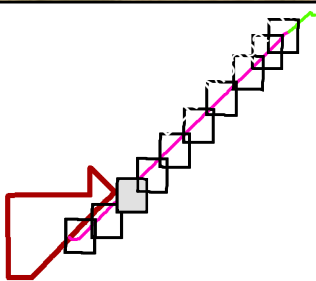


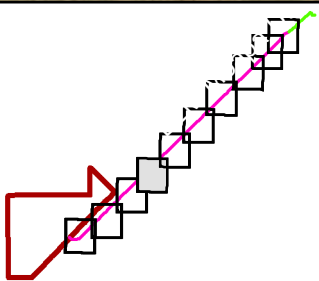
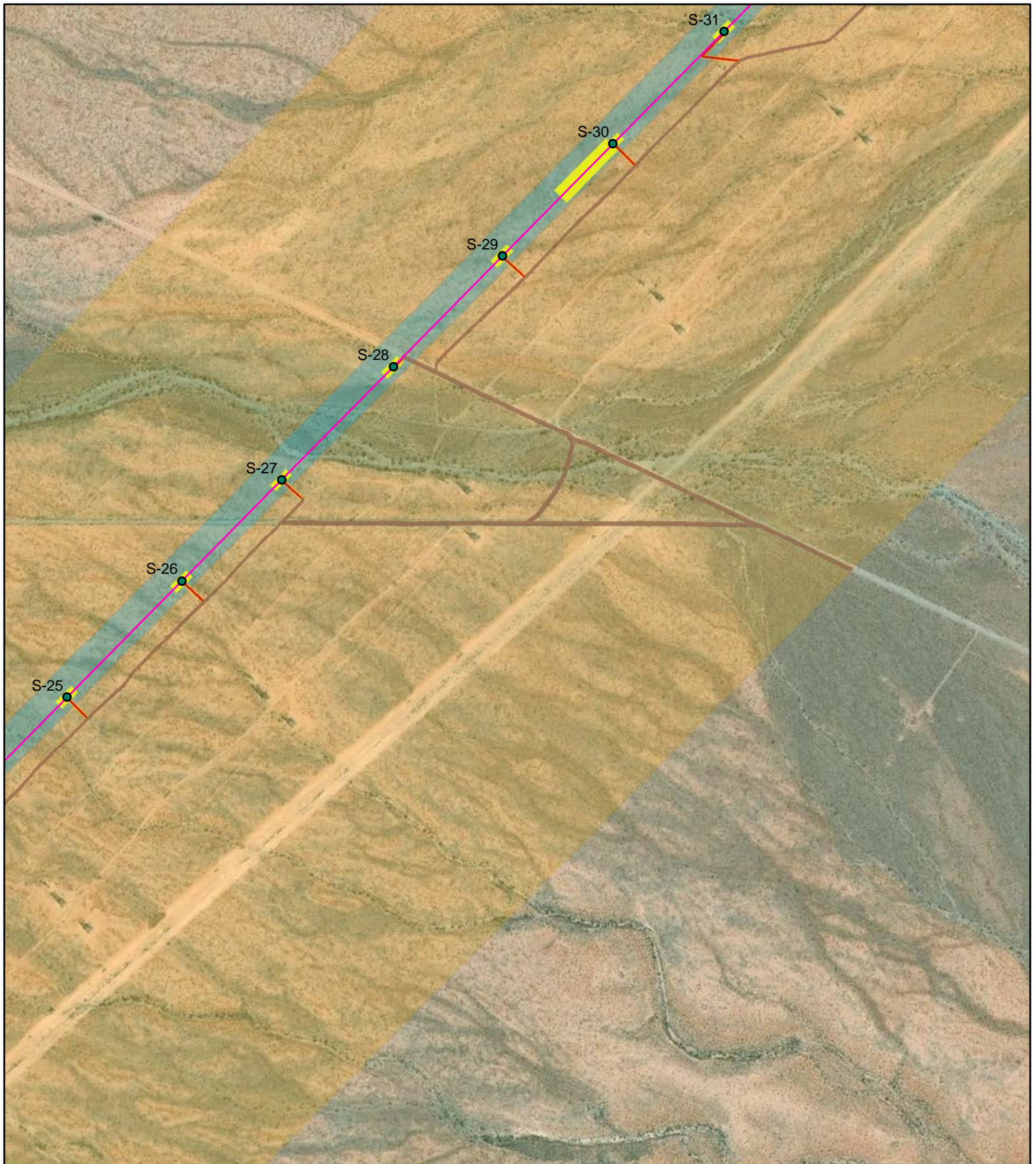


Proposed Action Mapbook 3 of 10

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|--------------------------------|----------------------------|
| Gen-Tie Structure | Permanent Disturbance |
| Primary Access Road | Temporary Disturbance |
| Gen-Tie Centerline | 200-ft Gen-Tie ROW |
| Gen-Tie Access Road (existing) | BLM Moapa Utility Corridor |

0 250 500 1,000
Feet



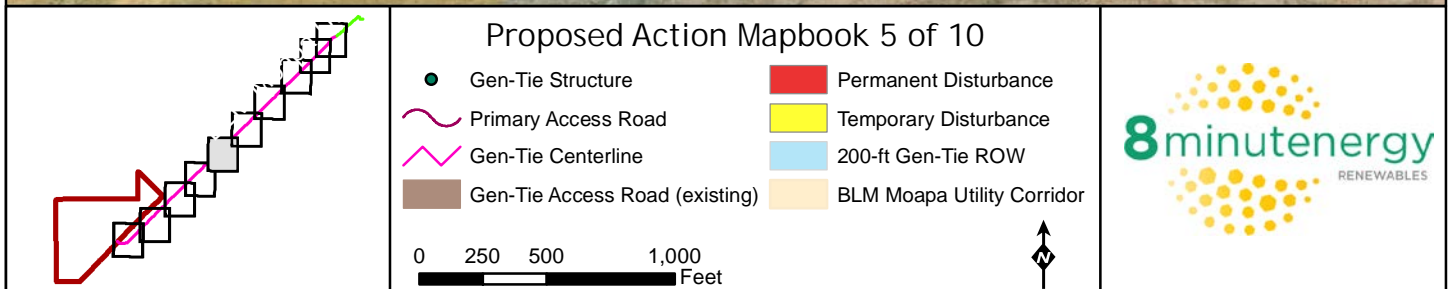
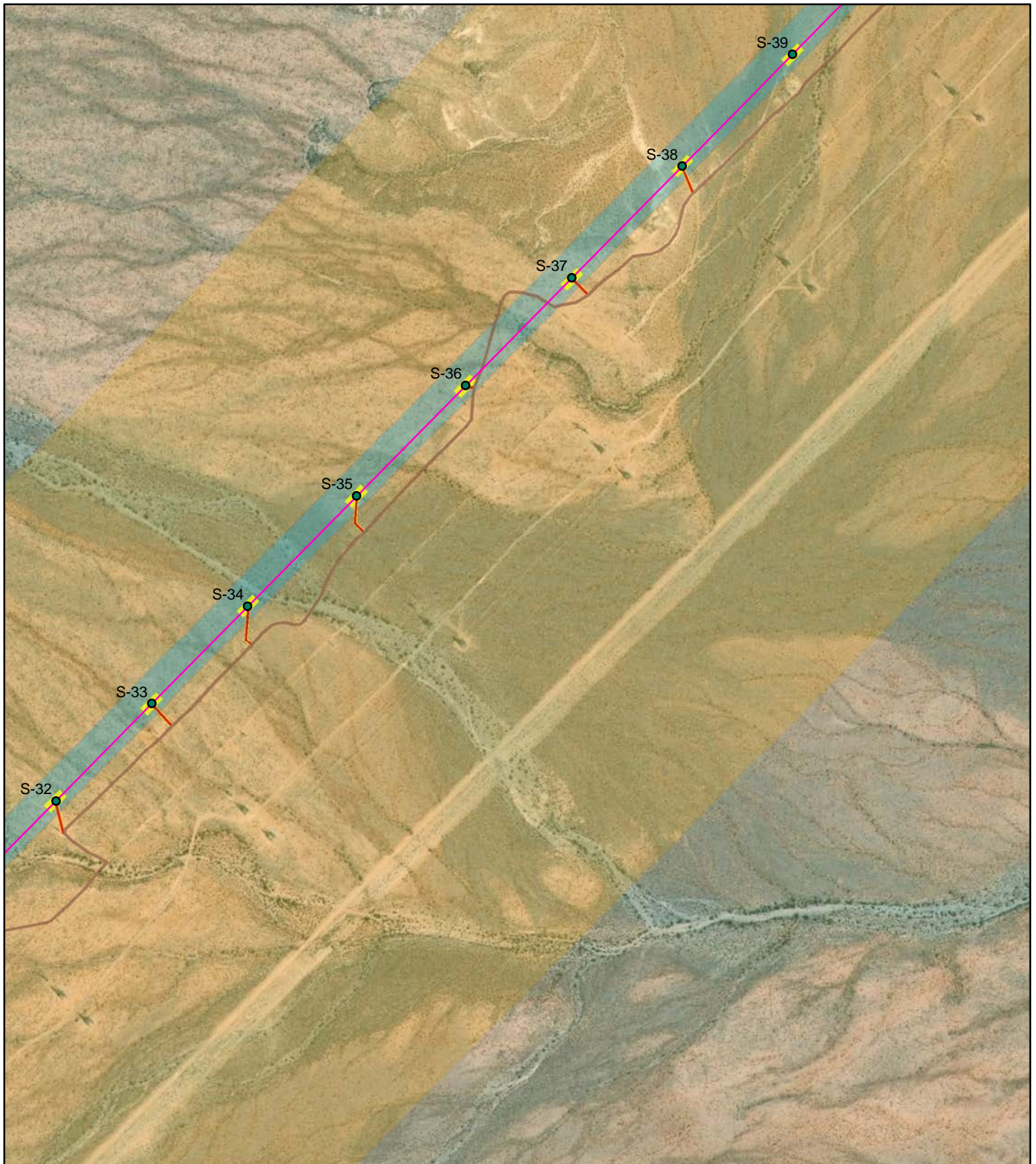


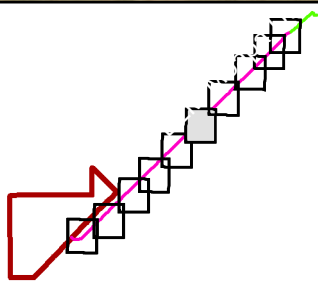
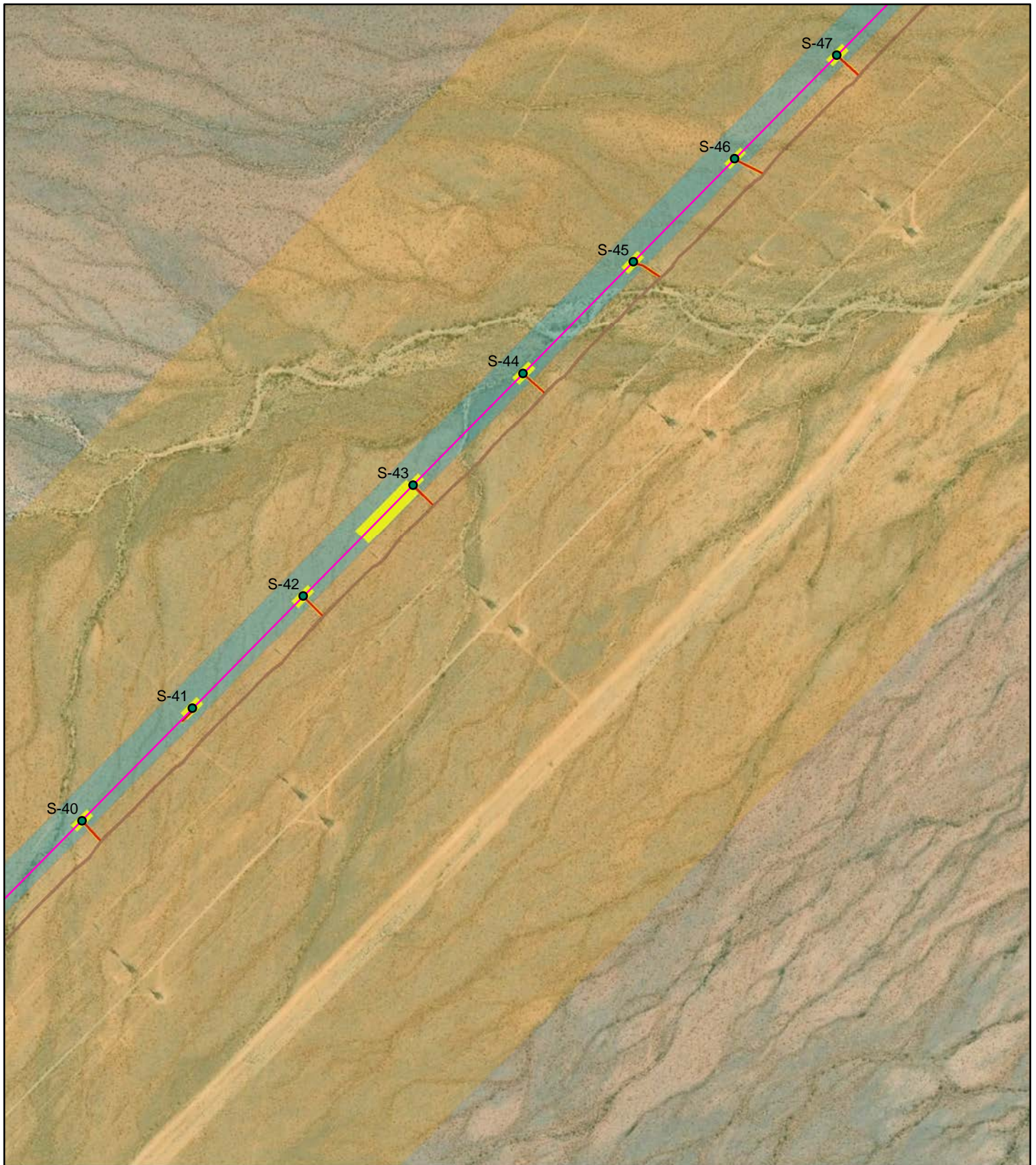
Proposed Action Mapbook 4 of 10

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|--------------------------------|----------------------------|
| Gen-Tie Structure | Permanent Disturbance |
| Primary Access Road | Temporary Disturbance |
| Gen-Tie Centerline | 200-ft Gen-Tie ROW |
| Gen-Tie Access Road (existing) | BLM Moapa Utility Corridor |

0 250 500 1,000
Feet





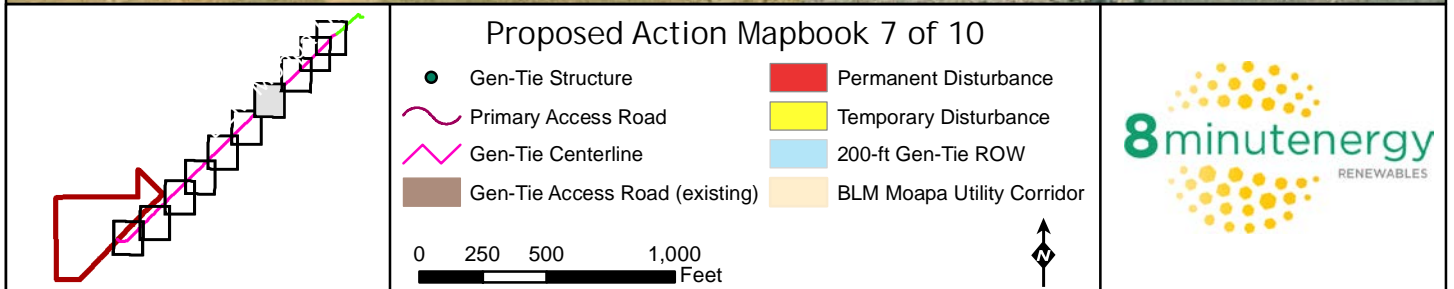
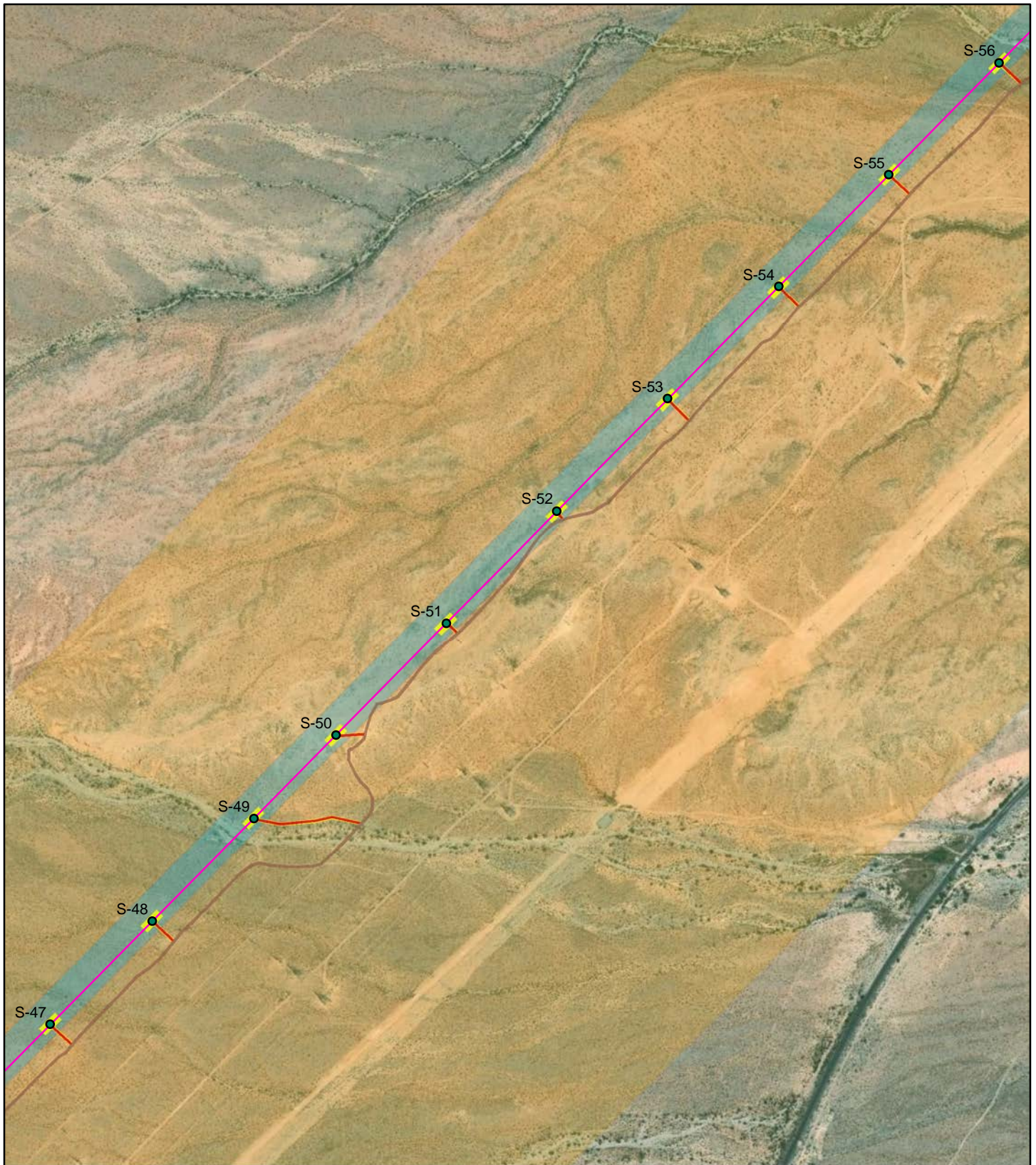


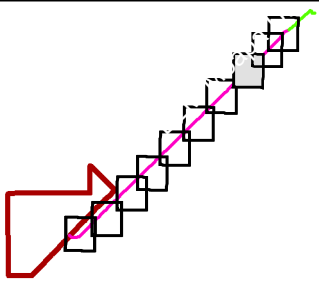
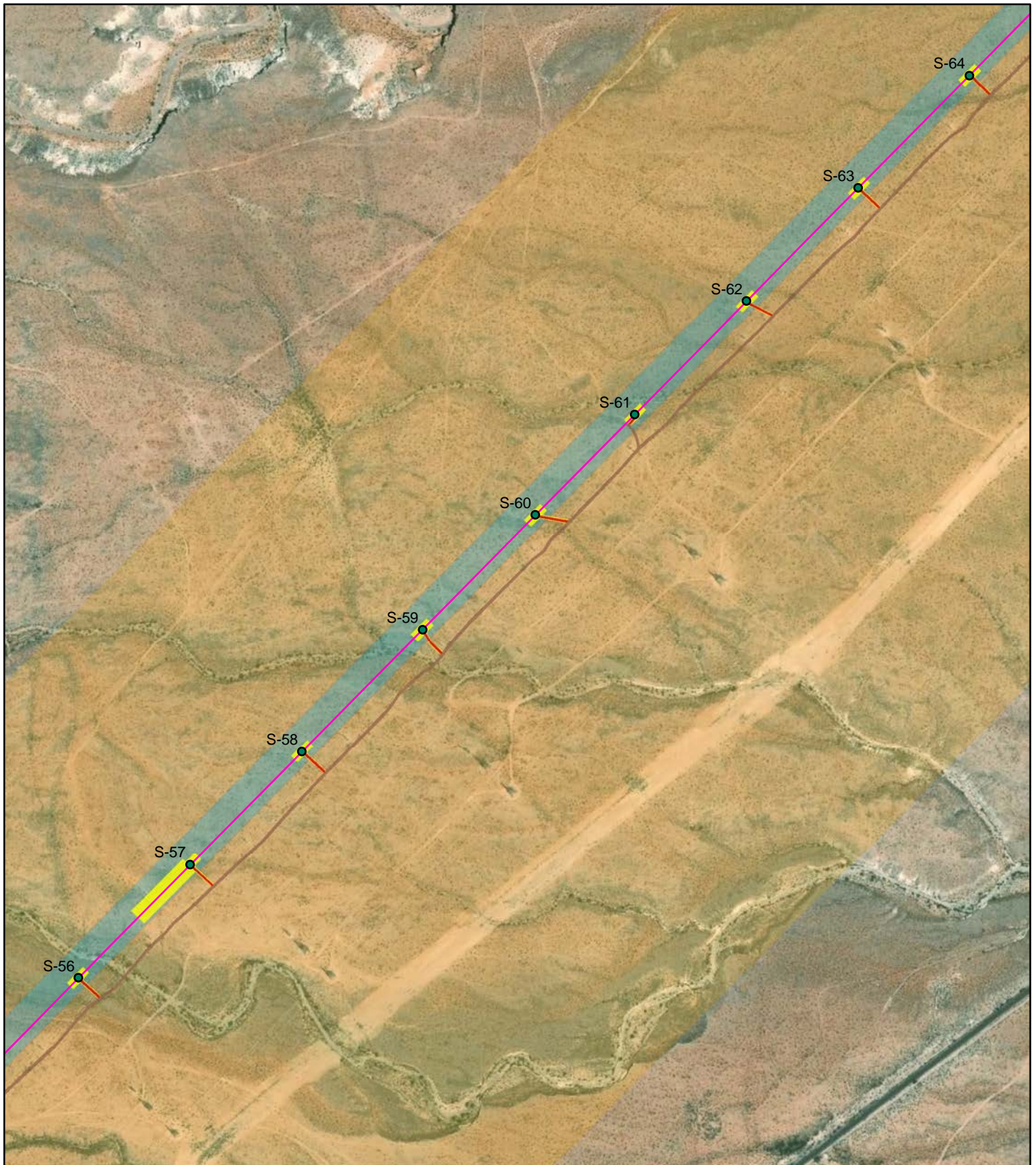
Proposed Action Mapbook 6 of 10

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| Gen-Tie Structure | Permanent Disturbance |
| Primary Access Road | Temporary Disturbance |
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| Gen-Tie Access Road (existing) | BLM Moapa Utility Corridor |

0 250 500 1,000
Feet





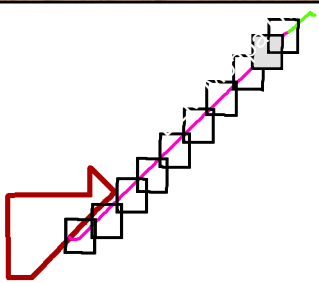
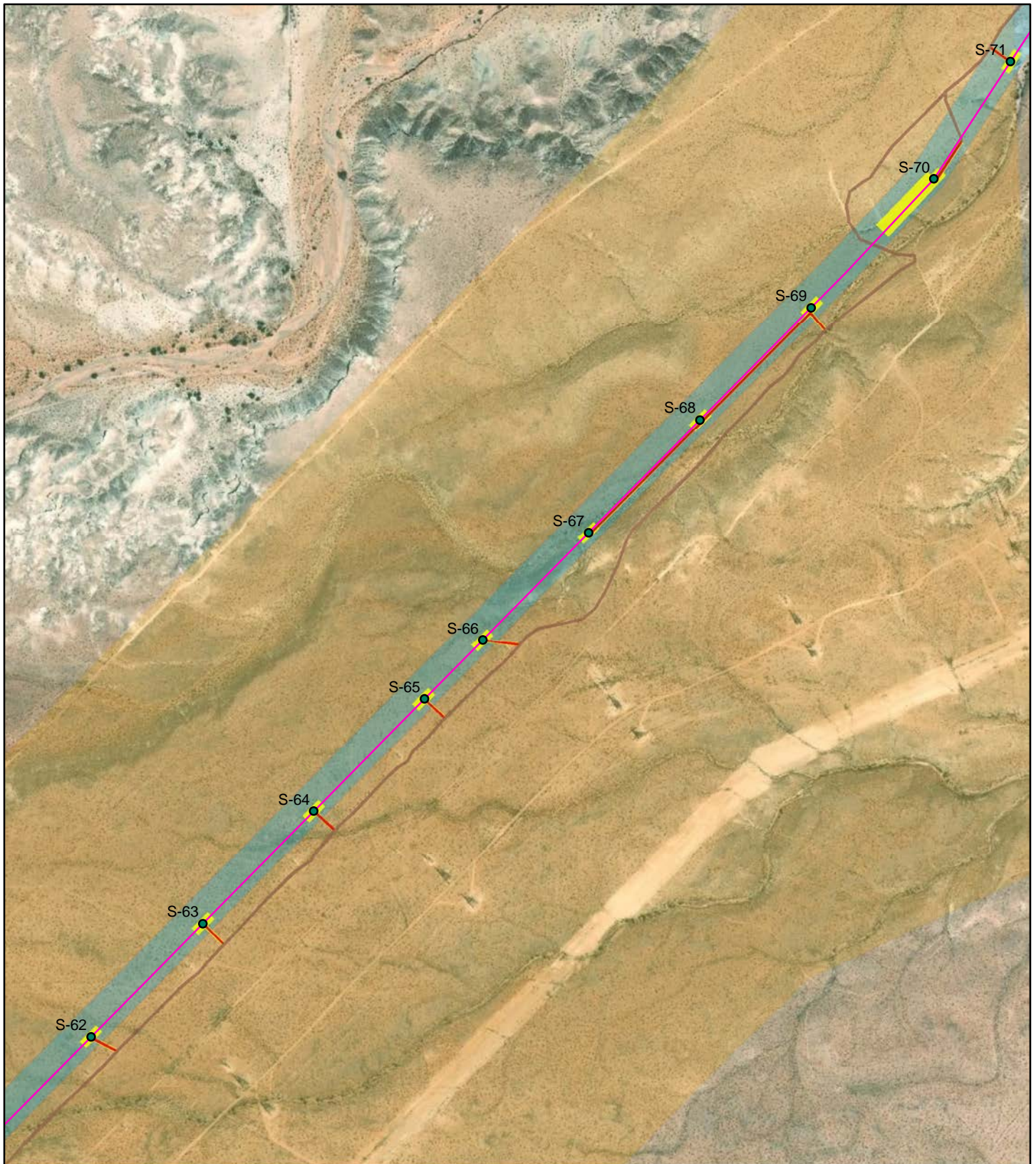


Proposed Action Mapbook 8 of 10

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|--------------------------------|----------------------------|
| ● Gen-Tie Structure | Permanent Disturbance |
| Primary Access Road | Temporary Disturbance |
| Gen-Tie Centerline | 200-ft Gen-Tie ROW |
| Gen-Tie Access Road (existing) | BLM Moapa Utility Corridor |

0 250 500 1,000
Feet



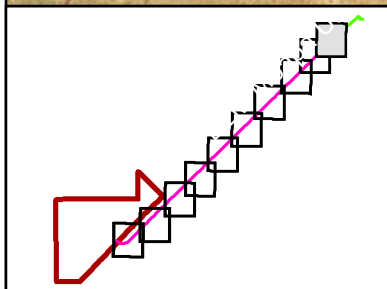
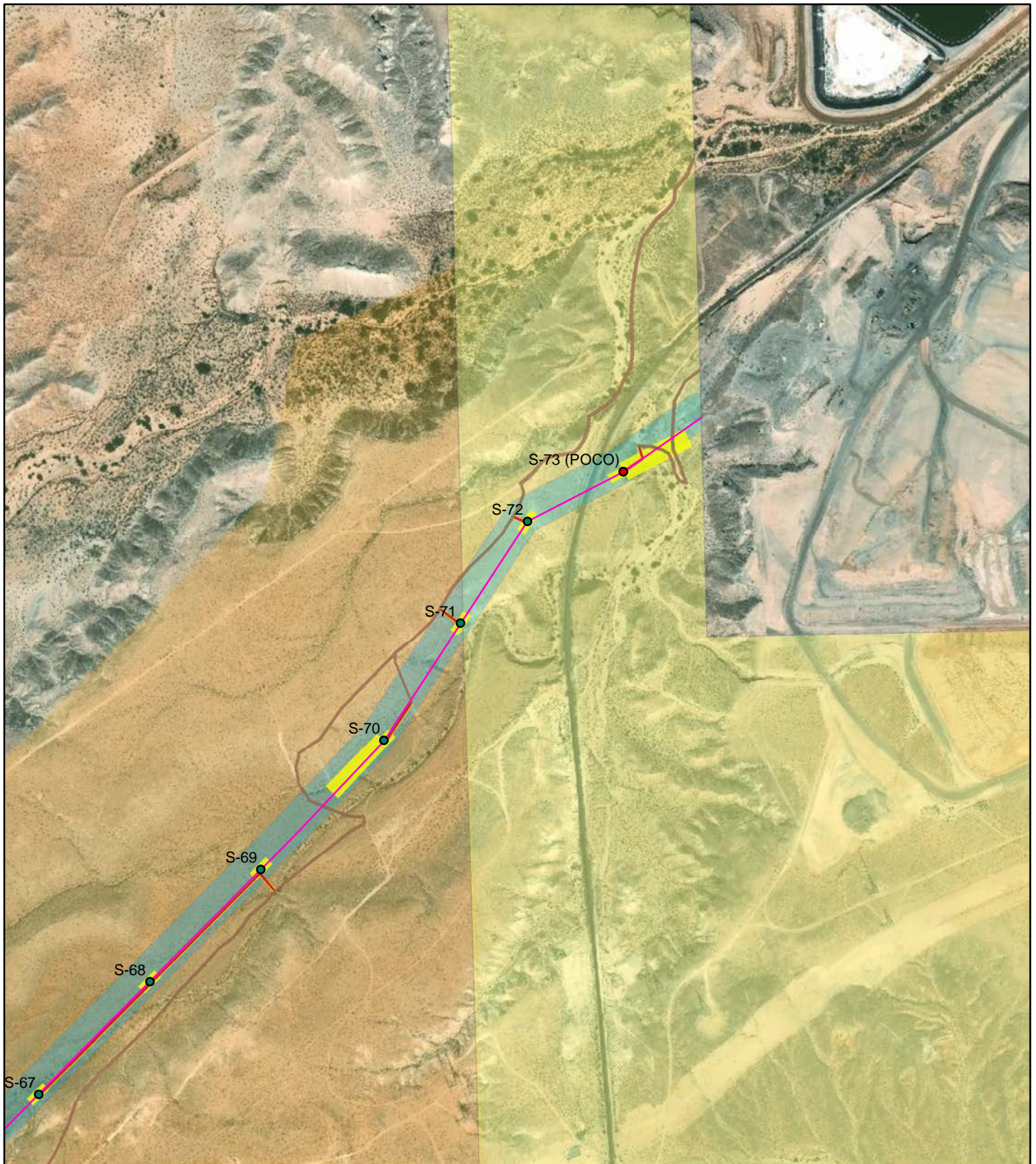


Proposed Action Mapbook 9 of 10

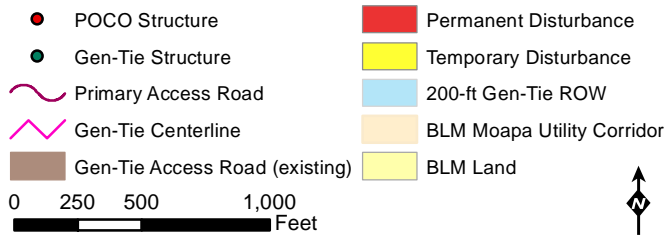
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| Gen-Tie Structure | Permanent Disturbance |
| Primary Access Road | Temporary Disturbance |
| Gen-Tie Centerline | 200-ft Gen-Tie ROW |
| Gen-Tie Access Road (existing) | BLM Moapa Utility Corridor |

0 250 500 1,000
Feet

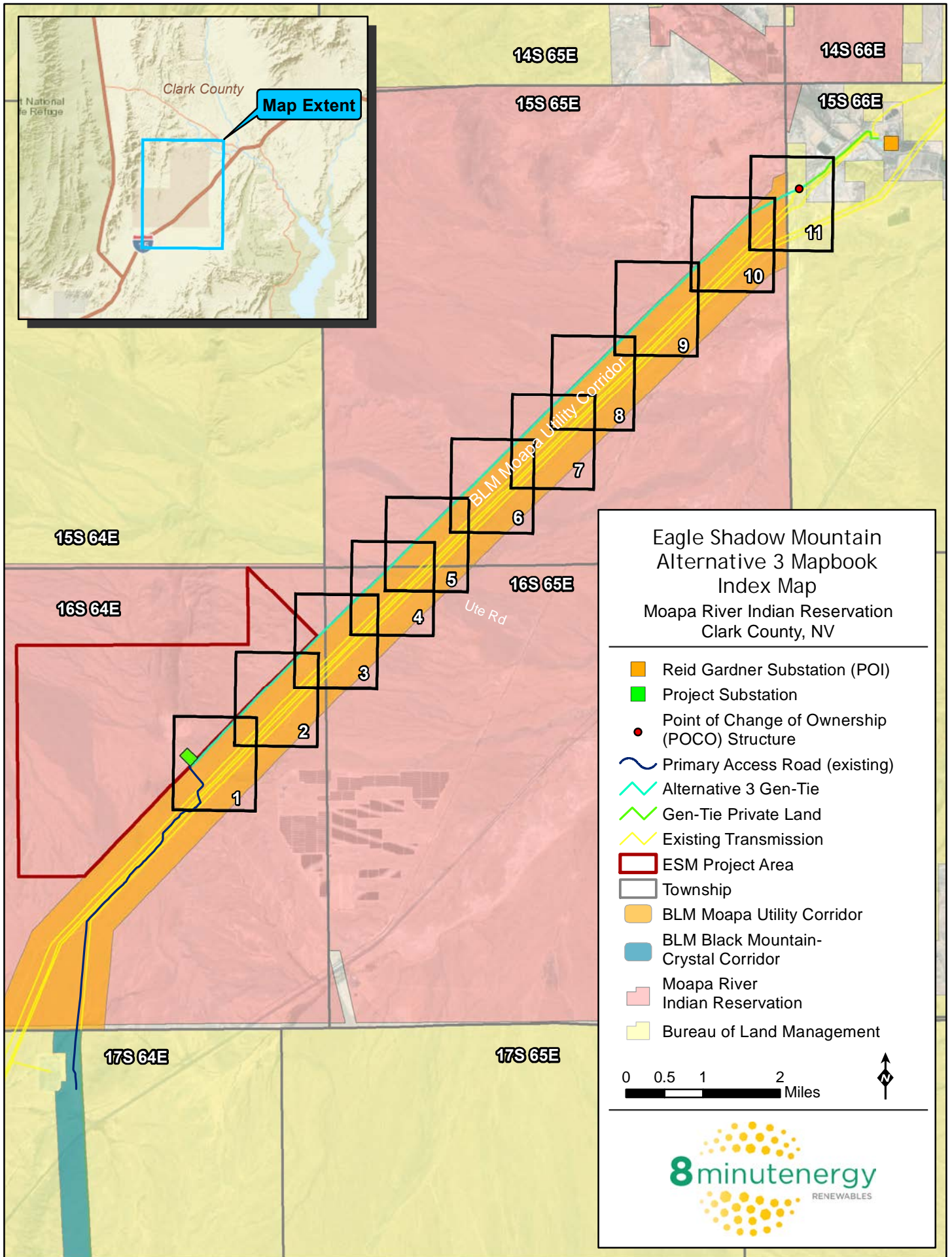


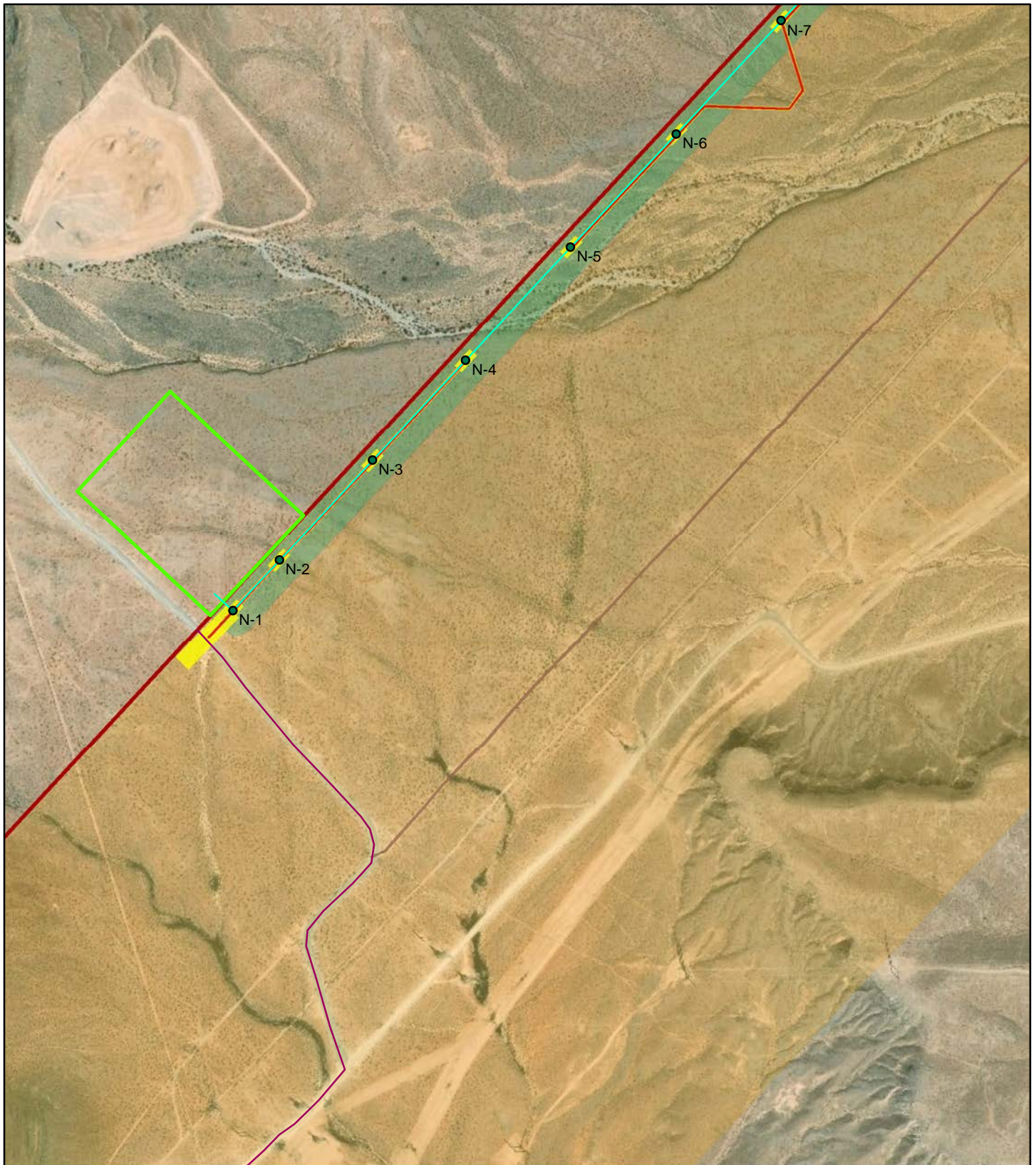


Proposed Action Mapbook 10 of 10



Attachment 2 - Alternative 3 Mapbook



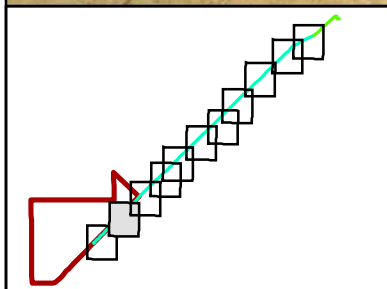


Alternative 3 Mapbook 1 of 11

- | | |
|--------------------------------|----------------------------|
| ● Gen-Tie Structure | Permanent Disturbance |
| Primary Access Road | Temporary Disturbance |
| Gen-Tie Centerline | ESM Project Area Boundary |
| ESM Substation | 200-ft Gen-Tie ROW |
| Gen-Tie Access Road (existing) | BLM Moapa Utility Corridor |

0 250 500 1,000
Feet



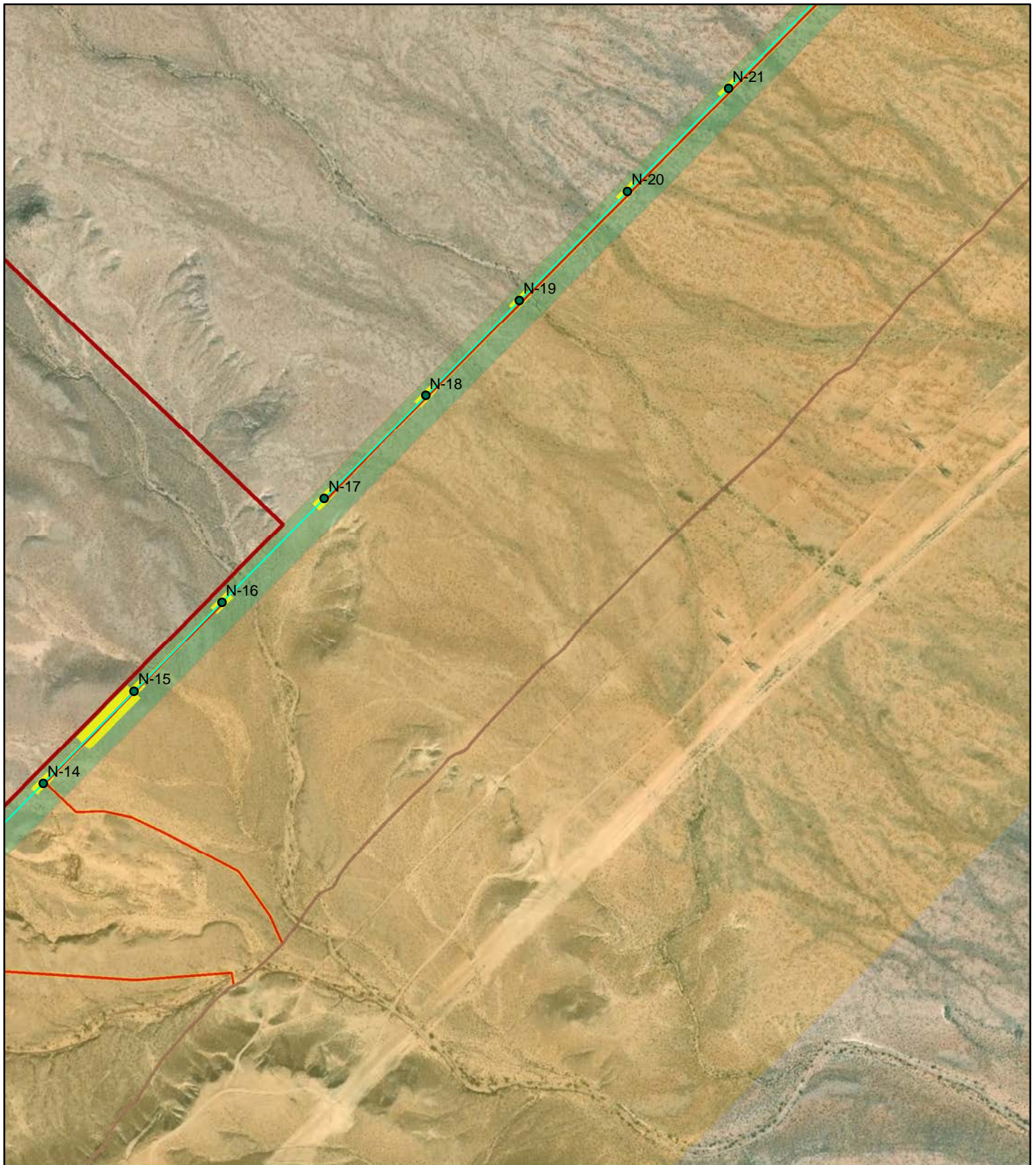


Alternative 3 Mapbook 2 of 11

- Gen-Tie Structure
- ~ Primary Access Road
- Gen-Tie Centerline
- Gen-Tie Access Road (existing)
- Permanent Disturbance
- Temporary Disturbance
- 200-ft Gen-Tie ROW
- BLM Moapa Utility Corridor
- ESM Project Area Boundary

0 250 500 1,000
Feet



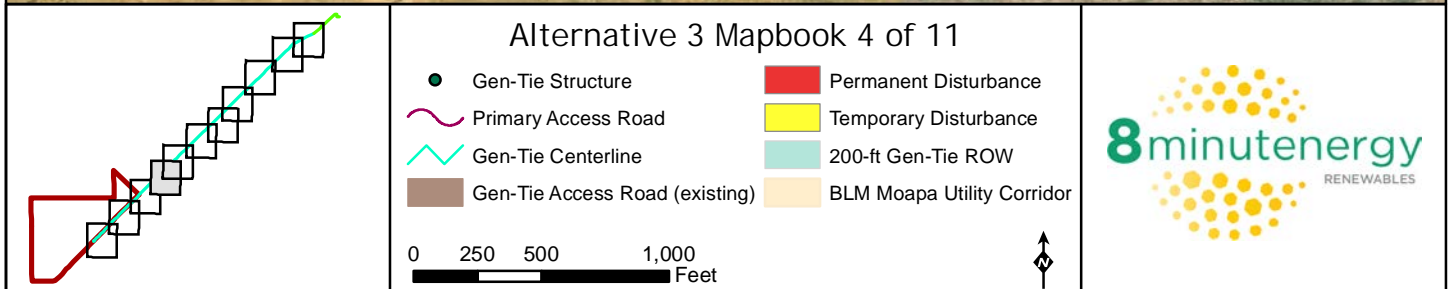


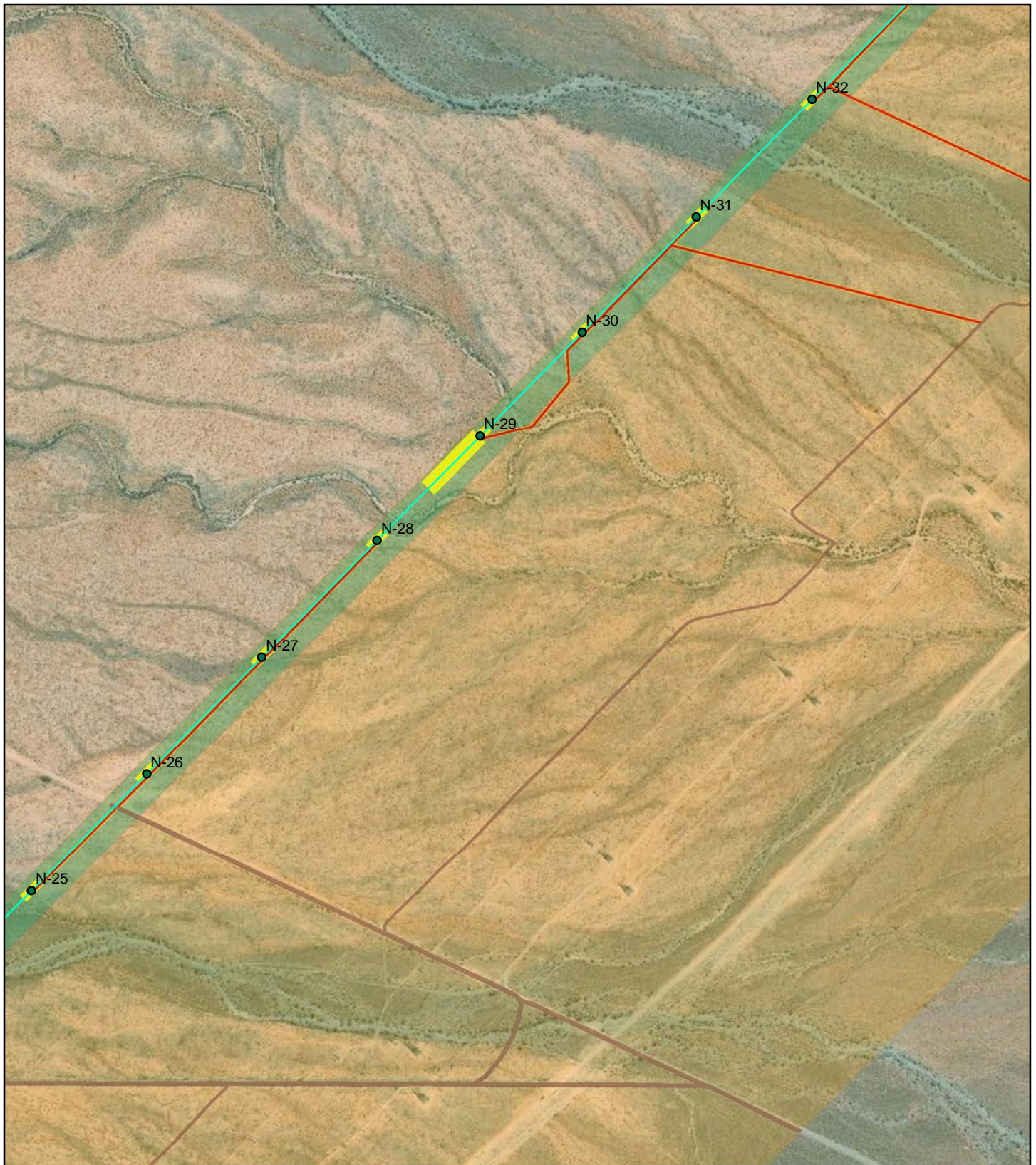
Alternative 3 Mapbook 3 of 11

- Gen-Tie Structure
- ~ Primary Access Road
- ~ Gen-Tie Centerline
- Gen-Tie Access Road (existing)
- Permanent Disturbance
- Temporary Disturbance
- 200-ft Gen-Tie ROW
- BLM Moapa Utility Corridor
- ESM Project Area Boundary

0 250 500 1,000
Feet





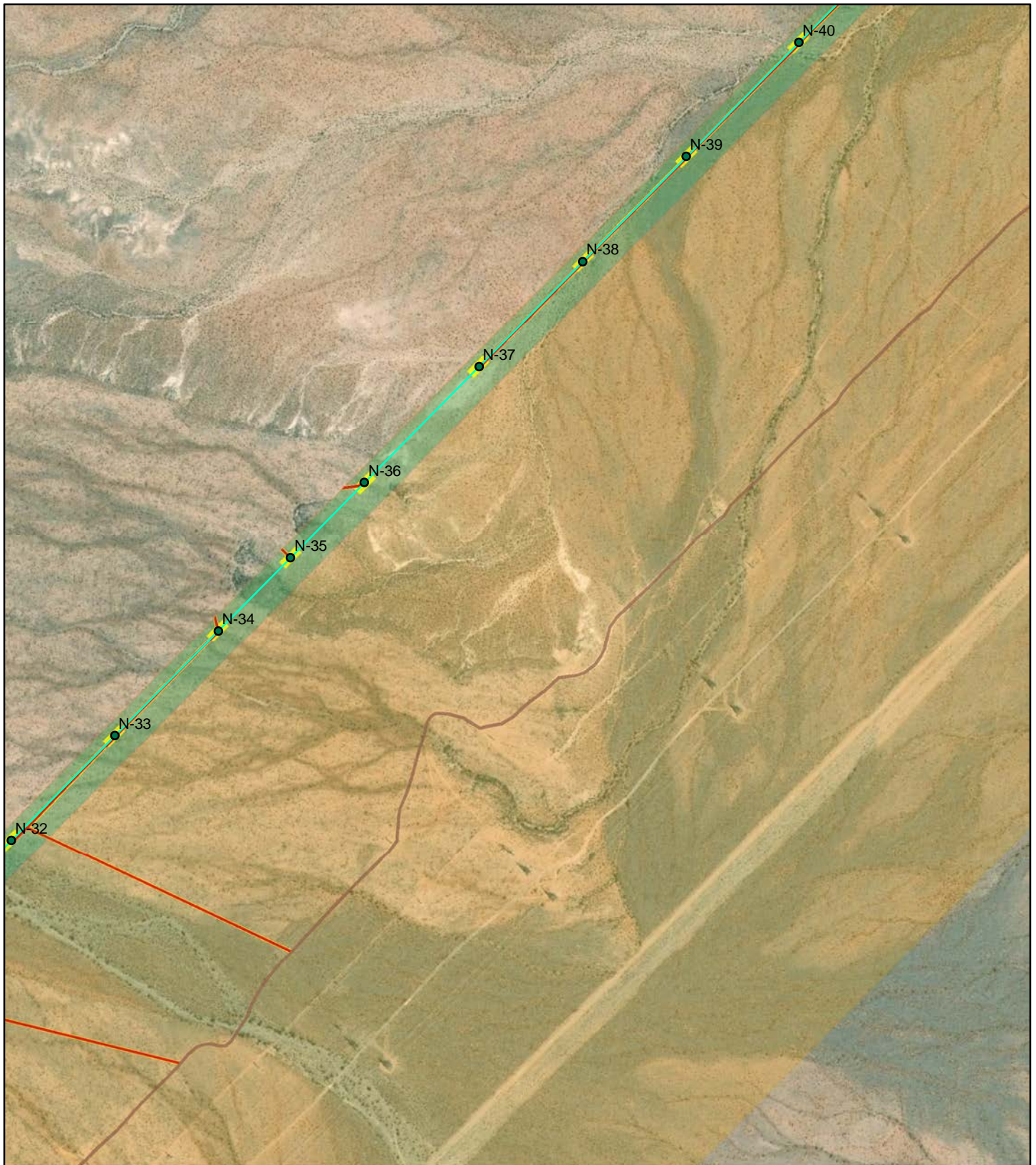


Alternative 3 Mapbook 5 of 11

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| ● Gen-Tie Structure | Permanent Disturbance |
| Primary Access Road | Temporary Disturbance |
| Gen-Tie Centerline | 200-ft Gen-Tie ROW |
| Gen-Tie Access Road (existing) | BLM Moapa Utility Corridor |

0 250 500 1,000
Feet



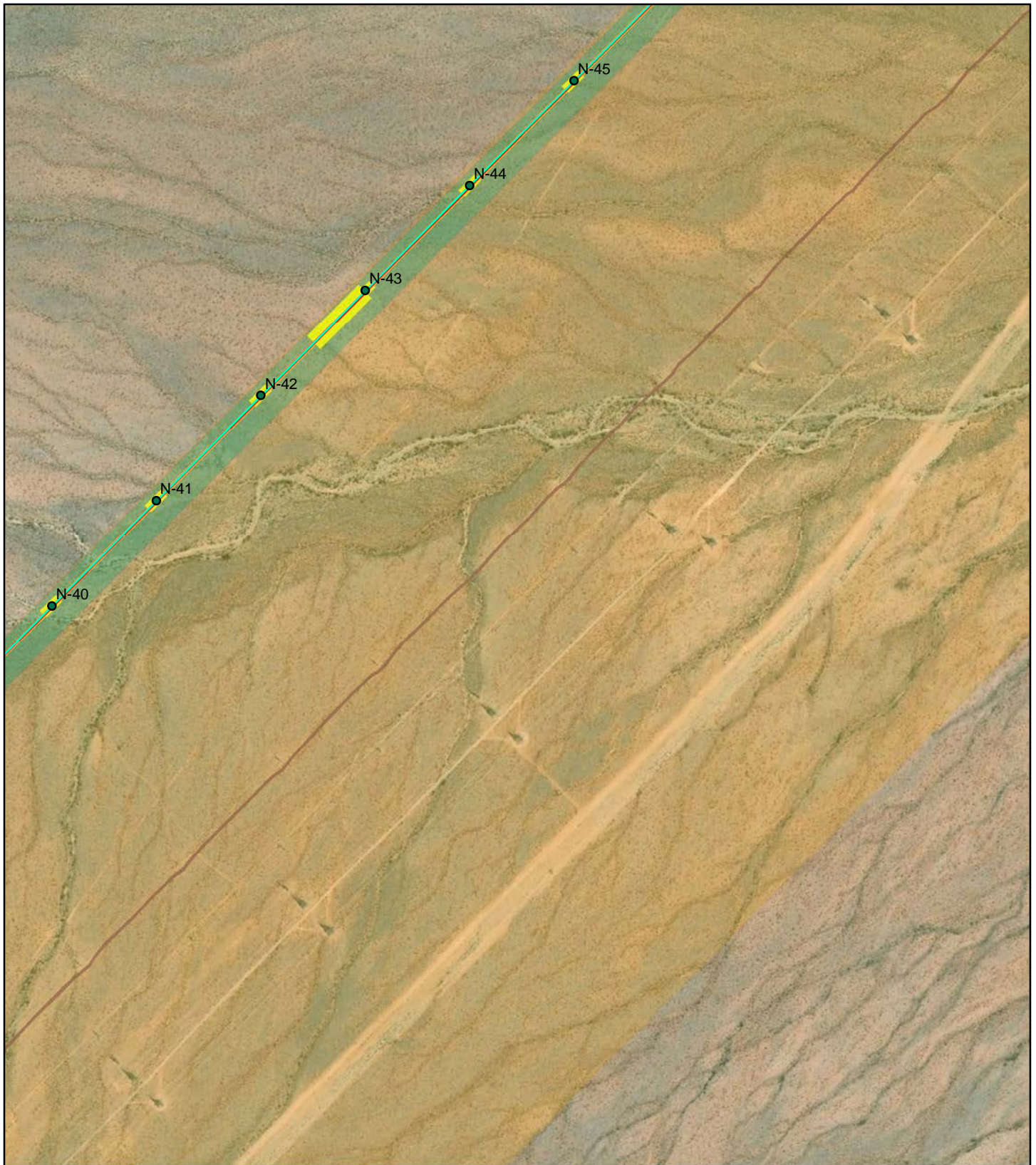


Alternative 3 Mapbook 6 of 11

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| ● Gen-Tie Structure | Permanent Disturbance |
| Primary Access Road | Temporary Disturbance |
| Gen-Tie Centerline | 200-ft Gen-Tie ROW |
| Gen-Tie Access Road (existing) | BLM Moapa Utility Corridor |

0 250 500 1,000
Feet

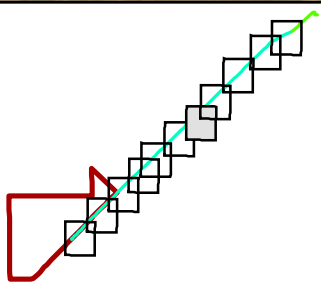


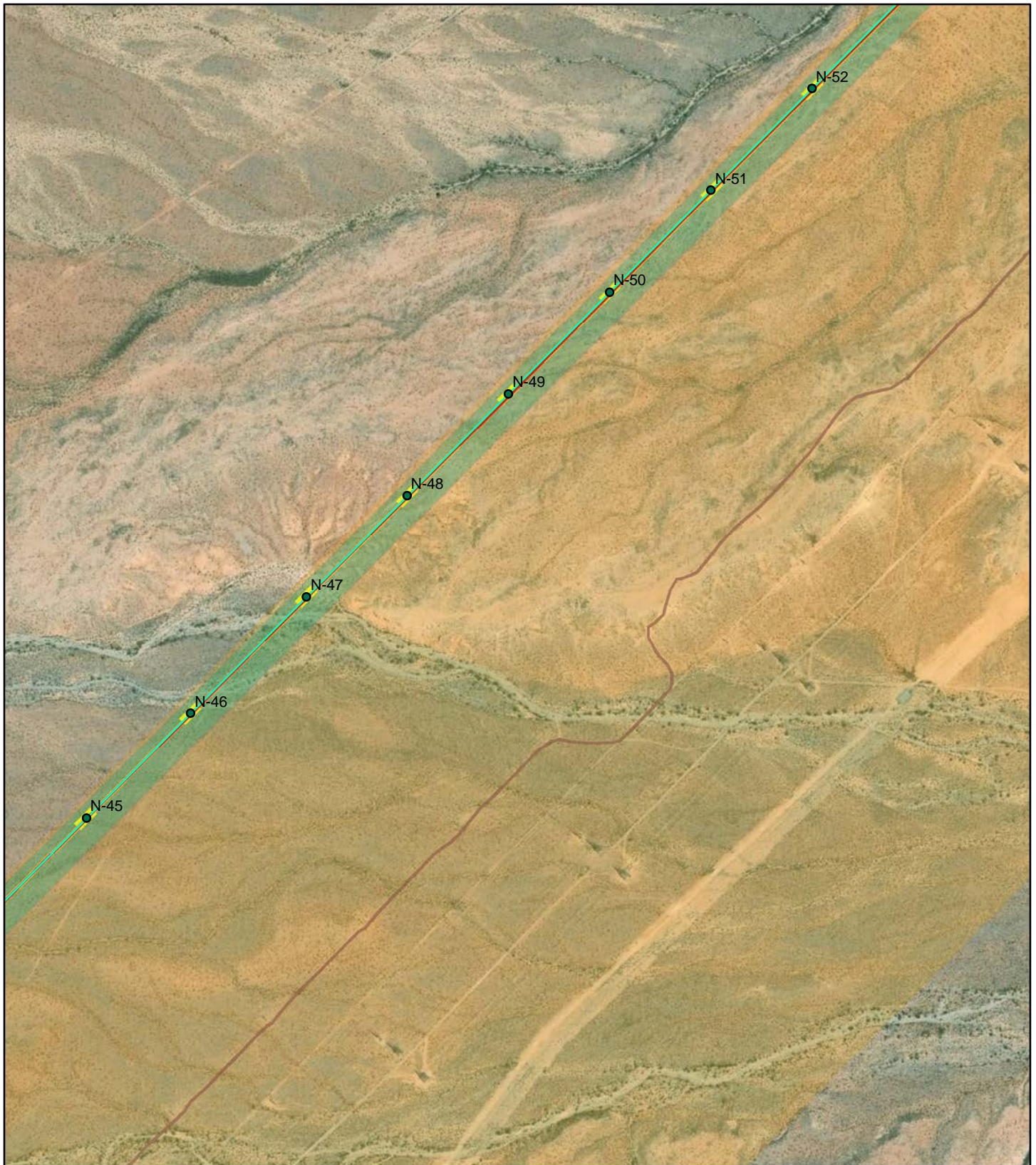


Alternative 3 Mapbook 7 of 11

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|--------------------------------|----------------------------|
| Gen-Tie Structure | Permanent Disturbance |
| Primary Access Road | Temporary Disturbance |
| Gen-Tie Centerline | 200-ft Gen-Tie ROW |
| Gen-Tie Access Road (existing) | BLM Moapa Utility Corridor |

0 250 500 1,000
Feet



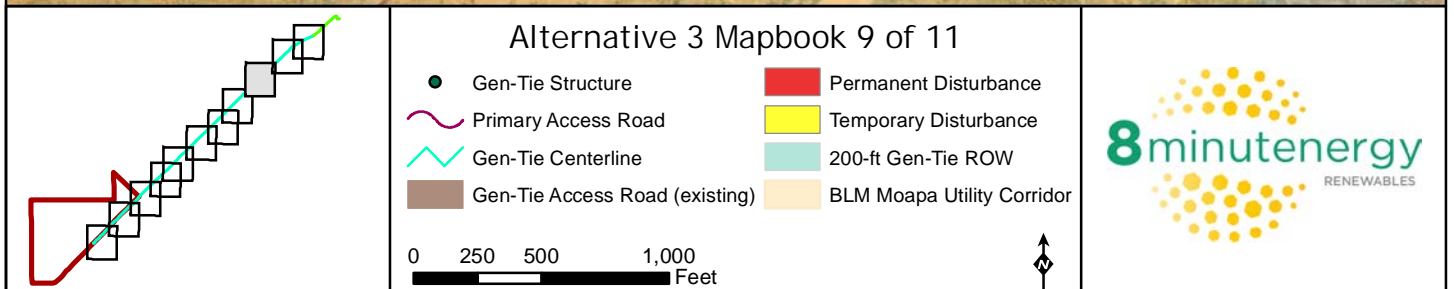


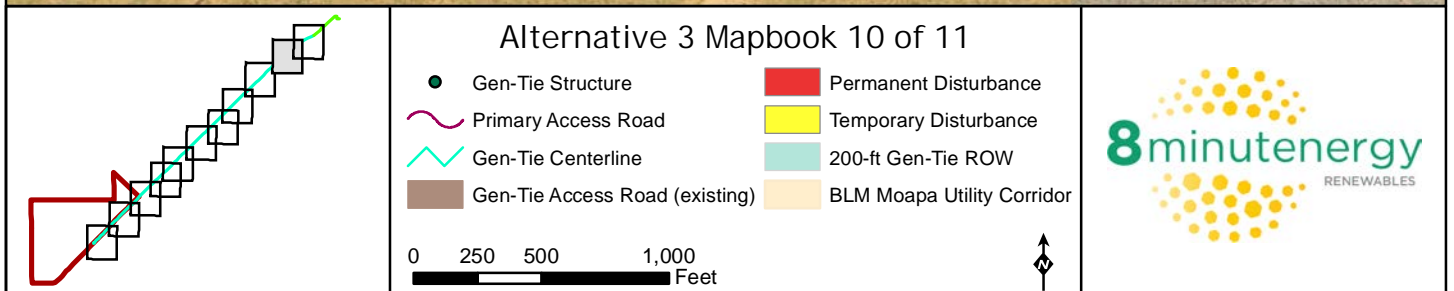
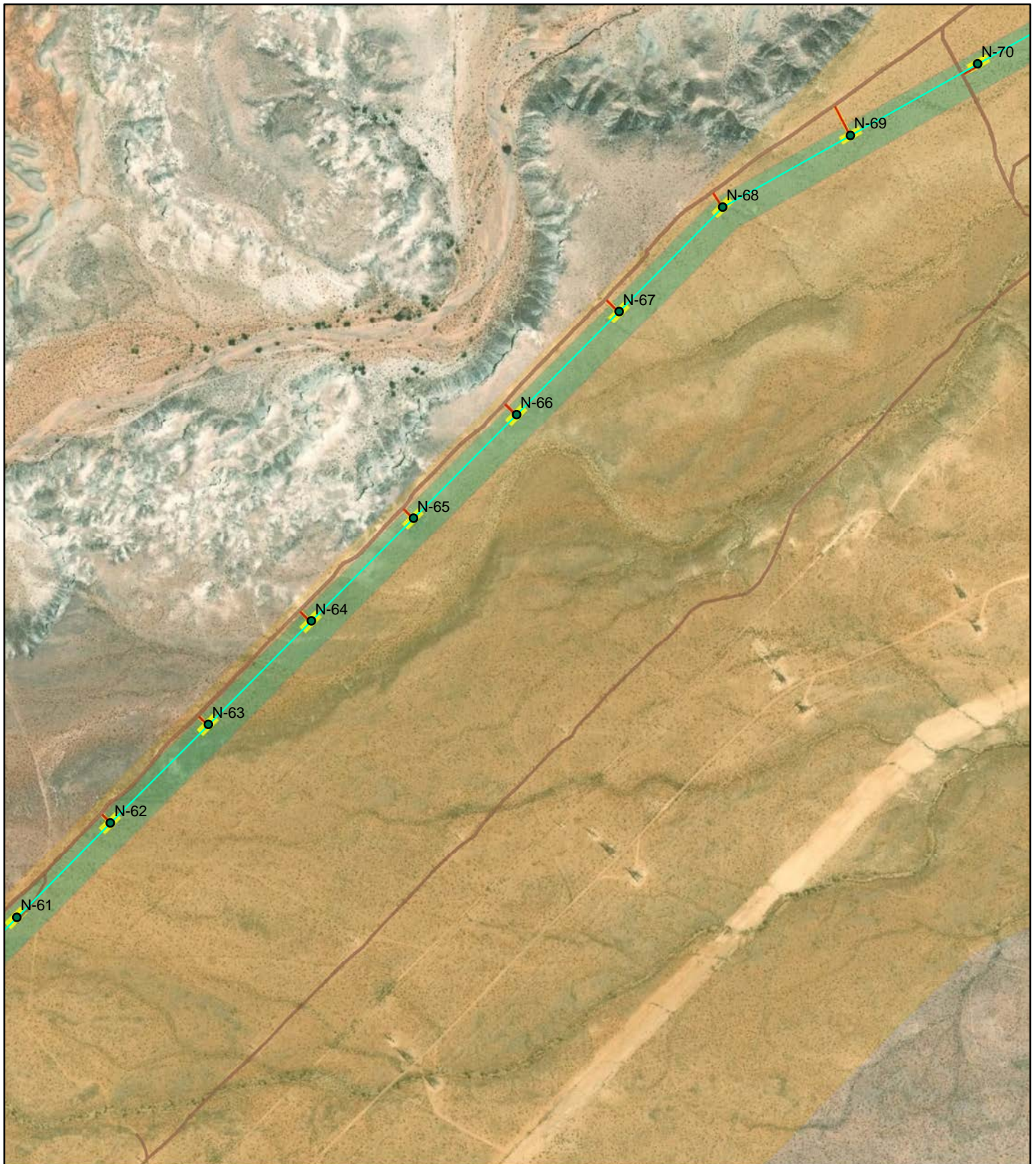
Alternative 3 Mapbook 8 of 11

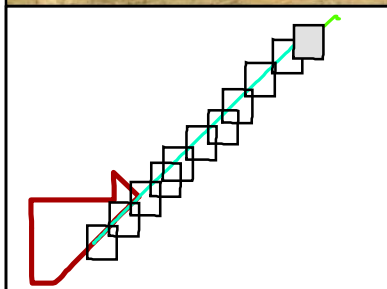
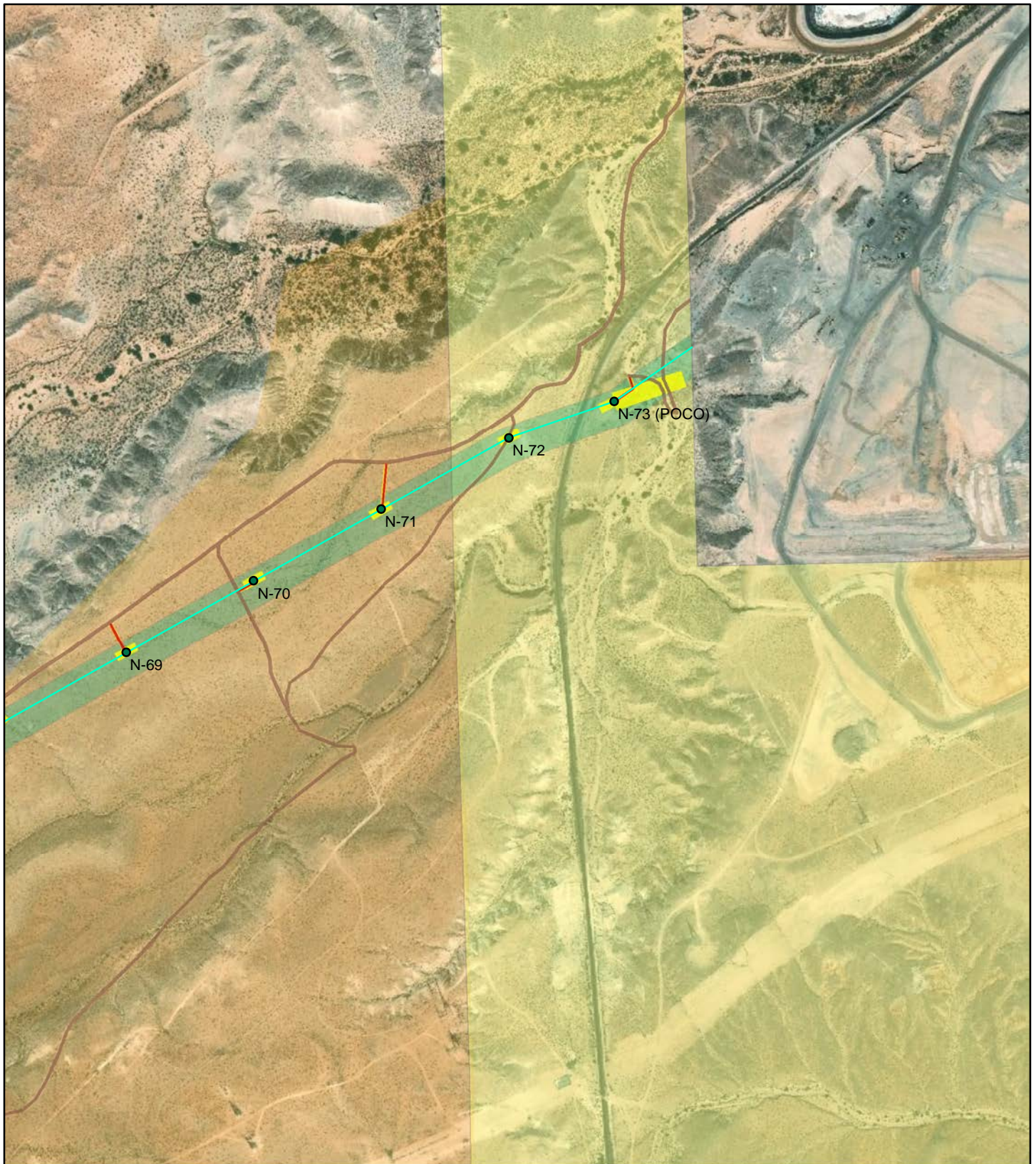
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| ● Gen-Tie Structure | Permanent Disturbance |
| Primary Access Road | Temporary Disturbance |
| Gen-Tie Centerline | 200-ft Gen-Tie ROW |
| Gen-Tie Access Road (existing) | BLM Moapa Utility Corridor |

0 250 500 1,000
Feet









Alternative 3 Mapbook 11 of 11

- | | |
|----------------------------------|------------------------------|
| ● POCO Structure | ■ Permanent Disturbance |
| ● Gen-Tie Structure | ■ Temporary Disturbance |
| ~ Primary Access Road | ■ 200-ft Gen-Tie ROW |
| — Gen-Tie Centerline | ■ BLM Moapa Utility Corridor |
| ■ Gen-Tie Access Road (existing) | ■ BLM Land |

0 250 500 1,000
Feet



Appendix F

Traffic Plan

Eagle Shadow Mountain Solar Project

TRAFFIC PLAN

1.0 PROJECT INFORMATION

1.1. Background

325MK 8me LLC (Applicant), a subsidiary of 8minutenergy, has entered into an agreement with the Moapa Band of Paiute Indians (Tribe) to lease land, up to 40 years, on the Moapa River Indian Reservation (Reservation) for the purposes of constructing, operating, maintaining, and eventual decommissioning of the Eagle Shadow Mountain Solar Project (ESMSP), a 300 megawatt (MW) AC solar generating facility using photovoltaic (PV) technology and associated infrastructure (Proposed Project or Project).

The proposed solar generating facility would be constructed on up to 2,200 acres within a study area of approximately 4,770 acres of tribal trust land within the Reservation. The Project infrastructure would include a 230 kilovolt (kV) electric transmission generation interconnection (gen-tie) line. Main access to the ESMSP site for construction and through operations and decommissioning would be provided via existing roads. Access to this portion of the Reservation would be via Interstate 15 (I-15), US Highway 93 (US 93), and North Las Vegas Boulevard to existing improved roads on the Reservation. These existing roads on the Reservation include the road built to provide access to the nearby existing K Road Solar Facility and the road providing access to the existing tribal aggregate operation and water wells that would be adjacent to the ESMSP.

This traffic plan outlines the framework for a detailed traffic management plan that the construction contractor will be required to develop in consultation with the Nevada Department of Transportation (NDOT) prior to the start of construction.

1.2. Location

The Project would be located approximately 30 miles northeast of Las Vegas in Clark County, Nevada (**Figure 1**), west of I-15 and north and east of US 93. The primary access to the Proposed Project site will be from Exit 64 on I-15. This interchange is in the final stages of recent improvements. Traffic to the ESMSP site would exit I-15 and travel less than one mile to North Las Vegas Boulevard turning north toward the solar site. At the northern end of Las Vegas Boulevard, Project traffic would utilize an existing improved road to cross BLM lands and cross the Reservation to the solar site. This existing road on BLM and the Reservation is the road built to provide access to the nearby existing K Road Solar Facility and also provides access to the existing tribal aggregate operation and water wells that would be adjacent to the ESMSP. **Figure 2** shows the location of the ESMSP project components.

Nearly all construction traffic associated with both the solar site and gen-tie would use the roads and route described above. It is possible that some construction traffic associated with the northernmost part of the gen-tie (near Reid-Gardner Substation) could use either the I-15 exits at Hidden Valley Road or State Route 168 to access the gen-tie ROW in these areas.

Except for I-15 and US 93, there is currently little traffic on any of the roads that will provide primary access to the Project in the immediate vicinity. No upgrades to these existing roads are anticipated to be necessary to provide the access needed for this Project. However, it is possible that maintenance during construction and operations could be needed, as required.

Within the site, new access ways would be located around and within the solar field area around specific blocks of equipment to allow access by maintenance and security personnel. These access ways would be built to provide vehicle and equipment access to the solar panels and related equipment.

1.3. Scope of Work and Schedule

The proposed ESMSP is anticipated to begin construction in Fall of 2020. Construction is expected to take approximately 18 months and would include mobilization, grading and site preparation, installation of drainage and erosion controls, PV panel/tracker assembly, solar field and gen-tie component construction.

1.4. Purpose of the Traffic Management Plan

This Traffic Management Plan (TMP) outlines steps to minimize the impacts and delays to traffic associated with the Proposed Project. The TMP describes the measures that may be used to address any traffic and parking impacts identified.

1.5. Existing Transportation Facilities

I-15 provides access to the Proposed Project area from the urban area of Las Vegas to the south and Mesquite, Nevada and Salt Lake City, Utah to the north. North Las Vegas Boulevard provides access north of US 93. In addition to the roads in the area, the Union Pacific Railroad runs north-south within approximately 3.0 miles from the proposed solar site.

Table 1-1 provides a summary of the primary roads and transportation corridors in the Project area. **Table 1-2** provides more detailed information on the transportation routes and annual average daily traffic volumes (AADT) for the primary access roads in the vicinity of the Proposed Project. **Figure 3** shows the roads along with the locations where the road counts were taken

TABLE 1-1 PUBLIC ROUTES PROVIDING DIRECT OR INDIRECT ACCESS TO THE PROPOSED PROJECT				
Route	Direction	Type	Lanes	Description
I-15	north-south	Paved Interstate Freeway	2 (each direction)	Provides a connection between Las Vegas, NV and Salt Lake City, UT. Provides direct access to Proposed Project via SH 168
US-93	east-west	Paved Principal Arterial	1 (each direction)	US 93 is a major highway traversing the eastern edge of the state.
North Las Vegas Boulevard	north-south	Rural Minor Collector	1 (each direction)	North Las Vegas Boulevard provides access between US 93 and the K Road Solar access road. It is a two-lane undivided road.
Union Pacific Railroad	north-south	Railroad	1 track	Provides connection between Salt Lake City and Los Angeles

TABLE 1-2 AADT SUMMARY FOR ROADS NEAR THE PROPOSED PROJECT 2018	
Location	AADT
I-15, Southbound On Ramp at US 93 Interchange (Exit 64)	3,300
I-15, Northbound Off Ramp at US 93 Interchange (Exit 64)	3,600
I-15, Northbound On Ramp at US 93 Interchange (Exit 64)	1,300
I-15 Southbound Off Ramp at US 93 Interchange (Exit 64)	1,200
I-15, Segment Between Exit 64 and Exit 58 (Apex)	30,500
I-15, Segment Between Exit 64 and Exit 75 (Valley of Fire)	26,400
US 93	3,750
N. Las Vegas Blvd. (north of US 93)	No data
Hidden Valley Road	150
SR 168	2,000

Source: NDOT Traffic Records Information Access data, 2018.

2.0 TRAFFIC IMPACTS

2.1. Major Transportation Routes

2.1.1. Construction Phase

The roadways listed in **Table 1-1** are anticipated to be impacted by the Proposed Project. The impacts to these roadways could include increased wear on the road from the construction loads, increased traffic volumes during construction, and potential delays during the construction peak periods.

Increased traffic volumes for the construction personnel and the material deliveries will impact traffic flows throughout the duration of the 18-month project construction period. The on-site construction workforce would consist laborers, craftsmen, supervisory personnel, support personnel, and construction management personnel. The construction workforce is anticipated to be an average of 300 construction workers with a peak not expected to exceed 750 workers at any given time, generating about 1,500 daily round trips. To account for the variability during peak periods, a conservative estimate assuming no carpooling was used. Deliveries of equipment and supplies to the site would also vary over the construction period but are expected to average about 25 daily round trips, with a maximum of about 100 daily round trips. Construction equipment would typically include augers, bulldozers, various trucks, trailers, tractors, and cranes. All project related parking will be onsite during construction.

Construction will generally occur between 5:00 a.m. and 5:00 p.m. and could occur up to seven days a week. Additional hours may be necessary to make up schedule deficiencies, or to complete critical construction activities. For instance, during hot weather, it may be necessary to start work earlier (e.g., at 3:00 am) to avoid work during high ambient temperatures. Further, construction requirements would require some night-time activity for installation, service or electrical connection, inspection and testing activities. Nighttime activities would be performed with temporary lighting.

It is expected that most project-related construction traffic (equipment, materials, and workers) would originate from the south in Las Vegas with some construction workers coming from the north. The Proposed Project will increase traffic on I-15 and by a maximum of 1,600 vehicle trips daily. The intersection of US 93 and North Las Vegas Boulevard would also experience increased traffic from the Proposed Project.

2.1.2. Operations and Maintenance Phase

When the site becomes operational, it is anticipated that the Project operational staff of 5 personnel would generate up to an additional 10 trips per day (5 entering in the morning and 5 departing in the evening) with very few heavy vehicles. The site is anticipated to be operational for 40 or more years.

The roadways and intersections are projected to be unaffected during the operations phase.

3.0 MITIGATION OF TRAFFIC IMPACTS

The traffic impacts identified in the previous sections could cause minor (5-minute) delays to travelers in the Proposed Project vicinity, specifically the I-15 / US 93 / North Las Vegas Boulevard interchange. This section describes potential measures which could be used to reduce potential traffic impacts resulting from construction of the Proposed Project.

3.1 Coordination with NDOT / Final Traffic Plan

Prior to the start of construction, the construction contractor responsible for building the ESMSP would be required to develop a detailed traffic management plan in consultation with NDOT.

3.2 Motorist Information and Construction Area Signs

Informing the road users is one way to help reduce the impacts from construction. If required, drivers could be informed about the construction and any major delays allowing them to modify their travel planning (timing). Both static and variable message signs (VMS) may be used to inform users coming from each direction that there could be delays due to construction traffic. If needed, this signage would be placed on I-15 on both sides of the US 93 intersection.

3.3 Construction Staging

To mitigate any traffic impacts attributable to the construction workforce during the project, construction start times could be staggered during peak construction periods such that the entire workforce required for each day could arrive/leave at different times. This could be done by staggering workers by construction areas or by construction task.

3.4 Carpooling

While not expected, if needed, carpooling could be used during peak construction periods to reduce the total number of trips entering/leaving the site, and in turn, reduce traffic congestion. The construction manager may coordinate with the workforce to determine the best location and time to coordinate carpooling, if needed. Another possible option would be to organize a shuttle that could take the workers from a centralized point such as the Moapa Travel Plaza to the site.

3.5 Public Information and the Media

Stakeholders such as NDOT, Clark County, and the Moapa Community would be informed with outreach letters prior to construction. The letter will provide a description of the project and the time frame as well as outline any short-term restrictions that may impact stakeholders. The letters would also provide contact information for any stakeholders who may have questions.

If needed, updates to the local communities through radio, the internet, or local newspaper could provide information to the current local users of US 93 who may be impacted by construction of the Proposed Project.

3.6 Off-Peak Hour Activities

To minimize adding trips during the daily workforce commute, deliveries would be scheduled during the off-peak hours, to the greatest extent practicable.

4.0 POTENTIAL EFFECTS TO THE PUBLIC

4.1 Bicycles and Pedestrians

Bicycles and pedestrians are rare in the vicinity of the Proposed Project but could occasionally be present. The existing routes would accommodate bicycles or pedestrians during construction similarly as the current condition.

4.2 Delivery and Service Vehicles

I-15 serves commercial trucking and delivery and service vehicles traveling between Las Vegas and Salt Lake City. The Proposed Project may cause increased traffic volumes on I-15 (and at exit 64) and on US 93, but delays are not expected. If delays were to occur, they would be expected to less than five minutes and have a minor effect on delivery and service vehicles.

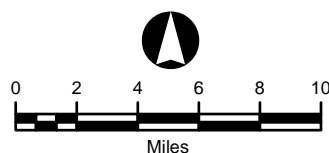
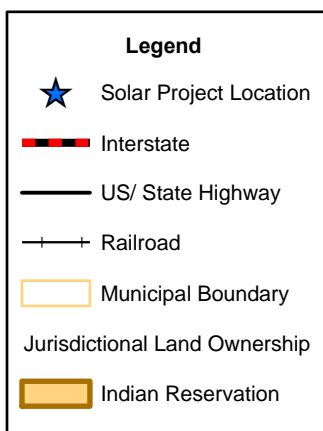
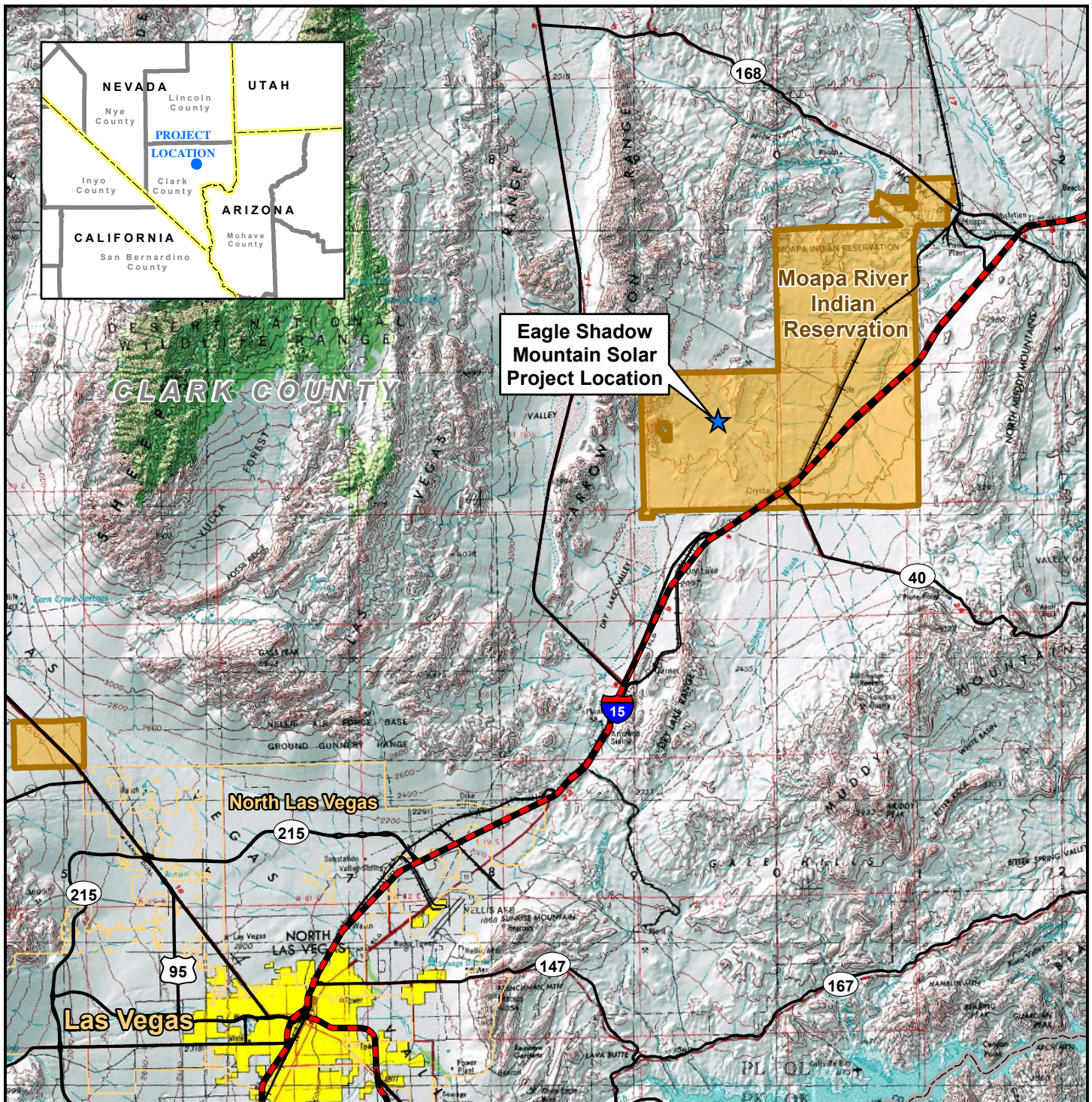
4.3 Emergency Services

Emergency vehicles dispatched through 911 services for ambulance, sheriff, State Highway Patrol, and the local Fire Departments use the routes within the Project vicinity. Clark County Fire Department has an agreement with the Tribe to provide fire protection and emergency medical services to the Reservation. Emergency services will not be interrupted by the Proposed Project. The Clark County Fire Department will be notified prior to the start of construction and kept informed of the progress of construction at the site.

5. CONCLUSION

The construction of the Proposed Project may have impacts on the existing transportation networks by increasing the volumes during the 18-month construction period. Increased traffic during operations would be minimal.

The traffic volumes during construction will increase along I-15, the ramps at Exit 64, US 93, and along North Las Vegas Boulevard and the existing access road. Potential measures that could be included in the final traffic management plan have been described in Section 3.



Universal Transverse Mercator
North American Datum 1983
Zone 11 North, Meters

Eagle Shadow Mountain Solar Project

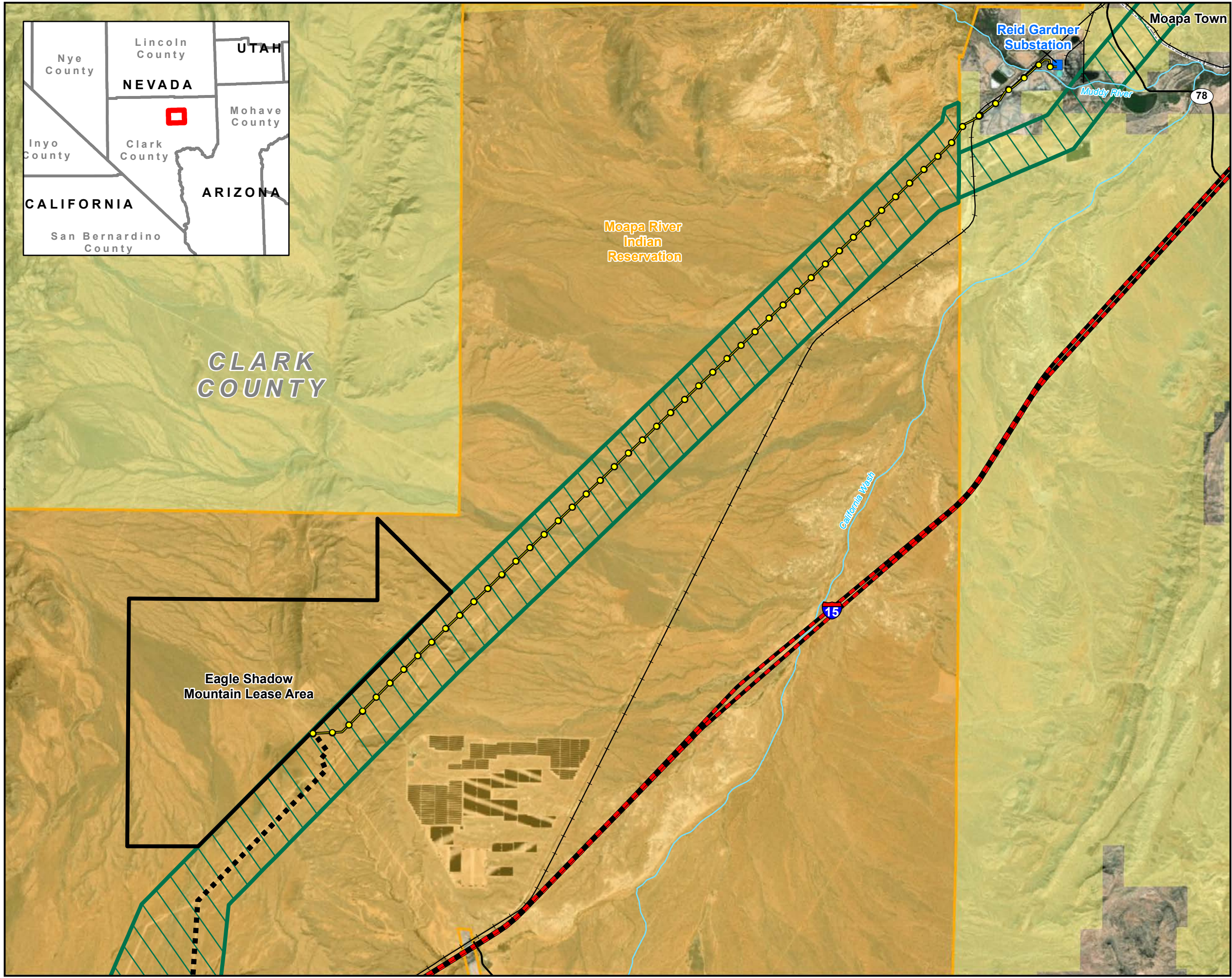
FIGURE 1
PROJECT LOCATION

Map Extent: Clark County, Nevada

Date: 11-06-18

Author: rnc

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Legend

- Project Components
- ESM Gen-Tie - Alternative
 - Eagle Shadow Mountain Solar Project Area
- General Features
- Existing Substation
 - Interstate
 - Major Highway
 - Railroad
 - Stream or River
 - Designated Utility Corridor
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- Jurisdictional Land Ownership
- Bureau of Land Management Land
 - Indian Reservation
 - Private Lands
- Existing Access Road



Universal Transverse Mercator
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Zone 11 North, Meters

Eagle Shadow Mountain Solar Project

Figure 2
ESM Solar Project Components

Map Extent: Clark County, Nevada

Date: 03-20-19	Author: rnc
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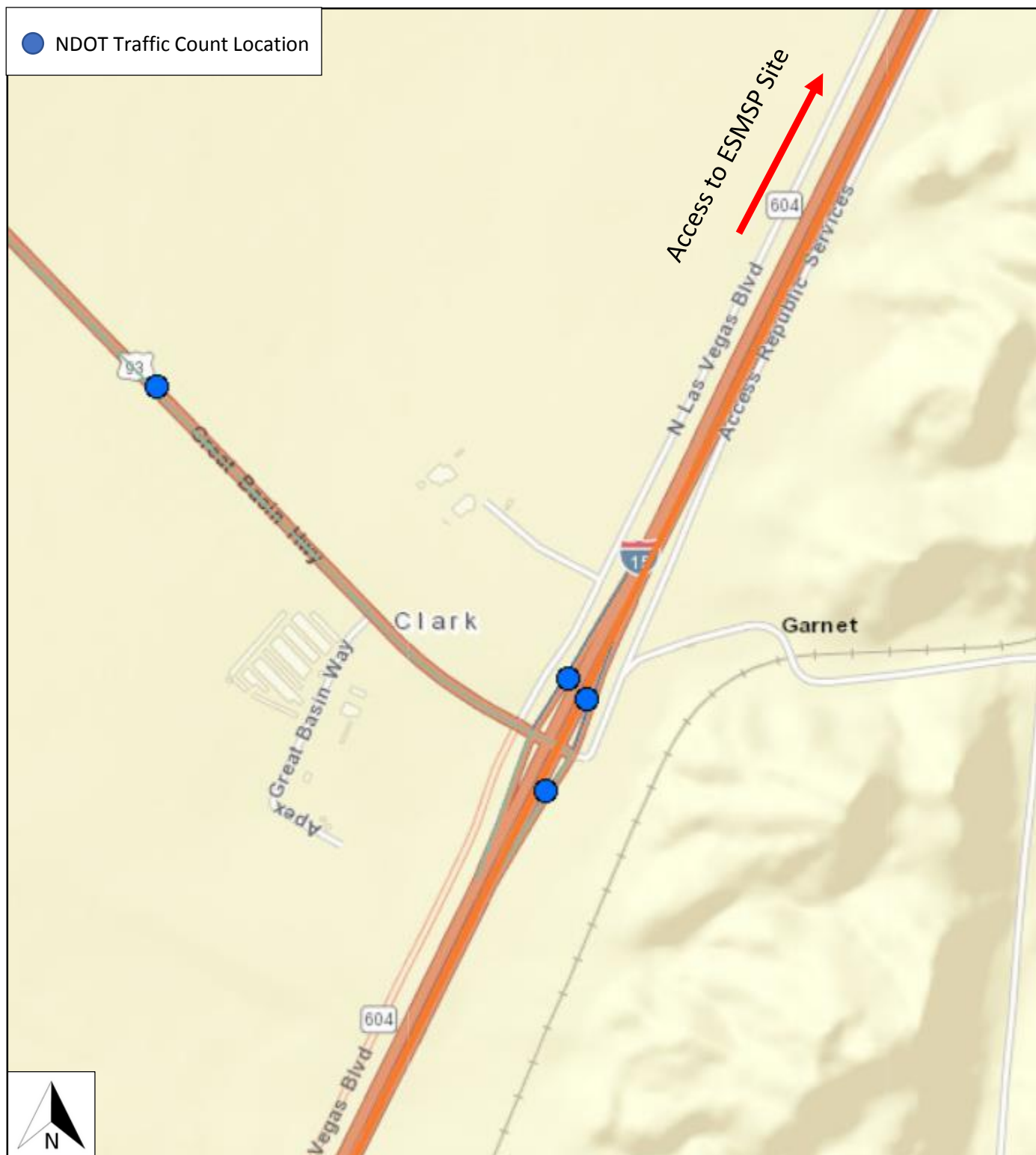


Figure 3
Primary Access to ESMSP

Appendix G

Integrated Weed Management Plan

Integrated Weed Management Plan

EAGLE SHADOW MOUNTAIN SOLAR PROJECT

CLARK COUNTY, NEVADA

June 2019

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Acronyms and Abbreviations

BIA	Bureau of Indian Affairs
BLM	Bureau of Land Management
EPA	U.S. Environmental Protection Agency
GIS	geographic information system
GPS	global positioning system
IWMP	Integrated Weed Management Plan
LVFO	Las Vegas Field Office
MM	Mitigation Measure
mph	miles per hour
NDOW	Nevada Department of Wildlife
NEPA	National Environmental Policy Act
NRS	Nevada Revised Statute
O&M	Operations and Maintenance
PAR	Pesticide Application Records
PPE	Personal Protective Equipment
Project	Eagle Shadow Mountain Solar Project
PV	Photovoltaic
PPA	Power Purchase Agreement
PUP	Pesticide Use Proposal
Reservation	Moapa River Indian Reservation
ROW	right-of-way
SDS	Safety Data Sheets
WEAP	Worker Environmental Awareness Procedure

1 Introduction

1.1 Purpose of the Plan

The purpose of this Integrated Weed Management Plan (IWMP) is to describe methods to prevent, mitigate, and control the spread and establishment of weeds during the implementation of the Eagle Shadow Mountain Solar Project (Project). The Project proponent and its approved contractors would be responsible for implementation of this plan. The objective is to understand the type and distribution of weeds in the Project area, and to implement effective control and monitoring efforts toward reducing the spread and establishment of weeds in the Project area. This IWMP is applicable to the construction, operation, and decommissioning of the proposed Project.

The Environmental Impact Statement, Appendix C Applicant-Proposed Mitigation and Best Management Practices (BMPs) – Biological Resources states the following:

- *Prior to construction, an Integrated Weed Management Plan will be developed that includes measures designed to reduce the propagation and spread of designated noxious weeds, undesirable plants, and invasive plant species, or as determined by the agencies (BIA, BLM, etc.) in coordination with the Band.*
- *The Applicant will implement controls at entry locations to facilitate weed management and invasive species control in order to minimize infestation to the project site from an outside source. Trucks and other large equipment will be checked before entering the site for any invasive species debris or seed.*

2 Roles and Responsibilities

2.1 General Roles and Responsibilities

All site Project proponent construction and operations employees, contractors, and sub-contractors will be familiar with the IWMP, and will be responsible for implementing aspects of this IWMP.

All Workers, Contractors, and Contractor Staff shall:

- Complete all required Worker Environmental Awareness Procedure (WEAP) training before starting work. WEAP training will include a section on weed spread and colonization.
- Ensure vehicles and equipment to be used on site will be inspected for excess soil or signs of noxious weeds prior to gaining entry to the site. If inspections indicated that a vehicle requires washing, this activity will occur off-site at existing car washes with appropriate containment facilities.
- Any straw or hay wattles used for erosion control must be certified weed free.
- Limit disturbance areas to the smallest area needed for construction.

2.2 Permit Compliance Procedures and Tasks

The following procedure and task matrix outlines the specific Mitigation Measures (MMs) and Best Management Practices (BMPs) that will be implemented, as needed, to minimize the potential for weed spread and establishment.

TABLE 2-1 PROCEDURES AND TASK MATRIX		
BMP#	Site Procedure(s)	Task Assignment and Schedule
1	Prior to construction, a Integrated Weed Management Plan will be developed that includes measures designed to reduce the propagation and spread of designated noxious weeds, undesirable plants, and invasive plant species, or as determined by the cooperating or reviewing agencies (BIA, BLM, NDOW, etc.).	This IWMP has been prepared and submitted to referenced agencies for approval.
2	Areas with current weeds will be mapped.	Appropriately qualified staff will perform weed surveys.
4	Equipment that has been used in weed-infested areas on the Project will be cleaned before moving it to another area.	Equipment operators will be required to knock off built up dirt and debris from vehicles prior to moving to a new area if they are working in an area that is weed-infested
5	Any straw or hay wattles are used for erosion control must be certified weed free.	Procurement will ensure that materials ordered are certified weed-free prior to purchase.

3 Project Summary

3.1 Project Location

The Proposed Project would be located approximately 30 miles northeast of Las Vegas in Clark County, Nevada (**Figure 1**). The solar project would be located on up to 2,200 acres of tribal trust land, west of I-15 and east of U.S. Highway 93, in Sections 1, 9, 10, 11, 14, 15, 16, 21 and 22 of Township 16 South, Range 64 East. These lands are currently vacant except for roads, pipelines, a tribal aggregate operation, and wells on lands adjacent to the solar field.

The portion of the proposed 12.5-mile gen-tie line located on Tribal lands within the designated utility corridor managed by the BLM occur within Sections 12, 13, and 14 in Township 16 South, Range 64 East; Sections 5, 6, and 7 in Township 16 South, Range 65 East; and Sections 12, 13, 14, 22, 23, 27, 28, 32, and 33 in Township 15 South, Range 65 East. The short segment on Federal lands managed by the BLM would be within Section 7 in Township 16 South, Range 66 East and the portion on private lands owned by NVE adjacent to the Reid-Gardner Substation would be within Sections 5 and 6 in Township 16 South, Range 66 East. All of these lands are adjacent to multiple existing linear electric transmission and pipeline utilities and private lands (owned by NV Energy) adjacent to the Reid-Gardner Substation.

Figure 2 shows the location of the components of the Proposed Project and associated facilities.

3.2 Project Description

The following describes the major features of the proposed Project. For a comprehensive description of the proposed Project, refer to the associated Draft Environmental Impact Statement for the Eagle Shadow Mountain Solar Project for the Project design details (subject to minor design changes).

The Project will consist of an up to 300 megawatt alternating current (MWac) solar energy generating facility using photovoltaic (PV) technology and associated infrastructure. Project components include on-site facilities, off-site facilities, and temporary facilities needed to construct the Project. The solar site would be located entirely on Tribal lands. Major on-site facilities include the solar field comprised of multiple blocks of PV solar panels mounted on single-axis tracking systems, associated inverter and transformer equipment, an energy storage system (ESS), a project substation, and operation and maintenance (O&M) facilities.

The offsite facilities would include an approximately 12.5-mile dual-circuit 230kV gen-tie line located on Tribal lands, BLM-administered lands, and private lands owned by NV Energy. Most of the gen-tie would be within a Federally-designated utility corridor on Tribal lands. This line would require a right-of-way (ROW) width of 125 to 200 feet. The Applicant would construct the gen-tie from the Project

substation to a structure located on BLM-administered land in the SW ¼ of the NE ¼ of Section 7 referred to as the Point of Change of Ownership (POCO). From the POCO structure, the remaining portion of the gen-tie would be constructed by NVE to the Reid Gardner Substation. Additional offsite facilities include an existing road that would provide access to the Project and electric distribution and communication lines. Temporary facilities that would be removed at the end of construction include laydown and construction areas and water storage tanks also located on Tribal lands.

Power produced by the Project would be conveyed to the regional transmission system via the gen-tie interconnection to NVE's existing 230kV Reid-Gardner Substation.

4 Weed Surveys

A weed survey of the proposed gen-tie ROW has been completed and results are presented in the Noxious Weed Survey Report (Heritage 2019) which is attached. The only species of noxious weed on the Nevada state list that was observed in the gen-tie ROWs was Sahara mustard (*Brassica tournefortii*). It was not abundant and occurred in both disturbed and undisturbed habitats. There were 16 occurrences totaling 26 acres within both corridors. African mustard (*Strigosella africana*) was the most abundant non-native plant species. Other non-native species that were commonly observed include Mediterranean grass (*Schismus* sp.), red brome (*Bromus rubens*), Cheatgrass (*Bromus tectorum*), and Redstem filaree (*Erodium cicutarium*).

Updated weed surveys within the Project site, including the proposed routes for new gen-tie access roads, will be conducted prior to conducting surface disturbing activities. These surveys will be focused on identifying and mapping occurrences of weed species described in the Nevada Revised Statutes 555.010, included as **Appendix A** to this IWMP.

The Nevada Department of Agriculture Plant Industry Division maintains a list of noxious weeds for the State of Nevada. Noxious weeds on this list are assigned to one of three categories, including:

- **Category A Weeds:** Weeds that are generally not found or that are limited in distribution throughout the State. Category A weeds are subject to active exclusion from the State and active eradication where found, including the premises of a dealer of nursery stock.
- **Category B Weeds:** Weeds that are generally established in scattered populations in some counties of the State. Such weeds are subject to active exclusion, where possible; and active eradication from the premises of a dealer of nursery stock.
- **Category C Weeds:** Weeds that are generally established and generally widespread in many counties of the State. Such weeds are subject to active eradication from premises of a dealer of nursery stock.

In addition to the listed weeds, occurrences of identified above will also be identified and described, although they are not listed as noxious weeds. The State of Nevada has not categorized or designated these species as noxious weeds because their distribution and occurrence are far too widespread for management efforts to successfully eradicate these species. The management efforts, described in this plan, will rely on the results of this initial weed survey.

The results of the weed survey will contribute to the identification of problem areas within the proposed Project site. The weed survey will include botanists walking

parallel transects, searching for weeds on both sides of each transect. Identified weed occurrences will be described to species, assigned a ground cover rating, and individuals will be counted or estimated, as appropriate. The location of identified weed occurrences will be recorded using a hand-held global positioning system (GPS) unit and all recorded occurrences will be mapped using geographic information system (GIS) software. All identified weed occurrences will be marked in the field, either by flagging, pin flags or other means so as to indicate to construction personnel that such areas are to be avoided until appropriately treated.

5 Weed Management

Weed management at the proposed ESMSP will include identification of problem areas, implementation of measures intended to prevent the spread and establishment of new weed occurrences, and application of appropriate measures to treat known occurrences of weeds. These steps toward effective weed management are described in the following sections.

5.1 Preventative Measures

The prevention of weed establishment is the most effective weed management practice. Preventing or reducing the potential for weed establishment reduces additional efforts, costs, and time invested in subsequent weed control or eradication measures. Several measures have proven to be effective toward preventing the spread and establishment of weeds on projects where surface disturbing activities are proposed. The following preventative measures will be implemented:

- Vehicles will be inspected upon entry to the site to ensure cleanliness.
- Disturbance areas will be limited to the smallest area needed for construction.
- The WEAP training will include a section on weed spread and colonization.
- Additionally, on BLM lands, all weed stipulations for construction projects developed by BLM will be implemented.

Note: *As this plan is in early draft form, it may be revised to modify or exclude measures listed or include additional measures as appropriate before the final version is issued for approval.*

5.2 Treatment Methods

Treatment methods are necessary to control and eradicate known invasive and noxious weed occurrences. Treatment methods include a variety of approaches such as mechanical, chemical, and biological controls. The most appropriate and effective weed treatment measures will be determined following the assessment of existing weed populations on the Project site. .

Mechanical treatments include the use of physical means to remove plants, reproductive parts, or propagules. Mechanical treatments include manual methods (pulling plants from the soil), use of hand tools and hand-held power tools, mowing, and more aggressive efforts that involve removing above and below ground plant structures. The designation of the appropriate mechanical treatment will depend on variables including season, plant life stage, weed species, size and population of each occurrence, and more. The weed management contractor will coordinate with the appropriate agencies before implementing any weed treatment methods.

Chemical treatments involve the use and application of herbicides. Treatment methods on BIA lands will utilize the BLM's *Chemical Pest Control Manual* as a guideline for weed control (see Section 5.3.1 below). The use of herbicides is highly

regulated and involves a variety of specific protocols, safety measures, and precautions for eliminating, reducing, and mitigating for uncontrolled releases. The Project site is located within suitable and occupied desert tortoise habitats. As such, the application of herbicides may be permitted, though a Pesticide Use Proposal (PUP) would need to be submitted to the BLM prior to herbicide use on BLM lands.

Herbicide use would follow those approved in BLM's Programmatic EIS (PEIS) for Vegetation Treatments Using Aminopyralid, Fluroxypyr, and Rimsulfuron on BLM Managed Lands in 17 Western States (BLM 2016). The applicant would implement a Site Restoration Plan and an Integrated Weed Management Plan that specifies procedures for managing vegetation and minimizing the spread of non-native and noxious weeds, including integrated pest management and use of herbicides. Standard Operating Procedures (SOPs) would be incorporated into this plan and implemented. The herbicides that may be used in mowed areas, based on those allowed on BLM lands, include aminopyralid, clopyralid, imazapyr, imazapic, glyphosate, metasulfuron methyl, and rimsulfuron. Herbicides that are believed to have deleterious effects on reptiles, such as 2,4-D, would not be allowed. Any herbicide use would be used during the less active tortoise season. The possible use of herbicides as a treatment method is described in additional detail in Section 7 of this report.

Biological treatments include the use of plants and animals (particularly insects) that parasitize, ingest, or out-compete weed species. Based on the weed species expected to occur in the Project area, biological controls are not expected to be a viable or appropriate alternative for treating weed occurrences at the proposed site.

5.3 Agency Specific Requirements

5.3.1 Bureau of Land Management Lands

The BLM regulates the use and type of herbicides on all of its administered lands. Included in its *Final Programmatic Environmental Impact Statement Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States* (BLM 2007) is a list of the 14 active herbicidal ingredients approved for use on BLM lands. **Appendix B** includes the 2019 list of adjuvants, chemical additives intended to improve the efficacy of herbicides, approved for use on lands administered by the BLM. Guidelines for the use of chemical means to control vegetation on lands administered by the BLM are presented in the BLM's *Chemical Pest Control Manual* (BLM Manual 9011). These guidelines require submittal of a PUP and pesticide application records (PAR) for use of herbicides on lands administered by the BLM. **Appendix C** includes a BLM PUP submittal form, and **Appendix D** includes an example of a BLM PAR form.

PUPs are to be submitted to BLM several weeks before herbicide application on lands administered by the BLM. The appropriate weed control procedures, including target species, timing of control, and method of control, will be determined through consultation with the Las Vegas Field Office (LVFO) weed specialist. All personnel associated with application of weed control measures will be appropriately trained and hold all the required certifications. PARs are to be submitted no more than 24

hours after application of the herbicide.

5.3.2 Nevada Revised Statute (NRS): The Nevada Control of Insects, Pests, and Noxious Weeds Act

The following section applies to BLM and private lands; the BIA has the discretion to utilize existing State regulatory guidelines as appropriate.

NRS 555.150

NRS 555.150 (Eradication of Noxious Weeds by Owner or Occupant of Land) of the Nevada Revised Statute reads:

"Every railroad, canal, ditch, or water company, and every person owning, controlling, or occupying lands in this State, and every county, incorporate city or district having the supervision and control over streets, alleys, lanes, rights-of-way, or other lands shall cut, destroy, or eradicate all weeds declared and designated as noxious in NRS 555.130, before such weeds propagate and spread, and whenever required by the State Quarantine Officer."

NRS 555.210

NRS 555.210 (Performance of Necessary Work by Weed Control Officer on Failure by Landowner Charges as Lien) of the Nevada Revised Statute reads:

"If any landowner fails to carry out a plan of weed control for his or her land in compliance with the regulations of the district, the weed control officer may enter upon the land affected, perform any work necessary to carry out the plan, and charge such work against the landowner. Any such charge, until paid, is a lien against the land affected coequal with a lien for unpaid general taxes and may be enforced in the same manner."

5.3.3 BLM Las Vegas Field Office Noxious Weed Management Plan

The LVFO of the BLM prepared this document as guidance for weed management programs. The methods included in the BLM Noxious Weed Management Plan (BLM 2006) originated from a cooperative effort between BLM and other federal agencies that produced the document, Partners Against Weeds.

These regulations and guidelines will be generally followed and implemented on all areas of proposed disturbance on BLM land and generally utilized as a guideline throughout the project site.

6 Weed Monitoring

All Project areas that are proposed for surface disturbance will be monitored for weeds by qualified botanists and/or appropriately trained personnel. Monitoring will occur throughout the appropriate growing season when species are easily identified. Upon identification of infestation, appropriately trained staff will determine what action is necessary, and treatment measures will be implemented accordingly.

6.1 Ongoing Monitoring

During construction, weed monitoring will occur on an ongoing basis. Appropriately trained personnel will use the results of the initial weed inventory to monitor known weed occurrences and will observe activity areas for opportunistic weed occurrences.

6.2 Post Construction

Weed monitoring will begin immediately following construction. Weed monitoring will occur at all disturbed sites at least twice a year (March and September) for an estimated five years or until restoration efforts are deemed complete by the Tribe, BIA, and BLM. The goal of weed monitoring is to ensure no net increase in weed species or overall weed cover to the baseline conditions. Identified weed occurrences will be noted and recorded in the same manner as was described for the weed inventory effort. A monitoring report will be made available to applicable agencies. The report will help determine whether success criteria (e.g., no net increase in weeds) are being met. Adaptive management strategies would be implemented if necessary.

6.3 Monitoring of Known Infestation Areas

Known occurrences of weed infestations will be evaluated as part of the initial mapping effort. Post-construction monitoring will determine if noteworthy changes have occurred at known infestation sites, particularly if the number of individuals or area covered by an infestation has changed dramatically. A brief summary will be prepared annually to document the areas treated the effectiveness of the weed management program, including weed infestation identification, and weed control.

7 Herbicide Application, Handling, Spills and Cleanup

7.1 Herbicide Application

If herbicides are deemed necessary for weed control, personnel responsible for applying herbicides will obtain all of the required Federal, State, or local agency permits and will hold all necessary certifications and have received all relevant training. Permits may include terms and conditions that are not included in this Integrated Weed Management Plan. A licensed contractor will apply herbicides in accordance with all applicable laws, regulations, and permit stipulation, including U.S. Environmental Protection Agency (EPA) label instructions. A PUP must be obtained from BLM prior to herbicide application on BLM land. If faced with any of the following scenarios, herbicide application shall be suspended until such conditions no longer exist:

- Wind velocities in excess of 10 miles per hour (mph) during application of liquid herbicides and 15 mph during application of dry herbicides;
- Snow or ice present on weed foliage; or
- Precipitation is occurring or imminent.
- Only apply during the less -active desert tortoise seasons.

For weed infestations readily accessible and passable by vehicle, vehicle-mounted applicators will be used. Manual application methods will be used in weed occurrences that are relatively small, inaccessible by established road or ROW, or in rough, varied terrain. All herbicide applicators, spreaders and sprayers, will be calibrated before each use to ensure all applications rates and procedures are appropriately implemented.

Herbicide transport and handling will follow these methods:

- Only the quantity of herbicide expected for each day's use will be transported.
- Herbicide concentrate will be transported in approved containers in a controlled manner so as to prevent spills. Concentrate will be positioned in delivery or work vehicles so as to be secured and separated from the driving compartment, food, clothing, and safety equipment.
- The mixing of herbicide materials will be within designated areas. All mixing will take place over a drip/spill containment device and at a distance more than 200 feet from open or flowing water, wetlands, or other sensitive resources.
- Herbicides will not be applied to areas of open or flowing water, wetlands, or other sensitive resources unless authorized by the appropriate regulatory agency.
- All equipment and containers used for herbicide storage, application, and transport will subject to inspection for leaks or damage.

- Emptied herbicide containers will be disposed in accordance with instructions provided on the label.

7.2 Herbicide Spills and Cleanup

All spills and inadvertent releases of herbicides will be addressed immediately upon detection. Spill response kits will be readily available in herbicide contractor vehicles and in daily on-site herbicide storage areas.

Spill response will vary depending on a variety of conditions, including location, amount of spill, area impacted by spill, type of herbicide spilled, and more. For each spill the following procedures should be implemented:

- Disseminate the appropriate on-site and agency notifications of a spill.
- Secure the affected area barring pedestrian and vehicle traffic.
- All spill response personnel shall put on the appropriate Personal Protective Equipment (PPE) prior to entering the spill containment area.
- Personnel, while wearing the appropriate PPE and equipped with the necessary tools and equipment, shall stop the herbicide leak or release.
- All materials associated with spill response, including the released herbicide, affected soils and plants, absorptive material, clothing, and PPE shall be removed and containerized according to appropriate regulations and procedures.

All generated spill response containers shall be transported, following appropriate regulations, and disposed legally at an approved disposal facility.

7.3 Worker Safety and Spill Reporting

All contractors responsible for herbicide use, transport, application, and control at the site will hold the appropriate certifications. Such certifications shall be made available. Contractors transporting herbicides to the site shall also have legible Safety Data Sheets (SDS) and labels on-site. All herbicide spills and inadvertent releases shall be reported in accordance with all applicable laws and regulations.

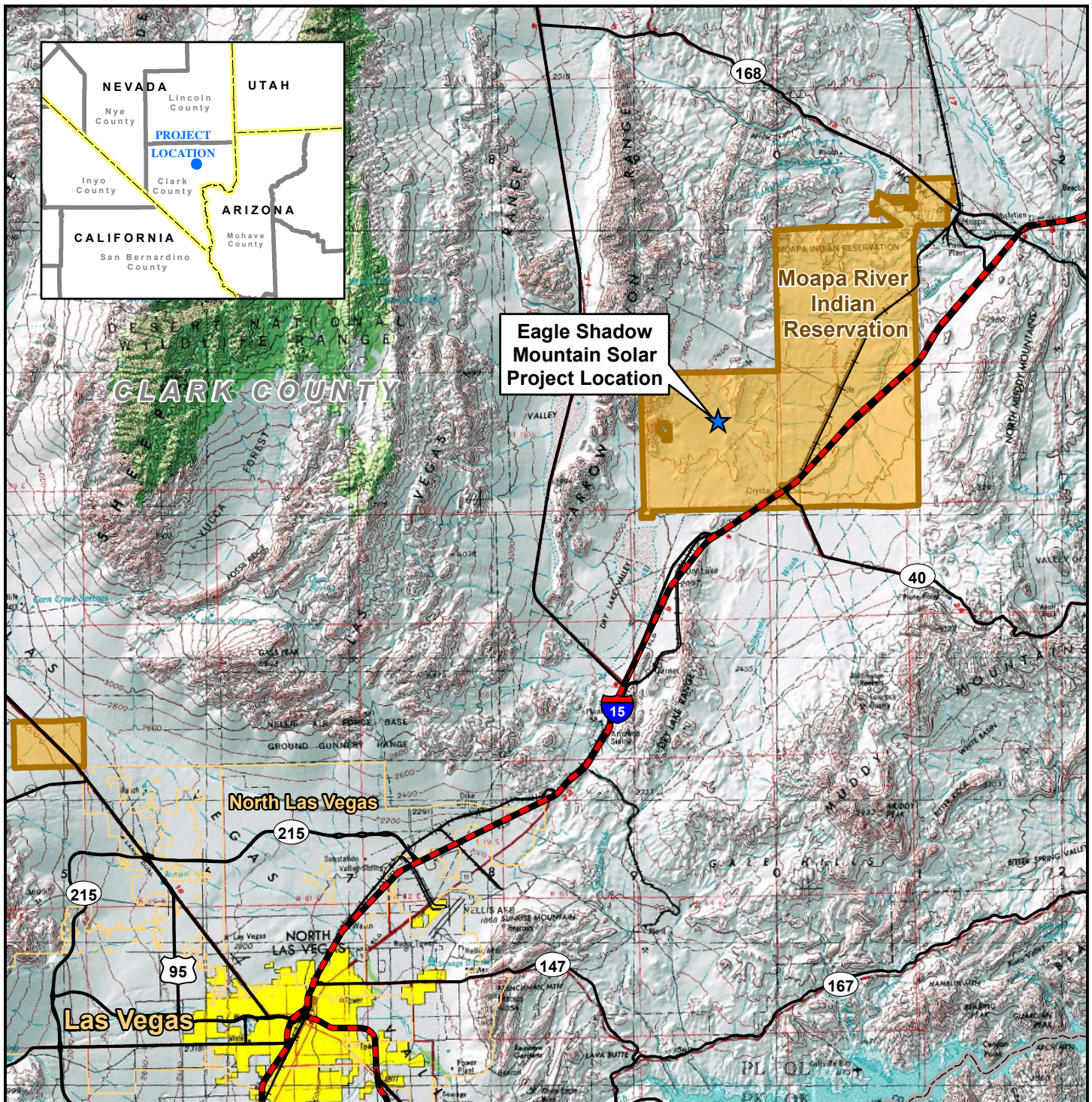
8 References

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<https://eplanning.blm.gov/eplfrontoffice/eplanning/planndProjectSite.do?methodName=dispatchToPatternPage¤tPageId=103592>. Accessed on June 13, 2019

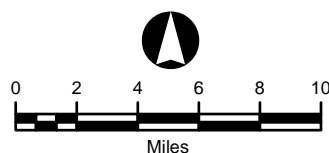
BLM. 2016. Final Programmatic Environmental Impact Statement for Vegetation Treatments Using Aminopyralid, Fluroxypyr, and Rimsulfuron on Bureau of Land Management Lands in 17 Western States.

Figures



Legend

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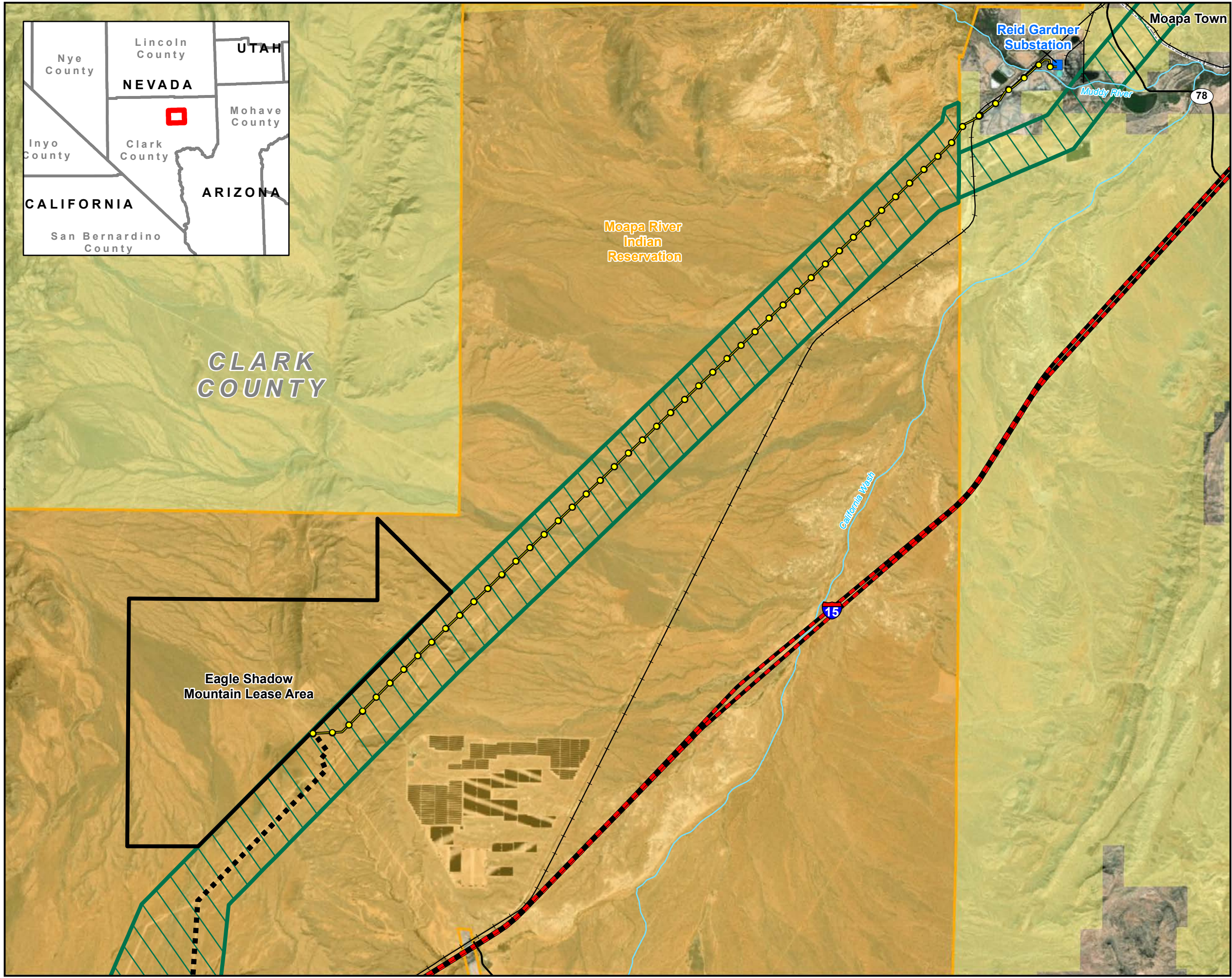
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Map Extent: Clark County, Nevada

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Figure 2
ESM Solar Project Components

Map Extent: Clark County, Nevada

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APPENDIX A

NEVADA DESIGNATED NOXIOUS WEED SPECIES

TABLE A-1 DESIGNATED NOXIOUS AND INVASIVE WEED SPECIES OF THE STATE OF NEVADA		
Common Name	Scientific Name	Category ¹
African rue	<i>Peganum harmala</i>	A
Austrian fieldcress	<i>Rorippa austriaca</i>	A
Swainsonpea	<i>Sphaerophysa salsula</i>	A
Black henbane	<i>Hyoscyamus niger</i>	A
Camelthorn	<i>Alhagi maurorum</i>	A
Common crupina	<i>Crupina vulgaris</i>	A
Dalmatian toadflax	<i>Linaria dalmatica</i>	A
Dyer's woad	<i>Isatis tinctoria</i>	A
Eurasian water-milfoil	<i>Myriophyllum spicatum</i>	A
Giant reed	<i>Arundo donax</i>	A
Giant salvinia	<i>Salvinia molesta</i>	A
Goatsrue	<i>Galega officinalis</i>	A
Crimson fountain grass	<i>Pennisetum setaceum</i>	A
Houndstongue	<i>Cynoglossum officinale</i>	A
Hydrilla	<i>Hydrilla verticillata</i>	A
Iberian starthistle	<i>Centaurea iberica</i>	A
Common St. Johnswort	<i>Hypericum perforatum</i>	A
Malta starthistle	<i>Centaurea melitensis</i>	A
Mayweed chamomile	<i>Anthemis cotula</i>	A
Mediterranean sage	<i>Salvia aethiopis</i>	A
Purple loosestrife	<i>Lythrum salicaria</i> , <i>L. virgatum</i> & cultivars	A
Purple starthistle	<i>Centaurea calcitrapa</i>	A
Rush skeletonweed	<i>Chondrilla juncea</i>	A
Sow thistle	<i>Sonchus arvensis</i>	A
Spotted knapweed	<i>Centaurea maculosa</i>	A
Squarrose knapweed	<i>Centaurea virgata</i>	A
Sulfur cinquefoil	<i>Potentilla recta</i>	A
Syrian bean caper	<i>Zygophyllum fabago</i>	A
Yellow starthistle	<i>Centaurea solstitialis</i>	A
Yellow toadflax	<i>Linaria vulgaris</i>	A
Horsenettle	<i>Solanum carolinense</i>	B
Diffuse knapweed	<i>Centaurea diffusa</i>	B
Leafy spurge	<i>Euphorbia esula</i>	B

TABLE A-1 DESIGNATED NOXIOUS AND INVASIVE WEED SPECIES OF THE STATE OF NEVADA		
Common Name	Scientific Name	Category¹
Medusahead	<i>Taeniatherum caput-medusae</i>	B
Musk thistle	<i>Carduus nutans</i>	B
Russian knapweed	<i>Acroptilon repens</i>	B
African mustard	<i>Brassica tournefortii</i>	B
Scotch thistle	<i>Onopordum acanthium</i>	B
Silverleaf nightshade	<i>Solanum elaeagnifolium</i>	B
Canada thistle	<i>Cirsium arvense</i>	C
Hoary cress	<i>Cardaria draba</i>	C
Johnsongrass	<i>Sorghum halepense</i>	C
Perennial pepperweed	<i>Lepidium latifolium</i>	C
Poison-hemlock	<i>Conium maculatum</i>	C
Puncture vine	<i>Tribulus terrestris</i>	C
Salt cedar (tamarisk)	<i>Tamarix</i> spp.	C
Spotted water hemlock	<i>Cicuta maculata</i>	C

¹ A: Weeds not found or limited in distribution throughout the state; actively excluded from the state and actively eradicated where found; control required by the state in all infestations.

B: Weeds established in scattered populations in some counties of the state; actively excluded where possible; control required by the state in areas where populations are not well established or previously unknown to occur.

C: Weeds currently established and generally widespread in many counties of the state; abatement at the discretion of the State Quarantine Officer.

APPENDIX B
ADJUVANT AND HERBICIDE FORMULAS APPROVED BY THE BLM

<i>Adjuvants Approved for Use on BLM Administered Lands</i>				
				Update: April 4, 2019
Adjuvant	Adjuvant	Trade		
Class	Type	Name	Manufacturer	Comments
Surfactant				
	Non-ionic Surfactant			
		90-10 Surfactant	Brewer International	
		A-90	Alligare, LLC	
		Alligare 90	Alligare, LLC	
		Activate Plus	WinField United (Winfield Solutions, LLC)	CA Reg. No. 9779-50004-AA
				WA Reg. No. 1381-09001
		Activator 90	Loveland Products, Inc.	CA Reg. No. 34704-50034-AA
		Ad Spray 90	Helena Agri-Enterprises, LLC (Helena Chemical Company)	WA Reg. No. 5905-70020
		Alligare Surface	Alligare, LLC	
		Alligare Surface West	Alligare, LLC	CA Reg. No. 81927-50007-AA
				WA Reg. No. 81927-15004
		Alligare Trace	Alligare, LLC	
		Aquafact	Aqumix, Inc.	
		Audible 80	Exacto, Inc.	
		Audible 90	Exacto, Inc.	
		Brewer 90-10	Brewer International	
		Chempro S-820	Chemorse Ltd.	WA Reg. No. 46059-15001
		Chempro S-910	Chemorse Ltd.	WA Reg. No. 46059-14001
		Chemsurf 80	Chemorse Ltd.	CA Reg. No. 1050984-50004-AA
				WA Reg. No. 46059-10002
		Chemsurf 90	Chemorse Ltd.	CA Reg. No. 1050984-50005-AA
				WA Reg. No. 46059-10003
		Corbalt Premier 90	Van Diest Supply Co.	
		Corbalt Trophy Gold	Van Diest Supply Co.	
		Denali-EA	Wilbur-Ellis Co. LLC (Wilbur-Ellis Co.)	CA Reg. No. 2935-50204-AA
				WA Reg. No. 2935-15006
		Elite Platinum	Red River Specialties, Inc.	
		Elite Premium	Red River Specialties, Inc.	
		EP-90	Eco-Pak, LLC	
		Haf-Pynt	Drexel Chemical Company	CA Reg. No. 19713-50007-AA
				WA Reg. No. 19713-14001
		Hum-AC 820	Drexel Chemical Company	WA Reg. No. 19713-09001
		Induce	Helena Agri-Enterprises, LLC (Helena Chemical Company)	CA Reg. No. 5905-50091-AA
		Induce pH	Helena Agri-Enterprises, LLC (Helena Chemical Company)	
		Inlet	Helena Agri-Enterprises, LLC (Helena Chemical Company)	CA Reg. No. 5905-50099-AA
		LI-700	Loveland Products, Inc.	CA Reg. No. 34704-50035
		Magnify	Monterey AgResources	CA Reg. No. 17545-50018
		NIS 90:10	Precision Laboratories, LLC	CA Reg. No. 9349-50002-AA
				WA Reg. No. 9349-13001
		NIS-EA	Wilbur-Ellis Co. LLC (Wilbur-Ellis Co.)	
		No Foam A	Creative Marketing & Research, Inc.	CA Reg. No. 1050775-50015
		Optima	Helena Agri-Enterprises, LLC (Helena Chemical Company)	CA Reg. No. 5905-50075-AA
		PAS-800	Drexel Chemical Company	
		Preference	WinField United (Winfield Solutions, LLC)	WA Reg. No. 1381-50011
		R-900	Wilbur-Ellis Co. LLC (Wilbur-Ellis Co.)	
		Rainer-EA	Wilbur-Ellis Co. LLC (Wilbur-Ellis Co.)	

Adjuvant Class	Adjuvant Type	Trade Name	Munufacturer	Comments
Surfactant	Non-ionic Surfactant - cont.			
		Range Master	ORO Agri Inc.	WA Reg. No. 72662-19001
		Red River 90	Red River Specialties, Inc.	
		Red River NIS	Red River Specialties, Inc.	
		Scanner	Loveland Products, Inc.	CA Reg. No. 34704-50064
				WA Reg. No. 34704-09003
		Spec 90/10	Helena Agri-Enterprises, LLC (Helena Chemical Company)	
		Spray Activator 85	Van Diest Supply Co.	
		Spreader 90	Loveland Products, Inc.	WA Reg. No. 34704-05002-AA
		Spret	Helena Agri-Enterprises, LLC (Helena Chemical Company)	CA Reg. No. 5905-50098-AA
		Super Spread 90	Wilbur-Ellis Co. LLC (Wilbur-Ellis Co.)	WA Reg. No. AW-2935-70016
		Super Spread 7000	Wilbur-Ellis Co. LLC (Wilbur-Ellis Co.)	CA Reg. No. 2935-50170
				WA Reg. No. AW-2935-0002
		Surf-Ac 820	Drexel Chemical Company	WA Reg. No. 19713-70002
		Surf-Ac 910	Drexel Chemical Company	WA Reg. No. 19713-70003
		UAP Surfactant 80/20	Loveland Products, Inc.	
		Wetcit	ORO Agri Inc.	CA Reg. No. 72662-50001-AA
				WA Reg. No. 72662-05001
		X-77	Loveland Products, Inc.	CA Reg. No. 34704-50044
	Spreader/Sticker			
		Agri-Trend Spreader	Agri-Trend	
		Antero-EA	Wilbur-Ellis Co. LLC (Wilbur-Ellis Co.)	CA Reg. No. 2935-50206
				WA Reg. No. 2935-18001
		Aqua-King Plus	WinField United (Winfield Solutions, LLC)	
		Attach	Loveland Products, Inc.	CA Reg. No. 34704-50026
		Bond	Loveland Products, Inc.	CA Reg. No. 36208-50005
		Bond Max	Loveland Products, Inc.	CA Reg. No. 34704-50060
				WA Reg. No. 34704-08003
		Chempro S-196	Chemorse Ltd.	CA Reg. No. 1050984-50006-AA
				WA Reg. No. 46059-11001
		Cohere	Helena Agri-Enterprises, LLC (Helena Chemical Company)	CA Reg. No. 5905-50083-A
		CWC 90	CWC Chemical, Inc.	
		Gulfstream	WinField United (Winfield Solutions, LLC)	
		Insist 90	Wilbur-Ellis Co. LLC (Wilbur-Ellis Co.)	
		Insist 90 Plus	Wilbur-Ellis Co. LLC (Wilbur-Ellis Co.)	WA Reg. No. 2935-17001
		Lastick	Helena Agri-Enterprises, LLC (Helena Chemical Company)	
		Nu Film 17	Miller Chem. & Fert. Corp.	CA Reg. No. 72-50021-AA
		Nu-Film-IR	Miller Chem. & Fert. Corp.	
		Nu Film P	Miller Chem. & Fert. Corp.	CA Reg. No. 72-50022-AA
		Onside Kick	Exacto, Inc.	
		Pinene II	Drexel Chemical Company	CA Reg. No. 19713-50003-AA
				WA Reg. No. 19713-00001
		Protyx	Precision Laboratories, LLC	WA Reg. No. 9349-13002
		R-56	Wilbur-Ellis Co. LLC (Wilbur-Ellis Co.)	CA Reg. No. 2935-50144
		Rocket DL	Monterey AgResources	CA Reg. No. 17545-50019
		Tactic	Loveland Products, Inc.	CA Reg. No. 34704-50041-AA
		TopFilm	Biosorb, Inc.	
		Widespread Max	Loveland Products, Inc.	CA Reg. No. 34704-50061
				WA Reg. No. 34704-09001

Adjuvant Class	Adjuvant Type	Trade Name	Munufacturer	Comments
	Silicone-based			
		Aero Dyne-Amic	Helena Agri-Enterprises, LLC (Helena Chemical Company)	CA Reg. No. 5905-50080-AA
		Aircover	WinField United (Winfield Solutions, LLC)	
		Alligare OSS/NIS	Alligare, LLC	
		Chempro S-172	Chemorse Ltd.	CA Reg. No. 1050984-50008-AA
				WA Reg. No. 46059-15002
		Dyne-Amic	Helena Agri-Enterprises, LLC (Helena Chemical Company)	CA Reg. No. 5095-50071-AA
		Elite Marvel	Red River Specialties, Inc.	
		Freeway	Loveland Products, Inc.	CA Reg. No. 34704-50031
				WA Reg. No. 34704-04005
		Kinetic	Helena Agri-Enterprises, LLC (Helena Chemical Company)	CA Reg. No. 5905-50087-AA
		Phase	Loveland Products, Inc.	CA Reg. No. 34704-50037-AA
		Phase II	Loveland Products, Inc.	
		Scrimmage	Exacto, Inc.	
		SilEnergy	Brewer International	
		Sil-Fact	Drexel Chemical Company	CA Reg. No. 19713-50004-AA
		Sil-MES 100	Drexel Chemical Company	
		Silnet 200	Brewer International	
		Silwet L-77	Loveland Products, Inc.	CA Reg. No. 34704-50043
		Speed	Precision Laboratories, LLC	
		Sun Spreader	Red River Specialties, Inc.	
		Syl-coat	Wilbur-Ellis Co. LLC (Wilbur-Ellis Co.)	CA Reg. No. 2935-50189
				WA Reg. No. 2935-12002
		Sylgard 309	Wilbur-Ellis Co. LLC (Wilbur-Ellis Co.)	CA Reg. No. 2935-50161
		Syl-Tac	Wilbur-Ellis Co. LLC (Wilbur-Ellis Co.)	CA Reg. No. 2935-50167
		Syl-Tac-EA	Wilbur-Ellis Co. LLC (Wilbur-Ellis Co.)	CA Reg. No. 2935-50203
				WA Reg. No. 2935-15004
		Thoroughbred	WinField United (Winfield Solutions, LLC)	
Oil-based				
	Crop Oil Concentrate			
		60/40 Crop Oil Concentrate	Chemorse Ltd.	WA Reg. No. 46059-15004
		Agri-Dex	Helena Agri-Enterprises, LLC (Helena Chemical Company)	CA Reg. No. 5905-50094-AA
		Alligare Forestry Oil	Alligare, LLC	
		Brewer 83-17	Brewer International	
		Combelt Crop Oil Concentrate	Van Diest Supply Co.	
		Combelt Premium Crop Oil Concentrate	Van Diest Supply Co.	
		Crop Oil Concentrate	Helena Agri-Enterprises, LLC (Helena Chemical Company)	CA Reg. No. 5905-50085-AA
		Crop Oil Concentrate	Loveland Products, Inc.	
		CWR Herbicide Activator	Creative Marketing & Research, Inc.	CA Reg. No. 1050775-50020-AA
		Exchange	Precision Laboratories, LLC	WA Reg. No. 9349-13008
		Herbimax	Loveland Products, Inc.	CA Reg. No. 34704-50032-AA
				WA Reg. No. 34704-04006
		Maximizer Crop Oil Conc.	Loveland Products, Inc.	CA Reg. No. 34704-50059
				WA Reg. No. 34704-08002
		Monterey Crop Oil	Monterey AgResources	CA Reg. No. 17545-50031
		Mor-Act	Wilbur-Ellis Co. LLC (Wilbur-Ellis Co.)	CA Reg. No. 2935-50098
		Peptoil	Drexel Chemical Company	WA Reg. No. 19713-70001
		Power-Line Crop Oil	Land View Inc.	
		Primary	Drexel Chemical Company	
		Prime Oil	WinField United (Winfield Solutions, LLC)	CA Reg. No. 979-50002-AA
				WA Reg. No. 1381-13004
		R.O.C. Rigo Oil Conc.	Wilbur-Ellis Co. LLC (Wilbur-Ellis Co.)	

Adjuvant Class	Adjuvant Type	Trade Name	Munufacturer	Comments
Oil-based	Crop Oil Concentrate - cont.			
		Red River Forestry Oil	Red River Specialties, Inc.	
		Red River Pacer Crop Oil	Red River Specialties, Inc.	
		Superb HC	WinField United (Winfield Solutions, LLC)	WA Reg. No. 1381-06003
	Methylated Seed Oil			
		60/40 MSO	Chemorse Ltd.	WA Reg. No. 46059-15003
		Alligare MSO	Alligare, LLC	
		Alligare MSO West	Alligare, LLC	WA Reg. No. 81927-15002
		Atmos	WinField United (Winfield Solutions, LLC)	
		Conquer	Chemorse Ltd.	CA Reg. No. 1050984-50002-AA
				WA Reg. No. 46059-10001
		Combelt Base	Van Diest Supply Co.	
		Combelt Methylates Soy-Stik	Van Diest Supply Co.	
		Destiny HC	WinField United (Winfield Solutions, LLC)	WA Reg. No. 1381-09002
		Elite Supreme	Red River Specialties, Inc.	
		Glacier-EA	Wilbur-Ellis Co. LLC (Wilbur-Ellis Co.)	CA Reg. No. 2935-50205
				WA Re. No. 2935-16001
		Hasten	Wilbur-Ellis Co. LLC (Wilbur-Ellis Co.)	CA Reg. No. 2935-50160
				WA Reg. No. 2935-02004
		Hasten-EA	Wilbur-Ellis Co. LLC (Wilbur-Ellis Co.)	CA Reg. No. 2935-50202
				WA Reg. No. 2935-15003
		Hot MES	Drexel Chemical Company	
		Inergy	WinField United (Winfield Solutions, LLC)	
		Kixyt	Precision Laboratories, LLC	WA Reg. No. 9349-12001
		MES-100	Drexel Chemical Company	CA Reg. No. 19713-50002-AA
				WA Reg. No. 19713-50002
		Methylated Spray Oil Conc.	Helena Agri-Enterprises, LLC (Helena Chemical Company)	
		Monterey M.S.O.	Monterey AgResources	CA Reg. No. 17545-50025
		MSO Concentrate (Alligare)	Alligare, LLC	
		MSO Concentrate (Loveland)	Loveland Products, Inc.	CA Reg. No. 34704-50067
				WA Reg. No. 34709-04009
		Persist Ultra	Precision Laboratories, LLC	CA Reg. No. 9349-50005
				WA Reg. No. 9349-13003
		Premium MSO	Helena Agri-Enterprises, LLC (Helena Chemical Company)	
		Red River Supreme	Red River Specialties, Inc.	
		Renegade 2.0	Wilbur-Ellis Co. LLC (Wilbur-Ellis Co.)	CA Reg. No. 2935-50194
				WA Reg. No. 2935-13001
		Renegade-EA	Wilbur-Ellis Co. LLC (Wilbur-Ellis Co.)	CA Reg. No. 2935-50201
				WA Reg. No. 2935-15002
		Sunburn	Red River Specialties, Inc.	
		SunEnergy	Brewer International	
		Sunset	Red River Specialties, Inc.	
		Sun Wet	Brewer International	
		Super Kix	Wilbur-Ellis Co. LLC (Wilbur-Ellis Co.)	
		Super Spread MSO	Wilbur-Ellis Co. LLC (Wilbur-Ellis Co.)	
	Methylated Seed Oil + Organosilicone			
		Alligare MVO Plus	Alligare, LLC	
		Turbulence	WinField United (Winfield Solutions, LLC)	

Adjuvant	Adjuvant	Trade		
Class	Type	Name	Manufacturer	Comments
Oil-based	Vegetable Oil			
		Amigo	Loveland Products, Inc.	CA Reg. No. 34704-50028-AA
				WA Reg. No. 34704-04002
		BeanOil	Drexel Chemical Company	
		Competitor	Wilbur-Ellis Co. LLC (Wilbur-Ellis Co.)	CA Reg. No. 2935-50173
				WA Reg. No. AW-2935-04001
		Elite Natural	Red River Specialties, Inc.	
		Motion	Exacto, Inc.	
		Noble	WinField United (Winfield Solutions, LLC)	
		Vegetoil	Drexel Chemical Company	
Fertilizer-based				
	Nitrogen-based			
		Actamaster Soluble Spray Adjuvant	Loveland Products, Inc.	WA Reg. No. 34704-50001
		Actamaster Spray Adjuvant	Loveland Products, Inc.	WA Reg. No. 34704-50006
		Alliance	WinField United (Winfield Solutions, LLC)	CA Reg. No. 1381-50002-AA
				WA Reg. No.1381-05005
		AMS-All	Drexel Chemical Company	
		AMS-Supreme	Drexel Chemical Company	
		AMS-Xtra	Drexel Chemical Company	
		Bronc	Wilbur-Ellis Co. LLC (Wilbur-Ellis Co.)	
		Bronc Max	Wilbur-Ellis Co. LLC (Wilbur-Ellis Co.)	
		Bronc Max EDT	Wilbur-Ellis Co. LLC (Wilbur-Ellis Co.)	
		Bronc Plus Dry	Wilbur-Ellis Co. LLC (Wilbur-Ellis Co.)	
		Bronc Plus Dry EDT	Wilbur-Ellis Co. LLC (Wilbur-Ellis Co.)	WA Reg. No.2935-03002
		Bronc Total	Wilbur-Ellis Co. LLC (Wilbur-Ellis Co.)	
		Cayuse Plus	Wilbur-Ellis Co. LLC (Wilbur-Ellis Co.)	CA Reg. No. 2935-50171
		Class Act NG	WinField United (Winfield Solutions, LLC)	WA Reg. No. 1381-01004
		Combelt Gardian	Van Diest Supply Co.	
		Combelt Gardian Plus	Van Diest Supply Co.	
		Corral AMS Liquid	WinField United (Winfield Solutions, LLC)	WA Reg. No. 1381-01006
		Dispatch	Loveland Products, Inc.	
		Dispatch 111	Loveland Products, Inc.	
		Dispatch 2N	Loveland Products, Inc.	
		Dispatch AMS	Loveland Products, Inc.	
		Flame	Loveland Products, Inc.	
		Holzit	Drexel Chemical Company	
		Nitro-Surf	Drexel Chemical Company	
		Quest	Helena Agri-Enterprises, LLC (Helena Chemical Company)	CA Reg. No. 5905-50076-AA
		TransActive HC	Helena Agri-Enterprises, LLC (Helena Chemical Company)	
Special Function				
	Buffering Agent			
		Brimstone	Wilbur-Ellis Co. LLC (Wilbur-Ellis Co.)	
		BS-500	Drexel Chemical Company	
		Buffers P.S.	Helena Agri-Enterprises, LLC (Helena Chemical Company)	CA Reg. No. 5905-50062-ZA
		Oblique	Red River Specialties, Inc.	
		Spray-Aide	Miller Chem. & Fert. Corp.	CA Reg. No. 72-50006-AA
		Tri-Fol	Wilbur-Ellis Co. LLC (Wilbur-Ellis Co.)	CA Reg. No. 2935-50152
		Yardage	Exacto, Inc.	

Adjuvant	Adjuvant	Trade		
Class	Type	Name	Munufacturer	Comments
Special Function				
	Colorants/Dyes			
		Alligare Super Marking Dye	Alligare, LLC	
		BullsEye	Milliken Chemical	
		Elite Ruby	Red River Specialties, Inc.	
		Elite Sapphire	Red River Specialties, Inc.	
		Elite Sapphire WSB	Red River Specialties, Inc.	
		Elite Splendor	Red River Specialties, Inc.	
		Hash Mark Blue Liquid	Exacto, Inc.	
		Hash Mark Blue Liquid HC	Exacto, Inc.	
		Hash Mark Blue Powder	Exacto, Inc.	
		Hash Mark Green Liquid	Exacto, Inc.	
		Hash Mark Green Powder	Exacto, Inc.	
		Hi-Light	Becker-Underwood	
		Hi-Light WSP	Becker-Underwood	
		Marker Dye	Loveland Products, Inc.	
		Mark-It Blue	Monterey AgResources	
		Mark-It Red	Monterey AgResources	
		Mystic HC	WinField United (Winfield Solutions, LLC)	
		Signal	Precision Laboratories, LLC	
		SPI-Max Blue Spray Marker	PROKoZ	
		Spray Indicator XL	Helena Agri-Enterprises, LLC (Helena Chemical Company)	
		TurfTrax	Loveland Products, Inc.	
		TurfTrax Blue Spray Indicator	Loveland Products, Inc.	
	Compatibility/Suspension Agent			
		Convert	Precision Laboratories, LLC	WA Reg. No. 9349-13007
		E Z MIX	Loveland Products, Inc.	CA Reg. No. 36208-50006
		Mix	Drexel Chemical Company	
		Support	Loveland Products, Inc.	WA Reg. No. 34704-04011
	Defoaming Agent			
		Alligare Anti-Foamer	Alligare, LLC	
		Alligare Defoamer	Alligare, LLC	
		Combelt Defoamer	Van Diest Supply Co.	
		Defoamer	Brewer International	
		Fighter-F 10	Loveland Products, Inc.	
		Fighter-F Dry	Loveland Products, Inc.	
		Foam Buster	Helena Agri-Enterprises, LLC (Helena Chemical Company)	CA Reg. No. 5905-50072-AA
		Foambuster Max	Helena Agri-Enterprises, LLC (Helena Chemical Company)	
		Foam Fighter	Miller Chem. & Fert. Corp.	CA Reg. No. 72-50005-AA
		Fome-Kil	Drexel Chemical Company	
		FTF Defoamer	Wilbur-Ellis Co. LLC (Wilbur-Ellis Co.)	WA Reg. No. 2935-13002
		Gundown Max	Precision Laboratories, LLC	WA Reg. No. 9349-13013
		No Foam	Wilbur-Ellis Co. LLC (Wilbur-Ellis Co.)	CA Reg. No. 2935-50136
		Red River Defoamer	Red River Specialties, Inc.	
		Reverse	Exacto, Inc.	
		Suppression	Chemorse Ltd.	CA Reg. No. 1050984-50007
				WA Reg. No. 46059-12001
		Tripleline	Creative Marketing & Research, Inc.	CA Reg. No. 1050775-50023-AA
		Unfoamer	Loveland Products, Inc.	CA Reg. No. 34704-50062

Adjuvant Class	Adjuvant Type	Trade Name	Munufacturer	Comments
Special Function				
	Deposition Aid			
		Agripharm Drift Control	Walco International	
		Alligare Downforce	Alligare, LLC	
		Alligare Pattern	Alligare, LLC	CA Reg. No. 81927-50008-AA
		Bivert	Wilbur-Ellis Co. LLC (Wilbur-Ellis Co.)	CA Reg. No. 2935-50163
		Border AQ	Precision Laboratories, LLC	WA Reg. No. 9349-13009
		Chem-Trol	Chemorse Ltd.	CA Reg. No. 1050984-50001-AA
				WA Reg. No. 1050984-50001
		Clasp	Helena Agri-Enterprises, LLC (Helena Chemical Company)	WA Reg. No. 5905-13002
		Compadre	Loveland Products, Inc.	CA Reg. No. 34704-50050
				WA Reg. No. 34704-06004
		Coverage G-20	Wilbur-Ellis Co. LLC (Wilbur-Ellis Co.)	
		Crosshair	Wilbur-Ellis Co. LLC (Wilbur-Ellis Co.)	
		CWC Sharpshooter	CWC Chemical, Inc.	
		Cygnat Plus	Brewer International	CA Reg. No. 1051114-50001
		Diligence	Wilbur-Ellis Co. LLC (Wilbur-Ellis Co.)	
		Direct	Precision Laboratories, LLC	
		Droplex	WinField United (Winfield Solutions, LLC)	
		EDT Concentrate	Wilbur-Ellis Co. LLC (Wilbur-Ellis Co.)	
		Elite Secure Ultra	Red River Specialties, Inc.	
		Exit	Miller Chem. & Fert. Corp.	CA Reg. No. 72-50014-AA
		Grounded	Helena Agri-Enterprises, LLC (Helena Chemical Company)	
		Grounded - CA	Helena Agri-Enterprises, LLC (Helena Chemical Company)	CA Reg. No. 5905-50096-AA
		Grounded - W	Helena Agri-Enterprises, LLC (Helena Chemical Company)	WA Reg. No. 5905-13001
		Infuse	Loveland Products, Inc.	
		Intac Plus	Loveland Products, Inc.	
		Interlock	WinField United (Winfield Solutions, LLC)	
		Liberate	Loveland Products, Inc.	CA Reg. No. 34704-50030-AA
				WA Reg. No. 34704-04008
		LOX	Drexel Chemical Company	
		LOX PLUS	Drexel Chemical Company	
		Mist-Control	Miller Chem. & Fert. Corp.	CA Reg. No. 72-50011-AA
		Offside	Exacto, Inc.	
		Pointblank	Helena Agri-Enterprises, LLC (Helena Chemical Company)	CA Reg. No. 52467-50008-AA-5905
		Poly Control 2	Brewer International	
		Reign	Loveland Products, Inc.	CA Reg. No. 34704-50045
				WA Reg. No. 34704-05010
		Reign LC	Loveland Products, Inc.	CA Reg. No. 34704-50048
		Secure Ultra	Red River Specialties, Inc.	
		Strike Zone DF	Helena Agri-Enterprises, LLC (Helena Chemical Company)	CA Reg. No. 5905-50084-AA
		Sustain	Miller Chem. & Fert. Corp.	CA Reg. No. 72-50015-AA
		Syndetic	Chemorse Ltd.	CA Reg. No. 1050984-50003-ZA
		Volare DC	Precision Laboratories, LLC	CA Reg. No. 9349-50004-AA
				WA Reg. No. 9349-13006
		Weather Gard	Loveland Products, Inc.	CA Reg. No. 34704-50042-AA
	Diluent/Deposition Agent			
		Bark Oil	Crop Production Services	
		Bark Oil EC	Crop Production Services	
		Elite Premier	Red River Specialties, Inc.	
		Elite Premier Blue	Red River Specialties, Inc.	
		Hy-Grade EC	CWC Chemical, Inc.	

Adjuvant Class	Adjuvant Type	Trade Name	Munufacturer	Comments
Special Function				
	Diluent/Deposition Agent - cont.			
		Hy-Grade I	CWC Chemical, Inc.	
		Improved JLB Oil Plus	Brewer International	
		In-Place	Wilbur-Ellis Co. LLC (Wilbur-Ellis Co.)	CA Reg. No. 2935-50169
		JLB Oil Plus	Brewer International	
		Red River Basal Oil	Red River Specialties, Inc.	
		Thinvert Concentrate	Waldrum Specialties, Inc.	
		Thinvert RTU	Waldrum Specialties, Inc.	
		W.E.B. Oil	Wilbur-Ellis Co. LLC (Wilbur-Ellis Co.)	CA Reg. No. 2935-50166
				WA Reg. No. AW 2935-70023
	Foam Marker			
		Align	Helena Agri-Enterprises, LLC (Helena Chemical Company)	
		F.M.-160	Drexel Chemical Company	
		R-160	Wilbur-Ellis Co. LLC (Wilbur-Ellis Co.)	
		Red River Foam Marker	Red River Specialties, Inc.	
		Trekker Trax	Loveland Products, Inc.	
		Tuff Trax Foam Concentrate	Loveland Products, Inc.	
	Invert Emulsion Agent			
		Redi-vert II	Wilbur-Ellis Co. LLC (Wilbur-Ellis Co.)	CA Reg. No. 2935-50168
	Tank Cleaner			
		All Clear	Loveland Products, Inc.	
		Back Field	Exacto, Inc.	
		Combelt Tank-Aid	Van Diest Supply Co.	
		Elite Vigor	Red River Specialties, Inc.	
		Kutter	Wilbur-Ellis Co. LLC (Wilbur-Ellis Co.)	
		Neutral-Clean	Wilbur-Ellis Co. LLC (Wilbur-Ellis Co.)	
		Pro Tank	WinField United (Winfield Solutions, LLC)	
		Red River Tank Cleaner	Red River Specialties, Inc.	
		SSC-11	Wilbur-Ellis Co. LLC (Wilbur-Ellis Co.)	
		Tank and Equipment Cleaner	Loveland Products, Inc.	
		Wipe Out	Helena Agri-Enterprises, LLC (Helena Chemical Company)	
	Water Conditioning			
		AccuQuest WM	Helena Agri-Enterprises, LLC (Helena Chemical Company)	
		Alligare Water Conditioner	Alligare, LLC	
		Blendmaster	Loveland Products, Inc.	
		Breeze	WinField United (Winfield Solutions, LLC)	WA Reg. No. 1381-13007
		Choice	Loveland Products, Inc.	CA Reg. No. 34704-50027-AA
				WA Reg. No. 34704-04004
		Choice Weather Master	Loveland Products, Inc.	CA Reg. No. 34704-50038-AA
				WA Reg. No. 34704-05005
		Choice Xtra	Loveland Products, Inc.	
		Climb	Wilbur-Ellis Co.	CA Reg. No. 2935-50181
				WA Reg. No. 2935-09001
		Completion	Exacto, Inc.	
		Combelt N-Tense	Van Diest Supply Co.	
		Cut-Rate	Wilbur-Ellis Co. LLC (Wilbur-Ellis Co.)	
		Cynder	Wilbur-Ellis Co. LLC (Wilbur-Ellis Co.)	CA Reg. No. 2935-50211

[illegible]

APPENDIX C
EXAMPLE OF BLM PESTICIDE USE PROPOSAL SUBMITTAL FORM

UNITED STATE DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
PESTICIDE USE PROPOSAL

STATE: _____
COUNTY: _____
DISTRICT: _____
DURATION OF PROPOSAL: _____
LOCATION: _____

DATE: _____
PROPOSAL NUMBER: _____
EA REFERENCE NUMBER: _____
DECISION RECORD (DR) NUMBER: _____

ORIGINATOR – NAME: _____
ORIGINATOR – COMPANY: _____
ORIGINATOR – CONTACT INFORMATION: _____
PROPOSAL PREPARER – NAME: _____
PROPOSAL PREPARER – COMPANY: _____
PROPOSAL PREPARER – CONTACT INFORMATION: _____

.....

I. APPLICATION INFORMATION – Including mixtures and adjuvants):

1. TRADE NAME(S): _____
2. COMMON NAME(S) _____
3. EPA REGISTRATION NUMBER(S): _____
4. MANUFACTURER(S): _____
5. METHOD OF APPLICATION: _____
6. MAXIMUM RATE OF APPLICATION – AS STATED IN THE EIS:
 - a. Pounds Active Ingredient or Acid Equivalent: _____
7. MAXIMUM RATE OF APPLICATION – AS STATED ON THE LABEL:
 - a. Formulated Product: _____
 - b. Pounds Active Ingredient or Acid Equivalent: _____
8. INTENDED RATE OF APPLICATION:
 - a. Formulated Product: _____
 - b. Pounds Active Ingredient or Acid Equivalent: _____
9. APPLICATION DATE(S): _____
10. NUMBER OF APPLICATIONS: _____

II. PEST [List specific pest(s) and reason(s) for the proposed application of the pesticide]:

III. DESIRED RESULTS OF THE APPLICATION – LINKED TO THE OBJECTIVES OF THE APPLICATION:

IV. APPLICATION SITE DESCRIPTION:

1. ESTIMATED NUMBER OF ACRES: _____
2. GENERAL DESCRIPTION (Describe land type or use, size, stage of growth of target species, soil characteristics, and any additional information that may be important in describing the area to be treated.)

This image shows a single sheet of white paper with horizontal blue ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

V. SENSITIVE ASPECTS AND PRECAUTIONS: In order to assist in tracking potential impacts associated with Federally threatened, endangered or proposed species, please answer the following questions and then provide the site specific conditions information.

1. Are there special status species (SSS) in the project area? "Yes" or "No" (Circle One)
- A. If "No" Proceed to the site description portion of this section.
- B. If "Yes" Are any of the SSS also federally threatened, Endangered, or proposed? "Yes" or "No" (Circle One)
- a. If "No" Proceed to the site description portion of this section.
- b. If "Yes" Did your Field Office coordinate with the local Fish and Wildlife Service Office and/or NMFS "Yes" or "No" (Circle One)
- I. If "No" Explain _____
- _____
- _____
- II. If "Yes" Was Section 7 Consultation Completed "Yes" or "No" (Circle One)
1. If "No" Explain _____
- _____
- _____
2. If "Yes" What extent of Section 7 was completed? "Formal Consultation" (Circle One) "Informal Consultation" "Technical Assistance"
- 2b. Describe the outcome of the consultation:
- _____
- _____

V. SENSITIVE ASPECTS AND PRECAUTIONS – (CONTINUED): (Describe sensitive areas – marsh, endangered, threatened, candidate, and sensitive species habitat – and distance to application site. List measures to be taken to avoid impact to these areas):

VI. NON-TARGET VEGETATION (Describe potential immediate and cumulative impacts to non-target pests in project area as a result of the pesticide application. Identify any planned mitigation measures that will be employed – BE GENERAL, SPECIFICS DISCUSSED IN THE EA):

VII. INTEGRATED PEST MANAGEMENT PRACTICES CONSIDERED IN THE OVERALL PROJECT :

VIII. SIGNATURES:

1. Pesticide Use Proposal's Originator: _____ Date: _____
 a. Company: _____
2. Certified Pesticide Applicator: _____ Date: _____
 a. License Number: _____
 b. Certifying Organization: _____
3. Field Office Pesticide/Noxious
 Weed Coordinator: _____ Date: _____
4. Field Office Manager _____ Date: _____
5. BLM State Pesticide
 Coordinator: _____ Date: _____
6. Deputy State Director: _____ Date: _____
 ☐ Concur or Approved
 ☐ Not Concur or Disapproved
 ☐ Concur or Approved With Modifications
 ○ Any changes (modifications) to this proposal by the State Pesticide
 Coordinator will be listed in an attached memo to the manager
 requesting approval from the Deputy State Director.

APPENDIX D
EXAMPLE OF A BLM PESTICIDE USE FORM

U.S. Department of Interior

Bureau of Land Management

PESTICIDE USE PROPOSAL

State

County

District or Field Office

Location

(Attach maps or submit GIS Spatial Data)

Originator Name

Originator Company or Organization

Originator Contact Information

Estimated Number of Acres

General Description of Treatment Site

Proposal Number *(completed by the BLM)*

EA Reference Number

Project Name

Duration of Proposal

Date

Proposal Preparer Name

Proposal Preparer Organization

Proposal Preparer Contact Information

Table 1 Pesticide Information

Use the following tables or attach tables to indicate which products are proposed to be used. The row numbers should be consistent throughout each table. Also submit copies of product labels and Material Safety Sheets along with this Pesticide Use Proposal.

[illegible]

Table 2 Pesticide Application Rates

[illegible]

Table 4 Pesticide Timing and Target Species									
---	--	--	--	--	--	--	--	--	--

[illegible]

Table 5 Adjuvants (Colorants, Diluents, Markers, Surfactants, etc)	
--	--

[illegible]

Desired Results of Treatment

Non-Target Impacts and Planned Mitigation

Integrated Pest Management Practices Considered

Sensitive Aspects and Precautions (Completed by the BLM)

Are there any Special Status Species in the proposed treatment area?

☐ Yes

☐ No

If No, proceed to Site Description section

If Yes, are the Special Status Species considered threatened, endangered and proposed for listing?

Yes

No

If No, proceed to Site Description section

If Yes, did your Field Office coordinate with the appropriate U.S Fish and Wildlife or National Marine Fisheries office?

Yes

No

If No, proceed to Site Description section and explain

If Yes, was ESA Section 7 consultation completed?

☐ Yes

☐ No

If No, proceed to Site Description section and explain

If yes, select extent of consultation and describe the outcome in the Site Description section

Site Description - Sensitive Aspects and Precautions (Completed by the BLM)

Provide appropriate explanations regarding the Special Status Species questions above. Also, identify and describe any BLM Special Status Species.

Signatures

Originator

Date

Field Office Coordinator

Date

Field Office Manager

Date

State Office Coordinator

Date

Deputy State Director

Date

Approved

Disapproved

Comments

Title 18 U.S.C Section 1001 and Title 43 U.S.C Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

APPENDIX E
WEED STIPULATIONS FOR CONSTRUCTION PROJECTS ON
BLM LAND

Weed Stipulations:

1. The Project proponent will limit the size of any vegetation and/or ground disturbance to the absolute minimum necessary to perform the activity safely and as designed. The project proponent will avoid creating soil conditions that promote weed germination and establishment.
2. At the onset of Project planning in the NEPA analysis phase, the Project proponent, Project lead or the LVFO noxious weed coordinator will complete the Risk Assessment Form for Noxious/Invasive Weeds. This will provide information about the methods of weed treatments and weed prevention schedules for the management of noxious weeds within the Project footprint. This will identify the level of noxious weed management necessary for stipulation 3 below.
3. The Project proponent will coordinate Project activities with the BLM Weed Coordinator (702-515-5295) regarding any proposed herbicide treatment. If herbicide treatment is needed, the Project proponent will prepare, submit, obtain and maintain a PUP for the proposed action. Weed treatments may include the use of herbicides, and only those herbicides approved for use on public lands by the BLM.
4. Before ground-disturbing activities begin, the Project proponent will review the weed risk assessment and prepare an Integrated Weed Management Plan that will inventory and prioritize weed infestations for treatment within the Project footprint. Should the weeds spread beyond the Project footprint as a result of Project activity, these weeds will be treated as a part of the Project. This will include access routes.
5. The Project proponent will begin Project operations in weed-free areas whenever feasible before operating in weed-infested areas.
6. The Project proponent will locate pits and staging areas for the use of equipment storage, machine and vehicle parking or any other area needed for the temporary placement of people, machinery and supplies. These staging areas will be selected from locations that are relatively weed-free. The Project proponent will avoid or minimize all types of travel through weed-infested areas or restrict major activities to periods of time when the spread of seed or plant parts are least likely.
7. Project workers need to inspect, remove, and dispose of weed seed and plant parts found on their clothing and equipment. Disposal methods vary depending on the project.
8. The Project proponent will evaluate options, including area closures, to regulate the flow of traffic on sites where native vegetation needs to be established.
9. A noxious weed inventory will be performed for the Project footprint prior to any ground disturbing activities. The results of this initial inventory will be

incorporated into the Integrated Weed Management Plan. The type of survey needed will depend on the size of the Project footprint.

10. The Project proponent shall be responsible for controlling all undesirable invading plant species (including listed noxious weeds and other invasive plants including as undesirable by federal, state or local authorities) within the boundaries of their authorization area and Bureau authorized ancillary facilities (e.g. access and utility corridors), including all operating and reclaimed areas, until revegetation activities have been deemed successful and responsibility released by the authorized officer. Control standards and measures proposed must conform to applicable state and federal regulations.
11. The Project proponent shall use weed-free seed for reclamation. Other organic products procured for erosion control, stabilization, or revegetation (e.g. straw bales, organic mulch) must be certified weed-free.
12. The Project proponent is responsible for ensuring that all Project related vehicles and equipment arriving at the site (including, but not limited to, drill rigs, dozers, support vehicles, pickups and passenger vehicles, including those of the operator, any contractor or subcontractor and invited visitors) do not transport noxious weeds onto the Project site. The Project proponent shall ensure that all such vehicles and equipment that will be traveling off constructed and maintained roads or parking areas within the Project area have been power-washed, including the undercarriage, since their last off-road use and prior to off-road use on the Project. When beginning off road use on the Project, such vehicles and equipment shall not harbor soil, mud or plant parts from another locale. Vehicles that have traveled in an off-road area known to have a significant weed population will have excessive dirt and debris knocked off that could harbor plant material or seeds from weeds. Seeds and plant parts will be collected, bagged and deposited in landfills through the waste disposal system when practical.
13. Should undesirable invasive plants become established on developed Project areas prior to reclamation reshaping; appropriate measures will be taken to ensure that invasive plants are eradicated prior to reclamation earthwork. Should undesirable invasive plants become established on reshaped areas prior to reclamation seeding; appropriate measures will be taken to ensure that invasive plants are eradicated prior to seeding the Project site.

Appendix H

Decommissioning Plan

CONCEPTUAL DECOMMISSIONING PLAN

EAGLE SHADOW MOUNTIAN SOLAR PROJECT

CLARK COUNTY, NEVADA

June 2019

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FIGURES

Figure 1: Project Location

Figure 2: Project Area

Acronyms and Abbreviations

BIA	Bureau of Indian Affairs
BLM	Bureau of Land Management
CSP	Concentrating Solar Power
EPA	Environmental Protection Agency
ESA	Environmental Site Assessment
NEPA	National Environmental Policy Act
O&M	Operations and Maintenance
Project	Eagle Shadow Mountain Solar Project
PV	Photovoltaic
PPA	Power Purchase Agreement
RCRA	Resource Conservation and Recovery Act
Reservation	Moapa River Indian Reservation
TSCA	Toxic Substances Control Act

1 Introduction

1.1 Purpose of the Decommissioning Plan

The purpose of this Decommissioning Plan is to establish the conceptual methodologies that would be employed for decommissioning activities associated with the permanent closure of the facilities at the Eagle Shadow Mountain Solar Project (Project or facility). The actions implemented during the facility closure would be determined based on the expected future use of the site. Therefore, a more detailed decommissioning plan would be developed in advance of the start of decommissioning activities.

The Project is expected to operate at a minimum for the life of the term of the Power Purchase Agreement with NV Energy (30 years). Because much of the needed electrical infrastructure will have been developed, it is possible that the solar field would continue to be upgraded and used to generate solar energy even beyond the term of the initial lease and energy purchase agreements, remaining in solar energy production for the foreseeable future. It is also possible that the Tribe could re-purpose the Project site at the termination of solar project. Certain facility components such as the access roads, electrical transmission lines, Operations and Maintenance (O&M) building, and others could be used to support other future uses on this site.

For purposes of developing this plan, it is assumed that if and when the Project is decommissioned, all Project structures and electrical equipment would be removed from the solar field and associated rights-of way (ROWS) and the disturbed areas would be reclaimed in accordance with the Restoration Plan.

This conceptual decommissioning plan addresses the following:

- Project Description
- Regulatory Criteria
- Decommissioning Activities
 - Pre-Decommissioning
 - Removal of Facilities
 - Hazardous Waste Management
 - Debris Management, Disposal, and Recycling
 - Post-Demolition Site Stabilization
- Project Decommissioning Costs and Bonding

As mentioned above, because this document addresses Project actions that would occur well in the future, it will be updated and finalized in the months prior to the scheduled decommissioning. This will ensure the final plan addresses the proposed future land use of the site and the applicable rules and regulations in place at that time.

2 Project Description

2.1 Project Area

The Proposed Project would be located approximately 30 miles northeast of Las Vegas in Clark County, Nevada. The solar project would be located on up to 2,200 acres of tribal trust land, west of I-15 and east of U.S. Highway 93, in Sections 1, 9, 10, 11, 14, 15, 16, 21 and 22 of Township 16 South, Range 64 East. These lands are currently vacant except for roads, pipelines, a tribal aggregate operation, and a well.

The portion of the proposed 12.5-mile gen-tie line located on Tribal lands within the designated utility corridor managed by the BLM occur within Sections 12, 13, and 14 in Township 16 South, Range 64 East; Sections 5, 6, and 7 in Township 16 South, Range 65 East; and Sections 12, 13, 14, 22, 23, 27, 28, 32, and 33 in Township 15 South, Range 65 East. The short segment on Federal lands managed by the BLM would be within Section 7 in Township 16 South, Range 66 East and the portion on private lands owned by NVE adjacent to the Reid-Gardner Substation would be within Sections 5 and 6 in Township 16 South, Range 66 East. All of these lands are adjacent to multiple existing linear electric transmission and pipeline utilities and private lands (owned by NV Energy) adjacent to the Reid-Gardner Substation.

2.2 Proposed Project

The following describes the major features of the proposed Project. For a comprehensive description of the proposed Project, refer to the associated Environmental Impact Statement for the Eagle Shadow Mountain Solar Project for the Project design details.

The Project will consist of an up to 300 megawatt alternating current (MWac) solar energy generating facility using photovoltaic (PV) technology and associated infrastructure. Project components include on-site facilities, off-site facilities, and temporary facilities needed to construct the Project. The solar site would be located entirely on Tribal lands. Major onsite facilities include the solar field comprised of multiple blocks of PV solar panels mounted on single-axis tracking systems, associated inverter and transformer equipment, an energy storage system (ESS), a project substation, and operation and maintenance (O&M) facilities.

The offsite facilities would include an approximately 12.5-mile dual-circuit 230kV gen-tie line located on Tribal lands, BLM-administered lands, and private lands owned by NV Energy. Most of the gen-tie would be within a Federally-designated utility corridor on Tribal lands. This line would require a right-of-way (ROW) width of 125 to 200 feet. The Applicant would construct the gen-tie from the Project substation to a structure located on BLM-administered land in the SW¼ of the NE¼ of Section 7 referred to as the Point of Change of Ownership (POCO). From the POCO structure, the remaining portion of the gen-tie would be constructed by NVE to the Reid Gardner Substation. Additional offsite facilities include an existing road that would provide access to the Project and electric distribution and communication lines.

Temporary facilities that would be removed at the end of construction include laydown and construction areas and water storage tanks also located on Tribal lands.

Power produced by the Project would be conveyed to the regional transmission system via the gen-tie interconnection to NVE's existing 230kV Reid-Gardner Substation.

Access Roads

The Project would require vehicular access for construction, operation, and maintenance. The access roads would be utilized for delivery of all Project components, and would be used by workers traveling to and from the site for construction. Main access to the ESMSP site for construction and through operations and decommissioning would be provided via existing roads. Access to this portion of the Reservation would be via I-15, US Highway 93, and North Las Vegas Boulevard to existing improved roads on the Reservation and would not be reclaimed.

Within the solar field, access ways would be built to provide vehicle access to the solar equipment (PV modules, inverters, transformers) for O&M activities. These access ways would be located around the arrays and between the panel rows in the solar field. The existing soil surface of all interior access ways would be graded. In addition to grading, interior access ways that lead to inverter stations would be compacted using onsite materials. The access roads within the solar facility would be reclaimed during decommissioning.

Most of the structures along the proposed gen-tie line would be accessed via new spur roads constructed from existing utility access roads. Where the proposed line does not parallel existing lines, a new road would be developed within the ROW to facilitate access to the gen-tie transmission structures. New gen-ties access roads and spur roads would typically be 12 feet wide and bladed and would be compacted to ensure stability if needed. Access roads parallel to the gen-tie alignment and spur roads would be left in place but would not be maintained following construction. New and existing gen-tie access roads would not be reclaimed during decommissioning.

3 Regulatory Criteria

During the decommissioning process, all activities will be conducted in compliance with all applicable Federal and Tribal regulations in place at the time. Consultation with the Tribe, BIA, BLM, and any other involved entities would be conducted to ensure that all Federal and Tribal requirements are addressed.

The primary guidance documents for decommissioning will be the Final Decommissioning Plan (prepared just in advance of project closure) and the Restoration Plan.

Federal requirements involving hazardous wastes and toxic substances will also be followed during decommissioning activities. Among these are the Toxic Substances Control Act (TSCA) (15 U.S.C. §2601) that requires reporting, record-keeping and testing requirements and restrictions relating to the use and disposal of chemical substances and/or mixtures. TSCA also addresses the production, importation, use and disposal of specific chemicals (EPA 2016). The Resource Conservation and Recovery Act (RCRA) (42 U.S.C. §6901) gives the EPA the authority to control hazardous waste from its generation until its disposal, including transportation, treatment, and storage (EPA 2011).

Coordination with the Tribe and agencies throughout the life of the Project, including decommissioning, is critical so that applicable regulations are not violated and the public and the environment are not impacted by the Project.

4 Project Decommissioning

The procedures described for decommissioning are designed to promote public health and safety, environmental protection and compliance with applicable regulations. It is assumed that decommissioning will begin approximately 30 or more years after Project operation is initiated. The Project decommissioning plan may incorporate the sale of some of the facility components via the used equipment market and recycling of components. Decommissioning will be conducted in accordance with a Final Decommissioning Plan that will be developed in the months prior to decommissioning being initiated.

This conceptual decommissioning plan assumes that all equipment and facilities within and associated with the solar field will be removed. The transmission lines and internal solar facility access roads would also be restored to as close to its original state as practicable. A compliance inspection would be performed by BLM on the Project's BLM lands.

4.1 Pre-Decommissioning Activities

Pre-decommissioning activities will be conducted to prepare the Project for demolition. This would include assessing the existing site conditions and development of the Final Decommissioning Plan and schedule as described above.

An Environmental Site Assessment (ESA) will be conducted before any decommissioning activities occur. The ESA will document the existing conditions of the solar field, including the location and presence of hazardous materials on the site. The results of the ESA will be used to define any remediation or cleanup methodologies that could be required and incorporated into the Final Decommissioning Plan. This documentation would ensure that areas containing hazardous materials can be decommissioned appropriately.

Other pre-decommissioning activities would include removing hazardous materials from the site including residues that occur in equipment. All operational liquids and chemicals are expected to be removed and disposed of as discussed in Section 4.4. Hazardous material and petroleum containers, , and other similar structures shall be rinsed clean, when feasible, and the waste liquid collected for off-site disposal.

Locations for decommissioned structures, non-hazardous waste, and debris will be designated on the Final Decommissioning Plan to facilitate the decommissioning process and off-site removal.

4.2 Removal of Facilities

Site decommissioning and equipment removal may take a year or more. Therefore, access roads, fencing, electrical power, and raw/sanitary water facilities will temporarily remain in place for use by the

decommissioning and restoration workers until no longer needed. Therefore, these components would be the last to be removed prior to site rehabilitation.

Solar Field Above- and Below-Ground Facilities

Structures that need to be dismantled during decommissioning include the onsite substation, energy storage system, onsite O&M area, perimeter fence, solar field, and transformers and inverters. These structures will be dismantled and moved to designated areas for either recycling or disposal at an approved landfill.

Above-ground structures will be removed through mechanical or other approved methods. Below-ground structures will be removed or, upon agency approval, may remain in place to minimize soil disturbance. Below-ground facilities/utilities that potentially may be removed include embedded foundations (if present), electrical lines and conduits, and concrete slabs.

While holding or evaporation ponds are not anticipated as part of the proposed project, any evaporation, stormwater holding, or construction/decommissioning water holding ponds will be closed by removing any non-biodegradable materials (e.g., high density polyethylene (HDPE) liners), along with any hard surface/non-draining layers that may have been used as base material. The pond(s) will then be filled with weed- and other contaminant free-fill and brought to grade level.

Gen-Tie Transmission Lines

If the gen-tie transmission lines will not continue to be used by the Tribe for another purpose at the time of Project decommissioning, the lines will be removed. Decommissioning of the gen-tie will consist of removal of all structures associated with the construction of the transmission line(s) to include, but not limited to overhead conductors and the removal of poles. All steel will be recycled and the foundations will be removed to a depth of at least 2 feet below the ground surface, unless the Tribe or BLM does not require removal of the foundations. Aluminum from overhead conductors will be recycled.

Roads

Access and on-site roads will remain in place to accomplish decommissioning at the end of the facility's life and would be one of the last Project components to be removed. If any on-site roads developed in the solar facility are not needed for other future uses by the Tribe, any aggregate and/or other base material would be removed and recycled or transported to an appropriate disposal site (where applicable).

After the road materials are removed, the roads will be restored to approximate preconstruction conditions in accordance with the Restoration Plan.

4.3 Debris Management, Disposal, and Recycling

Each type of removed material or demolition debris will be placed in designated locations within the solar field. Each stockpile will be transported off-site to either a used equipment market, off-site recycling center, or approved landfill depending on the material type. Debris will be broken down into manageable sizes so that transportation is simplified.

4.4 Hazardous Waste Management

All disposal and transportation of hazardous waste will be conducted under compliance with RCRA (42 U.S.C. §6901), and TSCA (15 U.S.C. §2601), and other regulations as needed. In areas where no record of hazardous waste exposure occurred, a visual inspection would be conducted as part of the post-operational ESA described earlier. If a concern is identified, further evaluation of the area shall occur and the area or structure will be treated accordingly. A licensed state waste contractor would be used to ensure that all required laws and regulations have been met and to address any remaining requirements needed to successfully close the Project.

4.5 Post-Demolition Site Stabilization

Since minimal grading is being proposed during project construction, and because vegetation cover will be managed during operation of the proposed project, disturbed areas will be restored to promote pre-project drainage patterns, with the goal of reducing the potential for erosion. These activities will occur following the removal of project equipment in a given area. Once the site is stabilized, restoration activities required to return the disturbed areas to a pre-construction function will be conducted in accordance with the plans prepared as part of the Project. These plans include:

- Site Restoration Plan
- Integrated Weed Management Plan

The objectives of these plans include the following:

- Reduce potential for erosion,
- Promote habitat reestablishment
- Implement the weed management program that minimizes the need for non-native species eradication.

5 Project Decommissioning Costs and Bonding

Prior to the issuance of full notice to proceed, the Applicant will provide performance and reclamation bonding in an amount sufficient to ensure the implementation of the approved Decommissioning Plan for restoration and performance.

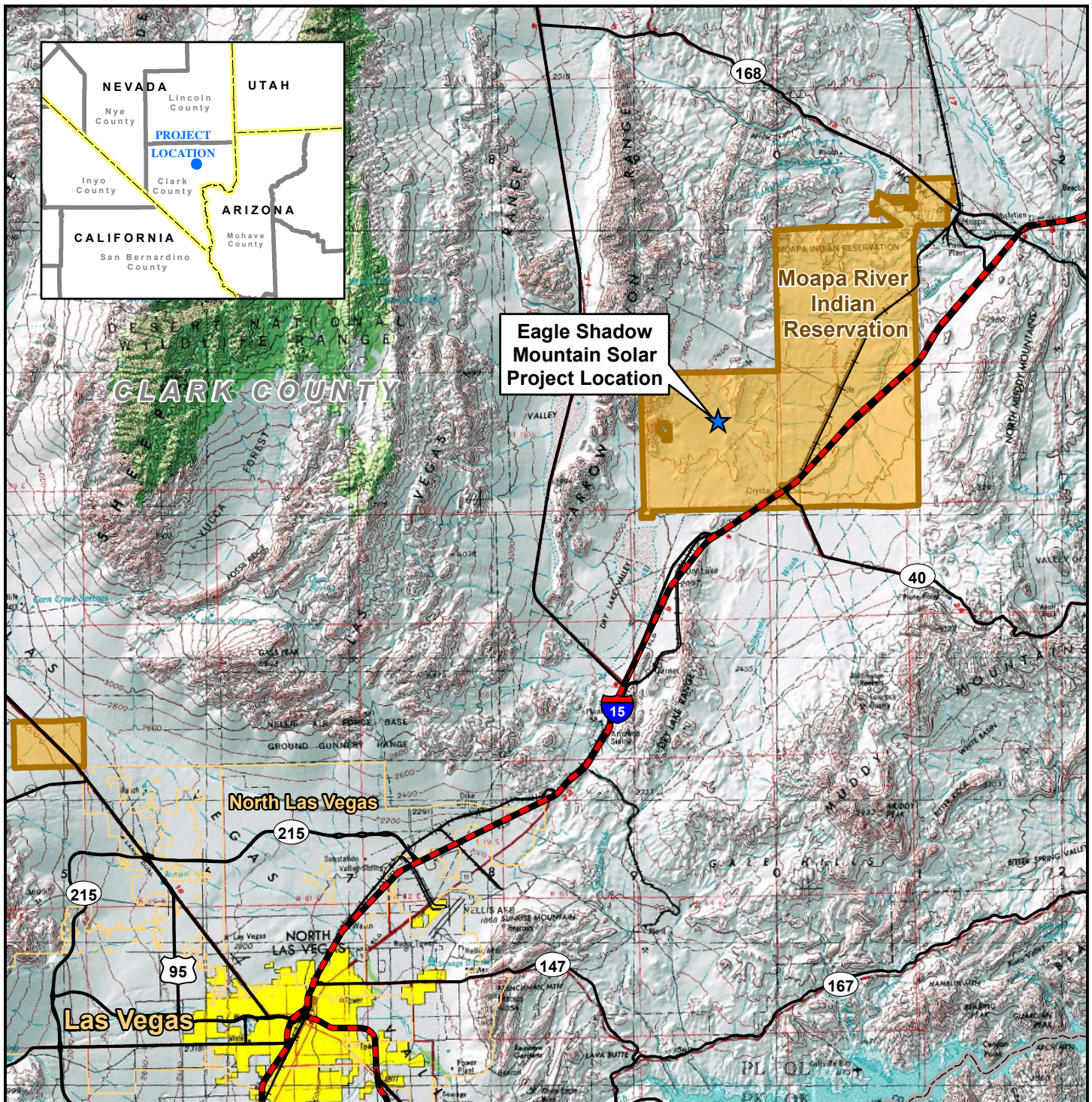
The bond instrument will be based on a decommissioning cost estimate provided by the Applicant and based on the final design of the Project. This estimate will consider any Project components that are expected to be left in place at the request of and for the benefit to the Tribe (e.g., gen-tie lines, access road). The decommissioning, performance and reclamation estimate will also include the residual value of any salvageable or recyclable property, as well as the then-current cost of decommissioning.

6 References

United States Environmental Protection Agency (EPA). 2011. Summary of the Resource Conservation and Recovery Act. <https://www.epa.gov/laws-regulations/summary-resource-conservation-and-recovery-act>.

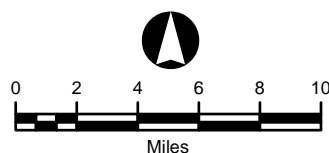
United States Environmental Protection Agency (EPA). 2016. Summary of the Toxic Substances Control Act. <https://www.epa.gov/laws-regulations/summary-toxic-substances-control-act>.

FIGURES



Legend

- Solar Project Location
- Interstate
- US/ State Highway
- Railroad
- Municipal Boundary
- Jurisdictional Land Ownership
- Indian Reservation



Universal Transverse Mercator
North American Datum 1983
Zone 11 North, Meters

Eagle Shadow Mountain Solar Project

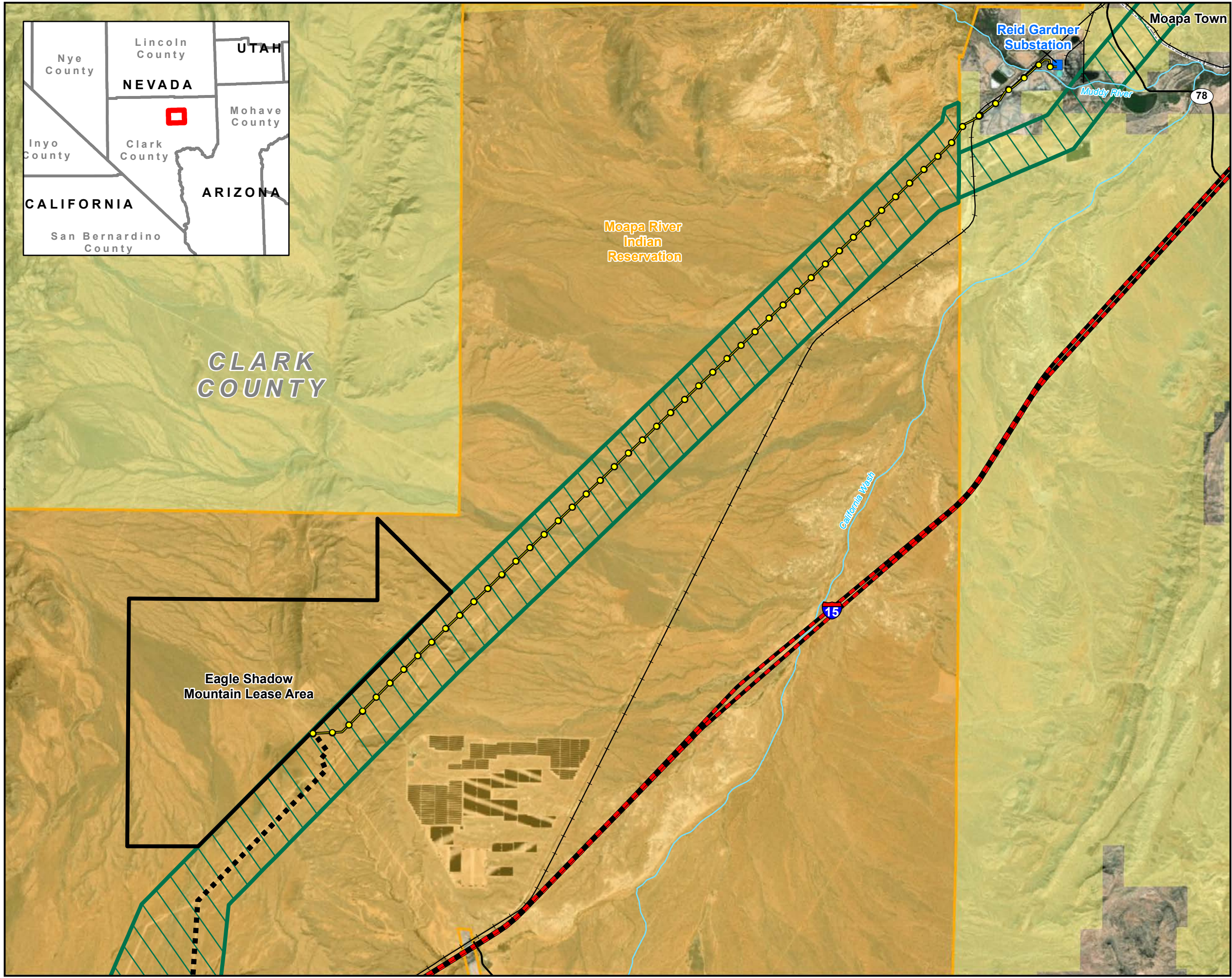
FIGURE 1
PROJECT LOCATION

Map Extent: Clark County, Nevada

Date: 11-06-18

Author: rnc

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Legend

- Project Components
- ESM Gen-Tie - Alternative
 - Eagle Shadow Mountain Solar Project Area
- General Features
- Existing Substation
 - Interstate
 - Major Highway
 - Railroad
 - Stream or River
 - Designated Utility Corridor
 - Municipal Boundary
- Jurisdictional Land Ownership
- Bureau of Land Management Land
 - Indian Reservation
 - Private Lands
- Existing Access Road



Universal Transverse Mercator
North American Datum 1983
Zone 11 North, Meters

Eagle Shadow Mountain Solar Project

Figure 2
ESM Solar Project Components

Map Extent: Clark County, Nevada

Date: 03-20-19	Author: rnc
G:\ESM\MXD's\Project Location_032019.mxd	

Appendix I

Jurisdictional Waters Report

March 1, 2019

U.S. Army Corps of Engineers

RE: Jurisdictional Delineation, Eagle Shadow Mountain Solar Project

To whom it may concern;

Submitted with this cover letter is the Jurisdictional Delineation for the 8minuteenergy Eagle Shadow Mountain Solar Project located near Moapa, NV. An approved jurisdictional determination is requested from the US Army Corps of Engineers. Feel free to contact me with any questions and/or comments.

Sincerely,



Andrew Butsavich
Project Manager/Environmental Scientist
Mobile: 702-813-8557
abutsavich@newfields.com

Preliminary Jurisdictional Determination Report

Eagle Shadow Mountain Solar Farm
February 2019



Prepared for:

325MK 8me LLC
250 Sutter Street, Suite 600
San Francisco, CA 94108

Prepared by:



3265 N. Fort Apache Road, Suite 110
Las Vegas, Nevada 89129

Prepared for:



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Acronyms and Abbreviations

BLM	Bureau of Land Management
Corps	United States Army Corps of Engineers
CWA	Clean Water Act
EPA	Environmental Protection Agency
GPS	global positioning system
I-15	Interstate 15
OHWM	ordinary high water mark
RPW	relatively permanent water
SSURGO	Soil Survey Geographic Database
TNW	traditional navigable water
USGS	United States Geological Service
UPRR	Union Pacific Rail Road
USDA	United States Department of Agriculture
WOUS	Waters of the United States

Executive Summary

325MK 8me LLC requested an evaluation of aquatic resources on lands proposed for development of the Eagle Shadow Mountain Solar Farm, primarily within the Moapa Band of Paiutes Moapa River Indian Reservation near Moapa, Nevada. 325MK 8me LLC proposes to construct a 300 megawatt alternating current solar photovoltaic energy generation facility and an approximately 12.4 mile transmission line.

The purpose of this evaluation was to determine if any wetlands or non-wetland Waters of the United States (WOUS) are present within the project area that may be regulated under the Clean Water Act and subject to the jurisdiction of the United State Army Corps of Engineers.

On August 22 through August 28, 2018, NewFields environmental scientists conducted field investigations to determine the extent of any potential jurisdictional WOUS occurring in the approximately 5,000-acre Project Area.

No wetlands were identified within the Project Area. 118,666 linear feet (22.442 acres) of drainages were delineated within the Project Area. However, due to a lack of hydrologic connectivity to traditional navigable waterways or other WOUS, only 3,440 linear feet (1.14 acres) of the delineated drainages within the Project transmission line were determined to be potential WOUS subject to the jurisdiction of the Corps.

Section 1. Introduction

325MK 8me LLC requested an evaluation of aquatic resources on lands proposed for the development of the Eagle Shadow Mountain Solar Farm (Proposed Project). The Proposed Project consists of the construction, operation, maintenance, and eventual decommissioning of a 300 megawatt alternating current solar photovoltaic energy generation facility, associated facilities, and an approximately 12.4-mile 230 kilovolt electrical generator intertie (gen-tie) transmission line. The solar energy generation facility would be located wholly on tribal trust lands within the Moapa Band of Paiutes Moapa River Indian Reservation (Reservation). The majority (up to approximately 10.8 miles) of the gen-tie would be located within an existing utility corridor managed by the Bureau of Land Management (BLM) on tribal trust land within the reservation. A small portion of the gen-tie (about 0.3 miles) would be located on BLM land contiguous with and outside of the Reservation, and the remaining approximately 1.3 miles of the gen-tie would be located on private land owned by NV Energy in unincorporated Clark County, Nevada. Two alternative, but similar, gen-tie routes are being evaluated: one that proceeds along the northwestern boundary of the existing utility corridor and another parallel route that is more centrally-located within the existing utility corridor. The Eagle Shadow Mountain Solar Farm Project Area (Project Area) evaluated for aquatic resources totals approximately 5,000 acres, which includes all areas that could potentially be disturbed during construction, operations, and maintenance of the solar energy generation facility and the potential right-of-way areas associated with the two gen-tie alternatives (Figure 1).

This report describes the results of a preliminary jurisdictional determination conducted within the approximately 5,000-acre Project Area. A preliminary determination is used to identify and map the extent of potential Waters of the U.S. (WOUS) and to provide information regarding jurisdictional issues. The purpose of this report is to provide the results of the delineation of wetlands and non-wetland aquatic resources (i.e., drainages) potentially subject to the jurisdiction of the U.S. Army Corps of Engineers (Corps) with respect to the Clean Water Act (CWA) that occur within the Project Area. Methods for delineating aquatic resources and assessing jurisdiction followed guidelines set forth by the Corps in the following documents:

- *Corps of Engineers Wetland Delineation Manual (Corps 1987)*
- *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0) (Corps 2008)*
- *Final Summary Report: Guidelines for Jurisdictional Delineations for Waters of the United States in the Arid Southwest (Corps 2001)*
- *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the United States (Lichvar and McColley 2008)*

This delineation was conducted in accordance with these documents.

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Delineators: Andrew Butsavich and Justin Romanowitz

Date Surveyed: August 22, 23, 24, 27, and 28, 2018

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Section 2. Location

The subject property is located on the United States Geological Survey (USGS) Arrow Canyon SE (solar facility and transmission), Ute (transmission), and Moapa West (transmission), NV 7.5-minute quadrangle map. The Project Area is located in:

Sections 1, 9, 10, 11, 12, 13, 14, 15, 16, 21 and 22 of Township 16 South Range 64 East, Mount Diablo Base Meridian;

Sections 5, 6, and 7 of Township 16 South, Range 65 East, Mount Diablo Base Meridian;

Sections 12, 13, 14, 22, 23, 27, 28, 29, 31, 32, and 33 of Township 15 South, Range 65 East, Mount Diablo Base Meridian;

Section 7 of Township 15 South, Range 66 East, Mount Diablo Base Meridian; Clark County, Nevada.

Study area center coordinates are 36.544756°, -114.801829°

Driving Directions from the Strip/McCarran Airport

From the airport, follow signs to Tropicana Avenue. Travel on Tropicana Avenue heading west for approximately 1.7 miles, then turn right (heading north) on Interstate 15 (I-15). Travel approximately 26.5 miles north on I-15 and exit on US-93/Great Basin Highway. From the interchange, travel west for approximately 500 feet and head northeast on North Las Vegas Boulevard. Travel approximately 7.7 miles on North Las Vegas Boulevard to where the pavement stops and head north on a dirt access road. Travel on the dirt access road for approximately 4.6

miles and head northwest on another dirt access road. Follow signs to the VT Construction gravel pit. Travel in a northwesterly direction on the dirt access road for approximately 1 mile to the Project Area. All access to the Project Area is controlled by the Moapa Band of Paiutes. Trespass permits are needed from the Moapa Band of Paiutes to access the Project Area.

Section 3. Methods

This section describes the methods used to determine the extent of aquatic resources within the Project Area.

Prior to the onsite delineation, NewFields staff reviewed aerial photography, topographic maps, the National Hydrography Dataset, and the National Wetlands Inventory to identify aquatic resources (i.e., wetlands, drainages, or water features) that could be potential WOUS.

On August 22nd through 28th, 2018, environmental scientists surveyed for aquatic resources (previously identified on satellite photos and publicly available geospatial datasets) within the Project Area for characteristics (e.g., Ordinary High Water Mark [OHWM]¹, wetland vegetation, hydric soils, wetland hydrology, etc.) that would classify these areas as potential jurisdictional WOUS. Data were recorded at several sample points along each drainage/water feature in the field.

Following the field survey, data from each sample point were compiled and sample point locations were mapped on aerial photography (Appendix A). At each sample point recorded data included sample point number, channel number, OHWM width, channel depth, channel substrate, channel gradient, side slope, vegetation, any drainage notes as well as coordinates and photos taken. These measurements were then mapped and measurements were averaged over the entire feature length in order to calculate acreage. A regional project vicinity map, soils map, and United State Geological Survey (USGS) topographic map were created using geospatial data acquired from a USGS web portal as well as a United States Department of Agriculture (USDA) Soil Survey Geographic Database (SSURGO)(Appendix B). At each sample point photographs were taken (Appendix C), vegetation was recorded (Appendix D), and the OHWM (where applicable) and other data were documented (Appendix E).

¹An ordinary high water mark is defined as:

... that line on the shore established by the fluctuations of water and indicated by physical characteristics such as [a] clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas (33 CFR Part 328.3).

Aquatic resources within the Project Area are comprised of dry land fluvial systems. Alluvial fans, bajadas, and alluvial plains within xeric desert environments exhibit a high degree of variability in the specific location of surface flows, and often change pathways from storm to storm. The spatial extent of potentially jurisdictional aquatic features was delineated in accordance with Corps guidance in published manuals and field guides. Due to channel migration and historic channels that only convey flow during extremely large storm events within alluvial fan systems, only feeder channels, the current main distributary channels for the alluvial fan, and direct tributaries were delineated within alluvial fan systems in the Project Area. For smaller desert wash systems within the Project Area, the presence of continuous well-developed upland vegetation in the stream channel was used as an indicator that these areas only convey surface flow during extremely large storm events and therefore would not usually constitute a jurisdictional WOUS. The delineation was conducted for the dry land fluvial systems within the Project Area in a manner that captured the horizontal extent of potential Corps jurisdiction during small to moderate storm events; the delineation followed Corps guidance to ensure that the areas that only convey surface flows during 25-year, 50-year, or 100-year storm events were not delineated.

In accordance with Corps' guidelines, primary wash channels and tributaries of these channels were delineated until they degraded to sheet flow or lacked physical evidence of conveying flows during ordinary storm events (i.e., 2- to 5-year storm events).

3.1 Definitions and Federal Jurisdiction

This subsection describes the types of aquatic features regulated under the CWA and pertinent definitions of such waters based on guidance published by the Environmental Protection Agency (EPA) and Corps following the U.S. Supreme Court's Decision in *Rapanos v. United States* and *Carabell v. United States* (EPA and Corps 2008).

Traditional Navigable Waters (TNWs): TNWs are all tidal waters and waters that have been, could be, or are used in interstate or foreign commerce. TNWs are jurisdictional and any tributary that continually flows directly or indirectly at least seasonally into a TNW is also jurisdictional.

Relatively Permanent Waters (RPWs): RPWs are non-navigable tributaries of TNWs that flow year-round or have continuous flow at least seasonally.

Non-relatively Permanent Waters (non-RPWs): Non-RPWs are tributaries that do not have continuous flow at least seasonally.

The EPA and Corps have jurisdiction over wetlands and other WOUS that are subject to Section 404 of the Clean Water Act or Section 10 of the Rivers and Harbors Act. Based on current legal opinion, regulations, and guidance (EPA and Corps 2008), the Corps and EPA will assert jurisdiction over the following waters:

- TNWs and wetlands adjacent to TNWs
- RPWs and wetlands that directly abut such tributaries. A wetland that abuts a tributary has no distinction between the immediate edge of the tributary and the wetland itself.

The following waters will also be found jurisdictional based on a fact-specific analysis that they have a significant nexus with a TNW:

- Non-navigable tributaries that are non-RPWs
- Wetlands adjacent to non-RPWs
- Wetlands adjacent to but that do not directly abut a RPW
- Certain features (e.g., ditches and canals) that transport relatively permanent flow directly or indirectly into TNWs or between two (or more) jurisdictional waters, including wetlands

Certain other aquatic features generally are not jurisdictional waters:

- Erosional features such as gullies, swales, and small washes characterized by low volume, infrequent, short duration surface flows
- Uplands transporting over land sheet flow during precipitation events
- Ditches excavated wholly in and draining only uplands that do not carry a relatively permanent flow of water

Federal jurisdiction over non-tidal waters, excluding wetlands, extends to the OHWM. During the field delineation, aquatic features were first identified as being potentially jurisdictional by the presence of OHWM indicators, which distinguish these non-RPW features from gullies, swales, ditches, and other non-jurisdictional features. However, as discussed in greater detail in Section 5.1, few of the aquatic resources identified onsite were determined to be subject to Corps jurisdiction with respect to Section 404 of the CWA. There are drainages with clear connection to the Muddy River located on/near the transmission lines northern footprint, even the Muddy River itself, but do not anticipate disturbance within these WOUS. The proponent intends to span these WOUS with the overhead transmission line.

Section 4. Existing Conditions

This section presents the setting of the study area and discusses: (1) landscape setting, (2) climate (3) soils, (4) hydrology, (5) existing field conditions, and (6) vegetation and wildlife.

4.1 Landscape Setting

Southern Nevada is part of the Basin and Range province, an area stretching from southern Oregon and Idaho in the north to the Baja California Peninsula in the south and from the Sierra Nevada in the west to the Colorado Plateau in the east (Forrester 2009). The proposed project is located within the Creosote Bush-Dominated Basin ecoregion (Level IV, U.S. EPA, 14a), a subdivision of the greater Basin and Range ecoregion of Nevada. This region consists of the valleys between the various mountain ranges across the Mojave Desert. The study area is comprised of relatively flat and mostly undisturbed desert habitat dominated by creosote bursage scrub (Appendices A and B) with an approximate elevation range across the site of 2,500 to 2,200 feet above mean sea level.

4.2 Climate

The project area is in the low-elevation arid Mojave Desert, surrounded by desert mountain terrain, within Clark County, Nevada. The project is located approximately 28 miles north of Las Vegas and is a similar elevation and climate. Las Vegas maintains an arid climate year-round, with an average temperature of 69 degrees Fahrenheit. The hottest month is July with an average temperature of 93 degrees and the coldest month is December with an average temperature of 48 degrees. Average annual precipitation is 4.17 inches. Precipitation, primarily rainfall as snow is highly uncommon, occurs an average of 21 days a year, with the majority falling in the winter (U.S. Climate Data).

4.3 Soils

The soil within the study area is classified as Soils Formed in Mixed Alluvium by the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) soils survey maps as well as USDA SSURGO soils maps (Appendix B). No hydric soils or soils with hydric inclusions were observed onsite. Soil series descriptions from the USDA National Cooperative Soil Survey are listed below:

The **Badland Unit** consists of severely eroded and gullied side slopes of the mesa. It is made of exposures of the Muddy Creek Formation. The formation consists of highly stratified sand, silt, and clay that contain a large amount of gypsum and calcium carbonate. Slopes are commonly 15 to 50 percent, but can be as much as 100 percent in some areas, Run-off is very rapid, and the hazard or erosion is very high. This unit is described as generally eroded and barren of vegetation.

The **Bard Series** consists of The Bard series consists of shallow over cemented material, well-drained soils that formed in alluvium derived predominantly from limestone and dolomite with some sandstone and quartzite. The Bard soils are on dissected valley fill terraces, alluvial fans and fan remnants. Slope ranges from 0 to 15 percent. The mean annual precipitation is about 5 inches and the mean annual air temperature is about 62 degrees F.

The **Mormon Mesa Series** consist of shallow over petrocalcic, well drained soils that formed in material influenced by calcareous loess over mixed alluvium from predominantly limestone sources. The Mormon Mesa soils are on summits of fan remnants and mesas. Slope ranges from 0 to 15 percent. The mean annual precipitation is about 5 inches and the mean annual temperature is about 65 degrees F.

The **Overton series** consists of deep, very poorly drained soils that formed in clayey alluvium from sedimentary rocks. Overton soils are on flood plains and have less than 1 percent slope. The mean annual precipitation is about 5 inches and the mean annual air temperature is about 65 degrees F.

The **St. Thomas series** consists of very shallow and shallow, well drained soils that formed in residuum and colluvium derived from limestone and dolomite. The St. Thomas soils are on hills and mountains. Slope ranges from 2 to 75 percent. The mean annual precipitation is about 5 inches

and the mean annual air temperature is about 61 degrees F.

The **Tonopah series** consists of very deep, excessively to well drained soils that formed in mixed alluvium. Tonopah soils are on fan remnants and fan piedmonts. Slope ranges from 0 to 15 percent. The mean annual precipitation is about 6 inches and the mean annual temperature is about 65 degrees F.

The **Virgin River series** typically have light reddish-brown Ap or Al horizons, 5YR hued C horizons that are predominantly clay or silty clay textured, contain high chroma iron mottles above 40 inches, and are calcareous throughout. They have developed in clayey alluvium deposited by Virgin River flood waters from easily erodible mixed sedimentary rock sources, including shale, siltstone, limestone, and sandstone that are reddish in color. They occur at elevations of about 1,500 feet. The climate is arid having a mean annual rainfall of 4 to 6 inches and average annual air temperature is about 65 degrees F.

4.4 Hydrology

Certain erosional features 118,666 linear feet (22.442 acres) were identified on the site that have a well-defined OHWM, but most lacked a clear direct connection with downstream-regulated waters. 3,440 linear feet (1.14 acres) of features have a well-defined OHWM and exhibit a direct connection to downstream-regulated waters. Most connections were obstructed by low-lying areas that showed evidence of impounding surface waters under normal conditions, e.g. polygonally cracked crusts, continuous and well-developed upland vegetation, and no discernible evidence of bed and bank. The USGS classified the study area to be within sub basin 15010012, and the nearest USGS-identified blue line is the California Wash located approximately 5.3 miles to the east of the proposed project.

Moapa Southern Paiute Solar Facility (formerly K Road Solar Facility) is a similar adjacent 2,000-acre parcel to the east of the proposed Eagle Shadow Mountain Solar Project. The project received an approved jurisdictional determination (July 2011) from the Corps that determined the washes located with the project were non-jurisdictional for the same absence of connection exhibited in the project (SPK-2011-00060-SG). A copy of that jurisdictional delineation and Corps concurrence is located in Appendix F.

4.5 Land Use

Current land use of the study area includes undisturbed and disturbed desert. No observed or documented interstate or foreign commerce associated with aquatic resources was found within the study area.

4.6 Vegetation

The primary vegetation observed within the study area was creosote (*Larrea tridentata*) and white

bursage (*Ambrosia dumosa*). The source of plant species nomenclature is the Corps 2014 National Wetlands Plant List available at <http://rsgisias.crrel.usace.army.mil/NWPL/>. Appendix D contains a list of plants identified observed in the study area.

Section 5. Results

This section presents the results of the Preliminary Jurisdictional Delineation. No wetlands were identified within the Project Area. 118,666 linear feet (22.442 acres) of drainages were delineated within the Project Area. However, due to a lack of hydrologic connectivity to traditional navigable waterways or other WOUS, only 3,442 linear feet (1.14 acres) of drainages were determined to be potential WOUS subject to the jurisdiction of the Corps.

5.1 Aquatic Resources

The Project Area does not contain any wetlands, TNWs, or RPWs. Aquatic resources within the Project Area are limited to swales, erosional features, and non-RPWs. Of these, the non-RPWs with an OHWM were delineated and initially marked as potentially jurisdictional. However, few of the non-RPWs within the Project Area are hydrologically connected to a TNW or RPW that is a direct tributary to a TNW. Drainage locations and reference waypoints are shown in Appendix A, as is a detailed table containing data for each aquatic resource.

The majority of drainages within the project contain two distinct drainage characteristics; drainages that, during a significant precipitation event, flow into a dry lake and drainages that are not hydrologically connected to a tributary of a TNW. Both are discussed below.

Two drainages (ES-1 and ES-2) that are located on the southwestern boundaries are impounded in a dry lakebed located within the Dry Lake Valley. Dry Lake Valley is a closed basin; surface water runoff from the surrounding mountains is directed to the Alkali Flat Dry Lake. Surface runoff is very infrequent, occurring as flows in the ephemeral channels follow rainfall events. In the solar site vicinity, surface water generally flows from the project site toward the Alkali Flat Dry Lake under flooding characteristics of prehistoric dry lake basins (i.e., shallow flash flooding over large areas). The flow of water in these small drainage systems potentially only occurs only during infrequent storm events and has no nexus to the Muddy River system. Precedent was previously determined for the nearby Hyperloop Project, located approximately 9 miles southwest of the project site, where the Corps determined construction would not affect surface waters under jurisdiction of Section 404 of the Clean Water Act (USACE verification for SPK-2016-00266 provided in Appendix G).

The second type of disconnection occurred in areas that contain non-RPW's that could appear to connect to a TNW. These drainages had potential to connect to the Muddy River by way of the California Wash. Certain erosional features 118,666 linear feet (22.442 acres) were recorded as potential WOUS because they contained an OHWM, but many lack a hydrological connection to the nearest traditionally navigable waters (TNW): Muddy River (see Table 1 and Appendix E). Surface water from the site converges into nine separate drainages once they leave the overall project

boundary that have potential to connect to the California Wash. The California Wash is approximately 4 miles to the east from the solar site at its furthest point and approximately 1.3 miles from the transmission line at its closest point. The California Wash ultimately flows into the Muddy River approximately 9.75 miles northeast of the solar site.

Five of the twelve drainages are hydrologically disconnected from the downstream-regulated waters by natural impoundments, the Union Pacific Railroad and/or Interstate 15. These three levels of impoundments prevent ordinary rain events from reaching downstream-regulated waters. The conditions that created the defined bed and bank of the ephemeral washes were likely established during much larger than ordinary storm events. The residual channels are historic and there was no evidence they are actively conveying storm flows from the project area under ordinary conditions. These interruptions do not meet the waters of the US definition per 33 CFR 328.3(4)(iv) and result in the loss of connectivity to downstream waters and, therefore; ephemeral drainages upstream would not be considered jurisdictional. Precedent was previously determined for the adjacent K Road Moapa Solar Facility, located approximately 1 mile east of the project site, where the Corps determined construction would not affect surface waters under jurisdiction of Section 404 of the Clean Water Act (USACE verification and delineation for SPK-2011-00060-SG provided in Appendix F)

Ephemeral drainages that would convey stormwater off the project were evaluated to determine whether they were connected with downstream jurisdictional waters. In more than one location (Appendix A), downstream erosional features consistent with those described in 33 CFR 238.3(4)(vi) were identified between the project and downstream waters. Drainages were numbered from South to North and further organized into to group, non-jurisdictional aquatic resources and potential waters of the U.S.

Non-Jurisdictional Aquatic Resources

- **Drainage 1 (ES-1):** ES-1 is an ephemeral drainage that has a low slope and only potentially flows during and immediately after a rainfall event. Water from this feature would flow into the Alkali Flat Dry Lake south of the project site. Investigation of the downstream portions found a clear loss of connection to downstream-regulated waters, therefore ES-1 is not a WOUS (See Appendix A).
- **Drainage 2 (ES-2):** ES-2 is an ephemeral drainage that has a low slope and only potentially flows during and immediately after a rainfall event. Water from this feature would flow into the Alkali Flat Dry Lake south of the project site. Investigation of the downstream portions found a clear loss of connection to downstream-regulated waters, therefore ES-1 is not a WOUS (See Appendix A).
- **Drainage 3 (ES-3):** ES-3 is an ephemeral drainage that has a low slope and only potentially flows during and immediately after a rainfall event. Water from these features would flow into a drainage that impounds southeast of the project site before it reaches I-15, before it

could flow into the California Wash (See Appendix A).

Preliminary map review suggested the central portion of the proposed project could potentially convey water to the east into California Wash. Detailed field investigations were conducted downstream to ascertain whether the drainages were connected with downstream waters. Breaks in connectivity to downstream-regulated waters were identified. In ES-3, flows are naturally impounded for over 2,200 linear feet. This location shows surface characteristics consistent with impounded water (polygonally cracked crusts, continuous and well-developed upland vegetation, and no discernible evidence of bed and bank). Investigation of the downstream portions found a clear loss of connection to downstream-regulated waters, therefore ES-3 is not a WOUS.

- **Drainage 4 (ES-4):** ES-4 is an ephemeral drainage that has a low slope and only potentially flows during and immediately after a rainfall event. Water from these features flow into a drainage that impounds east of the project site at the UPRR, before it could travel to the California Wash. (See Appendix A).

Similar to ES-4, the northern portion of the proposed project could potentially convey water to the east into California Wash. Investigation of the downstream portions found a clear loss of connection to downstream-regulated waters. In ES-4, flows are diverted approximately 700 feet north by an elevated segment of the Union Pacific Rail Road (UPRR). From the diversion location, there is no OHWM for approximately 1,600 feet before the historic bed and bank is identifiable. This location shows surface characteristics consistent with impounded water (polygonally cracked crusts, continuous and well-developed upland vegetation, and no definable bed and bank). Investigation of the downstream portions found a clear loss of connection to downstream-regulated waters, therefore ES-4 is not a WOUS.

- **Drainage 8 (ES-8):** ES-8 is an ephemeral drainage that has a low slope and only potentially flows during and immediately after a rainfall event. Water from this feature flows into a drainage that impounds east of the transmission line at the UPRR, before water could reach the California Wash. Investigation of the downstream portions found a clear loss of connection to downstream-regulated waters, therefore ES-8 is not a WOUS (See Appendix A).

Potential Waters of the U.S.

- **Drainage 5 (ES-5):** ES-5 is an ephemeral drainage that has a low slope and only potentially flows during and immediately after a rainfall event. Water from this feature flows into a drainage that ultimately converges into the California Wash. Investigation of the downstream portions found a connection to downstream-regulated waters, therefore ES-5 is a WOUS (See Appendix A).

- **Drainage 6 (ES-6):** ES-6 is an ephemeral drainage that has a low slope and only potentially flows during and immediately after a rainfall event. Water from this feature flows into a single drainage that ultimately converges into the California Wash. Investigation of the downstream portions found a connection to downstream-regulated waters, therefore ES-6 is a WOUS (See Appendix A).
- **Drainage 7 (ES-7):** ES-7 is an ephemeral drainage that has a low slope and only potentially flows during and immediately after a rainfall event. Water from this feature flows into a single drainage that ultimately converges into the California Wash. Investigation of the downstream portions found a connection to downstream-regulated waters, therefore ES-7 is a WOUS (See Appendix A).
- **Drainage 9 (ES-9):** ES-9 is an ephemeral drainage that has a low slope and only potentially flows during and immediately after a rainfall event. Water from this feature flows into a drainage that ultimately converges into the California Wash. Investigation of the downstream portions found a connection to downstream-regulated waters, therefore ES-9 is a WOUS (See Appendix A).
- **Drainage 10 (ES-10):** ES-10 is an ephemeral drainage that has a low slope and only potentially flows during and immediately after a rainfall event. Water from this feature flows into a drainage that ultimately converges into the California Wash. Investigation of the downstream portions found a connection to downstream-regulated waters, therefore ES-10 is a WOUS (See Appendix A).
- **Drainage 11 (ES-11):** ES-11 is an ephemeral drainage that has a low slope and only potentially flows during and immediately after a rainfall event. Water from this feature flows into a drainage that ultimately converges into the California Wash. Investigation of the downstream portions found a connection to downstream-regulated waters, therefore ES-11 is a WOUS (See Appendix A).
- **Drainage 12 (ES-12):** ES-12 is an ephemeral drainage that has a low slope and only potentially flows during and immediately after a rainfall event. Water from this feature ultimately reaches the Muddy River. Investigation of the downstream portions found a connection to downstream-regulated waters, therefore ES-12 is a WOUS (See Appendix A).
- **Muddy River (MR):** It is anticipated that an overhead transmission line will cross the Muddy River on land owned by NV Energy. No disturbance is anticipated as the transmission structures will span the OHWM of this waterway.

Section 6. References

Environmental Protection Agency and U.S. Army Corps of Engineers. 2008. Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision in *Rapanos v. United States* and *Carabell v. United States*. Memo dated December 2, 2008.

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[Corps] U.S. Army Corps of Engineers. 2008. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0), ed. J. S. Wakeley, R. W. Lichvar, and C. V. Noble. ERDC/EL TR-08-28. Vicksburg, MS: U.S. Army Engineer Research and Development Center.






Appendix A — Aquatic Resource Delineation Maps

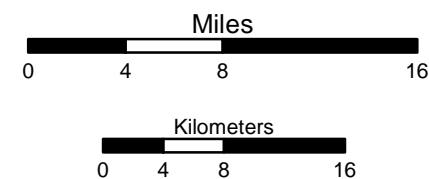


Eagle Shadow Mountain Solar

Jurisdictional Delineation
Location Map

Legend

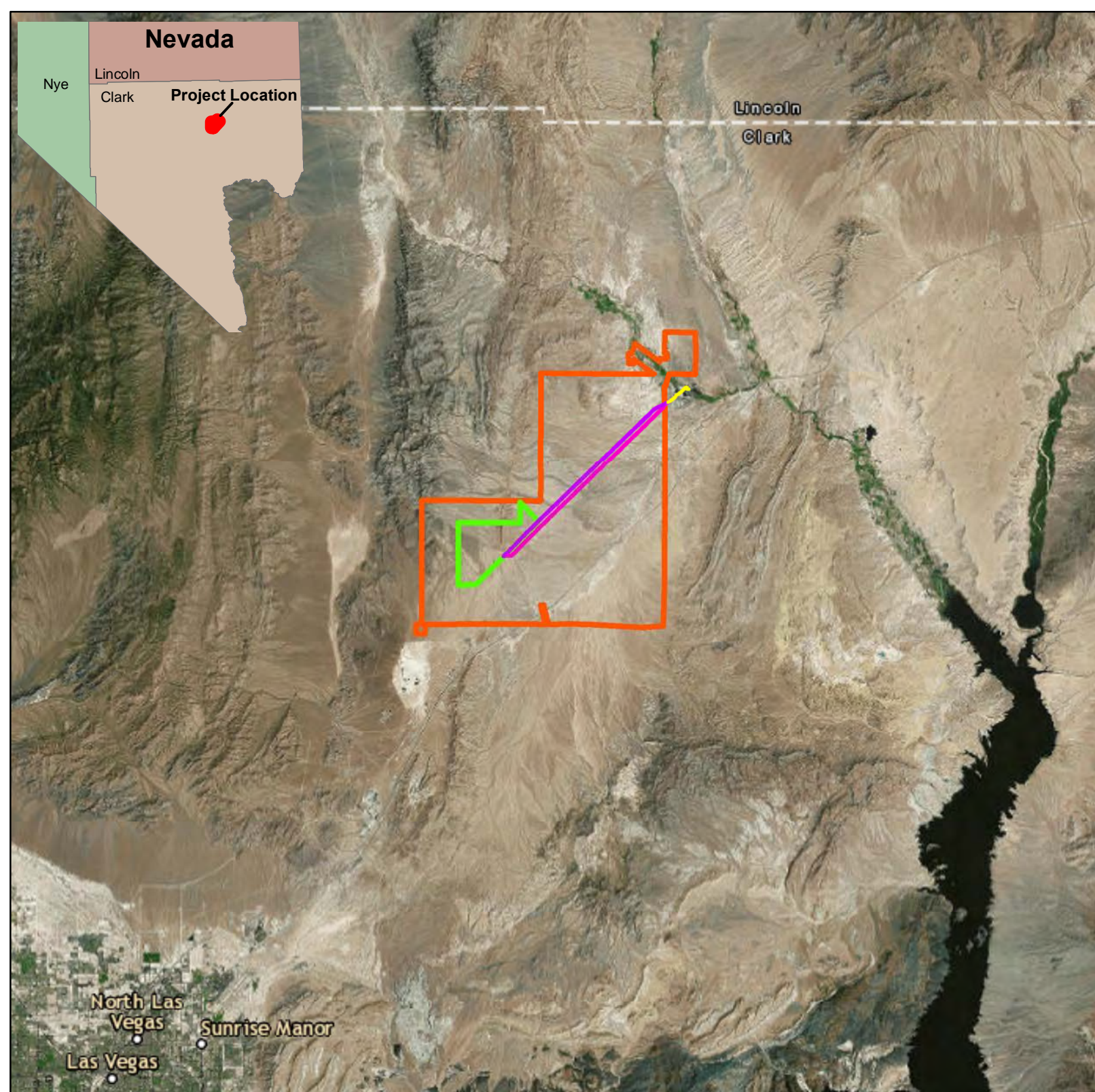
-  ESMS Boundary
-  Proposed Gen-Tie (Alt 2)
-  Alt 3 Gen-Tie
-  NVE Gen-Tie Reid Gardner
-  Moapa Tribal Boundary



Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere
Projection: Mercator Auxiliary Sphere
Datum: WGS 1984
1 in = 41,667 ft

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye,
Earthstar Geographics, CNES/Airbus DS, USDA, USGS,
AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the
GIS User Community
Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap

 **NewFields**
January 19, 2019





Eagle Shadow Mountain Solar

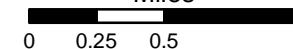
Jurisdictional Delineation
Site Overview Map

Legend

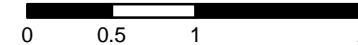
- ESMS Boundary
- JD Sample Points
- Non-Jurisdictional Drainages
- Non-Jurisdictional Drainage Outfall
- Potential Jurisdictional Drainages
- Potential WOUS Drainage Outfall
- Proposed Gen-Tie (Alt 2)
- Alt 3 Gen-Tie
- Development Exclusion Area
- Moapa Tribal Boundary



Miles



Kilometers

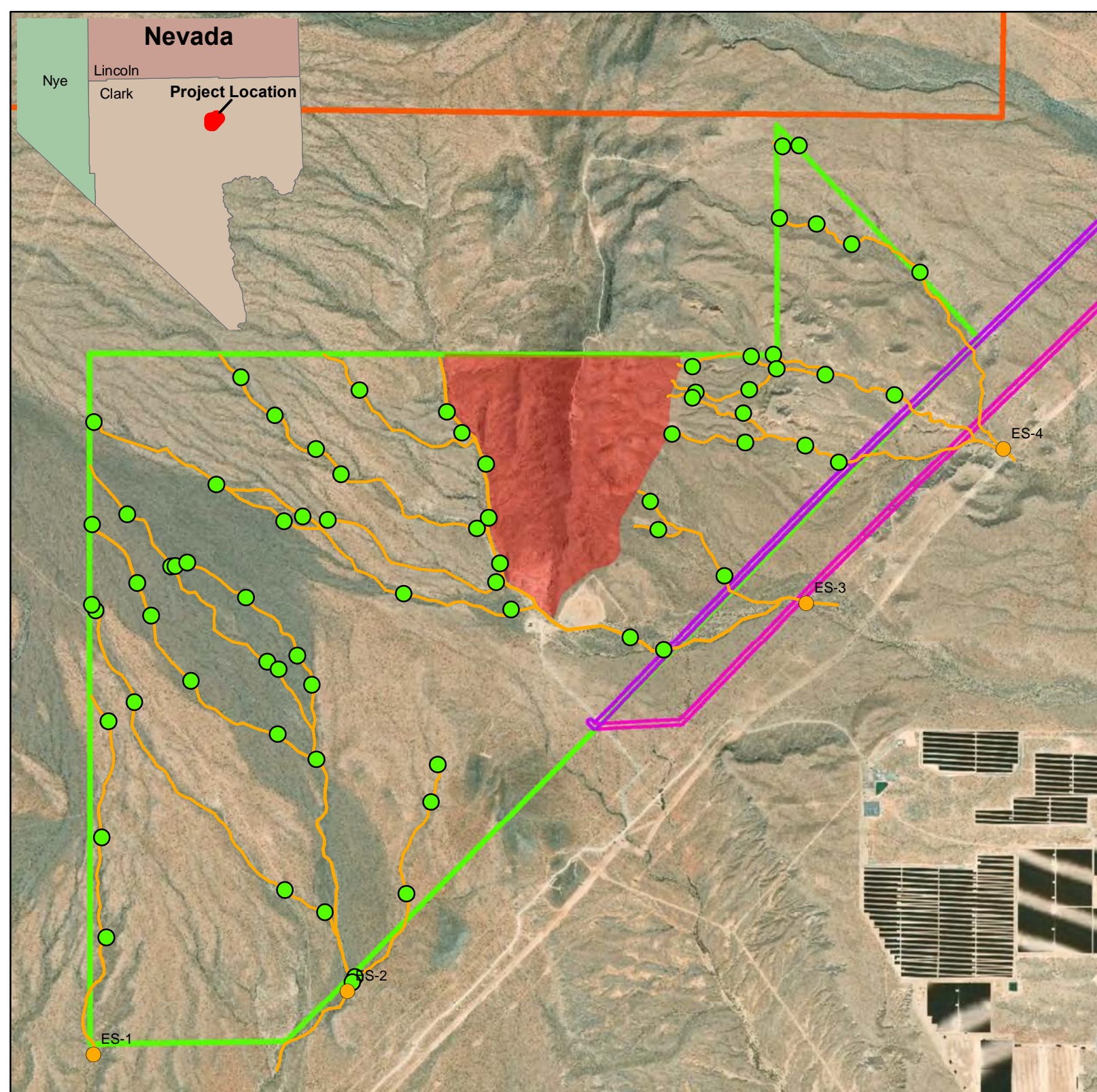


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Projection: Mercator Auxiliary Sphere
Datum: WGS 1984
1 in = 3,750 ft

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

NewFields












January 19, 2019



Eagle Shadow Mountain Solar

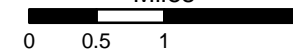
Jurisdictional Delineation
Gen-Tie Overview Map

Legend

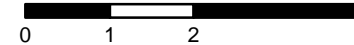
-  ESMS Boundary
-  JD Sample Points
-  Non-Jurisdictional Drainages
-  Non-Jurisdictional Drainage Outfall
-  Potential Jurisdictional Drainages
-  Potential WOUS Drainage Outfall
-  Alt 3 Gen-Tie
-  Proposed Gen-Tie (Alt 2)
-  NVE Gen-Tie to Reid Gardner
-  Development Exclusion Area
-  Moapa Tribal Boundary



Miles



Kilometers



Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere
Projection: Mercator Auxiliary Sphere
Datum: WGS 1984
1 in = 7,500 ft

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

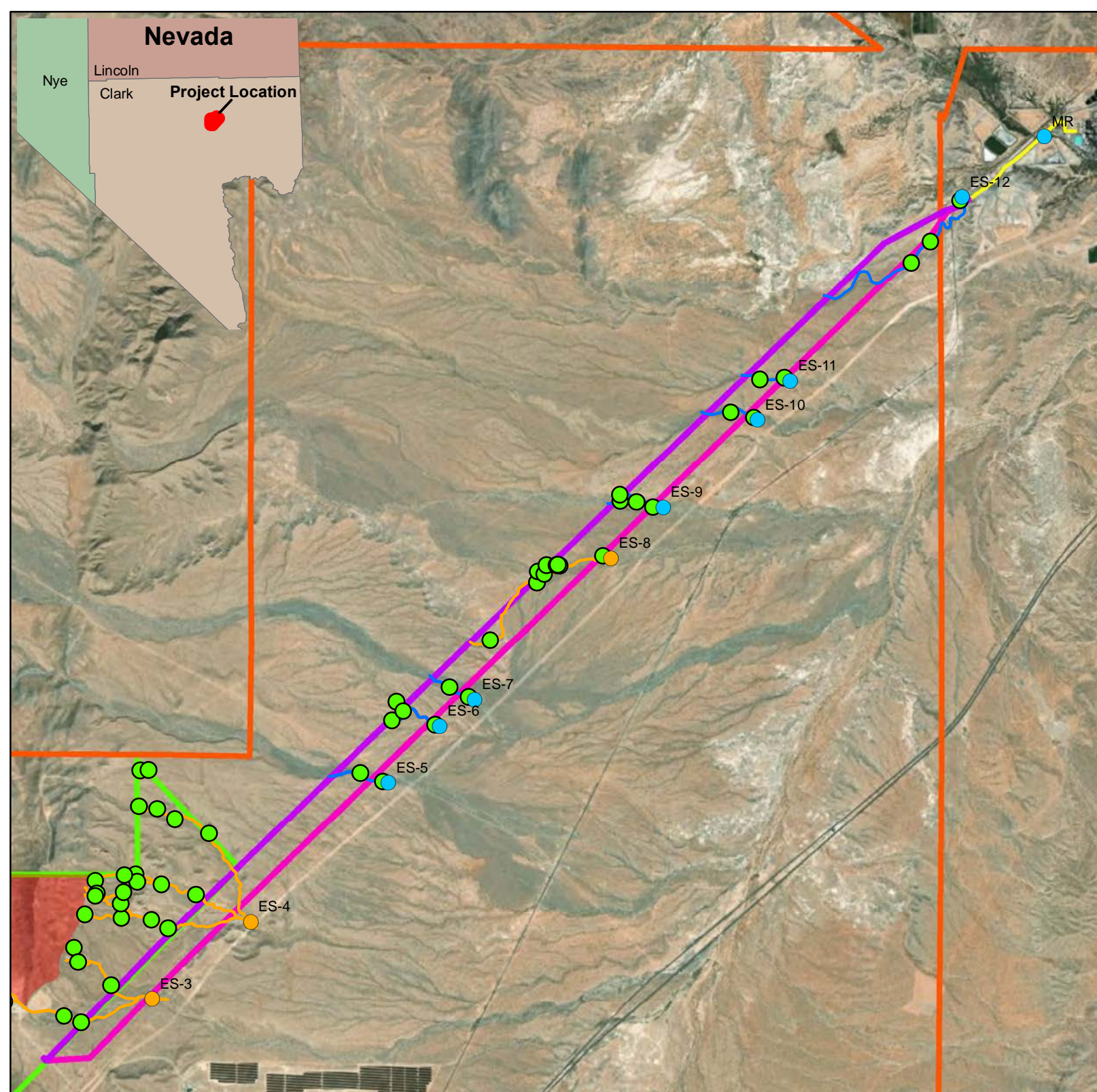


Table 1. Potential Aquatic Resources within the Study Area

Waters Name	Sample Point	Drainage	Cowadin Code	HGM Code	Area (acres)	Width (feet)	Linear (feet)	Waters Type	Lat. (dd)	Long. (dd)
Solar Field										
Unnamed wash 1	1	ES-3	R6 - RIVERINE, EPHEMERAL	RIVERINE	3.47	24'	6300	Non-RPW	36.5496	-114.805114
Unnamed wash 1	8	ES-3	R6 - RIVERINE, EPHEMERAL	RIVERINE	1.15	18'	2794	Non-RPW	36.55586	-114.806178
Unnamed wash 1	83	ES-3	R6 - RIVERINE, EPHEMERAL	RIVERINE	0.16	18'	377	Non-RPW	36.54413	-114.792181
Unnamed wash 1	300	ES-3	R6 - RIVERINE, EPHEMERAL	RIVERINE	0.49	24'	883	Non-RPW	36.54492	-114.794813
Unnamed wash 8	13	ES-3	R6 - RIVERINE, EPHEMERAL	RIVERINE	0.23	3'	3388	Non-RPW	36.55784	-114.808063
Unnamed wash 8	20	ES-3	R6 - RIVERINE, EPHEMERAL	RIVERINE	0.17	6'	1262	Non-RPW	36.56054	-114.816145
Unnamed wash 22	48	ES-1	R6 - RIVERINE, EPHEMERAL	RIVERINE	0.33	6'	2389	Non-RPW	36.53229	-114.836412
Unnamed wash 22	51	ES-1	R6 - RIVERINE, EPHEMERAL	RIVERINE	0.49	15'	1428	Non-RPW	36.52595	-114.836066
Unnamed wash 22	153	ES-1	R6 - RIVERINE, EPHEMERAL	RIVERINE	0.32	4'	3478	Non-RPW	36.53961	-114.835908
Unnamed wash 32	68	ES-2	R6 - RIVERINE, EPHEMERAL	RIVERINE	0.10	4'	1063	Non-RPW	36.53687	-114.809984
Unnamed wash 32	70	ES-2	R6 - RIVERINE, EPHEMERAL	RIVERINE	0.05	1'	2355	Non-RPW	36.53449	-114.810492
Unnamed wash 32	77	ES-2	R6 - RIVERINE, EPHEMERAL	RIVERINE	0.07	5'	640	Non-RPW	36.52871	-114.812442
Unnamed wash 32	44	ES-2	R6 - RIVERINE, EPHEMERAL	RIVERINE		3'		Non-RPW	36.52345	-114.816486
Unnamed wash 37	84	ES-4	R6 - RIVERINE, EPHEMERAL	RIVERINE	0.06	6'	455	Non-RPW	36.57597	-114.782844
Unnamed wash 37	85	ES-4	R6 - RIVERINE, EPHEMERAL	RIVERINE		5'		Non-RPW	36.57602	-114.781532
Unnamed wash 40	88	ES-4	R6 - RIVERINE, EPHEMERAL	RIVERINE	0.24	10'	1054	Non-RPW	36.57142	-114.78308
Unnamed wash 40	90	ES-4	R6 - RIVERINE, EPHEMERAL	RIVERINE	0.01	6'	84	Non-RPW	36.57106	-114.780178

Table 1. Potential Aquatic Resources within the Study Area

Waters Name	Sample Point	Drainage	Cowadin Code	HGM Code	Area (acres)	Width (feet)	Linear (feet)	Waters Type	Lat. (dd)	Long. (dd)
Unnamed wash 40	93	ES-4	R6 - RIVERINE, EPHEMERAL	RIVERINE	0.04	5'	337	Non-RPW	36.56979	-114.777395
Unnamed wash 40	99	ES-4	R6 - RIVERINE, EPHEMERAL	RIVERINE	0.35	7'	2163	Non-RPW	36.56801	-114.772018
Unnamed wash 101	41	ES-4	R6 - RIVERINE, EPHEMERAL	RIVERINE	0.07	5'	621	Non-RPW	36.52755	-114.818848
Unnamed wash 101	46	ES-2	R6 - RIVERINE, EPHEMERAL	RIVERINE	0.10	4'	1090	Non-RPW	36.52893	-114.822017
Unnamed wash 101	135	ES-2	R6 - RIVERINE, EPHEMERAL	RIVERINE	0.03	6'	205	Non-RPW	36.54697	-114.837212
Unnamed wash 101	101	ES-2	R6 - RIVERINE, EPHEMERAL	RIVERINE	0.35	6'	2506	Non-RPW	36.54664	-114.836884
Unnamed wash 101	150	ES-2	R6 - RIVERINE, EPHEMERAL	RIVERINE	1.21	9'	5869	Non-RPW	36.54081	-114.833856
Unnamed wash 105	36	ES-2	R6 - RIVERINE, EPHEMERAL	RIVERINE	0.25	10'	1075	Non-RPW	36.53878	-114.822606
Unnamed wash 105	37	ES-2	R6 - RIVERINE, EPHEMERAL	RIVERINE	1.96	16'	5338	Non-RPW	36.53719	-114.819527
Unnamed wash 105	45	ES-2	R6 - RIVERINE, EPHEMERAL	RIVERINE		9'		Non-RPW	36.52313	-114.816699
Unnamed wash 105	132	ES-2	R6 - RIVERINE, EPHEMERAL	RIVERINE	0.65	15'	1889	Non-RPW	36.55205	-114.837168
Unnamed wash 105	141	ES-2	R6 - RIVERINE, EPHEMERAL	RIVERINE	0.21	5'	1833	Non-RPW	36.54629	-114.832544
Unnamed wash 105	149	ES-2	R6 - RIVERINE, EPHEMERAL	RIVERINE	0.35	6'	2515	Non-RPW	36.54216	-114.829396
Unnamed wash 105	105	ES-2	R6 - RIVERINE, EPHEMERAL	RIVERINE	0.14	7'	843	Non-RPW	36.54837	-114.833629
Unnamed wash 107	31	ES-2	R6 - RIVERINE, EPHEMERAL	RIVERINE	0.17	6'	1236	Non-RPW	36.5429	-114.822503
Unnamed wash 107	107	ES-2	R6 - RIVERINE, EPHEMERAL	RIVERINE	0.31	4'	3413	Non-RPW	36.54941	-114.830961
Unnamed wash 107	131	ES-2	R6 - RIVERINE, EPHEMERAL	RIVERINE	0.37	5'	3197	Non-RPW	36.5527	-114.834424
Unnamed wash 107	145	ES-2	R6 - RIVERINE, EPHEMERAL	RIVERINE	0.03	4'	325	Non-RPW	36.54338	-114.823403

Table 1. Potential Aquatic Resources within the Study Area

Waters Name	Sample Point	Drainage	Cowadin Code	HGM Code	Area (acres)	Width (feet)	Linear (feet)	Waters Type	Lat. (dd)	Long. (dd)
Unnamed wash 109	32	ES-2	R6 - RIVERINE, EPHEMERAL	RIVERINE	0.11	6'	797	Non-RPW	36.54376	-114.821052
Unnamed wash 109	109	ES-2	R6 - RIVERINE, EPHEMERAL	RIVERINE	0.07	2'	1579	Non-RPW	36.54966	-114.829714
Unnamed wash 109	143	ES-2	R6 - RIVERINE, EPHEMERAL	RIVERINE	0.13	3'	1916	Non-RPW	36.54743	-114.825074
Unnamed wash 109	33	ES-2	R6 - RIVERINE, EPHEMERAL	RIVERINE	0.20	5'	1718	Non-RPW	36.54194	-114.819895
Unnamed wash 112	63	ES-3	R6 - RIVERINE, EPHEMERAL	RIVERINE	0.13	10'	569	Non-RPW	36.54669	-114.804207
Unnamed wash 112	65	ES-3	R6 - RIVERINE, EPHEMERAL	RIVERINE	0.74	12'	2669	Non-RPW	36.54768	-114.812653
Unnamed wash 112	112	ES-3	R6 - RIVERINE, EPHEMERAL	RIVERINE	0.47	6'	3391	Non-RPW	36.55226	-114.822091
Unnamed wash 112	124	ES-3	R6 - RIVERINE, EPHEMERAL	RIVERINE	0.56	7'	3471	Non-RPW	36.55853	-114.83703
Unnamed wash 112	127	ES-3	R6 - RIVERINE, EPHEMERAL	RIVERINE	0.42	10'	1826	Non-RPW	36.55458	-114.827423
Unnamed wash 112c	113	ES-3	R6 - RIVERINE, EPHEMERAL	RIVERINE	0.73	12'	2633	Non-RPW	36.55256	-114.820588
Unnamed wash 114	26	ES-3	R6 - RIVERINE, EPHEMERAL	RIVERINE	0.15	4'	4588	Non-RPW	36.55236	-114.818657
Unnamed wash 114	28	ES-3	R6 - RIVERINE, EPHEMERAL	RIVERINE	0.02	4'	191	Non-RPW	36.54842	-114.805416
Unnamed wash 117	2	ES-3	R6 - RIVERINE, EPHEMERAL	RIVERINE	0.05	9'	226	Non-RPW	36.55179	-114.806896
Unnamed wash 117	24	ES-3	R6 - RIVERINE, EPHEMERAL	RIVERINE	0.26	3'	3826	Non-RPW	36.55524	-114.817589
Unnamed wash 117	117	ES-3	R6 - RIVERINE, EPHEMERAL	RIVERINE	0.23	12'	832	Non-RPW	36.55683	-114.819563
Unnamed wash 117	120	ES-3	R6 - RIVERINE, EPHEMERAL	RIVERINE	0.69	15'	1991	Non-RPW	36.56136	-114.825477
Unnamed wash 117	129	ES-3	R6 - RIVERINE, EPHEMERAL	RIVERINE	0.51	16'	1379	Non-RPW	36.55895	-114.822787
Unnamed wash 302	302	ES-3	R6 - RIVERINE, EPHEMERAL	RIVERINE	0.15	9'	710	Non-RPW	36.5488	-114.787429

Table 1. Potential Aquatic Resources within the Study Area

Waters Name	Sample Point	Drainage	Cowadin Code	HGM Code	Area (acres)	Width (feet)	Linear (feet)	Waters Type	Lat. (dd)	Long. (dd)
Unnamed wash 302	350	ES-3	R6 - RIVERINE, EPHEMERAL	RIVERINE	0.07	2'	2949	Non-RPW	36.55171	-114.79265
Unnamed wash 302b	340	ES-3	R6 - RIVERINE, EPHEMERAL	RIVERINE	0.07	2'	1115	Non-RPW	36.55351	-114.793259
Unnamed wash 307	307	ES-4	R6 - RIVERINE, EPHEMERAL	RIVERINE	0.05	3'	734	Non-RPW	36.55599	-114.778437
Unnamed wash 307	315	ES-4	R6 - RIVERINE, EPHEMERAL	RIVERINE	0.08	4'	907	Non-RPW	36.55706	-114.781055
Unnamed wash 307	317	ES-4	R6 - RIVERINE, EPHEMERAL	RIVERINE	0.14	4'	1474	Non-RPW	36.55725	-114.785788
Unnamed wash 307	337	ES-4	R6 - RIVERINE, EPHEMERAL	RIVERINE	0.17	4'	1894	Non-RPW	36.55777	-114.791558
Unnamed wash 309	309	ES-4	R6 - RIVERINE, EPHEMERAL	RIVERINE	0.14	10'	610	Non-RPW	36.56023	-114.774062
Unnamed wash 309	313	ES-4	R6 - RIVERINE, EPHEMERAL	RIVERINE	0.20	3'	2862	Non-RPW	36.5628	-114.783561
Unnamed wash 309b	310	ES-4	R6 - RIVERINE, EPHEMERAL	RIVERINE	0.02	6'	119	Non-RPW	36.56154	-114.779479
Unnamed wash 309b	314	ES-4	R6 - RIVERINE, EPHEMERAL	RIVERINE	0.10	4'	1115	Non-RPW	36.5619	-114.783314
Unnamed wash 309b	331	ES-4	R6 - RIVERINE, EPHEMERAL	RIVERINE	0.05	3'	674	Non-RPW	36.56269	-114.785308
Unnamed wash 309b	332	ES-4	R6 - RIVERINE, EPHEMERAL	RIVERINE	0.08	2'	1777	Non-RPW	36.56202	-114.789928
Unnamed wash 309c	320	ES-4	R6 - RIVERINE, EPHEMERAL	RIVERINE	0.06	3'	804	Non-RPW	36.56057	-114.785468
Unnamed wash 309c	334	ES-4	R6 - RIVERINE, EPHEMERAL	RIVERINE	0.23	5'	2021	Non-RPW	36.56041	-114.789688
Unnamed wash 335	318	ES-4	R6 - RIVERINE, EPHEMERAL	RIVERINE	0.12	7'	751	Non-RPW	36.55909	-114.785922
Unnamed wash 335	335	ES-4	R6 - RIVERINE, EPHEMERAL	RIVERINE	0.13	3'	1953	Non-RPW	36.56007	-114.789933
Transmission Line										
Unnamed wash 501	501	ES-12	R6 - RIVERINE, EPHEMERAL	RIVERINE	0	6'	--	Non-RPW	36.64277	-114.65847
Unnamed wash 501	503	ES-12	R6 - RIVERINE, EPHEMERAL	RIVERINE	0.05	12'	165	Non-RPW	36.64794	-114.653765

Table 1. Potential Aquatic Resources within the Study Area

Waters Name	Sample Point	Drainage	Cowadin Code	HGM Code	Area (acres)	Width (feet)	Linear (feet)	Waters Type	Lat. (dd)	Long. (dd)
Unnamed wash 501	511	ES-12	R6 - RIVERINE, EPHEMERAL	RIVERINE	0.06	3'	905	Non-RPW	36.64009	-114.661471
Unnamed wash 510	520	ES-11	R6 - RIVERINE, EPHEMERAL	RIVERINE	0.01	3'	163	Non-RPW	36.62557	-114.68148
Unnamed wash 510	521	ES-11	R6 - RIVERINE, EPHEMERAL	RIVERINE	0.02	4'	171	Non-RPW	36.6254	-114.685298
Unnamed wash 511	522	ES-10	R6 - RIVERINE, EPHEMERAL	RIVERINE	0.03	9'	134	Non-RPW	36.62053	-114.686219
Unnamed wash 511	523	ES-10	R6 - RIVERINE, EPHEMERAL	RIVERINE	0.05	12'	189	Non-RPW	36.62121	-114.689887
Unnamed wash 512	524	ES-9	R6 - RIVERINE, EPHEMERAL	RIVERINE	0.04	13'	131	Non-RPW	36.60919	-114.70213
Unnamed wash 512	527	ES-9	R6 - RIVERINE, EPHEMERAL	RIVERINE	0.07	16'	184	Non-RPW	36.61081	-114.707361
Unnamed wash 513	525	ES-9	R6 - RIVERINE, EPHEMERAL	RIVERINE	0	6'	--	Non-RPW	36.60987	-114.704713
Unnamed wash 513	526	ES-9	R6 - RIVERINE, EPHEMERAL	RIVERINE	0.03	6'	236	Non-RPW	36.60999	-114.707264
Unnamed wash 901	901	ES-5	R6 - RIVERINE, EPHEMERAL	RIVERINE	0.1	36'	147	Non-RPW	36.57451	-114.744673
Unnamed wash 901	904	ES-5	R6 - RIVERINE, EPHEMERAL	RIVERINE	0.2	32'	218	Non-RPW	36.57564	-114.748175
Unnamed wash 904	907	ES-6	R6 - RIVERINE, EPHEMERAL	RIVERINE	0.04	7'	227	Non-RPW	36.58231	-114.74324
Unnamed wash 904	909	ES-6	R6 - RIVERINE, EPHEMERAL	RIVERINE	0.02	6'	150	Non-RPW	36.58345	-114.741442
Unnamed wash 905	908	ES-6	R6 - RIVERINE, EPHEMERAL	RIVERINE	0.02	8'	129	Non-RPW	36.58467	-114.742525
Unnamed wash 905	910	ES-6	R6 - RIVERINE, EPHEMERAL	RIVERINE	0	25'	--	Non-RPW	36.58171	-114.736421
Unnamed wash 906	112-912b	ES-6	R6 - RIVERINE, EPHEMERAL	RIVERINE	0.1	35'	125	Non-RPW	36.58644	-114.734184
Unnamed wash 906	911	ES-7	R6 - RIVERINE, EPHEMERAL	RIVERINE	0.3	80'	166	Non-RPW	36.58525	-114.731141
Unnamed wash 908	913	ES-8	R6 - RIVERINE, EPHEMERAL	RIVERINE	0.01	6'	80	Non-RPW	36.59241	-114.727758

Table 1. Potential Aquatic Resources within the Study Area

Waters Name	Sample Point	Drainage	Cowadin Code	HGM Code	Area (acres)	Width (feet)	Linear (feet)	Waters Type	Lat. (dd)	Long. (dd)
Unnamed wash 908	917	ES-8	R6 - RIVERINE, EPHEMERAL	RIVERINE		3'		Non-RPW	36.59973	-114.720396
Unnamed wash 913	528	ES-8	R6 - RIVERINE, EPHEMERAL	RIVERINE	0.01	16'	40	Non-RPW	36.60306	-114.710031
Unnamed wash 913	529	ES-8	R6 - RIVERINE, EPHEMERAL	RIVERINE		16'		Non-RPW	36.60187	-114.716875
Unnamed wash 913	920	ES-8	R6 - RIVERINE, EPHEMERAL	RIVERINE	0.02	17'	40	Non-RPW	36.60107	-114.720285
Unnamed wash 913	921	ES-8	R6 - RIVERINE, EPHEMERAL	RIVERINE		12'		Non-RPW	36.60074	-114.719239
Unnamed wash 914	922	ES-8	R6 - RIVERINE, EPHEMERAL	RIVERINE	0.002	2'	40	Non-RPW	36.60188	-114.718888
Unnamed wash 914	927	ES-8	R6 - RIVERINE, EPHEMERAL	RIVERINE		6'		Non-RPW	36.60193	-114.717117
Unnamed wash 914	926	ES-8	R6 - RIVERINE, EPHEMERAL	RIVERINE		3'	28	Non-RPW	36.60189	-114.717332
Total					21.302		115,226	Non-JD		
Total					1.14		3,440	Potential JD		
Project Total					22.442		118,666	Project Total		

RPW = Relatively Permanent Waters



Eagle Shadow Mountain Solar

Jurisdictional Delineation
Aquatic Delineation Map 1

Legend

- ESMS Boundary
- JD Sample Points
- Non-Jurisdictional Drainages
- Non-Jurisdictional Drainage Outfall
- Potential Jurisdictional Drainages
- Potential WOUS Drainage Outfall
- Proposed Gen-Tie (Alt 2)
- Alt 3 Gen-Tie
- Development Exclusion Area
- Moapa Tribal Boundary



Miles

0 0.2 0.4 0.8

Kilometers

0 0.25 0.5 1

Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere

Projection: Mercator Auxiliary Sphere

Datum: WGS 1984

1 in = 2,000 ft

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

NewFields

January 19, 2018



Eagle Shadow Mountain Solar

Jurisdictional Delineation
Aquatic Delineation Map 2

Legend

- ESMS Boundary
- JD Sample Points
- Non-Jurisdictional Drainages
- Non-Jurisdictional Drainage Outfall
- Potential Jurisdictional Drainages
- Potential WOUS Drainage Outfall
- Proposed Gen-Tie (Alt 2)
- Alt 3 Gen-Tie
- Development Exclusion Area
- Moapa Tribal Boundary



Miles

0 0.2 0.4 0.8

Kilometers

0 0.25 0.5 1

Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere

Projection: Mercator Auxiliary Sphere

Datum: WGS 1984

1 in = 2,000 ft

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



January 19, 2018



Eagle Shadow Mountain Solar

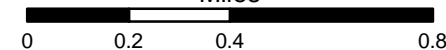
Jurisdictional Delineation
Aquatic Delineation Map 3

Legend

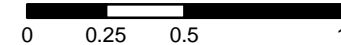
- ESMS Boundary
- JD Sample Points
- Non-Jurisdictional Drainages
- Non-Jurisdictional Drainage Outfall
- Potential Jurisdictional Drainages
- Potential WOUS Drainage Outfall
- Proposed Gen-Tie (Alt 2)
- Alt 3 Gen-Tie
- Development Exclusion Area
- Moapa Tribal Boundary



Miles



Kilometers



Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere
Projection: Mercator Auxiliary Sphere
Datum: WGS 1984
1 in = 2,000 ft

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



January 19, 2018



Eagle Shadow Mountain Solar

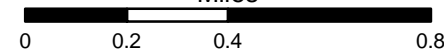
Jurisdictional Delineation
Aquatic Delineation Map 4

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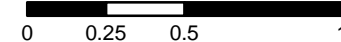
- ESMS Boundary
- JD Sample Points
- Non-Jurisdictional Drainages
- Non-Jurisdictional Drainage Outfall
- Potential Jurisdictional Drainages
- Potential WOUS Drainage Outfall
- Proposed Gen-Tie (Alt 2)
- Alt 3 Gen-Tie
- Development Exclusion Area
- Moapa Tribal Boundary



Miles



Kilometers



Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere

Projection: Mercator Auxiliary Sphere

Datum: WGS 1984

1 in = 2,000 ft

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



January 19, 2018



Eagle Shadow Mountain Solar

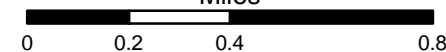
Jurisdictional Delineation
Aquatic Delineation Map 5

Legend

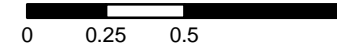
- ESMS Boundary
- JD Sample Points
- Non-Jurisdictional Drainages
- Non-Jurisdictional Drainage Outfall
- Potential Jurisdictional Drainages
- Potential WOUS Drainage Outfall
- Proposed Gen-Tie (Alt 2)
- Alt 3 Gen-Tie
- Development Exclusion Area
- Moapa Tribal Boundary



Miles



Kilometers



Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere
Projection: Mercator Auxiliary Sphere
Datum: WGS 1984
1 in = 2,000 ft

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community














January 19, 2018

Eagle Shadow Mountain Solar

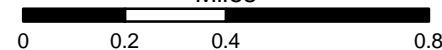
Jurisdictional Delineation
Aquatic Delineation Map 6

Legend

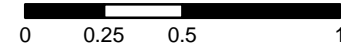
-  ESMS Boundary
-  JD Sample Points
-  Non-Jurisdictional Drainages
-  Non-Jurisdictional Drainage Outfall
-  Potential Jurisdictional Drainages
-  Potential WOUS Drainage Outfall
-  Proposed Gen-Tie (Alt 2)
-  Alt 3 Gen-Tie
-  NVE Gen-Tie to Reid Gardner
-  Development Exclusion Area
-  Moapa Tribal Boundary



Miles

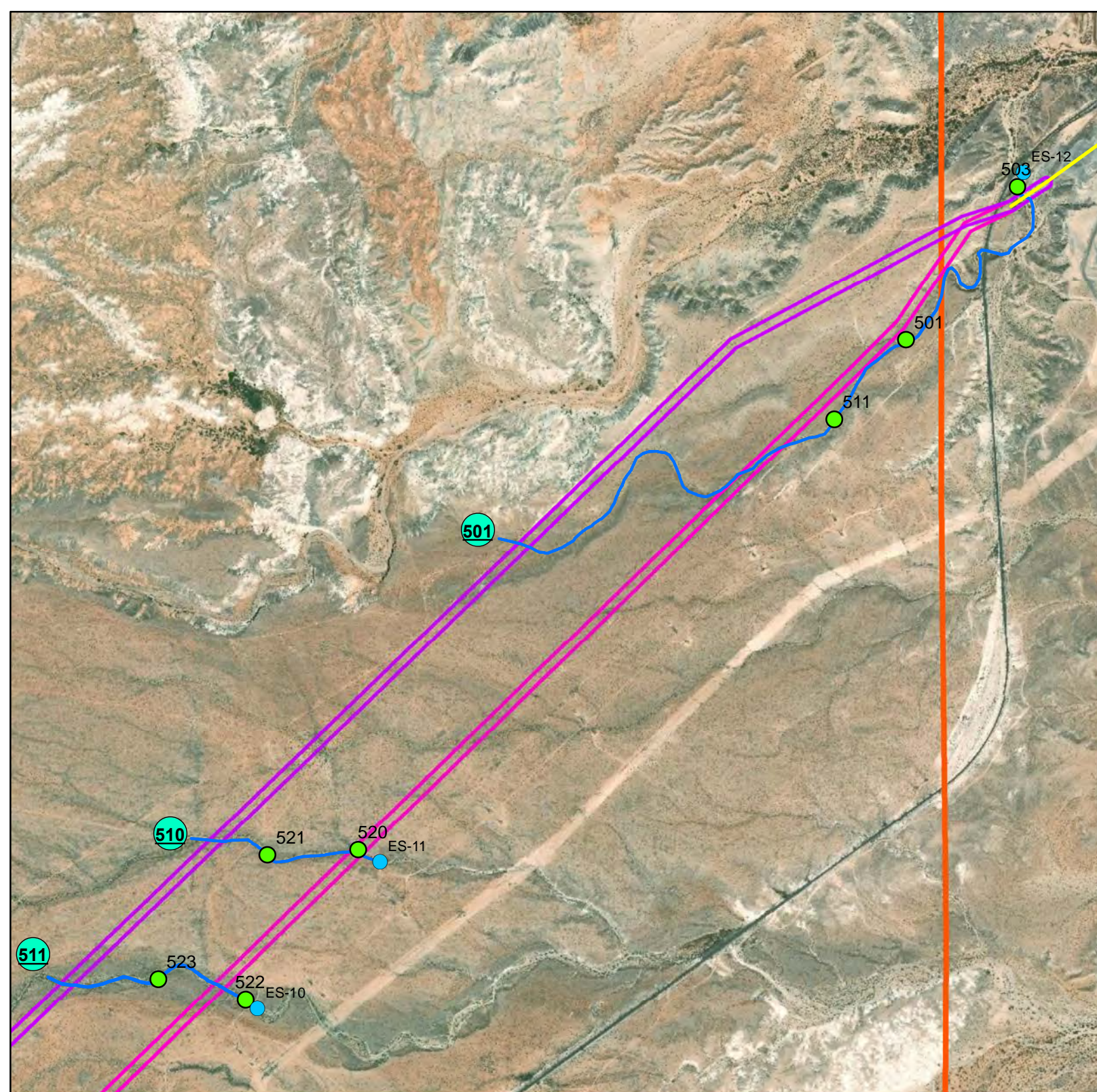


Kilometers



Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere
Projection: Mercator Auxiliary Sphere
Datum: WGS 1984
1 in = 2,000 ft












Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



Eagle Shadow Mountain Solar

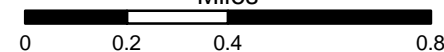
Jurisdictional Delineation
Aquatic Delineation Map 7

Legend

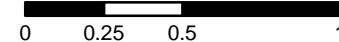
-  ESMS Boundary
-  JD Sample Points
-  Non-Jurisdictional Drainages
-  Non-Jurisdictional Drainage Outfall
-  Potential Jurisdictional Drainages
-  Potential WOUS Drainage Outfall
-  Proposed Gen-Tie (Alt 2)
-  Alt 3 Gen-Tie
-  NVE Gen-Tie to Reid Gardner
-  Development Exclusion Area
-  Moapa Tribal Boundary



Miles

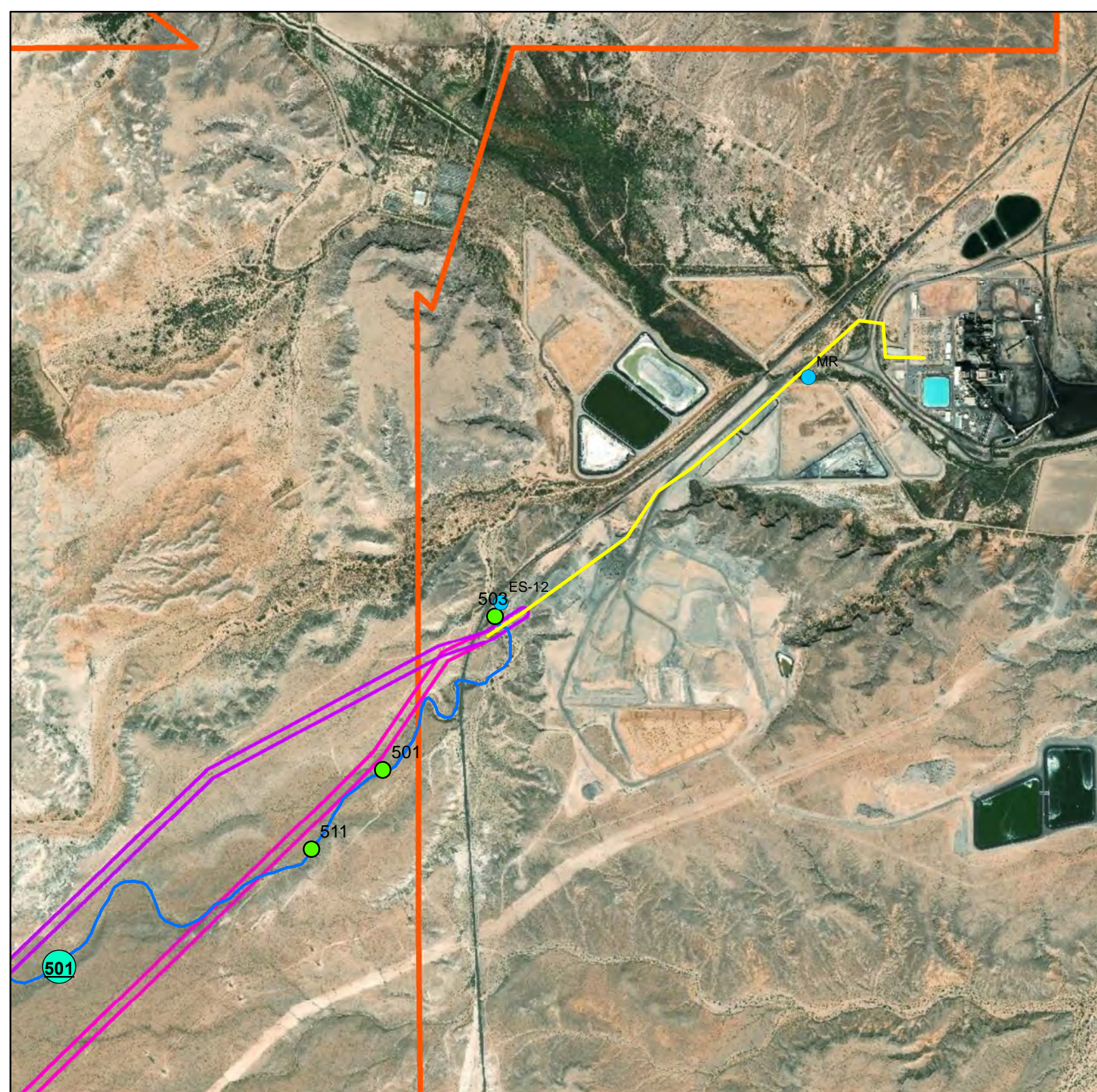


Kilometers



Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere
Projection: Mercator Auxiliary Sphere
Datum: WGS 1984
1 in = 2,000 ft

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community








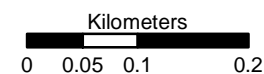
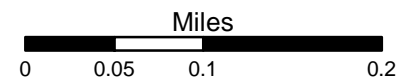


Eagle Shadow Mountain Solar

Jurisdictional Delineation
Potential Jurisdictional Feature
ES-5

Legend

-  JD Sample Points
-  Potential Jurisdictional Drainages
-  Potential WOUS Drainage Outfall
-  Proposed Gen-Tie (Alt 2)
-  Alt 3 Gen-Tie



Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere
Projection: Mercator Auxiliary Sphere
Datum: WGS 1984
1 in = 569 ft






Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

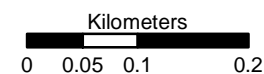
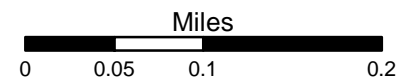


Eagle Shadow Mountain Solar

Jurisdictional Delineation
Potential Jurisdictional Feature
ES-6

Legend

-  JD Sample Points
-  Potential Jurisdictional Drainages
-  Potential WOUS Drainage Outfall
-  Proposed Gen-Tie (Alt 2)
-  Alt 3 Gen-Tie



Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere
Projection: Mercator Auxiliary Sphere
Datum: WGS 1984
1 in = 569 ft

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community








January 19, 2019

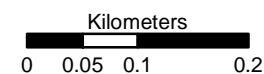
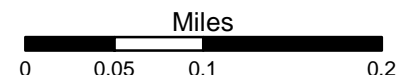


Eagle Shadow Mountain Solar

Jurisdictional Delineation
Potential Jurisdictional Feature
ES-7

Legend

-  JD Sample Points
-  Potential Jurisdictional Drainages
-  Potential WOUS Drainage Outfall
-  Proposed Gen-Tie (Alt 2)
-  Alt 3 Gen-Tie



Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere
Projection: Mercator Auxiliary Sphere
Datum: WGS 1984
1 in = 569 ft

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

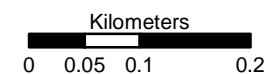
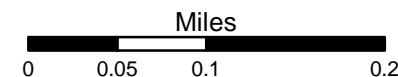


Eagle Shadow Mountain Solar

Jurisdictional Delineation
Potential Jurisdictional Feature
ES-9

Legend

- JD Sample Points
- Potential Jurisdictional Drainages
- Potential WOUS Drainage Outfall
- Proposed Gen-Tie (Alt 2)
- Alt 3 Gen-Tie



Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere
Projection: Mercator Auxiliary Sphere
Datum: WGS 1984
1 in = 569 ft

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community








January 19, 2019

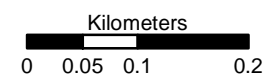
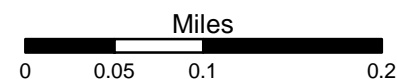


Eagle Shadow Mountain Solar

Jurisdictional Delineation
Potential Jurisdictional Feature
ES-10

Legend

-  JD Sample Points
-  Potential Jurisdictional Drainages
-  Potential WOUS Drainage Outfall
-  Proposed Gen-Tie (Alt 2)
-  Alt 3 Gen-Tie



Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere
Projection: Mercator Auxiliary Sphere
Datum: WGS 1984
1 in = 569 ft






Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

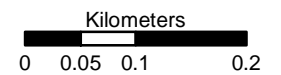
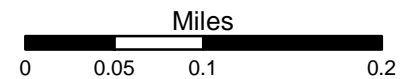


Eagle Shadow Mountain Solar

Jurisdictional Delineation
Potential Jurisdictional Feature
ES-11

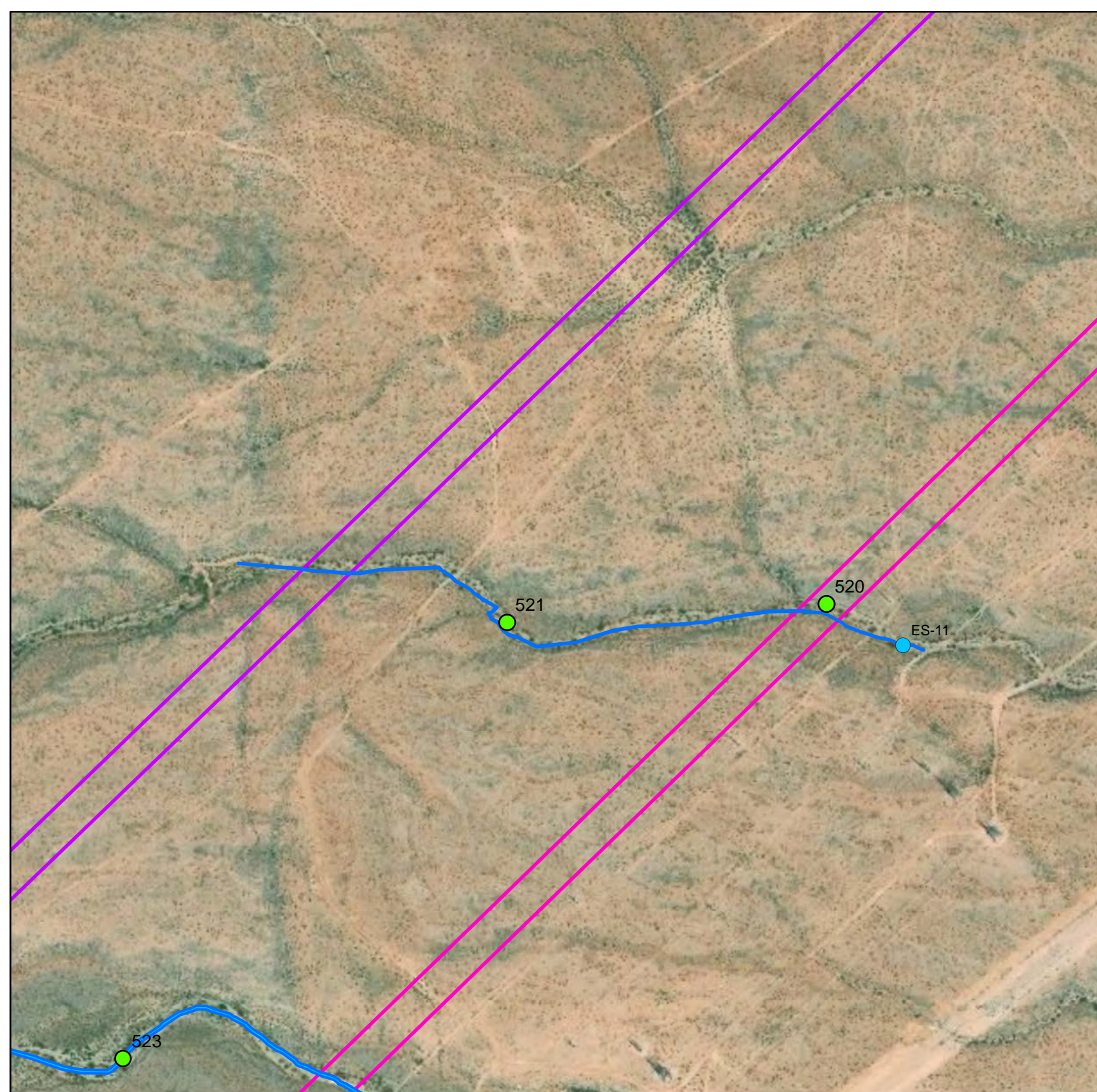
Legend

-  JD Sample Points
-  Potential Jurisdictional Drainages
-  Potential WOUS Drainage Outfall
-  Proposed Gen-Tie (Alt 2)
-  Alt 3 Gen-Tie



Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere
Projection: Mercator Auxiliary Sphere
Datum: WGS 1984
1 in = 569 ft

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community








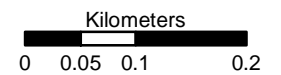
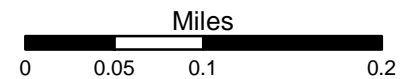


Eagle Shadow Mountain Solar

Jurisdictional Delineation
Potential Jurisdictional Feature
ES-12 map 1

Legend

-  JD Sample Points
-  Potential Jurisdictional Drainages
-  Potential WOUS Drainage Outfall
-  Proposed Gen-Tie (Alt 2)
-  Alt 3 Gen-Tie



Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere
Projection: Mercator Auxiliary Sphere
Datum: WGS 1984
1 in = 569 ft

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community









January 19, 2019

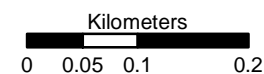
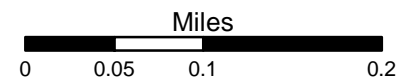


Eagle Shadow Mountain Solar

Jurisdictional Delineation
Potential Jurisdictional Feature
ES-12 map 2

Legend

-  JD Sample Points
-  Potential Jurisdictional Drainages
-  Potential WOUS Drainage Outfall
-  Proposed Gen-Tie (Alt 2)
-  Alt 3 Gen-Tie
-  NVE Gen-Tie to Reid Gardner



Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere
Projection: Mercator Auxiliary Sphere
Datum: WGS 1984
1 in = 569 ft







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Eagle Shadow Mountain Solar

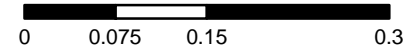
Jurisdictional Delineation
Potential Jurisdictional Feature
ES-MR

Legend

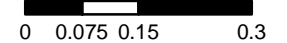
-  JD Sample Points
-  Potential Jurisdictional Drainages
-  Potential WOUS Drainage Outfall
-  Proposed Gen-Tie (Alt 2)
-  Alt 3 Gen-Tie
-  NVE Gen-Tie to Reid Gardner



Miles



Kilometers



Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere
Projection: Mercator Auxiliary Sphere
Datum: WGS 1984
1 in = 833 ft

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

 **NewFields**












January 19, 2019



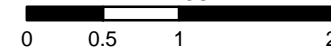
Eagle Shadow Mountain Solar

Jurisdictional Delineation
Impoundment Overview
ES-1 and ES-2

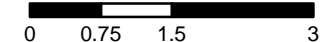
Legend

-  ESMS Boundary
-  Proposed Gen-Tie (Alt 2)
-  Alt 3 Gen-Tie
-  Non-Jurisdictional Drainages
-  Non-Jurisdictional Drainage Outfall
-  Potential Jurisdictional Drainages
-  Potential WOUS Drainage Outfall
-  Impoundments
-  JD Sample Points
-  Development Exclusion Area
-  Moapa Tribal Boundary

Miles



Kilometers



Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere
Projection: Mercator Auxiliary Sphere
Datum: WGS 1984
1 in = 6,667 ft

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community
Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap



January 19, 2018

ES-1 and ES-2














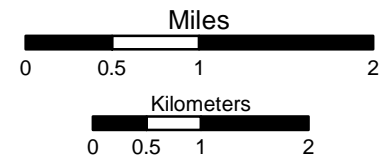


Eagle Shadow Mountain Solar

Jurisdictional Delineation
Impoundment Overview
ES-3, ES-4 and ES-8

Legend

-  ESMS Boundary
-  Proposed Gen-Tie (Alt 2)
-  Alt 3 Gen-Tie
-  Non-Jurisdictional Drainages
-  Non-Jurisdictional Drainage Outfall
-  Potential Jurisdictional Drainages
-  Potential WOUS Drainage Outfall
-  Impoundments
-  JD Sample Points
-  Development Exclusion Area
-  Moapa Tribal Boundary



Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere
Projection: Mercator Auxiliary Sphere
Datum: WGS 1984
1 in = 5,833 ft

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community
Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap

Appendix B — Supporting Maps



Eagle Shadow Mountain Solar

Jurisdictional Delineation
Topographical Map 1

Legend

- ESMS Boundary
- JD Sample Points
- Non-Jurisdictional Drainages
- Non-Jurisdictional Drainage Outfall
- Potential Jurisdictional Drainages
- Potential WOUS Drainage Outfall
- Proposed Gen-Tie (Alt 2)
- Alt 3 Gen-Tie
- Development Exclusion Area
- Moapa Tribal Boundary



Miles

0 0.25 0.5 1

Kilometers

0 0.5 1 2

Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere
Projection: Mercator Auxiliary Sphere
Datum: WGS 1984
1 in = 3,333 ft

Service Layer Credits: Copyright:© 2013 National
Geographic Society, i-cubed













January 19, 2019

Eagle Shadow Mountain Solar

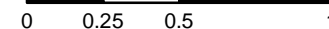
Jurisdictional Delineation
Topographical Map 2

Legend

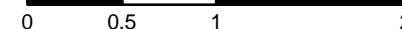
-  ESMS Boundary
-  JD Sample Points
-  Non-Jurisdictional Drainages
-  Non-Jurisdictional Drainage Outfall
-  Potential Jurisdictional Drainages
-  Potential WOUS Drainage Outfall
-  Proposed Gen-Tie (Alt 2)
-  Alt 3 Gen-Tie
-  Development Exclusion Area
-  Moapa Tribal Boundary



Miles

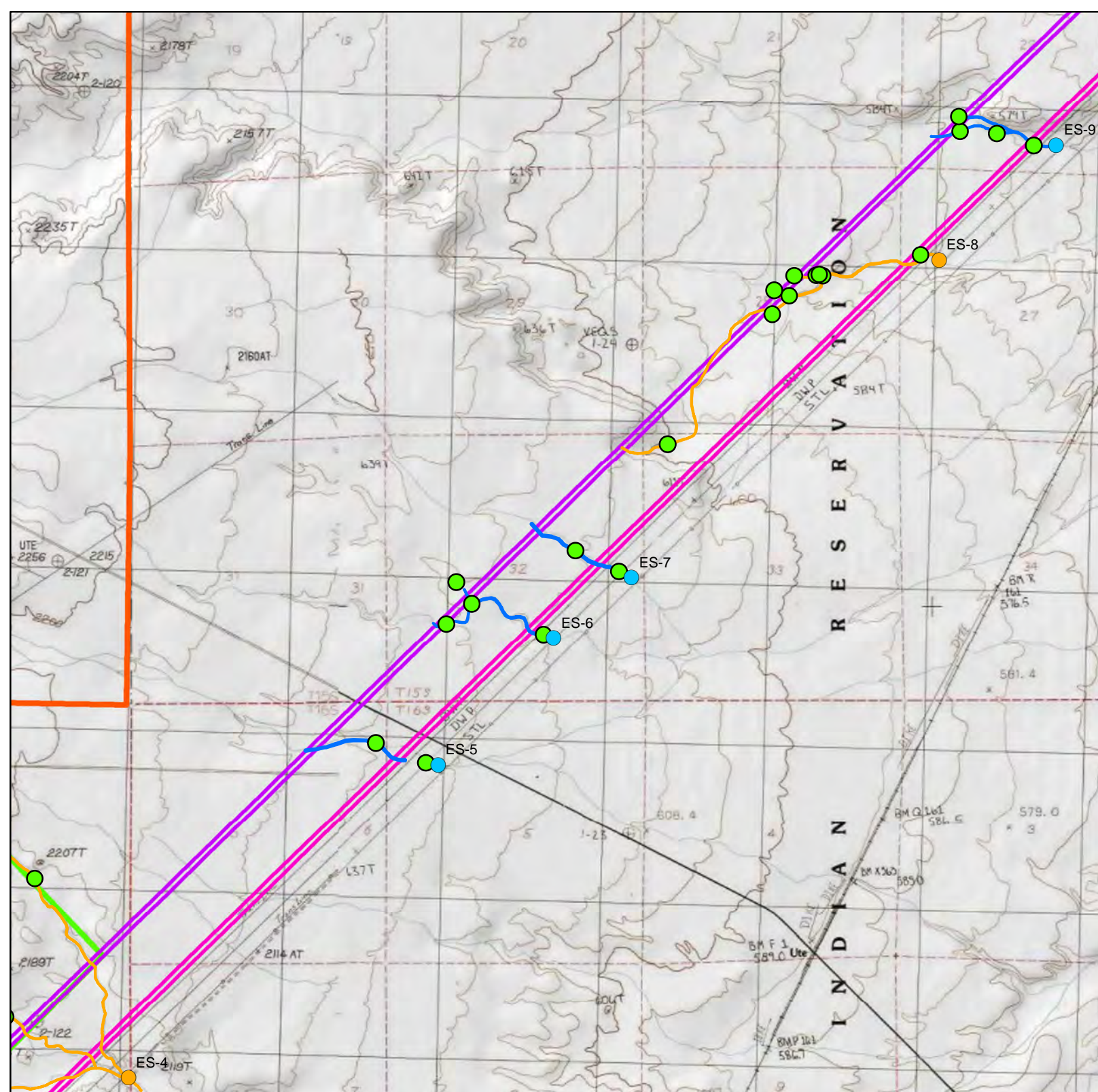


Kilometers



Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere
Projection: Mercator Auxiliary Sphere
Datum: WGS 1984
1 in = 3,333 ft












Service Layer Credits: Copyright:© 2013 National Geographic Society, i-cubed



Eagle Shadow Mountain Solar

Jurisdictional Delineation
Topographical Map 3

Legend

-  ESMS Boundary
-  JD Sample Points
-  Non-Jurisdictional Drainages
-  Non-Jurisdictional Drainage Outfall
-  Potential Jurisdictional Drainages
-  Potential WOUS Drainage Outfall
-  Proposed Gen-Tie (Alt 2)
-  Alt 3 Gen-Tie
-  NVE Gen-Tie to Reid Gardner
-  Development Exclusion Area
-  Moapa Tribal Boundary



Miles

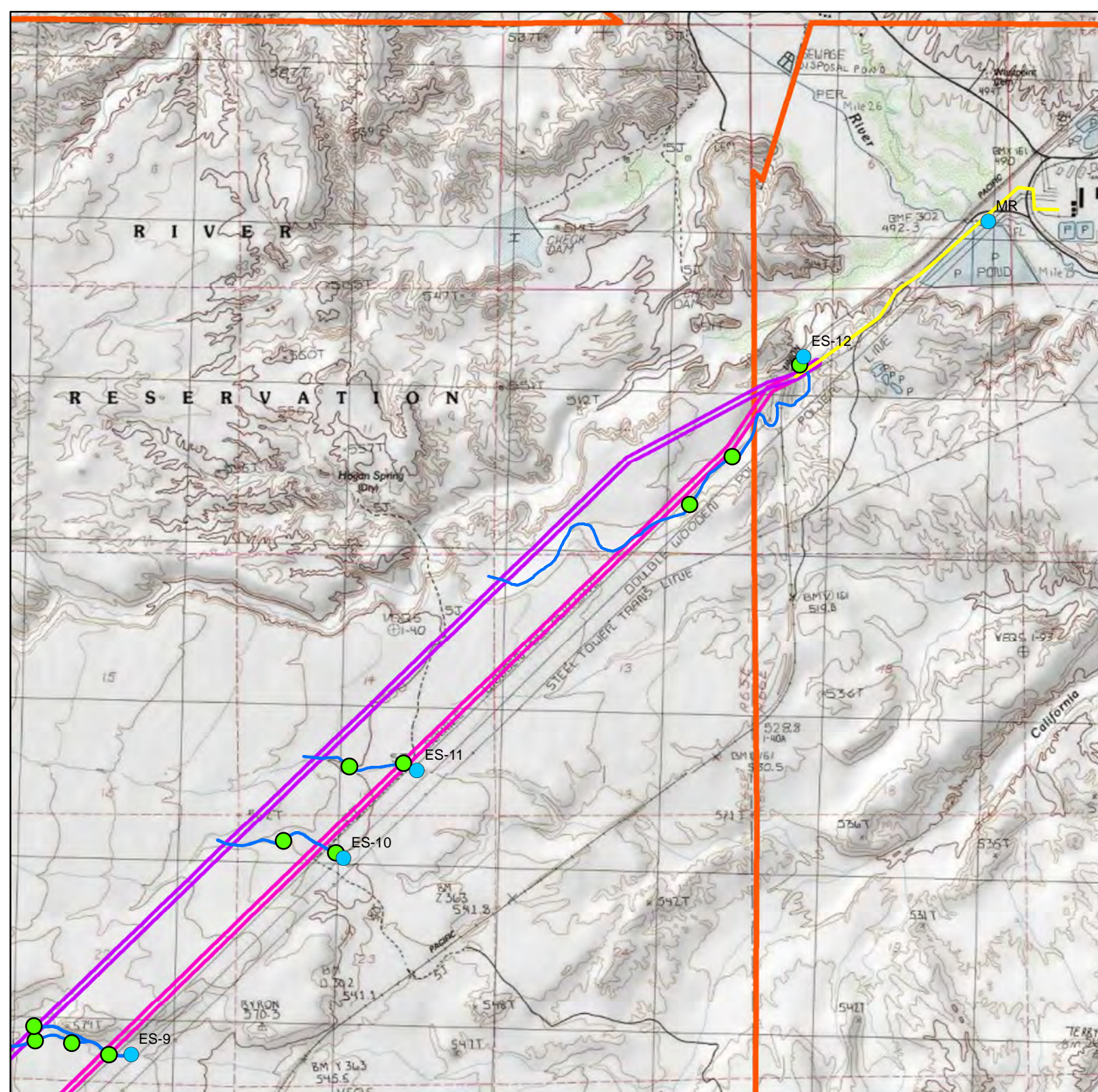
0 0.25 0.5 1

Kilometers

0 0.5 1 2

Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere
Projection: Mercator Auxiliary Sphere
Datum: WGS 1984
1 in = 3,333 ft





Service Layer Credits: Copyright:© 2013 National Geographic Society, i-cubed










Eagle Shadow Mountain Solar

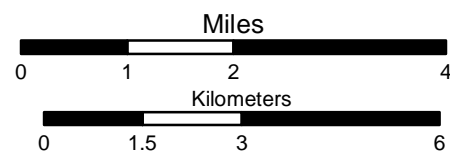
Jurisdictional Delineation
Soils Map

Legend

-  ESMS Boundary
-  Alt 3 Gen-Tie
-  Proposed Gen-Tie (Alt 2)
-  NVE Gen-Tie to Reid Gardner

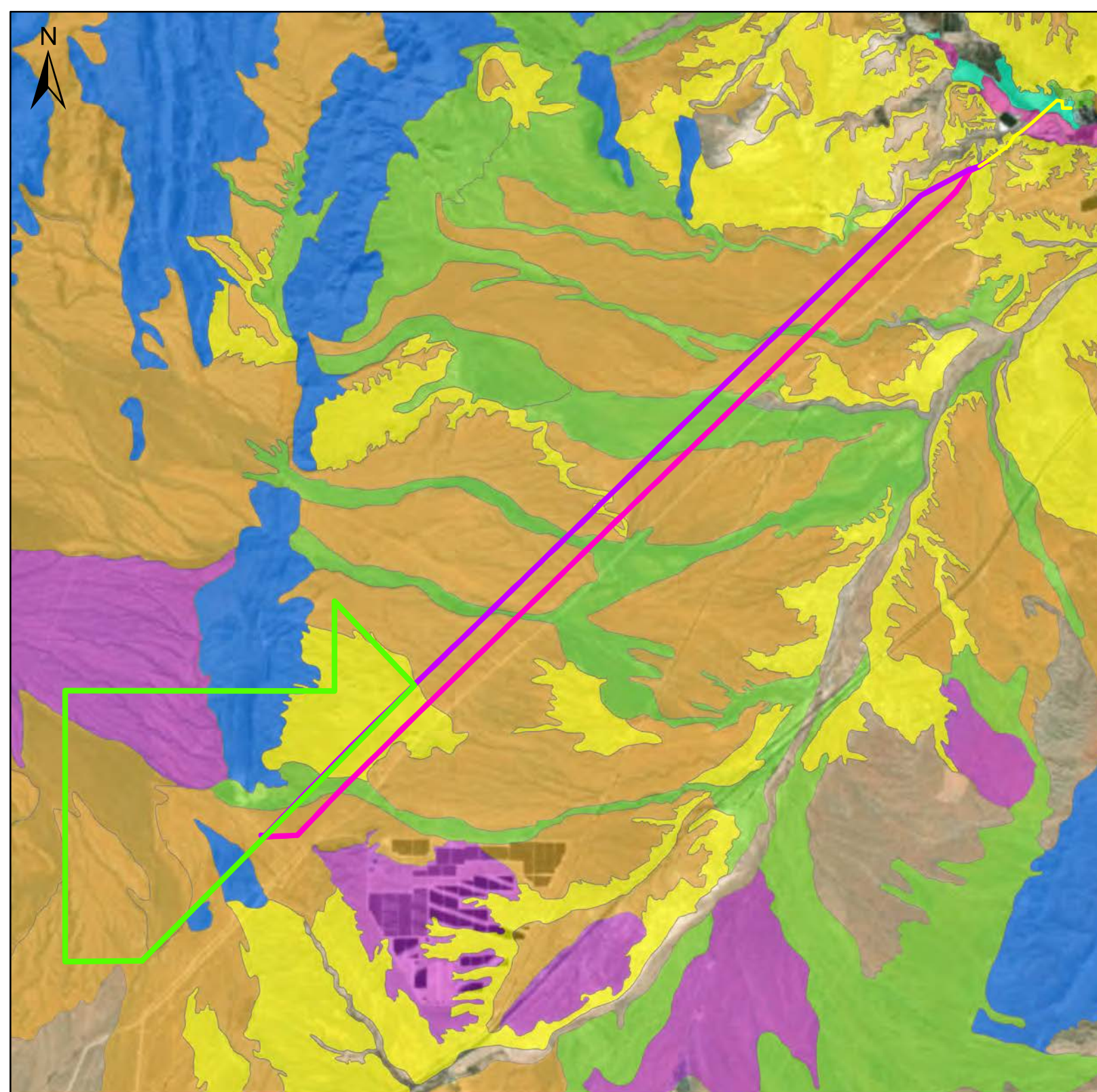
Soil Series

-  Badland Series
-  Bard Series
-  Mormon Mesa Series
-  Overton Series
-  St. Thomas Series
-  Tonopah Series
-  Virgin River Series



Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere
 Projection: Mercator Auxiliary Sphere
 Datum: WGS 1984
 1 in = 9,544 ft

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



Appendix C — Photographs

Eagle Shadow Mountain Solar



Sample Point 1



Sample Point 2



Sample Point 8



Sample Point 20



Sample Point 24



Sample Point 26



Sample Point 28



Sample Point 31



Sample Point 32



Sample Point 33



Sample Point 36



Sample Point 37



Sample Point 41



Sample Point 44



Sample Point 45



Sample Point 46



Sample Point 48



Sample Point 51



Sample Point 63



Sample Point 65



Sample Point 68



Sample Point 70



Sample Point 77



Sample Point 83



Sample Point 84



Sample Point 85



Sample Point 88



Sample Point 90



Sample Point 93



Sample Point 99



Sample Point 101



Sample Point 105



Sample Point 107



Sample Point 108



Sample Point 109



Sample Point 112



Sample Point 113



Sample Point 117



Sample Point 120



Sample Point 124



Sample Point 127



Sample Point 129



Sample Point 131



Sample Point 132



Sample Point 135



Sample Point 141



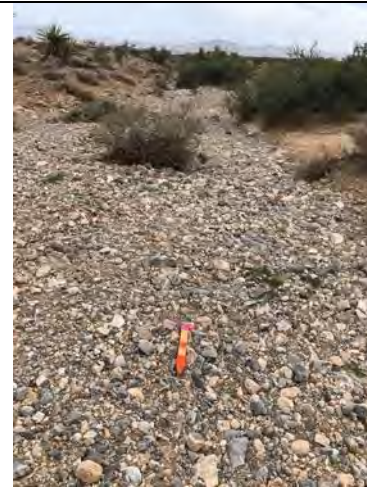
Sample Point 143



Sample Point 145



Sample Point 149



Sample Point 150



Sample Point 153



Sample Point 300



Sample Point 302



Sample Point 307



Sample Point 309



Sample Point 310



Sample Point 313



Sample Point 314



Sample Point 315



Sample Point 317



Sample Point 318



Sample Point 320



Sample Point 331



Sample Point 332



Sample Point 334



Sample Point 335



Sample Point 337



Sample Point 340



Sample Point 350



Sample Point 501



Sample Point 503



Sample Point 511



Sample Point 520



Sample Point 521



Sample Point 522



Sample Point 523



Sample Point 524



Sample Point 525



Sample Point 526



Sample Point 527



Sample Point 528



Sample Point 529



Sample Point 901



Sample Point 904



Sample Point 907



Sample Point 908



Sample Point 909



Sample Point 910



Sample Point 911



Sample Point 112-912b



Sample Point 913



Sample Point 917



Sample Point 920



Sample Point 921



Sample Point 922



Sample Point 926



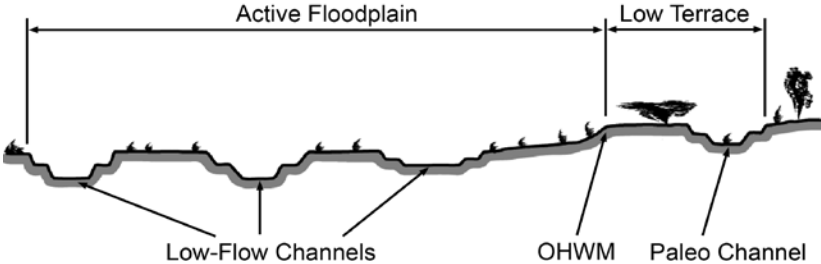
Sample Point 927

Appendix D — Plant List

Family	Scientific Name	Common Name	WIS*
LILIOPSIDA – Monocots			
<i>Poaceae</i> – Grass Family			
	<i>Hilarai rigida</i>	Big galletta	NI
MAGNOLIOPSIDA – Dicots			
<i>Agavaceae</i> – Century-Plant Family			
	<i>Yucca schidigera</i>	Mojave yucca	UPL
<i>Asteraceae</i> – Sunflower Family			
	<i>Ambrosia dumosa</i>	burroweed, white bursage	NI
	<i>Baileya multiradiata</i>	desert marigold	NI
	<i>Encelia farinosa</i>	brittle bush	NI
	<i>Encilia frutescens</i>	Buton brittle bush	NI
	<i>Hymenoclea salsola</i>	cheesebush	NI
	<i>Pluchea sericea</i>	Arrowweed	FACW
<i>Cactaceae</i> – Cactus Family			
	<i>Echinocactus polycephalus</i>	cotton top cactus	NI
<i>Ephedraceae</i> – <i>Ephedra</i> Family			
	<i>Ephedra nevadensis</i>	mormon tea	NI
<i>Fabaceae</i>			
	<i>Propsis glandulara</i>	honey mesquite	FAC
	<i>Psorothamnus arborescens</i>	Mojave indigo bush	NI
	<i>Senegalia greggii</i>	catclaw acacia	FACU
<i>Krameriaceae</i> – Krameria Family			
	<i>Krameria erecta</i>	rhatany	NI
<i>Malvaceae</i> – Mallow Family			
	<i>Sphaeralcea ambigua</i>	Desert globemallow	NI
<i>Solanaceae</i> – Nightshade Family			
	<i>Lycium spp</i>	wolfberry	NI
<i>Tamaricaceae</i> – Tamarix Family			
	<i>Tamarix</i>	Tamarisk	NI
<i>Zygophyllaceae</i> – Caltrop Family			
	<i>Larrea tridentata</i>	creosote bush	NI
*Indicates non-native and/or invasive plants * Wetland Indicator Status (WIS): OBL = occurs in aquatic resources > 99% of time FACW = occurs in aquatic resources 67-99% of time FAC = occurs in aquatic resources 34-66% of time FACU = occurs in aquatic resources 1-33% of time UPL = occurs in uplands > 99% of time NI = indicator status not known in this region ~ = unsure as to FAC or FACU			

Appendix E — OHWM Data Sheet

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Eagle Shadow Mountain Solar Project Number: ESMS 1 Stream: ESMS ES-1 Investigator(s): Andrew Butsavich and Justin Romanowitz	Date: August 23, 2018 Town: Moapa Reserv. Photo begin file#:	Time: State: Nevada Photo end file#:
Y <input checked="" type="checkbox"/> / N <input type="checkbox"/> Do normal circumstances exist on the site? Y <input type="checkbox"/> / N <input checked="" type="checkbox"/> Is the site significantly disturbed?	Location Details: Projection: UTM Zone 11 Datum: NAD 83 Coordinates: 36.518821° -114.837028°	
Potential anthropogenic influences on the channel system: No anthropogenic sources influence this channel system.		
Brief site description: The project area is in the low-elevation arid Mojave Desert, surrounded by desert mountain terrain. Elevation ranges from 2,370 to 2,170 feet above mean sea level. Soils are shallow alluvium with a shallow caliche layer. Vegetation is dominated by a creosote bursage scrub with typical Mojave Desert species.		
Checklist of resources (if available): <div style="display: flex; flex-wrap: wrap;"> <div style="width: 50%;"> <input checked="" type="checkbox"/> Aerial photography Dates: 5-13-17 <input checked="" type="checkbox"/> Topographic maps <input type="checkbox"/> Geologic maps <input type="checkbox"/> Vegetation maps <input checked="" type="checkbox"/> Soils maps <input type="checkbox"/> Rainfall/precipitation maps <input type="checkbox"/> Existing delineation(s) for site <input checked="" type="checkbox"/> Global positioning system (GPS) <input type="checkbox"/> Other studies </div> <div style="width: 50%;"> <input type="checkbox"/> Stream gage data Gage number: Period of record: <input type="checkbox"/> History of recent effective discharges <input type="checkbox"/> Results of flood frequency analysis <input type="checkbox"/> Most recent shift-adjusted rating <input type="checkbox"/> Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event </div> </div>		
Hydrogeomorphic Floodplain Units 		
Procedure for identifying and characterizing the floodplain units to assist in identifying the OHW: <ol style="list-style-type: none"> 1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site. 2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units. 3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units. <ol style="list-style-type: none"> a) Record the floodplain unit and GPS position. b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit. c) Identify any indicators present at the location. 4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section. 5. Identify the OHW and record the indicators. Record the OHW position via: <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div> <input checked="" type="checkbox"/> Mapping on aerial photograph <input checked="" type="checkbox"/> Digitized on computer </div> <div> <input type="checkbox"/> GPS <input type="checkbox"/> Other: </div> </div> 		

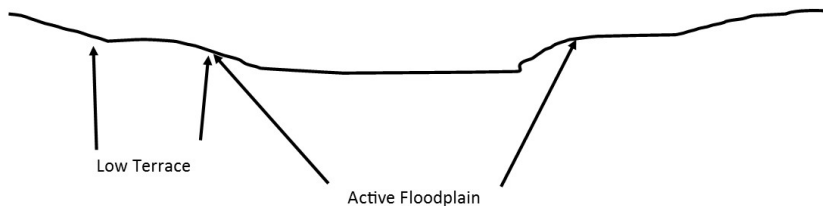
Project ID: ESMS

Cross section ID: ESMS ES-1

Date: 8/23/18

Time:

Cross section drawing:



OHWM

GPS point: 36.518821° -114.837028°

Indicators:

- ☒ Change in average sediment texture
☐ Change in vegetation species
☐ Change in vegetation cover

- ☒ Break in bank slope
☐ Other: _____
☐ Other: _____

Comments:

Evidence of sorting

Floodplain unit:

☒ Low-Flow Channel

☐ Active Floodplain

☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Course sand to gravel

Total veg cover: 25 % Tree: 0 % Shrub: 20 % Herb: 5 %

Community successional stage:

- ☐ NA
☐ Early (herbaceous & seedlings)
☒ Mid (herbaceous, shrubs, saplings)
☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
☐ Ripples
☐ Drift and/or debris
☐ Presence of bed and bank
☐ Benches
☐ Soil development
☐ Surface relief
☒ Other: sediment sorting
☐ Other: _____
☐ Other: _____

Comments:

Channel lacks clear definition between active floodplain and low flow channel.

Project ID: ESMS

Cross section ID: ESMS ES-1

Date: 8/23/18

Time:

Floodplain unit:

☐ Low-Flow Channel

☒ Active Floodplain

☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Course sand

Total veg cover: 25 % Tree: 0 % Shrub: 20 % Herb: 5 %

Community successional stage:

☐ NA

☐ Early (herbaceous & seedlings)

☒ Mid (herbaceous, shrubs, saplings)

☐ Late (herbaceous, shrubs, mature trees)

Indicators:

☐ Mudcracks

☐ Ripples

☒ Drift and/or debris

☐ Presence of bed and bank

☐ Benches

☐ Soil development

☐ Surface relief

☐ Other: _____

☐ Other: _____

☐ Other: _____

Comments:

Upland vegetation across active floodplain.

Floodplain unit:

☐ Low-Flow Channel

☐ Active Floodplain

☒ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: silt to sand

Total veg cover: 20 % Tree: _____ % Shrub: 15 % Herb: 5 %

Community successional stage:

☐ NA

☐ Early (herbaceous & seedlings)

☒ Mid (herbaceous, shrubs, saplings)

☐ Late (herbaceous, shrubs, mature trees)

Indicators:

☐ Mudcracks

☐ Ripples

☐ Drift and/or debris

☐ Presence of bed and bank

☐ Benches

☒ Soil development

☐ Surface relief

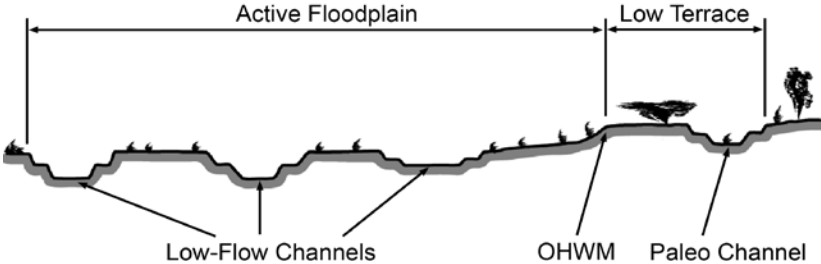
☐ Other: _____

☐ Other: _____

☐ Other: _____

Comments:

Arid West Ephemeral and Intermittent Streams OHW M Datasheet

Project: Eagle Shadow Mountain Solar Project Number: ESMS 2 Stream: ESMS ES-2 Investigator(s): Andrew Butsavich and Justin Romanowitz	Date: August 23, 2018 Town: Moapa Reserv. Photo begin file#:	Time: State: Nevada Photo end file#:
Y <input checked="" type="checkbox"/> / N <input type="checkbox"/> Do normal circumstances exist on the site? Y <input type="checkbox"/> / N <input checked="" type="checkbox"/> Is the site significantly disturbed?	Location Details: Projection: UTM Zone 11 Datum: NAD 83 Coordinates: 36.523050° -114.816717°	
Potential anthropogenic influences on the channel system: Multiple OHV roads that primarily travel east to west (only 1 active) influence the channel system.		
Brief site description: The project area is in the low-elevation arid Mojave Desert, surrounded by desert mountain terrain. Elevation ranges from 2,490 to 2,180 feet above mean sea level. Soils are shallow alluvium with a shallow caliche layer. Vegetation is dominated by a creosote bursage scrub with typical Mojave Desert species.		
Checklist of resources (if available): <div style="display: flex; flex-wrap: wrap;"> <div style="width: 50%;"> <input checked="" type="checkbox"/> Aerial photography Dates: 5-13-17 <input checked="" type="checkbox"/> Topographic maps <input type="checkbox"/> Geologic maps <input type="checkbox"/> Vegetation maps <input checked="" type="checkbox"/> Soils maps <input type="checkbox"/> Rainfall/precipitation maps <input type="checkbox"/> Existing delineation(s) for site <input checked="" type="checkbox"/> Global positioning system (GPS) <input type="checkbox"/> Other studies </div> <div style="width: 50%;"> <input type="checkbox"/> Stream gage data Gage number: Period of record: <input type="checkbox"/> History of recent effective discharges <input type="checkbox"/> Results of flood frequency analysis <input type="checkbox"/> Most recent shift-adjusted rating <input type="checkbox"/> Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event </div> </div>		
Hydrogeomorphic Floodplain Units 		
Procedure for identifying and characterizing the floodplain units to assist in identifying the OHW M: <ol style="list-style-type: none"> 1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site. 2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units. 3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units. <ol style="list-style-type: none"> a) Record the floodplain unit and GPS position. b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit. c) Identify any indicators present at the location. 4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section. 5. Identify the OHW M and record the indicators. Record the OHW M position via: <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div> <input checked="" type="checkbox"/> Mapping on aerial photograph <input checked="" type="checkbox"/> Digitized on computer </div> <div> <input checked="" type="checkbox"/> GPS <input type="checkbox"/> Other: </div> </div> 		

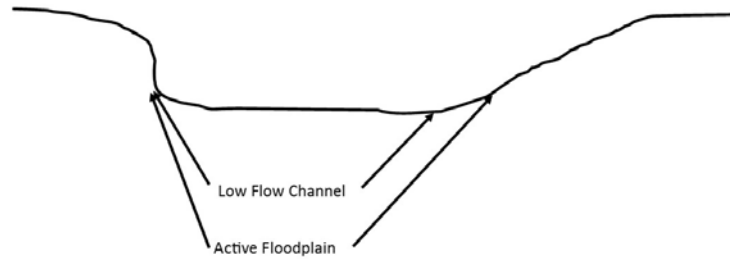
Project ID: ESMS

Cross section ID: ESMS ES-2

Date: 8/23/18

Time:

Cross section drawing:



OHWM

GPS point: 36.523050° -114.816717°

Indicators:

- ☒ Change in average sediment texture
☒ Change in vegetation species
☒ Change in vegetation cover

- ☒ Break in bank slope
☐ Other: _____
☐ Other: _____

Comments:

total removal of vegetation within OHWM.

Floodplain unit:

☒ Low-Flow Channel

☐ Active Floodplain

☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Gravel

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☒ NA
☐ Early (herbaceous & seedlings)
- ☒ Mid (herbaceous, shrubs, saplings)
☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
☐ Ripples
☒ Drift and/or debris
☒ Presence of bed and bank
☐ Benches
- ☐ Soil development
☐ Surface relief
☒ Other: sediment sorting
☐ Other: _____
☐ Other: _____

Comments:

Project ID: ESMS

Cross section ID: ESMS ES-2

Date: 8/23/18

Time:

Floodplain unit:

☐ Low-Flow Channel

☒ Active Floodplain

☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Sand

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

☒ NA

☐ Early (herbaceous & seedlings)

☐ Mid (herbaceous, shrubs, saplings)

☐ Late (herbaceous, shrubs, mature trees)

Indicators:

☐ Mudcracks

☐ Ripples

☒ Drift and/or debris

☒ Presence of bed and bank

☒ Benches

☐ Soil development

☐ Surface relief

☐ Other: _____

☐ Other: _____

☐ Other: _____

Comments:

Floodplain unit:

☐ Low-Flow Channel

☐ Active Floodplain

☒ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: silt to sand

Total veg cover: 40 % Tree: _____ % Shrub: 30 % Herb: 10 %

Community successional stage:

☐ NA

☐ Early (herbaceous & seedlings)

☒ Mid (herbaceous, shrubs, saplings)

☐ Late (herbaceous, shrubs, mature trees)

Indicators:

☐ Mudcracks

☐ Ripples

☐ Drift and/or debris

☐ Presence of bed and bank

☐ Benches

☒ Soil development

☐ Surface relief

☐ Other: _____

☐ Other: _____

☐ Other: _____

Comments:

Arid West Ephemeral and Intermittent Streams OHW M Datasheet

Project: Eagle Shadow Mountain Solar Project Number: ESMS 3 Stream: ESMS ES-3 Investigator(s): Andrew Butsavich and Justin Romanowitz	Date: August 27, 2018 Town: Moapa Reserv. Photo begin file#:	Time: State: Nevada Photo end file#:
Y <input checked="" type="checkbox"/> / N <input type="checkbox"/> Do normal circumstances exist on the site? Y <input type="checkbox"/> / N <input checked="" type="checkbox"/> Is the site significantly disturbed?	Location Details: Projection: UTM Zone 11 Datum: NAD 83 Coordinates: 36.544293° -114.791197°	
Potential anthropogenic influences on the channel system: A gravel pit and single dirt road influence this channel system.		
Brief site description: The project area is in the low-elevation arid Mojave Desert, surrounded by desert mountain terrain. Elevation ranges from 2,525 to 2,190 feet above mean sea level. Soils are shallow alluvium with a shallow caliche layer. Vegetation is dominated by a creosote bursage scrub with typical Mojave Desert species.		
Checklist of resources (if available): <div style="display: flex; flex-wrap: wrap;"> <div style="width: 50%;"> <input checked="" type="checkbox"/> Aerial photography Dates: 5-13-17 <input checked="" type="checkbox"/> Topographic maps <input type="checkbox"/> Geologic maps <input type="checkbox"/> Vegetation maps <input checked="" type="checkbox"/> Soils maps <input type="checkbox"/> Rainfall/precipitation maps <input type="checkbox"/> Existing delineation(s) for site <input checked="" type="checkbox"/> Global positioning system (GPS) <input type="checkbox"/> Other studies </div> <div style="width: 50%;"> <input type="checkbox"/> Stream gage data Gage number: Period of record: <input type="checkbox"/> History of recent effective discharges <input type="checkbox"/> Results of flood frequency analysis <input type="checkbox"/> Most recent shift-adjusted rating <input type="checkbox"/> Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event </div> </div>		
Hydrogeomorphic Floodplain Units 		
Procedure for identifying and characterizing the floodplain units to assist in identifying the OHW M: <ol style="list-style-type: none"> 1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site. 2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units. 3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units. <ol style="list-style-type: none"> a) Record the floodplain unit and GPS position. b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit. c) Identify any indicators present at the location. 4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section. 5. Identify the OHW M and record the indicators. Record the OHW M position via: <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div> <input checked="" type="checkbox"/> Mapping on aerial photograph <input checked="" type="checkbox"/> Digitized on computer </div> <div> <input checked="" type="checkbox"/> GPS <input type="checkbox"/> Other: </div> </div> 		

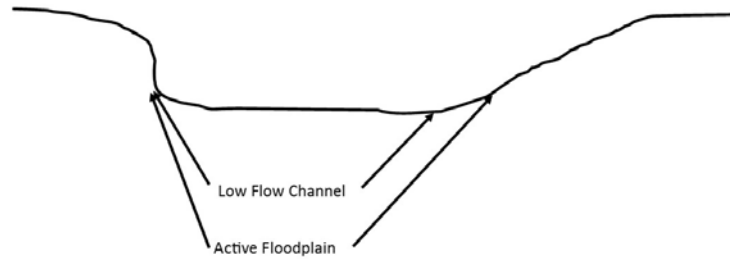
Project ID: ESMS

Cross section ID: ESMS ES-3

Date: 8/27/18

Time:

Cross section drawing:



OHWM

GPS point: 36.544293° -114.791197°

Indicators:

- ☒ Change in average sediment texture
☒ Change in vegetation species
☒ Change in vegetation cover

- ☒ Break in bank slope
☐ Other: _____
☐ Other: _____

Comments:

total removal of vegetation within OHWM. 18' wide.

Floodplain unit:

☒ Low-Flow Channel

☐ Active Floodplain

☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Gravel

Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %

Community successional stage:

- ☒ NA
☐ Early (herbaceous & seedlings)
- ☒ Mid (herbaceous, shrubs, saplings)
☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
☐ Ripples
☒ Drift and/or debris
☒ Presence of bed and bank
☐ Benches
- ☐ Soil development
☐ Surface relief
☒ Other: sediment sorting
☐ Other: _____
☐ Other: _____

Comments:

Project ID: ESMS

Cross section ID: ESMS ES-3

Date: 8/27/18

Time:

Floodplain unit:

☐ Low-Flow Channel

☒ Active Floodplain

☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Sand

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

☒ NA

☐ Early (herbaceous & seedlings)

☐ Mid (herbaceous, shrubs, saplings)

☐ Late (herbaceous, shrubs, mature trees)

Indicators:

☐ Mudcracks

☐ Ripples

☒ Drift and/or debris

☒ Presence of bed and bank

☒ Benches

☐ Soil development

☐ Surface relief

☐ Other: _____

☐ Other: _____

☐ Other: _____

Comments:

Limited definition between low flow channel and active floodplain.

Floodplain unit:

☐ Low-Flow Channel

☐ Active Floodplain

☒ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Sand

Total veg cover: 30 % Tree: _____ % Shrub: 25 % Herb: 5 %

Community successional stage:

☐ NA

☐ Early (herbaceous & seedlings)

☒ Mid (herbaceous, shrubs, saplings)

☐ Late (herbaceous, shrubs, mature trees)

Indicators:

☐ Mudcracks

☐ Ripples

☐ Drift and/or debris

☐ Presence of bed and bank

☒ Benches

☒ Soil development

☐ Surface relief

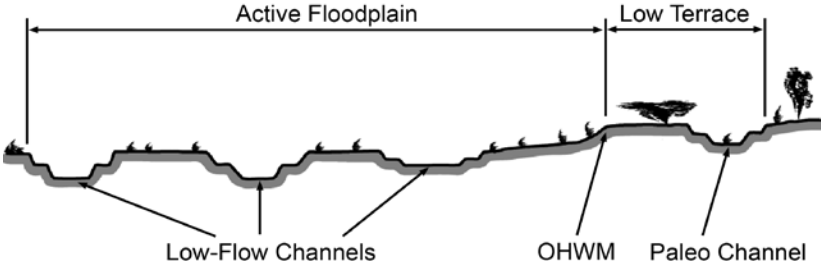
☐ Other: _____

☐ Other: _____

☐ Other: _____

Comments:

Arid West Ephemeral and Intermittent Streams OHW M Datasheet

Project: Eagle Shadow Mountain Solar Project Number: ESMS 4 Stream: ESMS ES-4 Investigator(s): Andrew Butsavich and Justin Romanowitz	Date: August 24, 2018 Town: Moapa Reserv. Photo begin file#:	Time: State: Nevada Photo end file#:
Y <input checked="" type="checkbox"/> / N <input type="checkbox"/> Do normal circumstances exist on the site? Y <input type="checkbox"/> / N <input checked="" type="checkbox"/> Is the site significantly disturbed?	Location Details: Projection: UTM Zone 11 Datum: NAD 83 Coordinates: 36.556596° -114.765195°	
Potential anthropogenic influences on the channel system: None		
Brief site description: The project area is in the low-elevation arid Mojave Desert, surrounded by desert mountain terrain. Elevation ranges from 2,290 to 2,115 feet above mean sea level. Soils are shallow alluvium with a shallow caliche layer. Vegetation is dominated by a creosote bursage scrub with typical Mojave Desert species.		
Checklist of resources (if available): <div style="display: flex; flex-wrap: wrap;"> <div style="width: 50%;"> <input checked="" type="checkbox"/> Aerial photography Dates: 5-13-17 <input checked="" type="checkbox"/> Topographic maps <input type="checkbox"/> Geologic maps <input type="checkbox"/> Vegetation maps <input checked="" type="checkbox"/> Soils maps <input type="checkbox"/> Rainfall/precipitation maps <input type="checkbox"/> Existing delineation(s) for site <input checked="" type="checkbox"/> Global positioning system (GPS) <input type="checkbox"/> Other studies </div> <div style="width: 50%;"> <input type="checkbox"/> Stream gage data Gage number: Period of record: <input type="checkbox"/> History of recent effective discharges <input type="checkbox"/> Results of flood frequency analysis <input type="checkbox"/> Most recent shift-adjusted rating <input type="checkbox"/> Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event </div> </div>		
Hydrogeomorphic Floodplain Units 		
Procedure for identifying and characterizing the floodplain units to assist in identifying the OHW M: <ol style="list-style-type: none"> 1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site. 2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units. 3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units. <ol style="list-style-type: none"> a) Record the floodplain unit and GPS position. b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit. c) Identify any indicators present at the location. 4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section. 5. Identify the OHW M and record the indicators. Record the OHW M position via: <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div> <input checked="" type="checkbox"/> Mapping on aerial photograph <input checked="" type="checkbox"/> Digitized on computer </div> <div> <input type="checkbox"/> GPS <input type="checkbox"/> Other: </div> </div> 		

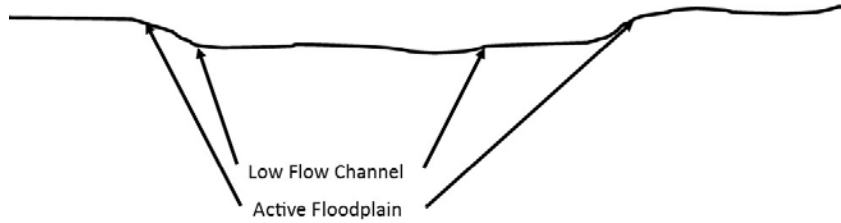
Project ID: ESMS

Cross section ID: ESMS ES-4

Date: 8/24/18

Time:

Cross section drawing:



OHWM

GPS point: 36.556596° -114.765195°

Indicators:

- ☒ Change in average sediment texture
☒ Change in vegetation species
☒ Change in vegetation cover

- ☒ Break in bank slope
☐ Other: _____
☐ Other: _____

Comments:

total removal of vegetation within OHWM.

Floodplain unit:

☒ Low-Flow Channel

☐ Active Floodplain

☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Sand

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

- ☒ NA
☐ Early (herbaceous & seedlings)
☐ Mid (herbaceous, shrubs, saplings)
☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
☒ Ripples
☐ Drift and/or debris
☒ Presence of bed and bank
☐ Benches
☐ Soil development
☐ Surface relief
☐ Other: sediment sorting
☐ Other: _____
☐ Other: _____

Comments:

Project ID: ESMS

Cross section ID: ESMS ES-4

Date: 8/24/18

Time:

Floodplain unit:

☐ Low-Flow Channel

☒ Active Floodplain

☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Sand

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

☒ NA

☐ Early (herbaceous & seedlings)

☐ Mid (herbaceous, shrubs, saplings)

☐ Late (herbaceous, shrubs, mature trees)

Indicators:

☐ Mudcracks

☐ Ripples

☐ Drift and/or debris

☒ Presence of bed and bank

☐ Benches

☐ Soil development

☐ Surface relief

☒ Other: Sorting

☐ Other: _____

☐ Other: _____

Comments:

Limited definition between low flow channel and active floodplain.

Floodplain unit:

☐ Low-Flow Channel

☐ Active Floodplain

☒ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Sand

Total veg cover: 20 % Tree: _____ % Shrub: 15 % Herb: 5 %

Community successional stage:

☐ NA

☐ Early (herbaceous & seedlings)

☒ Mid (herbaceous, shrubs, saplings)

☐ Late (herbaceous, shrubs, mature trees)

Indicators:

☐ Mudcracks

☐ Ripples

☐ Drift and/or debris

☐ Presence of bed and bank

☒ Benches

☒ Soil development

☐ Surface relief

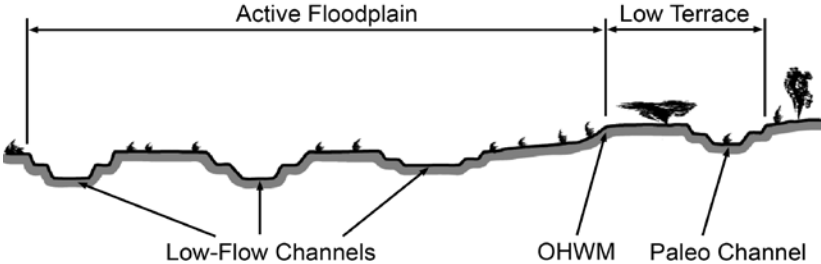
☐ Other: _____

☐ Other: _____

☐ Other: _____

Comments:

Arid West Ephemeral and Intermittent Streams OHW M Datasheet

Project: Eagle Shadow Mountain Solar Project Number: ESMS 5 Stream: ESMS ES-5 Investigator(s): Andrew Butsavich and Justin Romanowitz	Date: August 28, 2018 Town: Moapa Reserv. Photo begin file#:	Time: State: Nevada Photo end file#:
Y <input checked="" type="checkbox"/> / N <input type="checkbox"/> Do normal circumstances exist on the site? Y <input type="checkbox"/> / N <input checked="" type="checkbox"/> Is the site significantly disturbed?	Location Details: Projection: UTM Zone 11 Datum: NAD 83 Coordinates: 36.574445° -114.744441°	
Potential anthropogenic influences on the channel system: None		
Brief site description: The project area is in the low-elevation arid Mojave Desert, surrounded by desert mountain terrain. Elevation ranges from 2,107 to 2,085 feet above mean sea level. Soils are shallow alluvium with a shallow caliche layer. Vegetation is dominated by a creosote bursage scrub with typical Mojave Desert species.		
Checklist of resources (if available): <div style="display: flex; flex-wrap: wrap;"> <div style="width: 50%;"> <input checked="" type="checkbox"/> Aerial photography Dates: 5-13-17 <input checked="" type="checkbox"/> Topographic maps <input type="checkbox"/> Geologic maps <input type="checkbox"/> Vegetation maps <input checked="" type="checkbox"/> Soils maps <input type="checkbox"/> Rainfall/precipitation maps <input type="checkbox"/> Existing delineation(s) for site <input checked="" type="checkbox"/> Global positioning system (GPS) <input type="checkbox"/> Other studies </div> <div style="width: 50%;"> <input type="checkbox"/> Stream gage data Gage number: Period of record: <input type="checkbox"/> History of recent effective discharges <input type="checkbox"/> Results of flood frequency analysis <input type="checkbox"/> Most recent shift-adjusted rating <input type="checkbox"/> Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event </div> </div>		
Hydrogeomorphic Floodplain Units 		
Procedure for identifying and characterizing the floodplain units to assist in identifying the OHW M: <ol style="list-style-type: none"> 1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site. 2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units. 3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units. <ol style="list-style-type: none"> a) Record the floodplain unit and GPS position. b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit. c) Identify any indicators present at the location. 4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section. 5. Identify the OHW M and record the indicators. Record the OHW M position via: <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div> <input checked="" type="checkbox"/> Mapping on aerial photograph <input checked="" type="checkbox"/> Digitized on computer </div> <div> <input checked="" type="checkbox"/> GPS <input type="checkbox"/> Other: </div> </div> 		

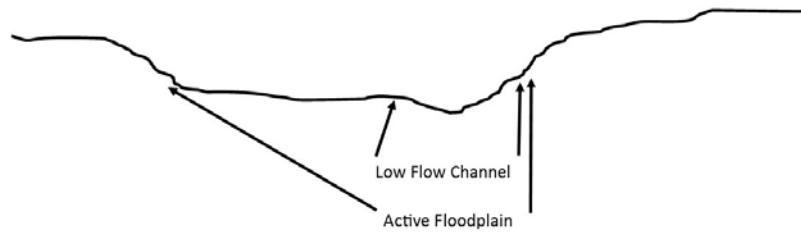
Project ID: ESMS

Cross section ID: ESMS ES-5

Date: 8/28/18

Time:

Cross section drawing:



OHWM

GPS point: 36.574445° -114.744441°

Indicators:

- ☒ Change in average sediment texture
- ☒ Change in vegetation species
- ☒ Change in vegetation cover

- ☒ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Total removal of vegetation within OHWM.

Floodplain unit:

☒ Low-Flow Channel

☐ Active Floodplain

☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Sand and gravel

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

- ☒ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☒ Presence of bed and bank
- ☒ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: sediment sorting
- ☐ Other: _____
- ☐ Other: _____

Comments:

Project ID: ESMS

Cross section ID: ESMS ES-5

Date: 8/28/18

Time:

Floodplain unit:

☐ Low-Flow Channel

☒ Active Floodplain

☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Sand and gravel

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

☒ NA

☐ Early (herbaceous & seedlings)

☐ Mid (herbaceous, shrubs, saplings)

☐ Late (herbaceous, shrubs, mature trees)

Indicators:

☐ Mudcracks

☐ Ripples

☐ Drift and/or debris

☒ Presence of bed and bank

☒ Benches

☐ Soil development

☐ Surface relief

☒ Other: Sorting

☐ Other: _____

☐ Other: _____

Comments:

Limited definition between low flow channel and active floodplain.

Floodplain unit:

☐ Low-Flow Channel

☐ Active Floodplain

☒ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Sand

Total veg cover: 30 % Tree: _____ % Shrub: 25 % Herb: 5 %

Community successional stage:

☐ NA

☐ Early (herbaceous & seedlings)

☒ Mid (herbaceous, shrubs, saplings)

☐ Late (herbaceous, shrubs, mature trees)

Indicators:

☐ Mudcracks

☐ Ripples

☐ Drift and/or debris

☐ Presence of bed and bank

☐ Benches

☒ Soil development

☐ Surface relief

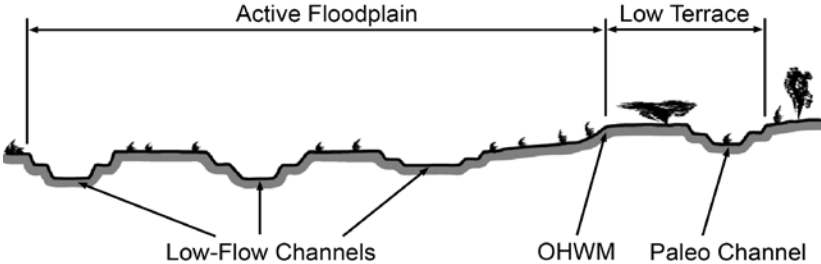
☐ Other: _____

☐ Other: _____

☐ Other: _____

Comments:

Arid West Ephemeral and Intermittent Streams OHW M Datasheet

Project: Eagle Shadow Mountain Solar Project Number: ESMS 6 Stream: ESMS ES-6 Investigator(s): Andrew Butsavich and Justin Romanowitz	Date: August 28, 2018 Town: Moapa Reserv. Photo begin file#:	Time: State: Nevada Photo end file#:
Y <input checked="" type="checkbox"/> / N <input type="checkbox"/> Do normal circumstances exist on the site? Y <input type="checkbox"/> / N <input checked="" type="checkbox"/> Is the site significantly disturbed?	Location Details: Projection: UTM Zone 11 Datum: NAD 83 Coordinates: 36.581654° -114.736232°	
Potential anthropogenic influences on the channel system: None		
Brief site description: The project area is in the low-elevation arid Mojave Desert, surrounded by desert mountain terrain. Elevation ranges from 2,064 to 2,020 feet above mean sea level. Soils are shallow alluvium with a shallow caliche layer. Vegetation is dominated by a creosote bursage scrub with typical Mojave Desert species.		
Checklist of resources (if available): <div style="display: flex; flex-wrap: wrap;"> <div style="width: 50%;"> <input checked="" type="checkbox"/> Aerial photography Dates: 5-13-17 <input checked="" type="checkbox"/> Topographic maps <input type="checkbox"/> Geologic maps <input type="checkbox"/> Vegetation maps <input checked="" type="checkbox"/> Soils maps <input type="checkbox"/> Rainfall/precipitation maps <input type="checkbox"/> Existing delineation(s) for site <input checked="" type="checkbox"/> Global positioning system (GPS) <input type="checkbox"/> Other studies </div> <div style="width: 50%;"> <input type="checkbox"/> Stream gage data Gage number: Period of record: <input type="checkbox"/> History of recent effective discharges <input type="checkbox"/> Results of flood frequency analysis <input type="checkbox"/> Most recent shift-adjusted rating <input type="checkbox"/> Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event </div> </div>		
Hydrogeomorphic Floodplain Units 		
Procedure for identifying and characterizing the floodplain units to assist in identifying the OHW M: <ol style="list-style-type: none"> 1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site. 2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units. 3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units. <ol style="list-style-type: none"> a) Record the floodplain unit and GPS position. b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit. c) Identify any indicators present at the location. 4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section. 5. Identify the OHW M and record the indicators. Record the OHW M position via: <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div> <input checked="" type="checkbox"/> Mapping on aerial photograph <input checked="" type="checkbox"/> Digitized on computer </div> <div> <input checked="" type="checkbox"/> GPS <input type="checkbox"/> Other: </div> </div> 		

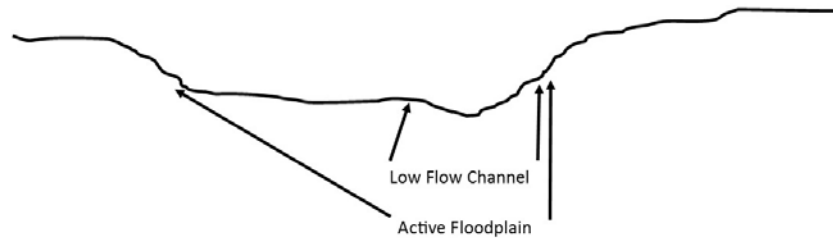
Project ID: ESMS

Cross section ID: ESMS ES-6

Date: 8/28/18

Time:

Cross section drawing:



OHWM

GPS point: 36.581654° -114.736232°

Indicators:

- ☒ Change in average sediment texture
☒ Change in vegetation species
☒ Change in vegetation cover

- ☒ Break in bank slope
☐ Other: _____
☐ Other: _____

Comments:

Total removal of vegetation within OHWM.

Floodplain unit:

☒ Low-Flow Channel

☐ Active Floodplain

☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Sand

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

- ☒ NA
☐ Early (herbaceous & seedlings)
☐ Mid (herbaceous, shrubs, saplings)
☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
☐ Ripples
☒ Drift and/or debris
☐ Presence of bed and bank
☒ Benches
☐ Soil development
☐ Surface relief
☒ Other: sediment sorting
☐ Other: _____
☐ Other: _____

Comments:

Channel lacks clear definition between active floodplain and low flow channel.

Project ID: ESMS

Cross section ID: ESMS ES-6

Date: 8/28/18

Time:

Floodplain unit:

☐ Low-Flow Channel

☒ Active Floodplain

☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Sand

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

☒ NA

☐ Early (herbaceous & seedlings)

☒ Mid (herbaceous, shrubs, saplings)

☐ Late (herbaceous, shrubs, mature trees)

Indicators:

☐ Mudcracks

☐ Ripples

☒ Drift and/or debris

☒ Presence of bed and bank

☒ Benches

☐ Soil development

☐ Surface relief

☐ Other: _____

☐ Other: _____

☐ Other: _____

Comments:

Upland vegetation across active floodplain.

Floodplain unit:

☐ Low-Flow Channel

☐ Active Floodplain

☒ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Sand

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

☐ NA

☐ Early (herbaceous & seedlings)

☒ Mid (herbaceous, shrubs, saplings)

☐ Late (herbaceous, shrubs, mature trees)

Indicators:

☐ Mudcracks

☐ Ripples

☐ Drift and/or debris

☐ Presence of bed and bank

☐ Benches

☒ Soil development

☐ Surface relief

☐ Other: _____

☐ Other: _____

☐ Other: _____

Comments:

Arid West Ephemeral and Intermittent Streams OHW M Datasheet

Project: Eagle Shadow Mountain Solar Project Number: ESMS 7 Stream: ESMS ES-7 Investigator(s): Andrew Butsavich and Justin Romanowitz	Date: August 28, 2018 Town: Moapa Reserv. Photo begin file#:	Time: State: Nevada Photo end file#:
Y <input checked="" type="checkbox"/> / N <input type="checkbox"/> Do normal circumstances exist on the site? Y <input type="checkbox"/> / N <input checked="" type="checkbox"/> Is the site significantly disturbed?	Location Details: Projection: UTM Zone 11 Datum: NAD 83 Coordinates: 36.585146° -114.730990°	
Potential anthropogenic influences on the channel system: None		
Brief site description: The project area is in the low-elevation arid Mojave Desert, surrounded by desert mountain terrain. Elevation ranges from 2,043 to 2,020 feet above mean sea level. Soils are shallow alluvium with a shallow caliche layer. Vegetation is dominated by a creosote bursage scrub with typical Mojave Desert species.		
Checklist of resources (if available): <div style="display: flex; flex-wrap: wrap;"> <div style="width: 50%;"> <input checked="" type="checkbox"/> Aerial photography Dates: 5-13-17 <input checked="" type="checkbox"/> Topographic maps <input type="checkbox"/> Geologic maps <input type="checkbox"/> Vegetation maps <input checked="" type="checkbox"/> Soils maps <input type="checkbox"/> Rainfall/precipitation maps <input type="checkbox"/> Existing delineation(s) for site <input checked="" type="checkbox"/> Global positioning system (GPS) <input type="checkbox"/> Other studies </div> <div style="width: 50%;"> <input type="checkbox"/> Stream gage data Gage number: Period of record: <input type="checkbox"/> History of recent effective discharges <input type="checkbox"/> Results of flood frequency analysis <input type="checkbox"/> Most recent shift-adjusted rating <input type="checkbox"/> Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event </div> </div>		
Hydrogeomorphic Floodplain Units 		
Procedure for identifying and characterizing the floodplain units to assist in identifying the OHW M: <ol style="list-style-type: none"> 1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site. 2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units. 3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units. <ol style="list-style-type: none"> a) Record the floodplain unit and GPS position. b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit. c) Identify any indicators present at the location. 4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section. 5. Identify the OHW M and record the indicators. Record the OHW M position via: <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div> <input checked="" type="checkbox"/> Mapping on aerial photograph <input checked="" type="checkbox"/> Digitized on computer </div> <div> <input checked="" type="checkbox"/> GPS <input type="checkbox"/> Other: </div> </div> 		

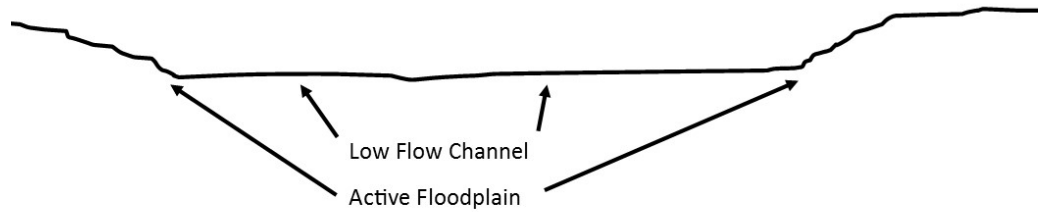
Project ID: ESMS

Cross section ID: ESMS ES-7

Date: 8/28/18

Time:

Cross section drawing:



OHWM

GPS point: 36.585146° -114.730990°

Indicators:

- ☒ Change in average sediment texture
☐ Change in vegetation species
☒ Change in vegetation cover

- ☐ Break in bank slope
☐ Other: _____
☐ Other: _____

Comments:

Total removal of vegetation within OHWM.

Floodplain unit:

☒ Low-Flow Channel

☐ Active Floodplain

☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Sand and gravel

Total veg cover: _____% Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☒ NA
☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
☐ Ripples
☒ Drift and/or debris
☐ Presence of bed and bank
☐ Benches
- ☐ Soil development
☐ Surface relief
☒ Other: sediment sorting
☐ Other: _____
☐ Other: _____

Comments:

Channel lacks definition between active floodplain and low flow channel.

Project ID: ESMS

Cross section ID: ESMS ES-7

Date: 8/28/18

Time:

Floodplain unit:

☐ Low-Flow Channel

☒ Active Floodplain

☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Sand

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

☒ NA

☐ Early (herbaceous & seedlings)

☒ Mid (herbaceous, shrubs, saplings)

☐ Late (herbaceous, shrubs, mature trees)

Indicators:

☐ Mudcracks

☐ Ripples

☒ Drift and/or debris

☐ Presence of bed and bank

☒ Benches

☐ Soil development

☐ Surface relief

☐ Other: _____

☐ Other: _____

☐ Other: _____

Comments:

Upland vegetation across active floodplain.

Floodplain unit:

☐ Low-Flow Channel

☐ Active Floodplain

☒ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Sand

Total veg cover: 30 % Tree: _____ % Shrub: 25 % Herb: 5 %

Community successional stage:

☐ NA

☐ Early (herbaceous & seedlings)

☒ Mid (herbaceous, shrubs, saplings)

☐ Late (herbaceous, shrubs, mature trees)

Indicators:

☐ Mudcracks

☐ Ripples

☐ Drift and/or debris

☐ Presence of bed and bank

☐ Benches

☒ Soil development

☐ Surface relief

☐ Other: _____

☐ Other: _____

☐ Other: _____

Comments:

Arid West Ephemeral and Intermittent Streams OHW M Datasheet

Project: Eagle Shadow Mountain Solar Project Number: ESMS 8 Stream: ESMS ES-8 Investigator(s): Andrew Butsavich and Justin Romanowitz	Date: August 28, 2018 Town: Moapa Reserv. Photo begin file#:	Time: State: Nevada Photo end file#:
Y <input checked="" type="checkbox"/> / N <input type="checkbox"/> Do normal circumstances exist on the site? Y <input type="checkbox"/> / N <input checked="" type="checkbox"/> Is the site significantly disturbed?	Location Details: Projection: UTM Zone 11 Datum: NAD 83 Coordinates: 36.602939° -114.709808°	
Potential anthropogenic influences on the channel system: None		
Brief site description: The project area is in the low-elevation arid Mojave Desert, surrounded by desert mountain terrain. Elevation ranges from 2,043 to 2,020 feet above mean sea level. Soils are shallow alluvium with a shallow caliche layer. Vegetation is dominated by a creosote bursage scrub with typical Mojave Desert species.		
Checklist of resources (if available): <div style="display: flex; flex-wrap: wrap;"> <div style="width: 50%;"> <input checked="" type="checkbox"/> Aerial photography Dates: 5-13-17 <input checked="" type="checkbox"/> Topographic maps <input type="checkbox"/> Geologic maps <input type="checkbox"/> Vegetation maps <input checked="" type="checkbox"/> Soils maps <input type="checkbox"/> Rainfall/precipitation maps <input type="checkbox"/> Existing delineation(s) for site <input checked="" type="checkbox"/> Global positioning system (GPS) <input type="checkbox"/> Other studies </div> <div style="width: 50%;"> <input type="checkbox"/> Stream gage data Gage number: Period of record: <input type="checkbox"/> History of recent effective discharges <input type="checkbox"/> Results of flood frequency analysis <input type="checkbox"/> Most recent shift-adjusted rating <input type="checkbox"/> Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event </div> </div>		
Hydrogeomorphic Floodplain Units 		
Procedure for identifying and characterizing the floodplain units to assist in identifying the OHW M: <ol style="list-style-type: none"> 1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site. 2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units. 3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units. <ol style="list-style-type: none"> a) Record the floodplain unit and GPS position. b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit. c) Identify any indicators present at the location. 4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section. 5. Identify the OHW M and record the indicators. Record the OHW M position via: <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div> <input checked="" type="checkbox"/> Mapping on aerial photograph <input checked="" type="checkbox"/> Digitized on computer </div> <div> <input checked="" type="checkbox"/> GPS <input type="checkbox"/> Other: </div> </div> 		

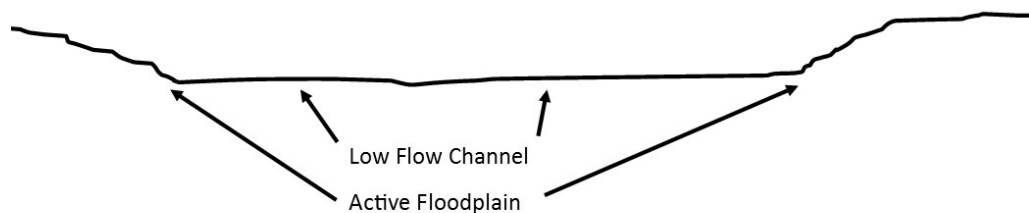
Project ID: ESMS

Cross section ID: ESMS ES-8

Date: 8/28/18

Time:

Cross section drawing:



OHWM

GPS point: 36.602939° -114.709808°

Indicators:

- ☒ Change in average sediment texture
☐ Change in vegetation species
☒ Change in vegetation cover

- ☐ Break in bank slope
☐ Other: _____
☐ Other: _____

Comments:

Total removal of vegetation within OHWM.

Floodplain unit:

☒ Low-Flow Channel

☐ Active Floodplain

☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Sand and gravel

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

- ☒ NA
☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
☐ Ripples
☒ Drift and/or debris
☐ Presence of bed and bank
☐ Benches
- ☐ Soil development
☐ Surface relief
☒ Other: sediment sorting
☐ Other: _____
☐ Other: _____

Comments:

Channel lacks definition between active floodplain and low flow channel.

Project ID: ESMS

Cross section ID: ESMS ES-8

Date: 8/28/18

Time:

Floodplain unit:

☐ Low-Flow Channel

☒ Active Floodplain

☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Sand and gravel

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

☒ NA

☐ Early (herbaceous & seedlings)

☒ Mid (herbaceous, shrubs, saplings)

☐ Late (herbaceous, shrubs, mature trees)

Indicators:

☐ Mudcracks

☐ Ripples

☒ Drift and/or debris

☐ Presence of bed and bank

☒ Benches

☐ Soil development

☐ Surface relief

☐ Other: _____

☐ Other: _____

☐ Other: _____

Comments:

Upland vegetation across active floodplain.

Floodplain unit:

☐ Low-Flow Channel

☐ Active Floodplain

☒ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Sand

Total veg cover: 30 % Tree: _____ % Shrub: 20 % Herb: 10 %

Community successional stage:

☐ NA

☐ Early (herbaceous & seedlings)

☒ Mid (herbaceous, shrubs, saplings)

☐ Late (herbaceous, shrubs, mature trees)

Indicators:

☐ Mudcracks

☐ Ripples

☐ Drift and/or debris

☐ Presence of bed and bank

☐ Benches

☒ Soil development

☐ Surface relief

☐ Other: _____

☐ Other: _____

☐ Other: _____

Comments:

Arid West Ephemeral and Intermittent Streams OHW M Datasheet

Project: Eagle Shadow Mountain Solar Project Number: ESMS 9 Stream: ESMS ES-9 Investigator(s): Andrew Butsavich and Justin Romanowitz	Date: August 28, 2018 Town: Moapa Reserv. Photo begin file#:	Time: State: Nevada Photo end file#:
Y <input checked="" type="checkbox"/> / N <input type="checkbox"/> Do normal circumstances exist on the site? Y <input type="checkbox"/> / N <input checked="" type="checkbox"/> Is the site significantly disturbed?	Location Details: Projection: UTM Zone 11 Datum: NAD 83 Coordinates: 36.609188° -114.701904°	
Potential anthropogenic influences on the channel system: None		
Brief site description: The project area is in the low-elevation arid Mojave Desert, surrounded by desert mountain terrain. Elevation ranges from 1,853 to 1,831 feet above mean sea level. Soils are shallow alluvium with a shallow caliche layer. Vegetation is dominated by a creosote bursage scrub with typical Mojave Desert species.		
Checklist of resources (if available): <div style="display: flex; flex-wrap: wrap;"> <div style="width: 50%;"> <input checked="" type="checkbox"/> Aerial photography Dates: 5-13-17 <input checked="" type="checkbox"/> Topographic maps <input type="checkbox"/> Geologic maps <input type="checkbox"/> Vegetation maps <input checked="" type="checkbox"/> Soils maps <input type="checkbox"/> Rainfall/precipitation maps <input type="checkbox"/> Existing delineation(s) for site <input checked="" type="checkbox"/> Global positioning system (GPS) <input type="checkbox"/> Other studies </div> <div style="width: 50%;"> <input type="checkbox"/> Stream gage data Gage number: Period of record: <input type="checkbox"/> History of recent effective discharges <input type="checkbox"/> Results of flood frequency analysis <input type="checkbox"/> Most recent shift-adjusted rating <input type="checkbox"/> Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event </div> </div>		
Hydrogeomorphic Floodplain Units 		
Procedure for identifying and characterizing the floodplain units to assist in identifying the OHW M: <ol style="list-style-type: none"> 1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site. 2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units. 3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units. <ol style="list-style-type: none"> a) Record the floodplain unit and GPS position. b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit. c) Identify any indicators present at the location. 4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section. 5. Identify the OHW M and record the indicators. Record the OHW M position via: <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div> <input checked="" type="checkbox"/> Mapping on aerial photograph <input checked="" type="checkbox"/> Digitized on computer </div> <div> <input checked="" type="checkbox"/> GPS <input type="checkbox"/> Other: </div> </div> 		

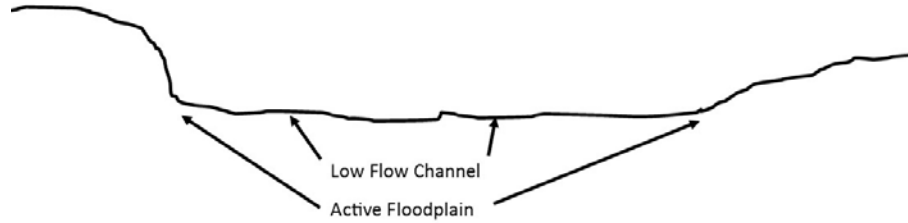
Project ID: ESMS

Cross section ID: ESMS ES-9

Date: 8/28/18

Time:

Cross section drawing:



OHWM

GPS point: 36.609188° -114.701904°

Indicators:

- ☒ Change in average sediment texture
☐ Change in vegetation species
☒ Change in vegetation cover

- ☐ Break in bank slope
☐ Other: _____
☐ Other: _____

Comments:

Total removal of vegetation within OHWM.

Floodplain unit:

☒ Low-Flow Channel

☐ Active Floodplain

☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Sand and gravel

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

- ☒ NA
☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
☐ Ripples
☒ Drift and/or debris
☒ Presence of bed and bank
☐ Benches
- ☐ Soil development
☐ Surface relief
☒ Other: sediment sorting
☐ Other: _____
☐ Other: _____

Comments:

Channel lacks definition between active floodplain and low flow channel.

Project ID: ESMS

Cross section ID: ESMS ES-9

Date: 8/28/18

Time:

Floodplain unit:

☐ Low-Flow Channel

☒ Active Floodplain

☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Sand and gravel

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

☒ NA

☐ Early (herbaceous & seedlings)

☐ Mid (herbaceous, shrubs, saplings)

☐ Late (herbaceous, shrubs, mature trees)

Indicators:

☐ Mudcracks

☐ Ripples

☒ Drift and/or debris

☒ Presence of bed and bank

☐ Benches

☐ Soil development

☐ Surface relief

☐ Other: _____

☐ Other: _____

☐ Other: _____

Comments:

Floodplain unit:

☐ Low-Flow Channel

☐ Active Floodplain

☒ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Sand

Total veg cover: 30 % Tree: _____ % Shrub: 20 % Herb: 10 %

Community successional stage:

☐ NA

☐ Early (herbaceous & seedlings)

☒ Mid (herbaceous, shrubs, saplings)

☐ Late (herbaceous, shrubs, mature trees)

Indicators:

☐ Mudcracks

☐ Ripples

☐ Drift and/or debris

☐ Presence of bed and bank

☐ Benches

☒ Soil development

☐ Surface relief

☐ Other: _____

☐ Other: _____

☐ Other: _____

Comments:

Arid West Ephemeral and Intermittent Streams OHW M Datasheet

Project: Eagle Shadow Mountain Solar Project Number: ESMS 10 Stream: ESMS ES-10 Investigator(s): Andrew Butsavich and Justin Romanowitz	Date: August 28, 2018 Town: Moapa Reserv. Photo begin file#:	Time: State: Nevada Photo end file#:
Y <input checked="" type="checkbox"/> / N <input type="checkbox"/> Do normal circumstances exist on the site? Y <input type="checkbox"/> / N <input checked="" type="checkbox"/> Is the site significantly disturbed?	Location Details: Projection: UTM Zone 11 Datum: NAD 83 Coordinates: 36.620539° -114.686412°	
Potential anthropogenic influences on the channel system: None		
Brief site description: The project area is in the low-elevation arid Mojave Desert, surrounded by desert mountain terrain. Elevation ranges from 1,834 to 1,812 feet above mean sea level. Soils are shallow alluvium with a shallow caliche layer. Vegetation is dominated by a creosote bursage scrub with typical Mojave Desert species.		
Checklist of resources (if available): <div style="display: flex; flex-wrap: wrap;"> <div style="width: 50%;"> <input checked="" type="checkbox"/> Aerial photography Dates: 5-13-17 <input checked="" type="checkbox"/> Topographic maps <input type="checkbox"/> Geologic maps <input type="checkbox"/> Vegetation maps <input checked="" type="checkbox"/> Soils maps <input type="checkbox"/> Rainfall/precipitation maps <input type="checkbox"/> Existing delineation(s) for site <input checked="" type="checkbox"/> Global positioning system (GPS) <input type="checkbox"/> Other studies </div> <div style="width: 50%;"> <input type="checkbox"/> Stream gage data Gage number: Period of record: <input type="checkbox"/> History of recent effective discharges <input type="checkbox"/> Results of flood frequency analysis <input type="checkbox"/> Most recent shift-adjusted rating <input type="checkbox"/> Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event </div> </div>		
Hydrogeomorphic Floodplain Units 		
Procedure for identifying and characterizing the floodplain units to assist in identifying the OHW M: <ol style="list-style-type: none"> 1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site. 2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units. 3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units. <ol style="list-style-type: none"> a) Record the floodplain unit and GPS position. b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit. c) Identify any indicators present at the location. 4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section. 5. Identify the OHW M and record the indicators. Record the OHW M position via: <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div> <input checked="" type="checkbox"/> Mapping on aerial photograph <input checked="" type="checkbox"/> Digitized on computer </div> <div> <input checked="" type="checkbox"/> GPS <input type="checkbox"/> Other: </div> </div> 		

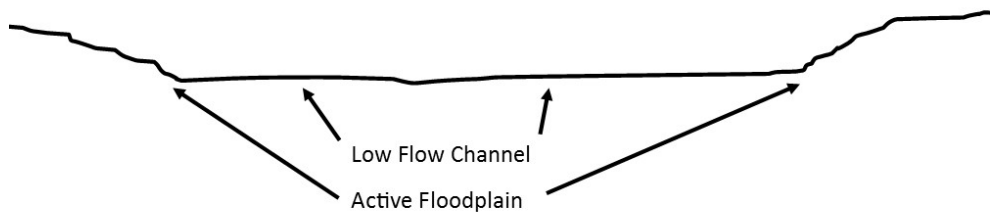
Project ID: ESMS

Cross section ID: ESMS ES-10

Date: 8/28/18

Time:

Cross section drawing:



OHWM

GPS point: 36.620539° -114.686412°

Indicators:

- ☒ Change in average sediment texture
☐ Change in vegetation species
☒ Change in vegetation cover

- ☐ Break in bank slope
☐ Other: _____
☐ Other: _____

Comments:

Total removal of vegetation within OHWM.

Floodplain unit:

☒ Low-Flow Channel

☐ Active Floodplain

☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Sand and gravel

Total veg cover: _____% Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- ☒ NA
☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
☐ Ripples
☒ Drift and/or debris
☒ Presence of bed and bank
☐ Benches
- ☐ Soil development
☐ Surface relief
☒ Other: sediment sorting
☐ Other: _____
☐ Other: _____

Comments:

Channel lacks definition between active floodplain and low flow channel.

Project ID: ESMS

Cross section ID: ESMS ES-10

Date: 8/28/18

Time:

Floodplain unit:

☐ Low-Flow Channel

☒ Active Floodplain

☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Sand and gravel

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

☒ NA

☐ Early (herbaceous & seedlings)

☐ Mid (herbaceous, shrubs, saplings)

☐ Late (herbaceous, shrubs, mature trees)

Indicators:

☐ Mudcracks

☐ Ripples

☒ Drift and/or debris

☒ Presence of bed and bank

☐ Benches

☐ Soil development

☐ Surface relief

☐ Other: _____

☐ Other: _____

☐ Other: _____

Comments:

Floodplain unit:

☐ Low-Flow Channel

☐ Active Floodplain

☒ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Sand

Total veg cover: 30 % Tree: _____ % Shrub: 20 % Herb: 10 %

Community successional stage:

☐ NA

☐ Early (herbaceous & seedlings)

☒ Mid (herbaceous, shrubs, saplings)

☐ Late (herbaceous, shrubs, mature trees)

Indicators:

☐ Mudcracks

☐ Ripples

☐ Drift and/or debris

☐ Presence of bed and bank

☐ Benches

☒ Soil development

☐ Surface relief

☐ Other: _____

☐ Other: _____

☐ Other: _____

Comments:

Arid West Ephemeral and Intermittent Streams OHW M Datasheet

Project: Eagle Shadow Mountain Solar Project Number: ESMS 11 Stream: ESMS ES-11 Investigator(s): Andrew Butsavich and Justin Romanowitz	Date: August 28, 2018 Town: Moapa Reserv. Photo begin file#:	Time: State: Nevada Photo end file#:
Y <input checked="" type="checkbox"/> / N <input type="checkbox"/> Do normal circumstances exist on the site? Y <input type="checkbox"/> / N <input checked="" type="checkbox"/> Is the site significantly disturbed?	Location Details: Projection: UTM Zone 11 Datum: NAD 83 Coordinates: 36.625398° -114.681374°	
Potential anthropogenic influences on the channel system: None		
Brief site description: The project area is in the low-elevation arid Mojave Desert, surrounded by desert mountain terrain. Elevation ranges from 1,819 to 1,797 feet above mean sea level. Soils are shallow alluvium with a shallow caliche layer. Vegetation is dominated by a creosote bursage scrub with typical Mojave Desert species.		
Checklist of resources (if available): <div style="display: flex; flex-wrap: wrap;"> <div style="width: 50%;"> <input checked="" type="checkbox"/> Aerial photography Dates: 5-13-17 <input checked="" type="checkbox"/> Topographic maps <input type="checkbox"/> Geologic maps <input type="checkbox"/> Vegetation maps <input checked="" type="checkbox"/> Soils maps <input type="checkbox"/> Rainfall/precipitation maps <input type="checkbox"/> Existing delineation(s) for site <input checked="" type="checkbox"/> Global positioning system (GPS) <input type="checkbox"/> Other studies </div> <div style="width: 50%;"> <input type="checkbox"/> Stream gage data Gage number: Period of record: <input type="checkbox"/> History of recent effective discharges <input type="checkbox"/> Results of flood frequency analysis <input type="checkbox"/> Most recent shift-adjusted rating <input type="checkbox"/> Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event </div> </div>		
Hydrogeomorphic Floodplain Units 		
Procedure for identifying and characterizing the floodplain units to assist in identifying the OHW M: <ol style="list-style-type: none"> 1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site. 2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units. 3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units. <ol style="list-style-type: none"> a) Record the floodplain unit and GPS position. b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit. c) Identify any indicators present at the location. 4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section. 5. Identify the OHW M and record the indicators. Record the OHW M position via: <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div> <input checked="" type="checkbox"/> Mapping on aerial photograph <input checked="" type="checkbox"/> Digitized on computer </div> <div> <input checked="" type="checkbox"/> GPS <input type="checkbox"/> Other: </div> </div> 		

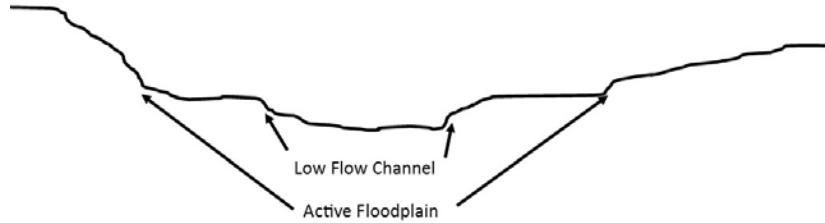
Project ID: ESMS

Cross section ID: ESMS ES-11

Date: 8/28/18

Time:

Cross section drawing:



OHWM

GPS point: 36.625398° -114.681374°

Indicators:

- ☒ Change in average sediment texture
☐ Change in vegetation species
☒ Change in vegetation cover

- ☐ Break in bank slope
☐ Other: _____
☐ Other: _____

Comments:

Total removal of vegetation within OHWM.

Floodplain unit:

☒ Low-Flow Channel

☐ Active Floodplain

☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Sand and gravel

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

- ☒ NA
☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
☐ Ripples
☒ Drift and/or debris
☒ Presence of bed and bank
☒ Benches

- ☐ Soil development
☐ Surface relief
☒ Other: sediment sorting
☐ Other: _____
☐ Other: _____

Comments:

Project ID: ESMS

Cross section ID: ESMS ES-11

Date: 8/28/18

Time:

Floodplain unit:

☐ Low-Flow Channel

☒ Active Floodplain

☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Sand and gravel

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

☒ NA

☐ Early (herbaceous & seedlings)

☐ Mid (herbaceous, shrubs, saplings)

☐ Late (herbaceous, shrubs, mature trees)

Indicators:

☐ Mudcracks

☐ Ripples

☒ Drift and/or debris

☒ Presence of bed and bank

☒ Benches

☐ Soil development

☐ Surface relief

☐ Other: _____

☐ Other: _____

☐ Other: _____

Comments:

Floodplain unit:

☐ Low-Flow Channel

☐ Active Floodplain

☒ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Sand

Total veg cover: 30 % Tree: _____ % Shrub: 20 % Herb: 10 %

Community successional stage:

☐ NA

☐ Early (herbaceous & seedlings)

☒ Mid (herbaceous, shrubs, saplings)

☐ Late (herbaceous, shrubs, mature trees)

Indicators:

☐ Mudcracks

☐ Ripples

☐ Drift and/or debris

☐ Presence of bed and bank

☐ Benches

☒ Soil development

☐ Surface relief

☐ Other: _____

☐ Other: _____

☐ Other: _____

Comments:

Arid West Ephemeral and Intermittent Streams OHW M Datasheet

Project: Eagle Shadow Mountain Solar Project Number: ESMS 12 Stream: ESMS ES-12 Investigator(s): Andrew Butsavich and Justin Romanowitz	Date: August 28, 2018 Town: Moapa Reserv. Photo begin file#:	Time: State: Nevada Photo end file#:
Y <input checked="" type="checkbox"/> / N <input type="checkbox"/> Do normal circumstances exist on the site? Y <input type="checkbox"/> / N <input checked="" type="checkbox"/> Is the site significantly disturbed?	Location Details: Projection: UTM Zone 11 Datum: NAD 83 Coordinates: 36.648477° -114.653861°	
Potential anthropogenic influences on the channel system: None		
Brief site description: The project area is in the low-elevation arid Mojave Desert, surrounded by desert mountain terrain. Elevation ranges from 1,763 to 1,637 feet above mean sea level. Soils are shallow alluvium with a shallow caliche layer. Vegetation is dominated by a creosote bursage scrub with typical Mojave Desert species.		
Checklist of resources (if available): <div style="display: flex; flex-wrap: wrap;"> <div style="width: 50%;"> <input checked="" type="checkbox"/> Aerial photography Dates: 5-13-17 <input checked="" type="checkbox"/> Topographic maps <input type="checkbox"/> Geologic maps <input type="checkbox"/> Vegetation maps <input checked="" type="checkbox"/> Soils maps <input type="checkbox"/> Rainfall/precipitation maps <input type="checkbox"/> Existing delineation(s) for site <input checked="" type="checkbox"/> Global positioning system (GPS) <input type="checkbox"/> Other studies </div> <div style="width: 50%;"> <input type="checkbox"/> Stream gage data Gage number: Period of record: <input type="checkbox"/> History of recent effective discharges <input type="checkbox"/> Results of flood frequency analysis <input type="checkbox"/> Most recent shift-adjusted rating <input type="checkbox"/> Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event </div> </div>		
<p style="text-align: center;">Hydrogeomorphic Floodplain Units</p>		
Procedure for identifying and characterizing the floodplain units to assist in identifying the OHW M: <ol style="list-style-type: none"> 1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site. 2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units. 3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units. <ol style="list-style-type: none"> a) Record the floodplain unit and GPS position. b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit. c) Identify any indicators present at the location. 4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section. 5. Identify the OHW M and record the indicators. Record the OHW M position via: <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div> <input checked="" type="checkbox"/> Mapping on aerial photograph <input checked="" type="checkbox"/> Digitized on computer </div> <div> <input checked="" type="checkbox"/> GPS <input type="checkbox"/> Other: </div> </div> 		

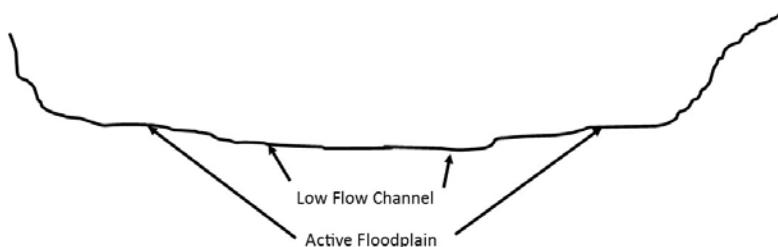
Project ID: ESMS

Cross section ID: ESMS ES-12

Date: 8/28/18

Time:

Cross section drawing:



OHWM

GPS point: 36.648477° -114.653861°

Indicators:

- ☒ Change in average sediment texture
☐ Change in vegetation species
☒ Change in vegetation cover

- ☒ Break in bank slope
☐ Other: _____
☐ Other: _____

Comments:

Total removal of vegetation within OHWM.

Floodplain unit:

☒ Low-Flow Channel

☐ Active Floodplain

☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Sand and gravel

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

- ☒ NA
☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
☐ Ripples
☒ Drift and/or debris
☒ Presence of bed and bank
☒ Benches
- ☐ Soil development
☐ Surface relief
☒ Other: sediment sorting
☐ Other: _____
☐ Other: _____

Comments:

Channel lacks definition between active floodplain and low flow channel.

Project ID: ESMS

Cross section ID: ESMS ES-12

Date: 8/28/18

Time:

Floodplain unit:

☐ Low-Flow Channel

☒ Active Floodplain

☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Sand and gravel

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

☒ NA

☐ Early (herbaceous & seedlings)

☐ Mid (herbaceous, shrubs, saplings)

☐ Late (herbaceous, shrubs, mature trees)

Indicators:

☐ Mudcracks

☐ Ripples

☒ Drift and/or debris

☒ Presence of bed and bank

☒ Benches

☒ Soil development

☐ Surface relief

☐ Other: _____

☐ Other: _____

☐ Other: _____

Comments:

Floodplain unit:

☐ Low-Flow Channel

☐ Active Floodplain

☒ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Sand

Total veg cover: 30 % Tree: _____ % Shrub: 20 % Herb: 10 %

Community successional stage:

☐ NA

☐ Early (herbaceous & seedlings)

☒ Mid (herbaceous, shrubs, saplings)

☐ Late (herbaceous, shrubs, mature trees)

Indicators:

☐ Mudcracks

☐ Ripples

☐ Drift and/or debris

☐ Presence of bed and bank

☐ Benches

☒ Soil development

☐ Surface relief

☐ Other: _____

☐ Other: _____

☐ Other: _____

Comments:

Appendix F — K Road Moapa Solar Jurisdictional Delineation

Appendix K

U.S. Army Corps of Engineers Jurisdictional Determination Report and Consultation



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DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, SACRAMENTO
CORPS OF ENGINEERS
1325 J STREET
SACRAMENTO CA 95814-2922

REPLY TO
ATTENTION OF

July 1, 2011

Regulatory Division SPK-2011-00060-SG

Scott Walker
Malcolm Pirnie
100 Congress Avenue
Austin, Texas 78701

Dear Mr. Walker:

This concerns your proposed K Road Moapa Solar project in or near California Wash. The project is located on or near California Wash, Section 35, Township 16 S, Range 64 E, Mount Diablo Meridian, Latitude 36.502737145477°, Longitude -114.795970900769°, Moapa, Clark County, Nevada.

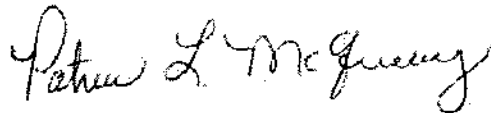
Based on the information you have provided, we have determined that the proposed work will not result in the discharge of dredged or fill material within waters of the United States. Therefore, a Department of the Army Permit is not required for this work. Measures should be taken to prevent construction materials and/or activities from entering any waters of the United States. Appropriate soil erosion and sediment controls should be implemented onsite to achieve this end.

Our disclaimer of jurisdiction is only for this activity as it pertains to Section 404 of the Federal Clean Water Act and does not refer to, nor affect jurisdiction over any waters present on site. Other Federal, State, and local laws may apply to your activities. Therefore, in addition to contacting other Federal and local agencies, you should also contact state regulatory authorities to determine whether your activities may require other authorizations or permits.

We appreciate your feedback. At your earliest convenience, please tell us how we are doing by completing the customer survey at <http://per2.nwp.usace.army.mil/survey.html> and select Sacramento District – St. George Office on page 2 of the survey form.

Please refer to identification number SPK-2011-00060-SG in any correspondence concerning this project. If you have any questions, please contact Patricia McQueary at 321 North Mall Drive, Suite L-101, St. George, Utah 84790, email Patricia.L.McQueary@usace.army.mil, or telephone 435-986-3979. For more information regarding our program, please visit our website at www.spk.usace.army.mil/regulatory.html.

Sincerely,

A handwritten signature in black ink, reading "Patricia L. McQueary". The signature is written in a cursive, flowing style.

Patricia L. McQueary
Chief, St. George Regulatory Office
Sacramento District



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, SACRAMENTO
CORPS OF ENGINEERS
1325 J STREET
SACRAMENTO CA 95814-2922

July 1, 2011

Regulatory Division SPK-2011-00060-SG

Scott Walker
Malcolm Pirnie
100 Congress Avenue
Austin, Texas 78701

Dear Mr. Walker:

We are responding to your February 15, 2011 request for an approved jurisdictional determination for the K Road Moapa Solar project. The approximately 2000-acre site is located on or near California Wash, Section 35, Township 16 S, Range 64 E, Mount Diablo Meridian, Latitude 36.502°, Longitude -114.7959°, Moapa, Clark County, Nevada.

Based on available information, **we concur with the findings of Malcolm Pirnie in the "Preliminary Jurisdictional Determination Report for the K Road Solar Project on the Moapa River Indian Reservation" dated February 2011.** The waters identified as D1-D6 in the above document were determined to be non-jurisdictional based on guidance found in "U.S. Army Corps of Engineers Jurisdictional Determination (JD) Form Instructional Guidebook" and "A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States". These waters do not meet the definition of "Waters of the U.S." and because of a lack of an ordinary high water mark, defined bed and bank, and lack of a connection to downstream sources, these waters are not currently regulated by the Corps of Engineers. This disclaimer of jurisdiction is only for Section 404 of the Federal Clean Water Act. Other Federal, State, and local laws may apply to your activities. In particular, you may need authorization from the U.S. Fish and Wildlife Service.

This verification is valid for five years from the date of this letter, unless new information warrants revision of the determination before the expiration date. This letter contains an approved jurisdictional determination for your subject site. If you object to this determination, you may request an administrative appeal under Corps regulations at 33 CFR Part 331.

A Notification of Appeal Process (NAP) and Request for Appeal (RFA) form is enclosed. If you request to appeal this determination you must submit a completed RFA form to the South Pacific Division Office at the following address: Administrative Appeal Review Officer, Army Corps of Engineers, South Pacific Division, CESPD-PDS-O, 1455 Market Street, San Francisco, California 94103-1399, Telephone: 415-503-6574, FAX: 415-503-6646.

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR Part 331.5, and that it has been received by the Division Office within 60 days of the NAP. Should you decide to submit an RFA form, it must be received at the above address by 60 days from the date of this letter. It is not necessary to submit an RFA form to the Division Office if you do not object to the determination in this letter.

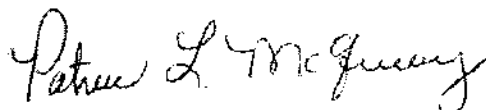
You should provide a copy of this letter and notice to all other affected parties, including any individual who has an identifiable and substantial legal interest in the property.

This determination has been conducted to identify the limits of Corps of Engineers' Clean Water Act jurisdiction for the particular site identified in this request. This determination may not be valid for the wetland conservation provisions of the Food Security Act of 1985. If you or your tenant are USDA program participants, or anticipate participation in USDA programs, you should request a certified wetland determination from the local office of the Natural Resources Conservation Service prior to starting work.

We appreciate your feedback. At your earliest convenience, please tell us how we are doing by completing the customer survey at <http://per2.nwp.usace.army.mil/survey.html> and select Sacramento District – St. George Office on page 2 of the survey form.

Please refer to identification number SPK-2011-00060-SG in any correspondence concerning this project. If you have any questions, please contact Patricia McQueary at 321 North Mall Drive, Suite L-101, St. George, Utah 84790, email Patricia.L.McQueary@usace.army.mil, or telephone 435-986-3979. For more information regarding our program, please visit our website at www.spk.usace.army.mil/regulatory.html.

Sincerely,

A handwritten signature in black ink, reading "Patricia L. McQueary". The signature is written in a cursive, flowing style.

Patricia L. McQueary
Chief, St. George Regulatory Office
Sacramento District

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL

Applicant: K Road Solar Power

File No.: SPK-2011-00060-SG

Date: July 1, 2011

Attached is:

See Section below

	INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)	A
	PROFFERED PERMIT (Standard Permit or Letter of permission)	B
	PERMIT DENIAL	C
X	APPROVED JURISDICTIONAL DETERMINATION	D
	PRELIMINARY JURISDICTIONAL DETERMINATION	E

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at <http://www.usace.army.mil/inet/functions/cw/cecwo/reg> or Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- **ACCEPT:** If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- **OBJECT:** If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit

- **ACCEPT:** If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- **APPEAL:** If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer (address on reverse). This form must be received by the division engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer (address on reverse). This form must be received by the division engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

- **ACCEPT:** You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.
- **APPEAL:** If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer (address on reverse). This form must be received by the division engineer within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.

SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT

REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

POINT OF CONTACT FOR QUESTIONS OR INFORMATION:

If you have questions regarding this decision and/or the appeal process you may contact:

Patricia McQueary
Regulatory Project Manager
U.S. Army Corps of Engineers
321 N Mall Drive, Suite L-101, St. George, Utah 84790
Phone: 435-986-3979, FAX 435-986-3981
Email: Patricia.L.McQueary@usace.army.mil
(Use this address for submittals to the district engineer)

If you only have questions regarding the appeal process you may also contact:

Thomas J. Cavanaugh
Administrative Appeal Review Officer
U.S. Army Corps of Engineers
1455 Market Street
San Francisco, California 94103-1399
Phone: 415-503-6574, FAX 415-503-6646
Email: Thomas.J.Cavanaugh@usace.army.mil
(Use this address for submittals to the division engineer)

RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15 day notice of any site investigation, and will have the opportunity to participate in all site investigations.

Signature of appellant or agent.

Date:

Telephone number:

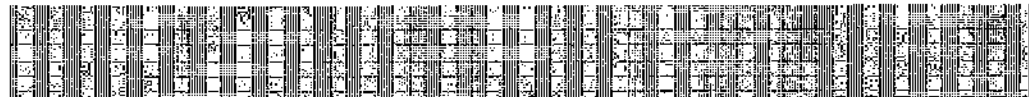
kRoad Solar Power

K Road Solar Power

• San Diego, California

Preliminary Jurisdictional Determination Report

February 2011



Report Prepared By:

Malcolm Pirnie, Inc.

100 Congress Ave.
Suite 1485
Austin, Texas 78701

6923001

**MALCOLM
PIRNIE**

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1. Introduction

This report describes the results of a preliminary jurisdictional determination conducted within the 2,000-acre K Road Solar Project area. A preliminary jurisdiction determination is used to identify and map the extent of the wetlands and waters of the United States (U.S.) and to provide information regarding jurisdictional issues. The proposed project is located in its entirety on undeveloped lands within the boundaries of the Moapa Indian Reservation approximately 30 miles north of Las Vegas, Nevada (see Appendix A, Figures 1 and 2). The proposed project is the construction, operation, and maintenance of up to 350 megawatts (MW) of capacity solar power generating facility.

The purpose of this report is to provide the results of the delineation of wetlands and non-wetland waters of the U.S. under the jurisdiction of the U.S. Army Corps of Engineers (USACE) with respect to the Clean Water Act that occur in the survey area, assess impacts, and propose mitigation for the Solar Project. Methods for delineating potentially jurisdictional areas followed guidelines set forth by the USACE, including the Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (USACE 1987, 2006) and A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States (USACE 2008).

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2. Determination Methods

Wetland determination methods followed guidelines outlined in the USACE *Wetlands Delineation Manual* (USACE 1987). Malcolm Pirnie used the Routine Wetland Determination Method provided in the USACE manual and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region. Ordinary High Water Mark determinations were based on A Field Guide to the Identification of the OHWM in the Arid West Region of the Western United States and guidelines outlined in the USACE *Ordinary High Water Mark Identification* regulatory guidance letter (USACE 2005). A review of resource maps was performed to prepare for the field work.

An ordinary high watermark is defined as:

... that line on the shore established by the fluctuations of water and indicated by physical characteristics such as [a] clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas (33 CFR Part 328.3).

A pedestrian survey was completed for the entire project area. All mapping of potentially jurisdictional features was based on data collected with a sub-meter Global Positioning System (GPS) unit and in-house geographic information system (GIS) processing.

2.1. Existing Information

The proposed project is located in the Basin and Range physiographic province in the north central portion of the Mojave Desert. Basin and Range structure in the Mojave Desert is characterized by rather abrupt mountain ranges, generally of moderate height, that consist primarily of exposed bedrock that is deeply cut by ravines, and is surrounded by aprons of pediments and/or low-profile bajada slopes, which drain to interior closed basins. This interior drainage with no outlets results in the formation of evaporite playa lakes, such as Dry Lake south of the proposed project, in the valley bottoms (Benson and Darrow 1981; Longwell et al. 1965).

The proposed project is situated in the north end of the Dry Lake Valley. The mountains bounding the Dry Lake Valley include the Arrow Canyon Range to the west, Dry Lake Range to the south and North Muddy Mountains to the east. The Arrow Canyon Range is comprised primarily of carbonate rocks of the Bird Spring Formation that are Ordovician to Permian in age (Longwell et al. 1965). Elevations of the project range from

approximately 2,038 feet at the intersection of the main Project access road at Interstate Highway 15 to 2,200 feet.

Site soils are generally shallow, rarely in excess of 18 inches in depth, even in areas away from the base of the mountains, and are typically about 4 inches in depth over an underlying caliche layer. The poorly developed soils, almost completely absent in some areas, are mostly clayey sands, usually with abundant caliche-coated rocks present. Near the base of the Arrow Canyon Range the valley fills give way to bedrock pediment and eventually to an abrupt upward change in slope at the base of the core of the mountain where benched outcrops of sedimentary facies are exposed. On the core of the mountain, shallow soils are typically present only in small areas where the gradient is less steep.

2.2. USGS 7.5' Topographic Survey

The shape of the area is an irregular pentagon with drainage that flows from West to East, exiting the watershed via five culverts, flowing into two separate drainages and emptying into the California Wash (a blue lined stream on the USGS map), approximately 20,000 feet east of the site. The California Wash flows into the Muddy River, 63,000 feet northeast of the project site. The area is hydrologically precluded from the normal watershed by the Union Pacific Railroad and Interstate 15. Water flows off the project site via 5 culverts (Culverts 1-5 on Figure 2 in Appendix A).

2.3. National Wetlands Inventory

Review of the National Wetlands Inventory (NWI) maps for Clark County (USDOI 2007) identified no potential wetland features within the Project area.

2.4. Climate

Clark County depicts a subtropical arid climate. The summers are long and hot and the winters short and mild (NOAA 2005). Summer temperatures above 100° F occur rather frequently in the south and occasionally over the rest of the State (NOAA 2005). During the summer months of June through September, average daytime highs range from 94 – 104 °F (34 to 40°C) with nighttime lows ranging from 69 – 78°F (21–26°C). There are an average of 133 days per year that exceed 90°F (32°C) and 72 days that exceed 100 °F (38°C). The extreme temperatures are most often during July and August. Humidity is often under 10 percent.

The winter season is generally mild and of shorter duration. Average daytime highs are 60 °F (16°C) with nighttime lows around 40 °F (4°C). Although temperatures can sometimes drop to freezing, 32 °F (0°C), rarely do the nighttime temperatures dip below 30 °F. Snowfall occurs in the surrounding mountains, but is rare in the valley.

Widespread episodes of blowing dust and sand are common during the winter and spring seasons. Strong winds are the most hazardous weather experience in the area. Although uncommon, winds of over 50mph can occur during vigorous storms.

On average, sunny days are recorded 85 percent of the time (Gorelow 2005). There are approximately 300 sunny days per year with roughly 4.2 inches of rainfall.

2.5. Vegetation

There are approximately 200 endemic plant species found in the Mojave Desert. The most commonly found species is the creosote bush (*Larrea tridentate*). Approximately 70% of the Mojave Desert is covered by creosotebush-white bursage (*Ambrosia dumosa*) associations. Species associated with creosotebush-white bursage communities in the Mojave Desert include Shockley's goldenhead (*Acamptopappus shockleyi*), Anderson's wolfberry (*Lycium andersonii*), range ratany (*Krameria parvifolia*), Mojave yucca (*Yucca schidigera*), California jointfir (*Ephedra funerea*), spiny hopsage (*Grayia spinosa*), and winterfat (*Krascheninnikovia lanata*) (Feller 2010). Creosotebush also occurs in the Mojave Desert scrub association with shadscale (*A. confertifolia*), white burrobrush (*Hymenoclea salsola*), blackbrush (*Coleogyne ramosissima*), desertsenna (*Cassia armata*), Catclaw (*Acacia greggi*) and Nevada ephedra (*Ephedra nevadensis*) (Feller, 2010).

Common cacti found are the barrel cactus (*Ferocactus acanthodes*), beavertail cactus (*Opuntia basilaris*), cottontop cactus (*Echinocactus polycephalus*), hedgehog cactus (*Echinocereus engelmannii* var. *chrysocentrus*), pencil cholla (*Opuntia ramosissima*), silver cholla (*Opuntia echinocarpa*) and teddybear cholla (*Opuntia bigelovii*).

Grasses regularly found are big galleta (*Hilaria rigida*), Indiana rice grass (*Oryzopsis hymenoides*), bush muhly (*Muhlenbergia porteri*), fluff grass (*Erioneuron pulchella*), red brome (*Bromus rubens*), Desert needle (*Stipa speciosa*), Arabian grass (*Schismus arabicus*), snakeweed (*Gutierrezia*), Desert trumpet (*Eriogonum inflatum*), four winged saltbush (*Atriplex canescens*), and Desert grass (*Blepharidachne kingii*).

2.6. Clark County Soil Survey

The U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) soil survey maps (USDA NRCS 2007) used to determine the soil information for the property and surrounding area are provided as Figure 3 (Appendix A). Mapped soil types for the project area were compared to the Hydric Soils List (USDA NRCS 2007). Tonopah Gravel, Bard Gravel, Badland, and Mormon Mesa are the soil types on the project area. The following is a description of these soil types:

The **Tonopah series** consists of very deep, excessively to well drained soils that formed in mixed alluvium. Tonopah soils are on fan remnants and fan piedmonts. Slope ranges

from 0 to 15 percent. The mean annual precipitation is about 6 inches and the mean annual temperature is about 65 °F. The present vegetation is mainly creosotebush and white bursage.

The **Bard series** consists of shallow over cemented material, well drained soils that formed in alluvium derived predominantly from limestone and dolomite with some sandstone and quartzite. The Bard soils are on dissected valley fill terraces, alluvial fans and fan remnants. Slope ranges from 0 to 15 percent. The mean annual precipitation is about 5 inches and the mean annual air temperature is about 62 degrees F. The vegetation is mainly creosotebush, white bursage, annual buckwheat, cholla and other cacti.

The **Badland unit** consists of severely eroded and gullied sideslopes of the mesa. It is made of exposures of the Muddy Creek Formation. The Formation consists of highly stratified sand, silt, and clay that contain a large amount of gypsum and calcium carbonate. Slopes are commonly 15 to 50 percent, but can be as much as 100 percent in some areas. Run-off is very rapid, and the hazard of erosion is very high. This unit is described as generally eroded and barren of vegetation.

The **Mormon Mesa series** consist of shallow over petrocalcic, well drained soils that formed in material influenced by calcareous loess over mixed alluvium from predominantly limestone sources. The Mormon Mesa soils are on summits of fan remnants and mesas. Slope ranges from 0 to 15 percent. The mean annual precipitation is about 5 inches and the mean annual temperature is about 65 °F. The vegetation is scattered white bursage, yucca, and creosotebush with some big galleta and Indian ricegrass.

2.7. Site photographs

Site photographs and GPS points were taken along each of the swale crossings and culverts under the railroad. A map showing the GPS points at photo locations is presented as Figure 4 in Appendix A. Each photograph is labeled with the direction it was taken and a description (See Appendix B).

2.8. Pertinent Supreme Court Decisions

Three Supreme Court cases have shaped the current understanding of federal jurisdiction over wetlands and waters of the U.S. In 1985, the court decision in *United States v. Riverside Bayview Homes, Inc.* (474 U.S. 121) upheld USACE jurisdiction and Section 404's applicability to interstate waters, "navigable waters," and waters and wetlands adjacent to or connected to navigable waters (Pooley 2002). In the *Riverside Bayview* case, the Court found that "Congress' concern" for the protection of water quality and

aquatic ecosystems indicated its intent to regulate wetlands “inseparably bound up with” jurisdictional waters (474 U.S. at 134; ACOE 2003).

On January 9, 2001, the Supreme Court of the United States issued a decision on *Solid Waste Agency of Northern Cook County (SWANCC) v. United States Army Corps of Engineers, et al.* with respect to whether the use of an isolated, intrastate pond by migratory birds is sufficient interstate commerce to warrant USACE jurisdiction over that pond pursuant to Section 404 of the Clean Water Act (CWA). As federal regulatory authority only extends to activities that affect interstate commerce pursuant to Article 1, Section 8 of the U.S. Constitution, USACE restricted its jurisdiction on isolated (intrastate) waters, such as ponds or vernal pools lacking connection to waters of the U.S. prior to 1985.

On September 12, 1985, the Environmental Protection Agency (EPA) issued a memorandum asserting USACE jurisdiction over isolated waters that are used or could be used by migratory birds or endangered species (USACE 1998). This assertion became known as the “Migratory Bird Rule.” Consequently, the definition of “waters of the United States” in USACE regulations was modified to include isolated waters, such as vernal pools or mining ponds, which qualified under the Migratory Bird Rule.

In SWANCC, the Supreme Court essentially stated that the Migratory Bird Rule does not sufficiently qualify an isolated pond for USACE jurisdiction. The SWANCC ruling, however, did not refute the 1985 decision made by the Court in *Riverside Bayview*. The SWANCC ruling denied USACE jurisdiction over “non-navigable, isolated, intrastate” waters based only on use by migratory birds, but did not strike down any regulation or definition of “water of the United States” or adjacency.

The *Rapanos v. United States* and *Carabell v. United States* cases (referred to collectively as the Rapanos case) heard by the Supreme Court in 2006 questioned whether the CWA covers wetlands that do not contain, and are not adjacent to, traditional navigable waters (Environmental Law Institute [ELI] 2007). The consolidated case included two lower court cases in which the USACE had asserted jurisdiction over two different scenarios. At the first site, the wetlands shared a surface water connection with non-navigable tributaries of navigable waters. At the second site, the wetlands were Jurisdictional Delineation Report for the Calavo Drive Drainage Improvement Project separated by a berm from non-navigable tributaries of navigable waters. The Supreme Court overturned the USACE’s assertion of jurisdiction at each of these sites and returned the cases back to the lower courts with a 5-4 decision; however, the 5-4 decision was split 4-1-4. The four dissenting justices, in an opinion authored by Justice Stevens, concluded that EPA’s and the Corps’ interpretation of “waters of the United States” was a reasonable interpretation of the Clean Water Act (USACE 2007). The five justices invalidating the lower court’s decision did not agree on the reason the wetlands were not jurisdictional. Justice Scalia,

representing the four justices in agreement, and Justice Kennedy, in a solo opinion, wrote separate opinions, thereby, providing two separate tests or approaches from which the lower courts would now need to apply (ELI 2007). Justice Scalia's opinion would limit CWA jurisdiction to wetlands that are both adjacent to and have a continuous surface connection with "relatively permanent" bodies of water "connected to" traditional interstate navigable waters. Justice Kennedy wrote in his opinion that he concurred with the judgment to return the cases to the lower courts and defined CWA jurisdiction over wetlands adjacent to non-navigable tributaries where the wetlands have a "significant nexus" with navigable waters (ELI 2007).

Due to the split decision on the Rapanos case, there is some uncertainty as to how the lower courts will apply the decision. Justice Kennedy's opinion that a "significant nexus" is required seems to have become the criteria from which to determine CWA jurisdiction for many courts, including the Ninth Circuit Court.

On June 5, 2007, the EPA and the USACE issued guidance on how agency representatives will deal with CWA jurisdiction in light of the Rapanos decision. The effect of the joint guidance is that each jurisdictional delineation will include a determination of significant nexus and that each jurisdictional determination made by the USACE will be coordinated with the EPA. The public review period for the guidance expired on January 21, 2008. On January 28, 2008, the USACE published a memorandum outlining the coordination procedures for all jurisdictional determinations involving a significant nexus determination.

3. Determination Results

This chapter is a presentation of aquatic resources and their jurisdictional status based on U.S. Army Corps of Engineers Jurisdictional Determination Form Instructional Guidebook (USACE, 2007). There are no Traditional Navigable Waters (TNW) within the Project area. Six drainages were mapped within the Project area (Figure 5); however, none were considered potentially jurisdictional. Table 3-1 provides a summary of the identified resources, the presence of wetlands, feature length, feature area, OHWM average width and proximity to Relatively Permanent Waters (RPW).

3.1. Traditional Navigable Waters

TNWs are all tidal waters and waters that have been, could be, or are used in interstate or foreign commerce. TNWs are jurisdictional and any tributary that continually flows directly or indirectly at least seasonally into a TNW is also jurisdictional. There are no TNWs within the Project area.

3.2. Relatively Permanent Waters

RPWs are tributaries that flow year round or have continuous flow at least seasonally, and that flow directly or indirectly into a TNW. A wetland that abuts a tributary has no distinction between the immediate edge of the tributary and the wetland itself. An adjacent tributary has a barrier between itself and the tributary, but is connected by surface flow. A wetland adjacent to a RPW or Non-RPW must have a significant nexus. A significant nexus is a more than speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW (USACE 2007). There are no RPWs within the Project area.

3.3. Non-relatively Permanent Waters

Non-RPWs are tributaries that do not have continuous flow at least seasonally. Non-RPWs are jurisdictional where there is a significant nexus to a TNW. The six drainages discussed below drain into a Non-RPW approximately 1-mile east of the site.

3.4. Drainages

Drainages are swales, erosional features, or small washes that are characterized by low flow volume, infrequent and short duration flow; ditches (including roadside ditches) excavated wholly in and draining only uplands and that do not carry a relatively permanent flow of water; uplands transporting overland flow generated from precipitation (USACE 2007). Drainages are not jurisdictional. There are six drainages

within the Project area that need discussion. The Arid West Ephemeral and Intermittent Streams OHWM Datasheet for each feature is included in Appendix C and the Jurisdictional Determination Forms are included in Appendix D.

Drainage 1 (D-1): D-1 is an erosional feature. D-1 has a very low slope and only flows during and immediately after a rainfall event. No OHWM was observed for this feature and the vegetation within the feature is consistent with the surrounding area. Water from this feature flows through a culvert (culvert 1) under the elevated railroad tracks. D-1 has a subwatershed size of 146 acres (See Figure 6 Appendix A).

Drainage 2 (D-2): D-2 is an erosional feature. D-2 has a very low slope and only flows during and immediately after a rainfall event. No OHWM was observed for this feature and the vegetation within the feature is consistent with the surrounding area. Water from this feature flows through a culvert (culvert 2) under the elevated railroad tracks. D-2 has a subwatershed size of 200 acres (See Figure 6 Appendix A).

Drainage 3 (D-3): D-3 is an erosional feature. D-3 has a very low slope and only flows during and immediately after a rainfall event. No OHWM was observed for this feature and the vegetation within the feature is consistent with the surrounding area. Water from this feature flows through a culvert (culvert 3) under the elevated railroad tracks. D-3 has a subwatershed size of 465 acres (See Figure 6 Appendix A).

Drainage 4 (D-4): D-4 is a vegetated drainage way consisting of braided channels that start and stop abruptly and only flows during and immediately after a rainfall event. The identified OHWM was considered discontinuous. These channels are not connected, have vegetation in the bottom of the channel, and there are considerable distances without any channels at all. Water from this feature flows through a culvert (culvert 4) under the elevated railroad tracks. D-4 has a subwatershed size of 481 acres (See Figure 6 Appendix A).

Drainage 5 (D-5): D-5 is an erosional feature. D-5 has a very low slope and only flows during and immediately after a rainfall event. No OHWM was observed for this feature and the vegetation within the feature is consistent with the surrounding area. Water from this feature flows through a culvert (culvert 5) under the elevated railroad tracks. D-5 has a subwatershed size of 140 acres (See Figure 6 Appendix A).

Drainage 6 (D-6): D-6 is an erosional feature. D-6 has a very low slope and only flows during and immediately after a rainfall event. The identified OHWM was considered discontinuous and the channel was vegetated. Water from this feature flows into an off-site impoundment created by the elevated railroad track. This water would be considered isolated. D-6 has a subwatershed size of 322 acres (See Figure 6 Appendix A).

**Table 3-1:
Preliminary Jurisdictional Waters**

Feature ID	Resource Type	Classification	Abutting Wetlands	Adjacent Wetlands	Total Feature (linear feet) on site	Total Area (acres)	OHWM Width (feet)	Feature Abuts RPW	Adjacent RPW
D-1	Desert Swale	Non-jurisdictional	None	None	2,445	0.14	2-3	None	None
D-2	Desert Swale	Non-jurisdictional	None	None	10,190	0.58	2-3	None	None
D-3	Desert Swale	Non-jurisdictional	None	None	3,018	0.17	2-3	None	None
D-4	Desert Swale	Non-jurisdictional	None	None	9,941	0.91	4	None	None
D-5	Desert Swale	Non-jurisdictional	None	None	2,788	0.16	2-3	None	None
D-6	Isolated Swale	Non-jurisdictional	None	None	6,356	0.36	2	None	None
				Total	34,378	2.34			

Contour data for the site was collected and processed. Utilizing GIS, the watersheds for each drainage were mapped and the areas calculated (See Figure 6). Table 3-2 shows the acres of each watershed associated with the drainages.

**Table 3-2:
Watershed Acres Associated with Each Drainage**

Drainage	Watershed Acres
Drainage 1	146.0
Drainage 2	200.7
Drainage 3	465.6
Drainage 4	481.8
Drainage 5	140.1
Drainage 6	322.4

It should be noted that the site exists on a mesa top with the general flow from the west side to the east side. No drainage has a watershed larger than one square mile. In addition, due to the topography, water on a small portion of the west side flows west off the site and water on the northern side flows north off-site (See figure 6).

4. Summary

All aquatic resources on the project site were documented and mapped. This preliminary jurisdictional determination report represents Malcolm Pirnie's best professional judgment based on field work conducted in December 2010. A total of six desert drainage swales and no wetlands were identified, on-site, during the assessment. One foot contour data was collected for the site. The contour data was used to calculate the watershed for each of the 6 drainages. All of the drainage subwatersheds were calculated to be smaller than one square mile (640 acres). As discussed in greater detail within the Jurisdictional Determination Form (Appendix D), the OHWM were considered discontinuous and water flows in these feature only during and after a significant rainfall event. These drainages meet the definition of Desert Swale, included in the USACE Jurisdictional Determination Form Instructional Guidebook. All the aquatic features on-site flow through five culverts under the railroad track on the east side.

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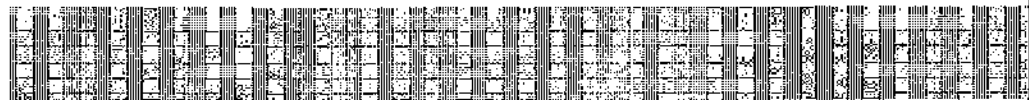
5. References

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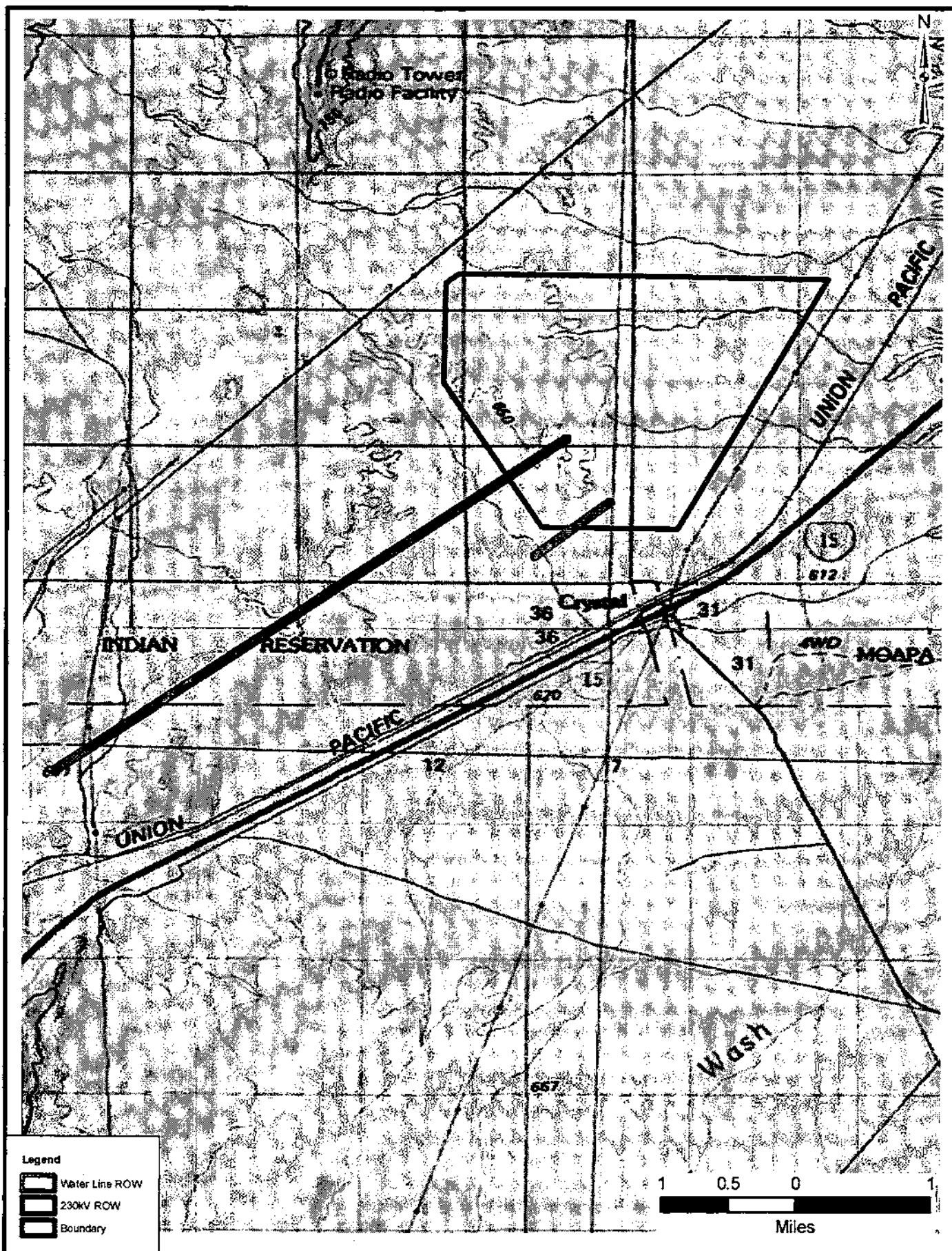
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<http://wetlandsfws.er.usgs.gov/wtlnds/viewer.htm>.

K Road Solar Power
Preliminary Jurisdictional Determination Report

Appendix A: Figures



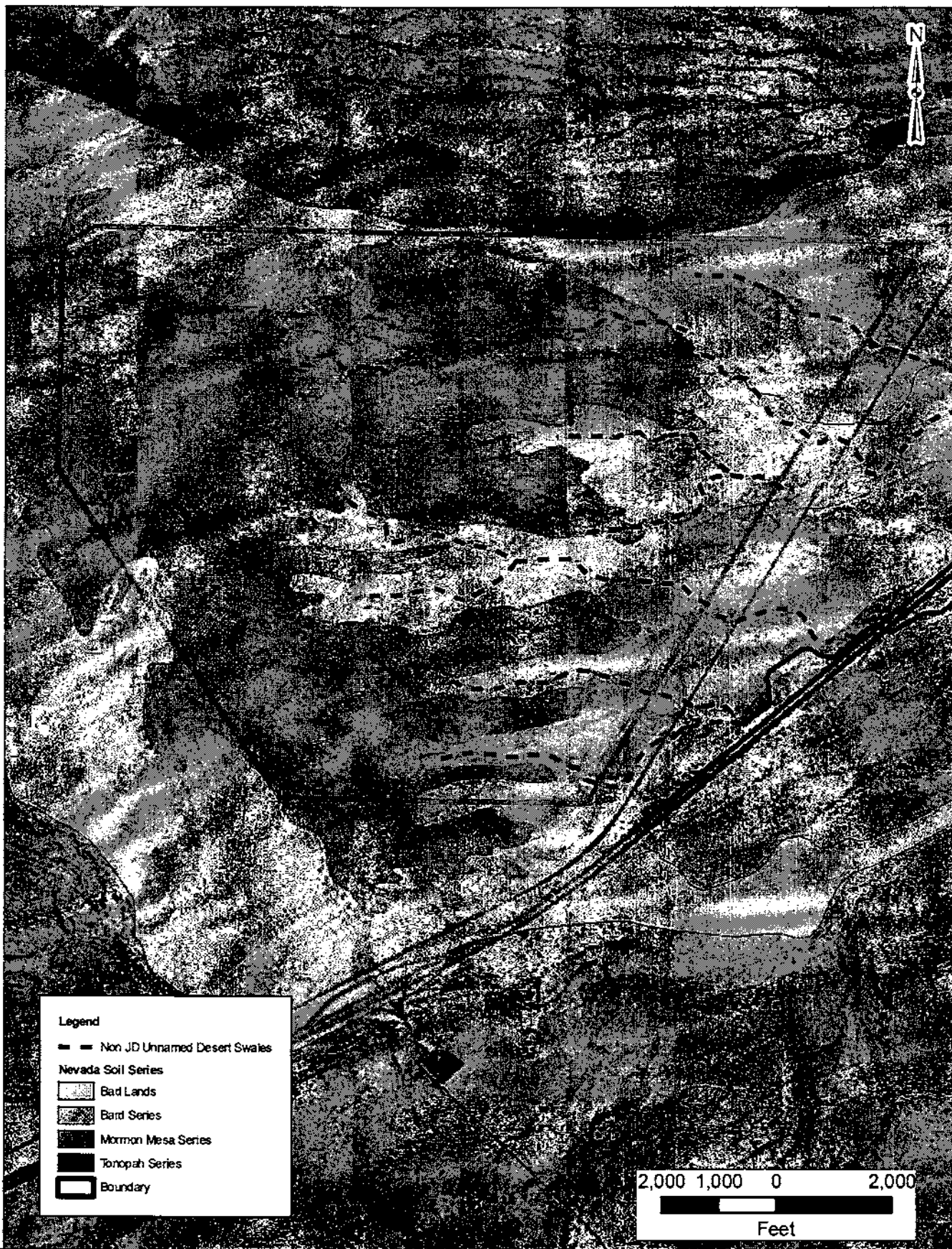
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KRoad Power
San Diego, California
KRoad Moapa Solar Project

Moapa Reservation
Jurisdictional Determination
USGS Topography Map

MALCOLM PIRNIE, INC.
2011
FIGURE 2



KRoad Power
 San Diego, California

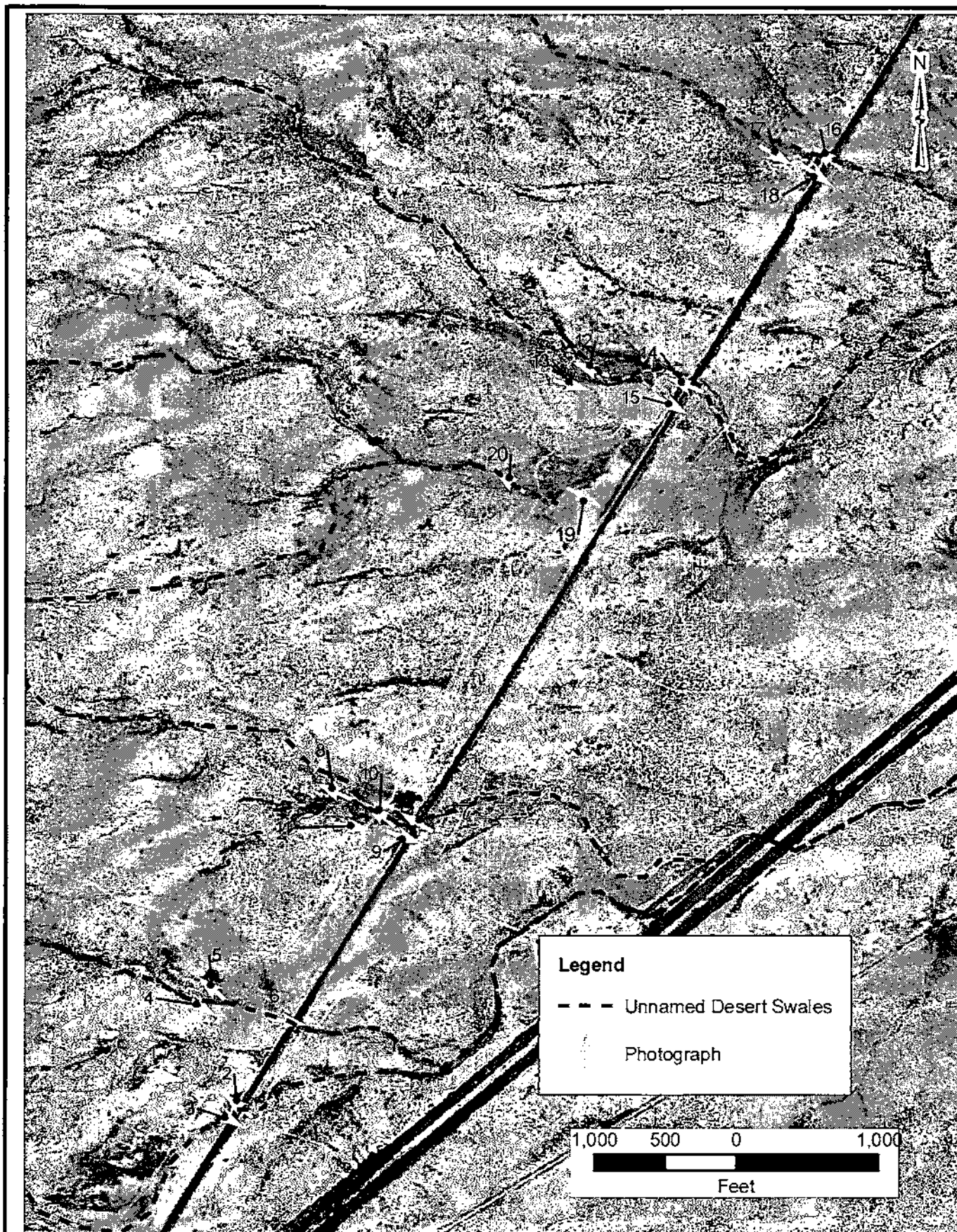
KRoad Moapa Solar Project

Moapa Reservation

Jurisdictional Determination
 Clark County Soil Survey

MALCOLM PIRNIE, INC.

2011
 FIGURE 3



**MALCOLM
PIRNIE**

KRoad Power
San Diego, California

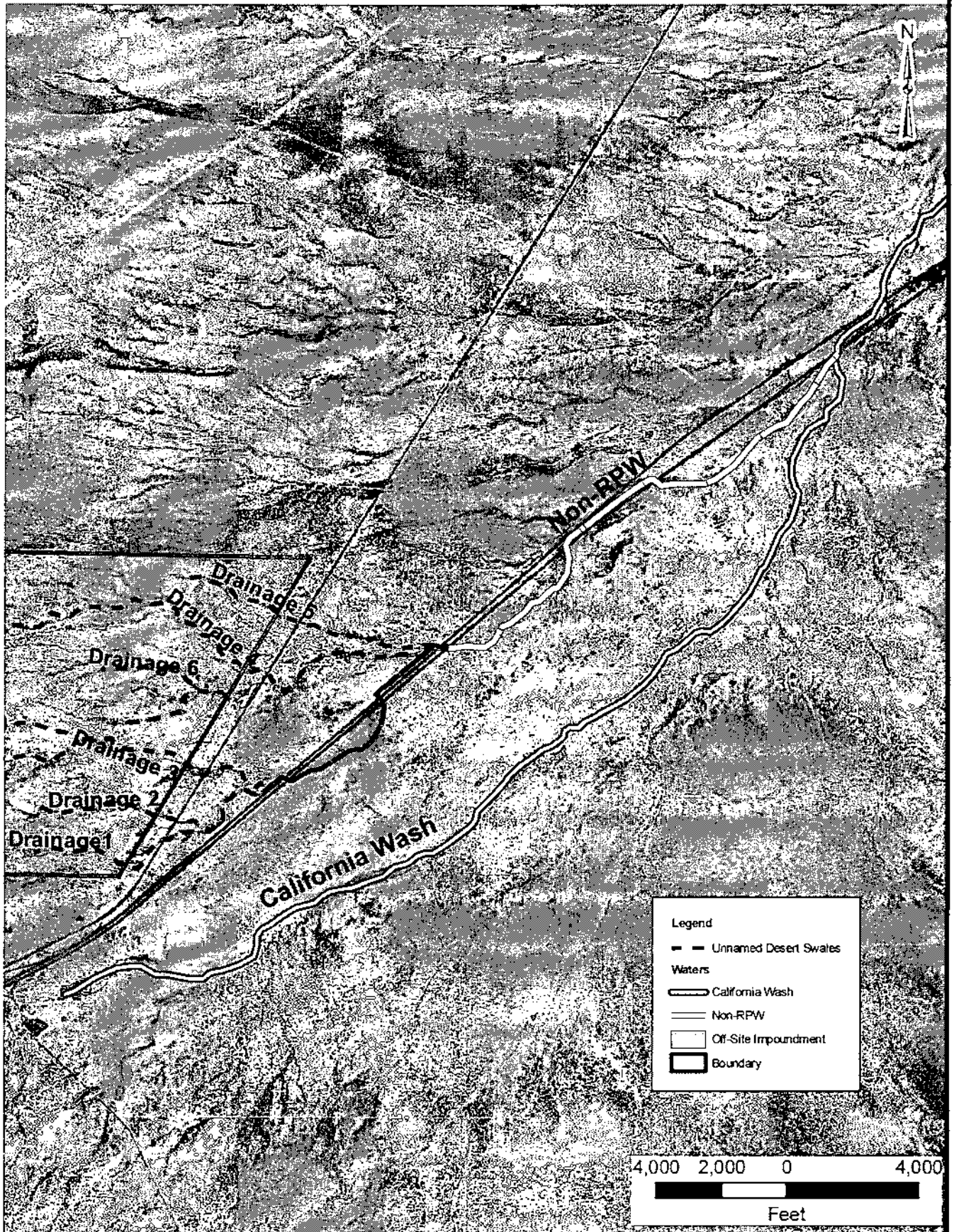
KRoad Moapa Solar Project

Moapa Reservation

Jurisdictional Determination
Photographic Location Map

MALCOLM PIRNIE, INC.

2011
FIGURE 4



KRoad Power
 San Diego, California

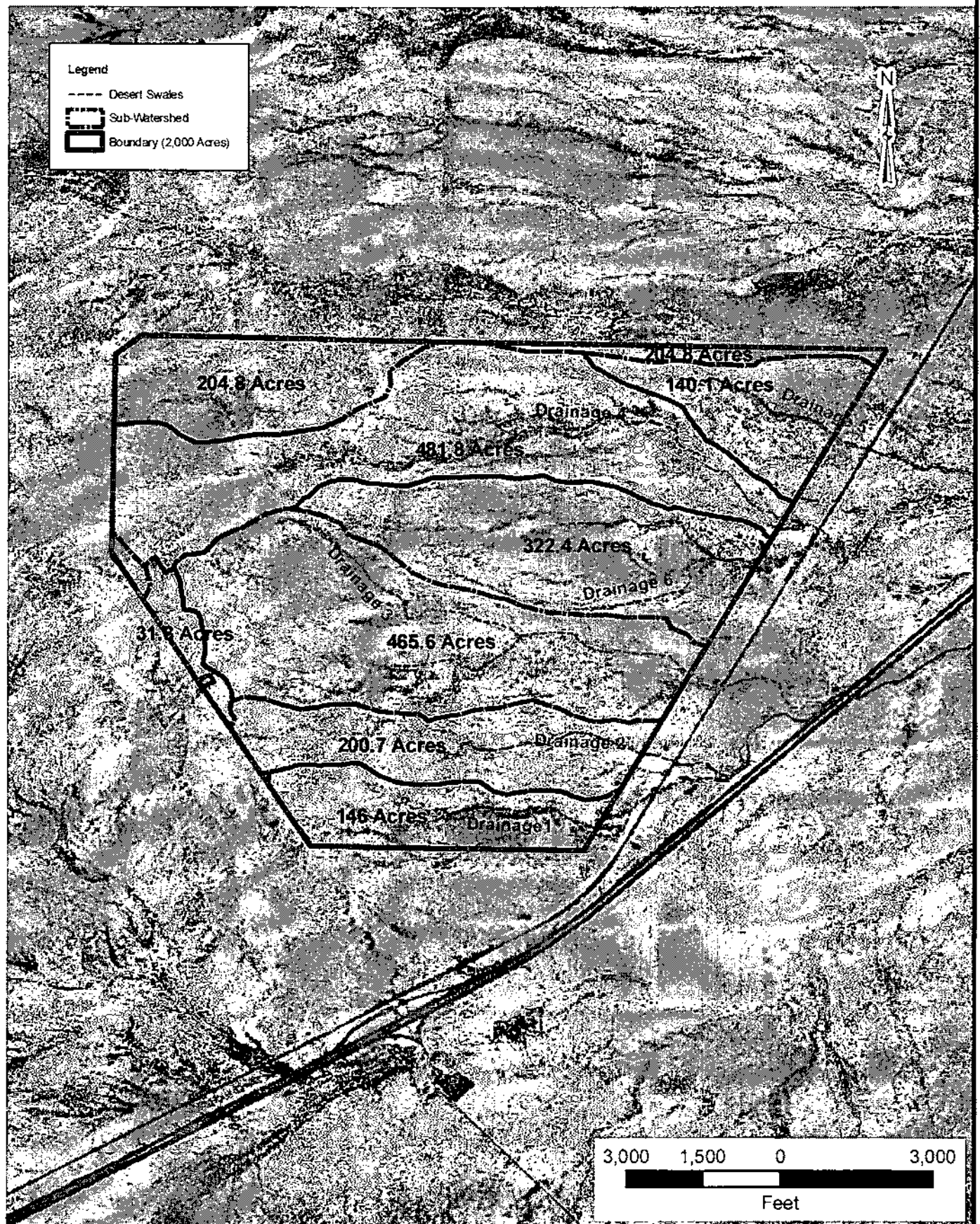
KRoad Moapa Solar Project

Moapa Reservation

Jurisdictional Waters Map

MALCOLM PIRNIE, INC.

2011
 FIGURE 5



**MALCOLM
PIRNIE**

KRoad Power
San Diego, California

KRoad Moapa Solar Project

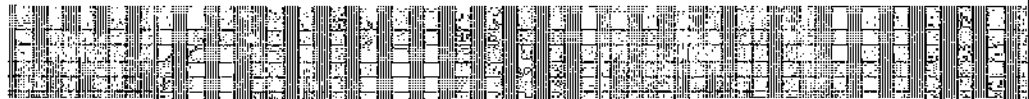
Moapa Reservation
Watershed Areas
Associated with
Drainages

MALCOLM PIRNIE, INC.

2011
FIGURE 6

K Road Solar Power
Preliminary Jurisdictional Determination Report

Appendix B: Site Photographs



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PHOTOGRAPHIC LOG

Property Name:

KRoad Solar Project

Location:

Moapa Reservation Clark County, Nevada

Project No.

6923001

Photo No.

1

Date:

12/13/10

Direction Photo
Taken:

East

Description:

Drainage 1.
Looking from the site
boundary to the culvert
under the Railroad.
Note: the lack of bed
and bank or OHWM.



PHOTOGRAPHIC LOG

Property Name:

KRoad Solar Project

Location:

Moapa Reservation Clark County, Nevada

Project No.

6923001

Photo No.

2

Date:

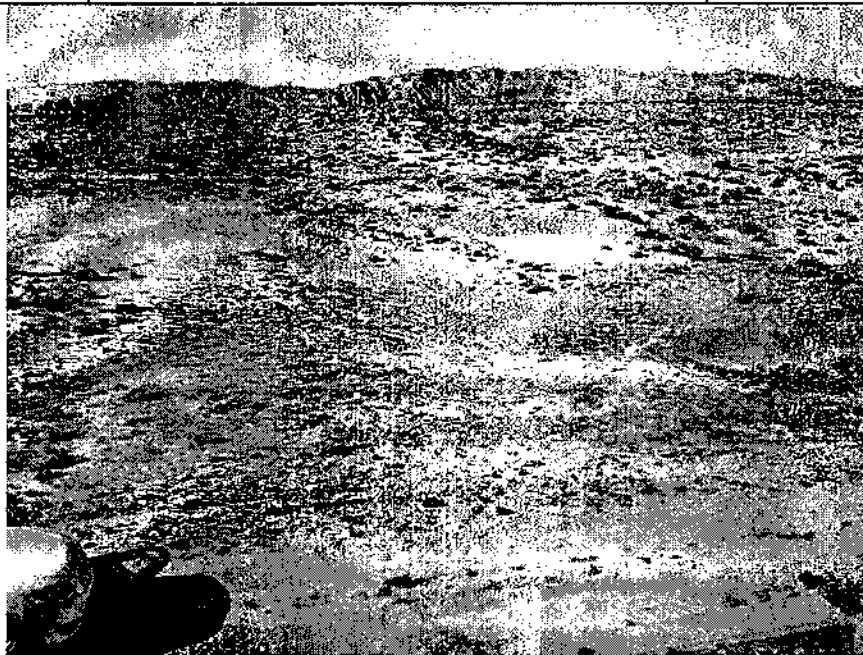
12/13/10

Direction Photo
Taken:

West

Description:

Drainage 2.
Looking from the
Railroad west across
the sites. Note the lack
of bed and bank or
OHWM.



PHOTOGRAPHIC LOG

Property Name:

KRoad Solar Project

Location:

Moapa Reservation Clark County, Nevada

Project No.

6923001

Photo No.

3

Date:

12/13/10

Direction Photo

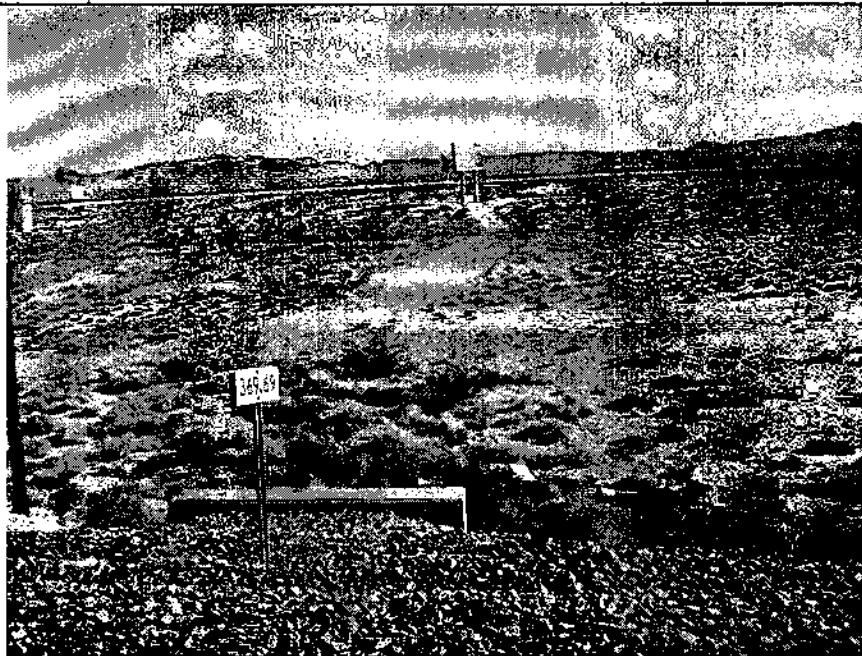
Taken:

East

Description:

Drainage 1.

Looking from the
Railroad east towards
interstate 15. Note the
lack of bed and bank or
OHWM.



PHOTOGRAPHIC LOG

Property Name:

KRoad Solar Project

Location:

Moapa Reservation Clark County, Nevada

Project No.

6923001

Photo No.

4

Date:

12/13/10

Direction Photo

Taken:

East

Description:

Drainage 2.

Looking from the site
boundary to the culvert
under the Railroad.
Note: the lack of bed
and bank, OHWM, or
vegetation shift.



PHOTOGRAPHIC LOG

Property Name:

KRoad Solar Project

Location:

Moapa Reservation Clark County, Nevada

Project No.

6923001

Photo No.

5

Date:

12/13/10

Direction Photo
Taken:

East

Description:

Drainage 2.

Looking from the site
boundary across the
site.



PHOTOGRAPHIC LOG

Property Name:

KRoad Solar Project

Location:

Moapa Reservation Clark County, Nevada

Project No.

6923001

Photo No.

6

Date:

12/13/10

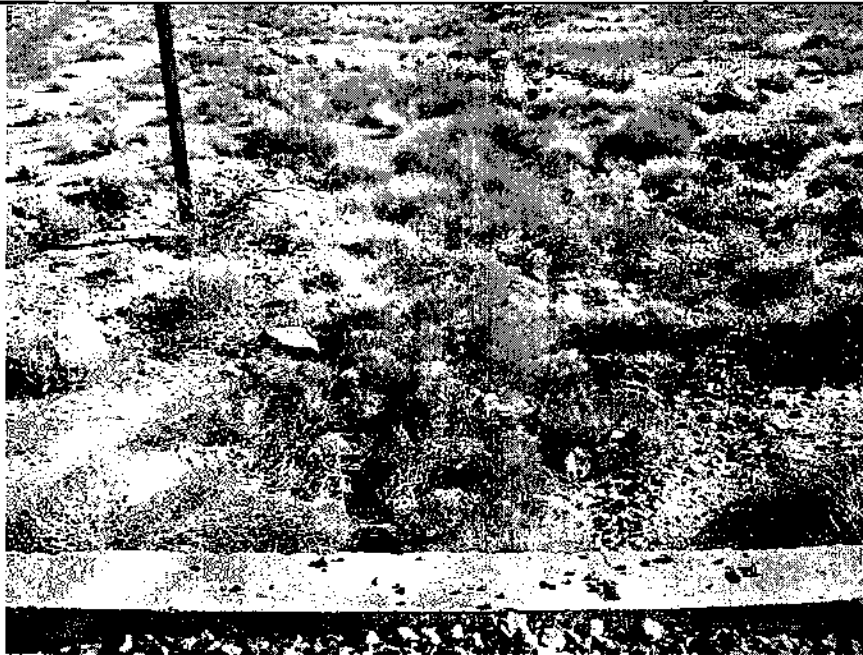
Direction Photo
Taken:

East

Description:

Drainage 2.

Looking from the
railroad east towards
interstate 15. Note the
lack of bed and bank or
OHWM.



PHOTOGRAPHIC LOG

Property Name:

KRoad Solar Project

Location:

Moapa Reservation Clark County, Nevada

Project No.

6923001

Photo No.

7

Date:

12/13/10

Direction Photo

Taken:

West

Description:

Drainage 3.
Looking from the
Railroad toward project
site. Note the lack of
bed and bank or
OHWM.



PHOTOGRAPHIC LOG

Property Name:

KRoad Solar Project

Location:

Moapa Reservation Clark County, Nevada

Project No.

6923001

Photo No.

8

Date:

12/13/10

Direction Photo

Taken:

West

Description:

Drainage 3
Looking from the site
boundary across the
site. Note the lack of
bed and bank or
OHWM.



PHOTOGRAPHIC LOG

Property Name:

KRoad Solar Project

Location:

Moapa Reservation Clark County, Nevada

Project No.

6923001

Photo No.

9

Date:

12/13/10

Direction Photo
Taken:

West

Description:

Drainage 3.

Looking from the
railroad east towards
interstate 15. Note the
lack of continuous bed
and bank.



PHOTOGRAPHIC LOG

Property Name:

KRoad Solar Project

Location:

Moapa Reservation Clark County, Nevada

Project No.

6923001

Photo No.

10

Date:

12/13/10

Direction Photo
Taken:


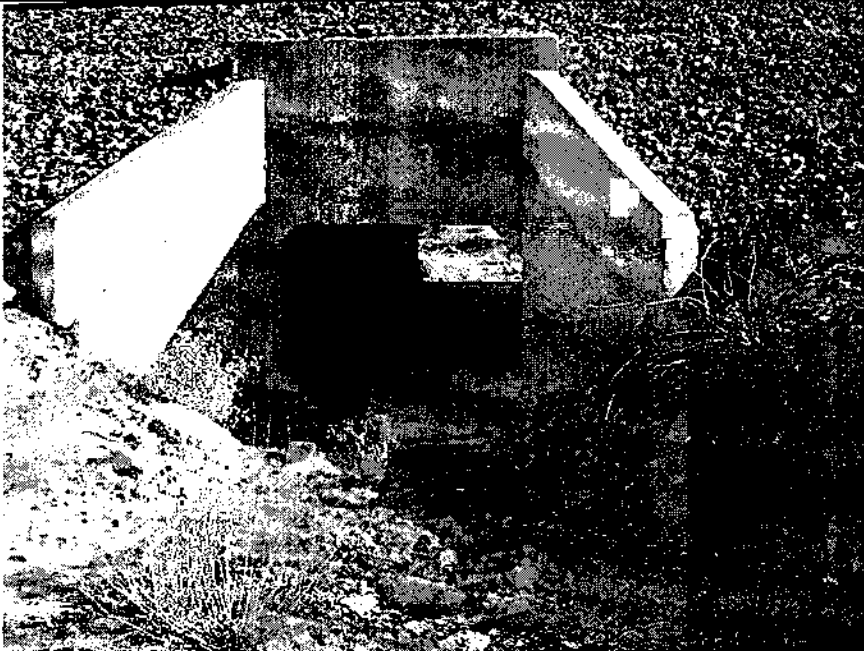
East



Description:


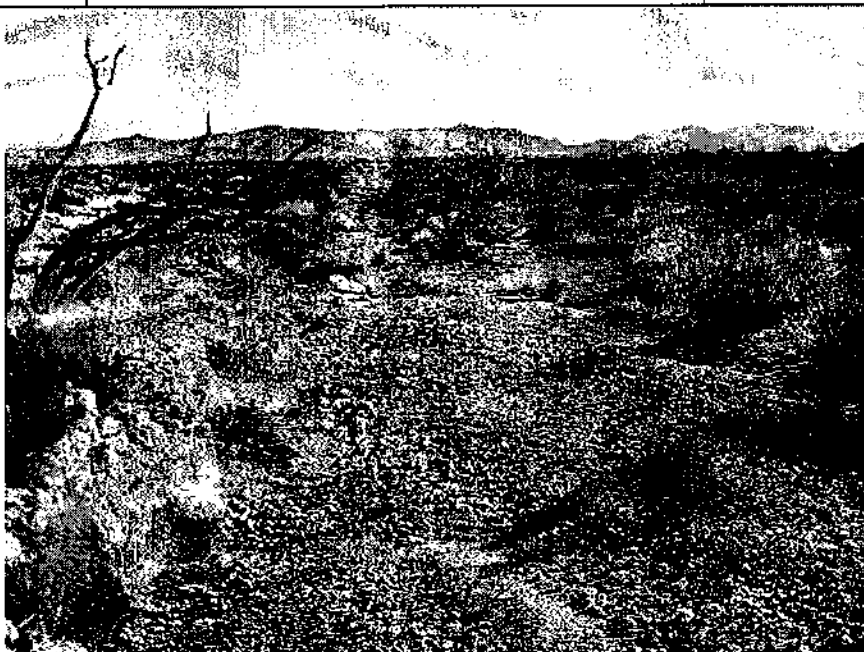
Drainage 3.


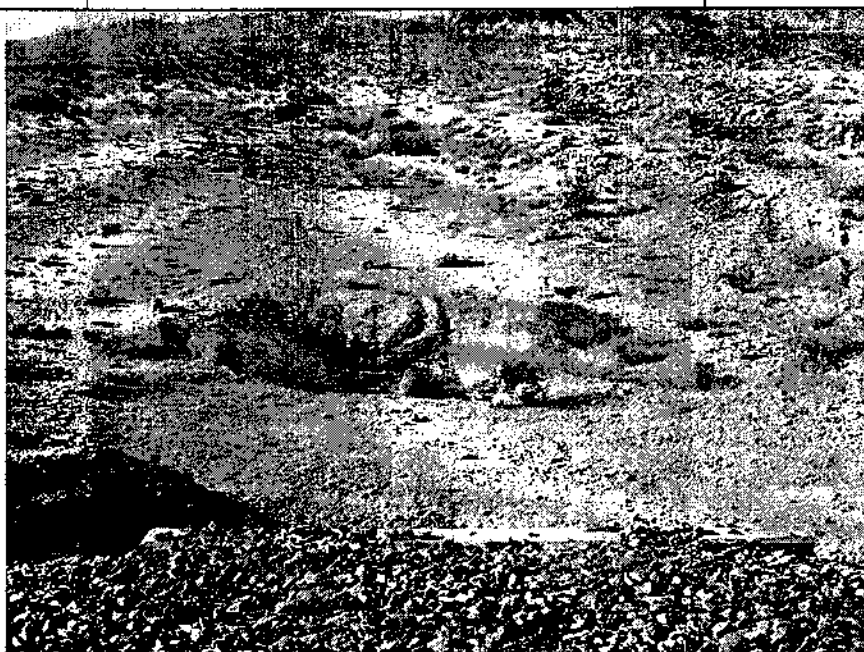
Looking across the site
boundary from a point
adjacent to the culvert
under the Railroad.
Note the lack of bed
and bank or OHWM.



		PHOTOGRAPHIC LOG	
Property Name: KRoad Solar Project		Location: Moapa Reservation Clark County, Nevada	Project No. 6923001
Photo No. 11	Date: 12/13/10		
Direction Photo Taken: West			
Description: Drainage 3. Looking at the culvert under the Railroad.			

		PHOTOGRAPHIC LOG	
Property Name: KRoad Solar Project		Location: Moapa Reservation Clark County, Nevada	Project No. 6923001
Photo No. 12	Date: 12/13/10		
Direction Photo Taken: West			
Description: Drainage 4. Looking from the site boundary towards the center of the site.			

		<h2 style="text-align: right;">PHOTOGRAPHIC LOG</h2>	
Property Name: KRoad Solar Project		Location: Moapa Reservation Clark County, Nevada	Project No. 6923001
Photo No. 13	Date: 12/13/10		
Direction Photo Taken: East			
Description: Drainage 4. Looking from site boundary east towards the culvert under the Railroad. Photo location is in low spot on channel.			

		<h2 style="text-align: right;">PHOTOGRAPHIC LOG</h2>	
Property Name: KRoad Solar Project		Location: Moapa Reservation Clark County, Nevada	Project No. 6923001
Photo No. 14	Date: 12/13/10		
Direction Photo Taken: East			
Description: Drainage 4. Looking from the Railroad across the project site.			

PHOTOGRAPHIC LOG

Property Name:

KRoad Solar Project

Location:

Moapa Reservation Clark County, Nevada

Project No.

6923001

Photo No.

15

Date:

12/13/10

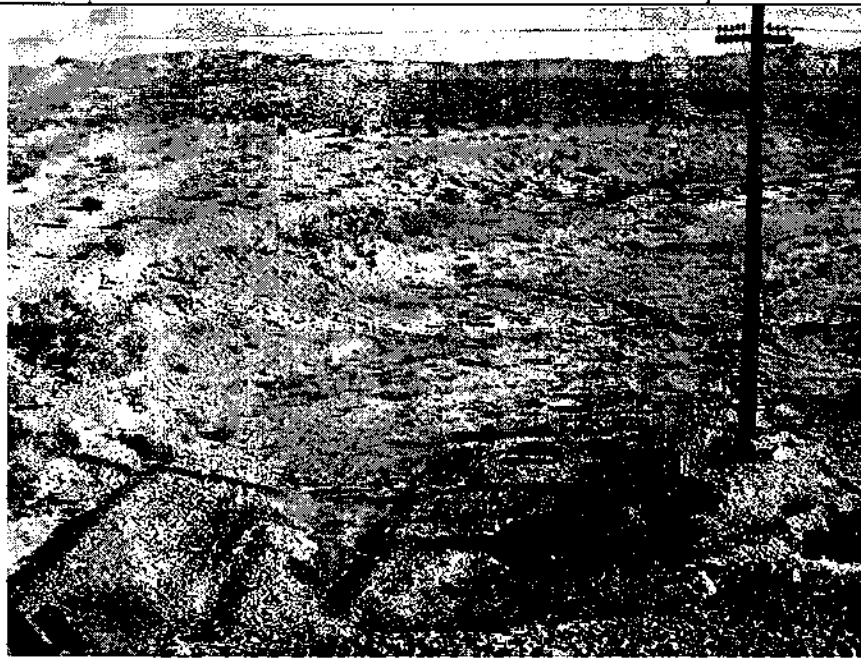
Direction Photo

Taken:

East

Description:

Drainage 4.
Looking from the
railroad east towards
interstate 15.



PHOTOGRAPHIC LOG

Property Name:

KRoad Solar Project

Location:

Moapa Reservation Clark County, Nevada

Project No.

6923001

Photo No.

16

Date:

12/13/10

Direction Photo



Taken:


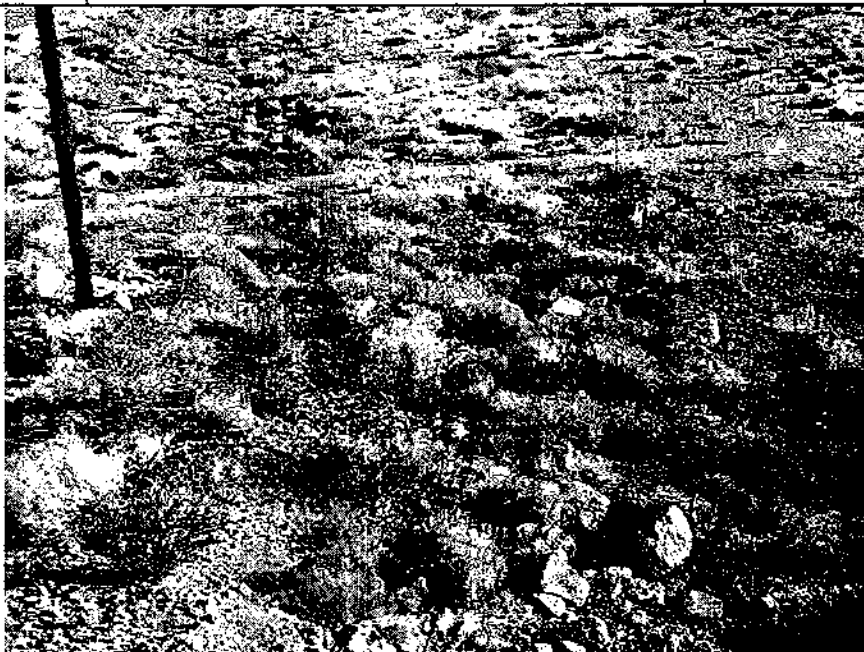
West

Description:

Drainage 5
Looking from the site
boundary Across the
site. Note the lack of
bed and bank or
OHWM.



		PHOTOGRAPHIC LOG	
Property Name: KRoad Solar Project		Location: Moapa Reservation Clark County, Nevada	Project No. 6923001
Photo No. 17	Date: 12/13/10		
Direction Photo Taken: East			
Description: Drainage 5. Looking at the culvert under the Railroad. Note the lack of bed and bank or OHWM.			

		PHOTOGRAPHIC LOG	
Property Name: KRoad Solar Project		Location: Moapa Reservation Clark County, Nevada	Project No. 6923001
Photo No. 18	Date: 12/13/10		
Direction Photo Taken: East			
Description: Drainage 5. Looking from the site boundary to the culvert under the Railroad. Note the lack of bed and bank or OHWM.			

PHOTOGRAPHIC LOG

Property Name:

KRoad Solar Project

Location:

Moapa Reservation Clark County, Nevada

Project No.

6923001

Photo No.

19

Date:

12/13/10

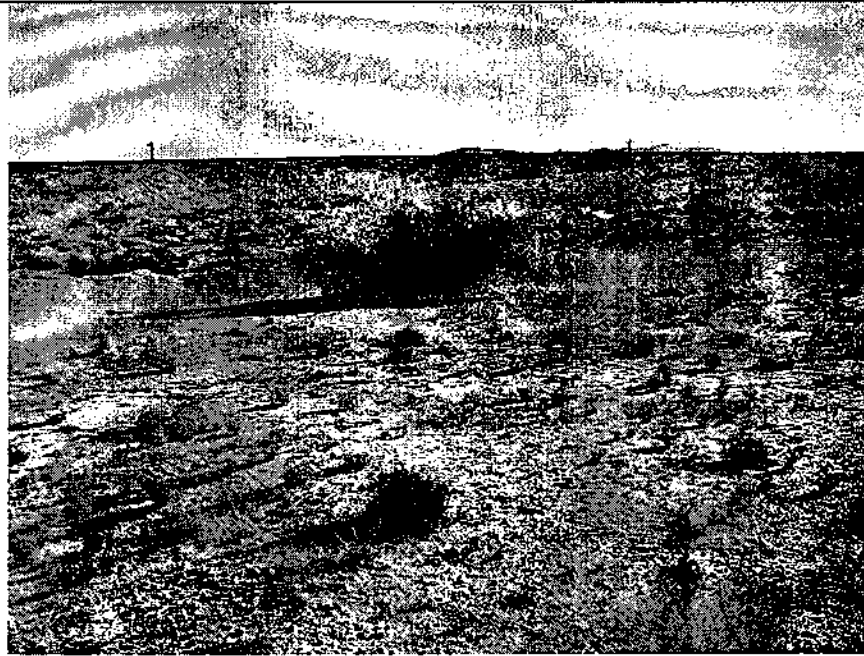
Direction Photo

Taken:

East

Description:

Drainage 6.
Looking at the built up
railroad track from the
off-site impoundment.
Note the lack of culvert
under the railroad.



PHOTOGRAPHIC LOG

Property Name:

KRoad Solar Project

Location:

Moapa Reservation Clark County, Nevada

Project No.

6923001

Photo No.

20

Date:

12/13/10

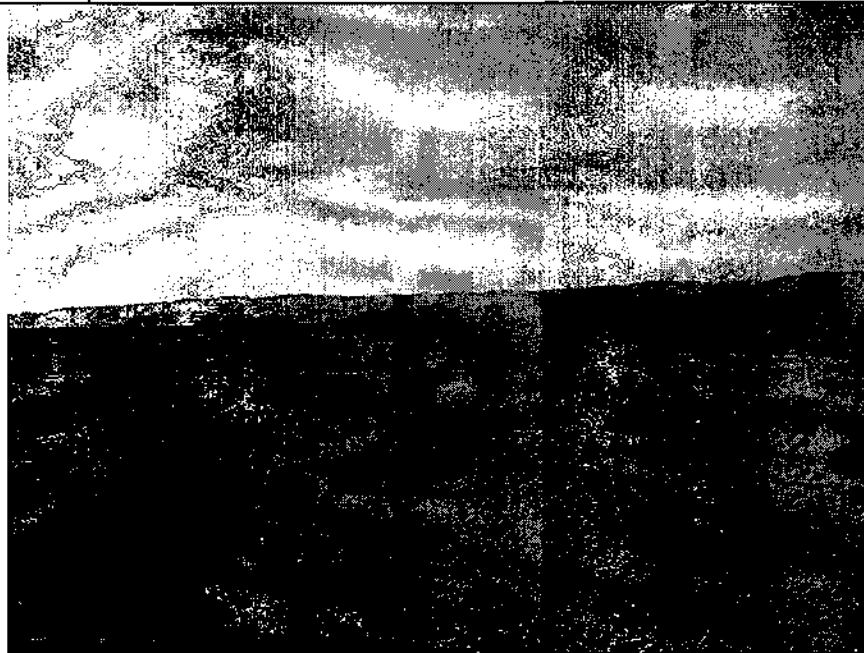
Direction Photo

Taken:

West

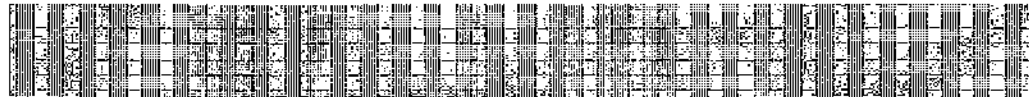
Description:

Drainage 6.
Looking up the
drainage. Note the
lack of bed and bank or
OHWM.



K Road Solar Power
Preliminary Jurisdictional Determination Report

Appendix C: OHWM Data Sheets



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Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: KRoad Solar Project Project Number: Stream: Drainage 1 Investigator(s): A. Mathes and S. Walker		Date: 12/13/10 Town: Moapa Photo begin file#: 1		Time: State: Nevada Photo end file#: 3					
Y <input checked="" type="checkbox"/> / N <input type="checkbox"/> Do normal circumstances exist on the site? Y <input checked="" type="checkbox"/> / N <input type="checkbox"/> Is the site significantly disturbed?		Location Details: Culvert 1 under Railroad Projection: Datum: Coordinates:							
Potential anthropogenic influences on the channel system: The channel flows through a culvert under the railroad track. In addition the railroad was constructed on a large berm that required scraping from the adjacent landscape.									
Brief site description: The proposed project is situated in the north end of the Dry Lake Valley. Elevations of the project range from approximately 2,038 feet at the intersection of the main project access road at Interstate Highway 15 to 2,200 feet. Soils are shallow (4 inches) over caliche layer.									
Checklist of resources (if available): <table style="width: 100%; border: none;"> <tr> <td style="vertical-align: top; width: 50%;"> <input checked="" type="checkbox"/> Aerial photography Dates: 2006 <input checked="" type="checkbox"/> Topographic maps <input type="checkbox"/> Geologic maps <input type="checkbox"/> Vegetation maps <input type="checkbox"/> Soils maps <input type="checkbox"/> Rainfall/precipitation maps <input checked="" type="checkbox"/> Existing delineation(s) for site <input checked="" type="checkbox"/> Global positioning system (GPS) <input type="checkbox"/> Other studies </td> <td style="vertical-align: top; width: 50%;"> <input type="checkbox"/> Stream gage data Gage number: Period of record: <input type="checkbox"/> History of recent effective discharges <input type="checkbox"/> Results of flood frequency analysis <input type="checkbox"/> Most recent shift-adjusted rating <input type="checkbox"/> Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event </td> </tr> </table>						<input checked="" type="checkbox"/> Aerial photography Dates: 2006 <input checked="" type="checkbox"/> Topographic maps <input type="checkbox"/> Geologic maps <input type="checkbox"/> Vegetation maps <input type="checkbox"/> Soils maps <input type="checkbox"/> Rainfall/precipitation maps <input checked="" type="checkbox"/> Existing delineation(s) for site <input checked="" type="checkbox"/> Global positioning system (GPS) <input type="checkbox"/> Other studies	<input type="checkbox"/> Stream gage data Gage number: Period of record: <input type="checkbox"/> History of recent effective discharges <input type="checkbox"/> Results of flood frequency analysis <input type="checkbox"/> Most recent shift-adjusted rating <input type="checkbox"/> Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event		
<input checked="" type="checkbox"/> Aerial photography Dates: 2006 <input checked="" type="checkbox"/> Topographic maps <input type="checkbox"/> Geologic maps <input type="checkbox"/> Vegetation maps <input type="checkbox"/> Soils maps <input type="checkbox"/> Rainfall/precipitation maps <input checked="" type="checkbox"/> Existing delineation(s) for site <input checked="" type="checkbox"/> Global positioning system (GPS) <input type="checkbox"/> Other studies	<input type="checkbox"/> Stream gage data Gage number: Period of record: <input type="checkbox"/> History of recent effective discharges <input type="checkbox"/> Results of flood frequency analysis <input type="checkbox"/> Most recent shift-adjusted rating <input type="checkbox"/> Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event								
Hydrogeomorphic Floodplain Units									
Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM: <ol style="list-style-type: none"> 1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site. 2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units. 3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units. <ol style="list-style-type: none"> a) Record the floodplain unit and GPS position. b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit. c) Identify any indicators present at the location. 4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section. 5. Identify the OHWM and record the indicators. Record the OHWM position via: <table style="width: 100%; border: none; margin-top: 5px;"> <tr> <td><input type="checkbox"/> Mapping on aerial photograph</td> <td><input type="checkbox"/> GPS</td> </tr> <tr> <td><input type="checkbox"/> Digitized on computer</td> <td><input checked="" type="checkbox"/> Other:</td> </tr> </table> 						<input type="checkbox"/> Mapping on aerial photograph	<input type="checkbox"/> GPS	<input type="checkbox"/> Digitized on computer	<input checked="" type="checkbox"/> Other:
<input type="checkbox"/> Mapping on aerial photograph	<input type="checkbox"/> GPS								
<input type="checkbox"/> Digitized on computer	<input checked="" type="checkbox"/> Other:								

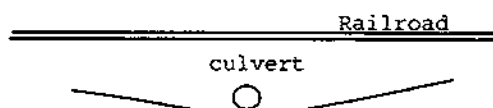
Project ID:

Cross section ID:

Date: 12-13-10

Time:

Cross section drawing:



OHWM

GPS point: No OHWM was located for this feature.

Indicators:

- | | |
|---|--|
| <input type="checkbox"/> Change in average sediment texture | <input type="checkbox"/> Break in bank slope |
| <input type="checkbox"/> Change in vegetation species | <input type="checkbox"/> Other: _____ |
| <input type="checkbox"/> Change in vegetation cover | <input type="checkbox"/> Other: _____ |

Comments:

The drainage lacked indications of a high water mark (Changes in sediment, changes in vegetation, or a break in slope). This waterway was determined to be a storm water drainage.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

- | | |
|---|--|
| <input type="checkbox"/> NA | <input type="checkbox"/> Mid (herbaceous, shrubs, saplings) |
| <input type="checkbox"/> Early (herbaceous & seedlings) | <input type="checkbox"/> Late (herbaceous, shrubs, mature trees) |

Indicators:

- | | |
|---|---|
| <input type="checkbox"/> Mudcracks | <input type="checkbox"/> Soil development |
| <input type="checkbox"/> Ripples | <input type="checkbox"/> Surface relief |
| <input type="checkbox"/> Drift and/or debris | <input type="checkbox"/> Other: _____ |
| <input type="checkbox"/> Presence of bed and bank | <input type="checkbox"/> Other: _____ |
| <input type="checkbox"/> Benches | <input type="checkbox"/> Other: _____ |

Comments:

No floodplain unit was identified for this drainage.

Project ID:

Cross section ID:

Date:

Time:

Floodplain unit:

☐ Low-Flow Channel

☐ Active Floodplain

☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

☐ NA

☐ Early (herbaceous & seedlings)

☐ Mid (herbaceous, shrubs, saplings)

☐ Late (herbaceous, shrubs, mature trees)

Indicators:

☐ Mudcracks

☐ Ripples

☐ Drift and/or debris

☐ Presence of bed and bank

☐ Benches

☐ Soil development

☐ Surface relief

☐ Other: _____

☐ Other: _____

☐ Other: _____

Comments:

Floodplain unit:

☐ Low-Flow Channel

☐ Active Floodplain

☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

☐ NA

☐ Early (herbaceous & seedlings)

☐ Mid (herbaceous, shrubs, saplings)

☐ Late (herbaceous, shrubs, mature trees)

Indicators:

☐ Mudcracks

☐ Ripples

☐ Drift and/or debris

☐ Presence of bed and bank

☐ Benches

☐ Soil development

☐ Surface relief

☐ Other: _____

☐ Other: _____

☐ Other: _____

Comments:

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Arid West Ephemeral and Intermittent Streams OHW M Datasheet

Project: KRoad Solar Project		Date: 12/13/10		Time:	
Project Number:		Town: Moapa		State: Nevada	
Stream: Drainage 2		Photo begin file#: 4		Photo end file#: 6	
Investigator(s): A. Mathes and S. Walker					
Y <input checked="" type="checkbox"/> / N <input type="checkbox"/> Do normal circumstances exist on the site?			Location Details: Culvert 2 under Railroad		
Y <input checked="" type="checkbox"/> / N <input type="checkbox"/> Is the site significantly disturbed?			Projection:		Datum:
Coordinates:					
Potential anthropogenic influences on the channel system: The channel flows through a culvert under the railroad track. In addition the railroad was constructed on a large berm that required scraping from the adjacent landscape.					
Brief site description: The proposed project is situated in the north end of the Dry Lake Valley. Elevations of the project range from approximately 2,038 feet at the intersection of the main project access road at Interstate Highway 15 to 2,200 feet. Soils are shallow (4 inches) over caliche layer.					
Checklist of resources (if available):					
<input checked="" type="checkbox"/> Aerial photography Dates: 2006		<input type="checkbox"/> Stream gage data Gage number:			
<input checked="" type="checkbox"/> Topographic maps		Period of record:			
<input type="checkbox"/> Geologic maps		<input type="checkbox"/> History of recent effective discharges			
<input type="checkbox"/> Vegetation maps		<input type="checkbox"/> Results of flood frequency analysis			
<input type="checkbox"/> Soils maps		<input type="checkbox"/> Most recent shift-adjusted rating			
<input type="checkbox"/> Rainfall/precipitation maps		<input type="checkbox"/> Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event			
<input checked="" type="checkbox"/> Existing delineation(s) for site					
<input checked="" type="checkbox"/> Global positioning system (GPS)					
<input type="checkbox"/> Other studies					
Hydrogeomorphic Floodplain Units					
Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:					
1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.					
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.					
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.					
a) Record the floodplain unit and GPS position.					
b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.					
c) Identify any indicators present at the location.					
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.					
5. Identify the OHWM and record the indicators. Record the OHWM position via:					
<input type="checkbox"/> Mapping on aerial photograph		<input type="checkbox"/> GPS			
<input type="checkbox"/> Digitized on computer		<input checked="" type="checkbox"/> Other:			

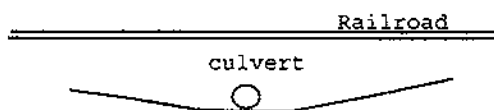
Project ID:

Cross section ID:

Date: 12-13-10

Time:

Cross section drawing:



OHWM

GPS point: No OHWM was located for this feature.

Indicators:

- | | |
|---|--|
| <input type="checkbox"/> Change in average sediment texture | <input type="checkbox"/> Break in bank slope |
| <input type="checkbox"/> Change in vegetation species | <input type="checkbox"/> Other: _____ |
| <input type="checkbox"/> Change in vegetation cover | <input type="checkbox"/> Other: _____ |

Comments:

The drainage lacked indications of a high water mark (Changes in sediment, changes in vegetation, or a break in slope). This waterway was determined to be a storm water drainage.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

- | | |
|---|--|
| <input type="checkbox"/> NA | <input type="checkbox"/> Mid (herbaceous, shrubs, saplings) |
| <input type="checkbox"/> Early (herbaceous & seedlings) | <input type="checkbox"/> Late (herbaceous, shrubs, mature trees) |

Indicators:

- | | |
|---|---|
| <input type="checkbox"/> Mudcracks | <input type="checkbox"/> Soil development |
| <input type="checkbox"/> Ripples | <input type="checkbox"/> Surface relief |
| <input type="checkbox"/> Drift and/or debris | <input type="checkbox"/> Other: _____ |
| <input type="checkbox"/> Presence of bed and bank | <input type="checkbox"/> Other: _____ |
| <input type="checkbox"/> Benches | <input type="checkbox"/> Other: _____ |

Comments:

No floodplain unit was identified for this drainage.

Project ID:

Cross section ID:

Date:

Time:

Floodplain unit:

☐ Low-Flow Channel

☐ Active Floodplain

☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

☐ NA

☐ Early (herbaceous & seedlings)

☐ Mid (herbaceous, shrubs, saplings)

☐ Late (herbaceous, shrubs, mature trees)

Indicators:

☐ Mudcracks

☐ Ripples

☐ Drift and/or debris

☐ Presence of bed and bank

☐ Benches

☐ Soil development

☐ Surface relief

☐ Other: _____

☐ Other: _____

☐ Other: _____

Comments:

Floodplain unit:

☐ Low-Flow Channel

☐ Active Floodplain

☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

☐ NA

☐ Early (herbaceous & seedlings)

☐ Mid (herbaceous, shrubs, saplings)

☐ Late (herbaceous, shrubs, mature trees)

Indicators:

☐ Mudcracks

☐ Ripples

☐ Drift and/or debris

☐ Presence of bed and bank

☐ Benches

☐ Soil development

☐ Surface relief

☐ Other: _____

☐ Other: _____

☐ Other: _____

Comments:

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Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: KRoad Solar Project Project Number: Stream: Drainage 3 Investigator(s): A. Mathes and S. Walker		Date: 12/13/10 Town: Moapa Photo begin file#: 7		Time: State: Nevada Photo end file#: 10	
Y <input checked="" type="checkbox"/> / N <input type="checkbox"/> Do normal circumstances exist on the site?		Location Details: Culvert 3 under Railroad			
Y <input checked="" type="checkbox"/> / N <input type="checkbox"/> Is the site significantly disturbed?		Projection:		Datum:	
Coordinates:					
Potential anthropogenic influences on the channel system: The channel flows through a culvert under the railroad track. In addition the railroad was constructed on a large berm that required scraping from the adjacent landscape.					
Brief site description: The proposed project is situated in the north end of the Dry Lake Valley. Elevations of the project range from approximately 2,038 feet at the intersection of the main project access road at Interstate Highway 15 to 2,200 feet. Soils are shallow (4 inches) over caliche layer.					
Checklist of resources (if available):					
<input checked="" type="checkbox"/> Aerial photography Dates: 2006		<input type="checkbox"/> Stream gage data Gage number:			
<input checked="" type="checkbox"/> Topographic maps		Period of record:			
<input type="checkbox"/> Geologic maps		<input type="checkbox"/> History of recent effective discharges			
<input type="checkbox"/> Vegetation maps		<input type="checkbox"/> Results of flood frequency analysis			
<input type="checkbox"/> Soils maps		<input type="checkbox"/> Most recent shift-adjusted rating			
<input type="checkbox"/> Rainfall/precipitation maps		<input type="checkbox"/> Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event			
<input checked="" type="checkbox"/> Existing delineation(s) for site					
<input checked="" type="checkbox"/> Global positioning system (GPS)					
<input type="checkbox"/> Other studies					
Hydrogeomorphic Floodplain Units					
Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:					
1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.					
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.					
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.					
a) Record the floodplain unit and GPS position.					
b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.					
c) Identify any indicators present at the location.					
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.					
5. Identify the OHWM and record the indicators. Record the OHWM position via:					
<input type="checkbox"/> Mapping on aerial photograph		<input type="checkbox"/> GPS		<input checked="" type="checkbox"/> Other:	
<input type="checkbox"/> Digitized on computer					

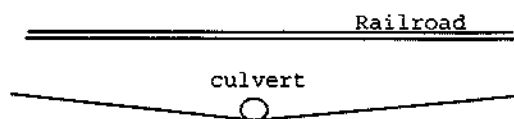
Project ID:

Cross section ID:

Date: 12-13-10

Time:

Cross section drawing:



There was no change in vegetation or sediment size across the drainage area.

OHWM

GPS point: No OHWM was located for this feature.

Indicators:

- | | |
|---|--|
| <input type="checkbox"/> Change in average sediment texture | <input type="checkbox"/> Break in bank slope |
| <input type="checkbox"/> Change in vegetation species | <input type="checkbox"/> Other: _____ |
| <input type="checkbox"/> Change in vegetation cover | <input type="checkbox"/> Other: _____ |

Comments:

The drainage lacked indications of a high water mark (Changes in sediment, changes in vegetation, or a break in slope). This waterway was determined to be a storm water drainage.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____% Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

- | | |
|---|--|
| <input type="checkbox"/> NA | <input type="checkbox"/> Mid (herbaceous, shrubs, saplings) |
| <input type="checkbox"/> Early (herbaceous & seedlings) | <input type="checkbox"/> Late (herbaceous, shrubs, mature trees) |

Indicators:

- | | |
|---|---|
| <input type="checkbox"/> Mudcracks | <input type="checkbox"/> Soil development |
| <input type="checkbox"/> Ripples | <input type="checkbox"/> Surface relief |
| <input type="checkbox"/> Drift and/or debris | <input type="checkbox"/> Other: _____ |
| <input type="checkbox"/> Presence of bed and bank | <input type="checkbox"/> Other: _____ |
| <input type="checkbox"/> Benches | <input type="checkbox"/> Other: _____ |

Comments:

No floodplain unit was identified for this drainage.

Project ID:

Cross section ID:

Date:

Time:

Floodplain unit:

☐ Low-Flow Channel

☐ Active Floodplain

☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____% Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

☐ NA

☐ Early (herbaceous & seedlings)

☐ Mid (herbaceous, shrubs, saplings)

☐ Late (herbaceous, shrubs, mature trees)

Indicators:

☐ Mudcracks

☐ Ripples

☐ Drift and/or debris

☐ Presence of bed and bank

☐ Benches

☐ Soil development

☐ Surface relief

☐ Other: _____

☐ Other: _____

☐ Other: _____

Comments:

Floodplain unit:

☐ Low-Flow Channel

☐ Active Floodplain

☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____% Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

☐ NA

☐ Early (herbaceous & seedlings)

☐ Mid (herbaceous, shrubs, saplings)

☐ Late (herbaceous, shrubs, mature trees)

Indicators:

☐ Mudcracks

☐ Ripples

☐ Drift and/or debris

☐ Presence of bed and bank

☐ Benches

☐ Soil development

☐ Surface relief

☐ Other: _____

☐ Other: _____

☐ Other: _____

Comments:

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Arid West Ephemeral and Intermittent Streams OHW M Datasheet

Project: KRoad Solar Project Project Number: Stream: Drainage 4 Investigator(s): A. Mathes and S. Walker		Date: 12/13/10 Town: Moapa Photo begin file#: 11		Time: State: Nevada Photo end file#: 15	
Y <input checked="" type="checkbox"/> / N <input type="checkbox"/> Do normal circumstances exist on the site?		Location Details: Culvert 4 under Railroad			
Y <input checked="" type="checkbox"/> / N <input type="checkbox"/> Is the site significantly disturbed?		Projection:		Datum:	
Coordinates:					
Potential anthropogenic influences on the channel system: The channel flows through a culvert under the railroad track. In addition the railroad was constructed on a large berm that required scraping from the adjacent landscape.					
Brief site description: The proposed project is situated in the north end of the Dry Lake Valley. Elevations of the project range from approximately 2,038 feet at the intersection of the main project access road at Interstate Highway 15 to 2,200 feet. Soils are shallow (4 inches) over caliche layer.					
Checklist of resources (if available):					
<input checked="" type="checkbox"/> Aerial photography Dates: 2006		<input type="checkbox"/> Stream gage data Gage number:			
<input checked="" type="checkbox"/> Topographic maps		Period of record:			
<input type="checkbox"/> Geologic maps		<input type="checkbox"/> History of recent effective discharges			
<input type="checkbox"/> Vegetation maps		<input type="checkbox"/> Results of flood frequency analysis			
<input type="checkbox"/> Soils maps		<input type="checkbox"/> Most recent shift-adjusted rating			
<input type="checkbox"/> Rainfall/precipitation maps		<input type="checkbox"/> Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event			
<input checked="" type="checkbox"/> Existing delineation(s) for site					
<input checked="" type="checkbox"/> Global positioning system (GPS)					
<input type="checkbox"/> Other studies					
Hydrogeomorphic Floodplain Units					
Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:					
1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.					
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.					
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.					
a) Record the floodplain unit and GPS position.					
b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.					
c) Identify any indicators present at the location.					
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.					
5. Identify the OHWM and record the indicators. Record the OHWM position via:					
<input type="checkbox"/> Mapping on aerial photograph		<input checked="" type="checkbox"/> GPS			
<input type="checkbox"/> Digitized on computer		<input type="checkbox"/> Other:			

Project ID:

Cross section ID:

Date: 12-13-10

Time:

Cross section drawing:



There was no change in vegetation or sediment size; however, there was a break in slope that indicates a OHWM is present.

OHWM

GPS point: _____

Indicators:

- | | |
|---|---|
| <input type="checkbox"/> Change in average sediment texture | <input checked="" type="checkbox"/> Break in bank slope |
| <input type="checkbox"/> Change in vegetation species | <input type="checkbox"/> Other: _____ |
| <input type="checkbox"/> Change in vegetation cover | <input type="checkbox"/> Other: _____ |

Comments:

The drainage lacked Changes in sediment or changes in vegetation; however, there is a break in slope. While mapping the OHWM it was noted that several expanses lacked a bed and bank and the OHWM was discontinuous.

Floodplain unit:

- ☒ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: Cobble and sand

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: 40 %

Community successional stage:

- | | |
|---|--|
| <input type="checkbox"/> NA | <input checked="" type="checkbox"/> Mid (herbaceous, shrubs, saplings) |
| <input type="checkbox"/> Early (herbaceous & seedlings) | <input type="checkbox"/> Late (herbaceous, shrubs, mature trees) |

Indicators:

- | | |
|---|--|
| <input type="checkbox"/> Mudcracks | <input type="checkbox"/> Soil development |
| <input type="checkbox"/> Ripples | <input checked="" type="checkbox"/> Surface relief |
| <input type="checkbox"/> Drift and/or debris | <input type="checkbox"/> Other: _____ |
| <input type="checkbox"/> Presence of bed and bank | <input type="checkbox"/> Other: _____ |
| <input type="checkbox"/> Benches | <input type="checkbox"/> Other: _____ |

Comments:

A relic floodplain was evident based on surface topology; however, vegetation and sediment remained consistent throughout the area.

Project ID:

Cross section ID:

Date:

Time:

Floodplain unit:

☐ Low-Flow Channel

☐ Active Floodplain

☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

☐ NA

☐ Early (herbaceous & seedlings)

☐ Mid (herbaceous, shrubs, saplings)

☐ Late (herbaceous, shrubs, mature trees)

Indicators:

☐ Mudcracks

☐ Ripples

☐ Drift and/or debris

☐ Presence of bed and bank

☐ Benches

☐ Soil development

☐ Surface relief

☐ Other: _____

☐ Other: _____

☐ Other: _____

Comments:

Floodplain unit:

☐ Low-Flow Channel

☐ Active Floodplain

☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

☐ NA

☐ Early (herbaceous & seedlings)

☐ Mid (herbaceous, shrubs, saplings)

☐ Late (herbaceous, shrubs, mature trees)

Indicators:

☐ Mudcracks

☐ Ripples

☐ Drift and/or debris

☐ Presence of bed and bank

☐ Benches

☐ Soil development

☐ Surface relief

☐ Other: _____

☐ Other: _____

☐ Other: _____

Comments:

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Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: KRoad Solar Project Project Number: Stream: Drainage 5 Investigator(s): A. Mathes and S. Walker		Date: 12/13/10 Town: Moapa Photo begin file#: 16		Time: State: Nevada Photo end file#: 18	
Y <input checked="" type="checkbox"/> / N <input type="checkbox"/> Do normal circumstances exist on the site? Y <input checked="" type="checkbox"/> / N <input type="checkbox"/> Is the site significantly disturbed?		Location Details: Culvert 5 under Railroad Projection: _____ Datum: _____ Coordinates: _____			
Potential anthropogenic influences on the channel system: The channel flows through a culvert under the railroad track. In addition the railroad was constructed on a large berm that required scraping from the adjacent landscape.					
Brief site description: The proposed project is situated in the north end of the Dry Lake Valley. Elevations of the project range from approximately 2,038 feet at the intersection of the main project access road at Interstate Highway 15 to 2,200 feet. Soils are shallow (4 inches) over caliche layer.					
Checklist of resources (if available): <div style="display: flex; flex-wrap: wrap;"> <div style="width: 50%;"> <input checked="" type="checkbox"/> Aerial photography Dates: 2006 <input checked="" type="checkbox"/> Topographic maps <input type="checkbox"/> Geologic maps <input type="checkbox"/> Vegetation maps <input type="checkbox"/> Soils maps <input type="checkbox"/> Rainfall/precipitation maps <input checked="" type="checkbox"/> Existing delineation(s) for site <input checked="" type="checkbox"/> Global positioning system (GPS) <input type="checkbox"/> Other studies </div> <div style="width: 50%;"> <input type="checkbox"/> Stream gage data Gage number: _____ Period of record: _____ <input type="checkbox"/> History of recent effective discharges <input type="checkbox"/> Results of flood frequency analysis <input type="checkbox"/> Most recent shift-adjusted rating <input type="checkbox"/> Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event </div> </div>					
Hydrogeomorphic Floodplain Units 					
Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM: <ol style="list-style-type: none"> 1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site. 2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units. 3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units. <ol style="list-style-type: none"> a) Record the floodplain unit and GPS position. b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit. c) Identify any indicators present at the location. 4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section. 5. Identify the OHWM and record the indicators. Record the OHWM position via: <div style="display: flex; justify-content: space-between; margin-top: 5px;"> <input type="checkbox"/> Mapping on aerial photograph <input type="checkbox"/> GPS </div> <div style="display: flex; justify-content: space-between; margin-top: 5px;"> <input type="checkbox"/> Digitized on computer <input checked="" type="checkbox"/> Other: </div> 					

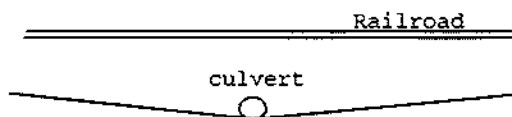
Project ID:

Cross section ID:

Date: 12-13-10

Time:

Cross section drawing:



There was no change in vegetation or sediment size across the drainage area.

OHWM

GPS point: No OHWM was located for this feature.

Indicators:

- | | |
|---|--|
| <input type="checkbox"/> Change in average sediment texture | <input type="checkbox"/> Break in bank slope |
| <input type="checkbox"/> Change in vegetation species | <input type="checkbox"/> Other: _____ |
| <input type="checkbox"/> Change in vegetation cover | <input type="checkbox"/> Other: _____ |

Comments:

The drainage lacked indications of a high water mark (Changes in sediment, changes in vegetation, or a break in slope). This waterway was determined to be a storm water drainage.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

- | | |
|---|--|
| <input type="checkbox"/> NA | <input type="checkbox"/> Mid (herbaceous, shrubs, saplings) |
| <input type="checkbox"/> Early (herbaceous & seedlings) | <input type="checkbox"/> Late (herbaceous, shrubs, mature trees) |

Indicators:

- | | |
|---|---|
| <input type="checkbox"/> Mudcracks | <input type="checkbox"/> Soil development |
| <input type="checkbox"/> Ripples | <input type="checkbox"/> Surface relief |
| <input type="checkbox"/> Drift and/or debris | <input type="checkbox"/> Other: _____ |
| <input type="checkbox"/> Presence of bed and bank | <input type="checkbox"/> Other: _____ |
| <input type="checkbox"/> Benches | <input type="checkbox"/> Other: _____ |

Comments:

No floodplain unit was identified for this drainage.

Project ID:

Cross section ID:

Date:

Time:

Floodplain unit:

☐ Low-Flow Channel

☐ Active Floodplain

☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

☐ NA

☐ Early (herbaceous & seedlings)

☐ Mid (herbaceous, shrubs, saplings)

☐ Late (herbaceous, shrubs, mature trees)

Indicators:

☐ Mudcracks

☐ Ripples

☐ Drift and/or debris

☐ Presence of bed and bank

☐ Benches

☐ Soil development

☐ Surface relief

☐ Other: _____

☐ Other: _____

☐ Other: _____

Comments:

Floodplain unit:

☐ Low-Flow Channel

☐ Active Floodplain

☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

☐ NA

☐ Early (herbaceous & seedlings)

☐ Mid (herbaceous, shrubs, saplings)

☐ Late (herbaceous, shrubs, mature trees)

Indicators:

☐ Mudcracks

☐ Ripples

☐ Drift and/or debris

☐ Presence of bed and bank

☐ Benches

☐ Soil development

☐ Surface relief

☐ Other: _____

☐ Other: _____

☐ Other: _____

Comments:

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Arid West Ephemeral and Intermittent Streams OHW M Datasheet

Project: KRoad Solar Project		Date: 12/13/10		Time:	
Project Number:		Town: Moapa		State: Nevada	
Stream: Drainage 6		Photo begin file#: 19		Photo end file#: 20	
Investigator(s): A. Mathes and S. Walker					

Y <input checked="" type="checkbox"/> / N <input type="checkbox"/> Do normal circumstances exist on the site?	Location Details: Isolated Desert Swale Drainage 6
Y <input checked="" type="checkbox"/> / N <input type="checkbox"/> Is the site significantly disturbed?	Projection: Datum: Coordinates:

Potential anthropogenic influences on the channel system: The channel flows off-site into an impoundment adjacent to the railroad track. No culvert was constructed in the railroad to allow natural flow.

Brief site description: The proposed project is situated in the north end of the Dry Lake Valley. Elevations of the project range from approximately 2,038 feet at the intersection of the main project access road at Interstate Highway 15 to 2,200 feet. Soils are shallow (4 inches) over caliche layer.

Checklist of resources (if available):

<input checked="" type="checkbox"/> Aerial photography Dates: 2006 <input checked="" type="checkbox"/> Topographic maps <input type="checkbox"/> Geologic maps <input type="checkbox"/> Vegetation maps <input type="checkbox"/> Soils maps <input type="checkbox"/> Rainfall/precipitation maps <input checked="" type="checkbox"/> Existing delineation(s) for site <input checked="" type="checkbox"/> Global positioning system (GPS) <input type="checkbox"/> Other studies	<input type="checkbox"/> Stream gage data Gage number: Period of record: <input type="checkbox"/> History of recent effective discharges <input type="checkbox"/> Results of flood frequency analysis <input type="checkbox"/> Most recent shift-adjusted rating <input type="checkbox"/> Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event
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Hydrogeomorphic Floodplain Units

Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
 - a) Record the floodplain unit and GPS position.
 - b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
 - c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:

<input type="checkbox"/> Mapping on aerial photograph	<input type="checkbox"/> GPS
<input type="checkbox"/> Digitized on computer	<input checked="" type="checkbox"/> Other:

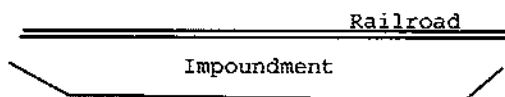
Project ID:

Cross section ID:

Date: 12-13-10

Time:

Cross section drawing:



The drainage swale emptied into a small impoundment adjacent to the railroad, off-site. This impoundment did not have a significant nexus to any other swales or water bodies.

OHWM

GPS point: _____

Indicators:

- ☐ Change in average sediment texture
- ☐ Change in vegetation species
- ☐ Change in vegetation cover

- ☒ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

The drainage lacked a continuous high water mark (Changes in sediment, changes in vegetation, or a break in slope). This waterway was determined to be a storm water drainage. This water way flows into an impoundment off-site.

Floodplain unit:

☐ Low-Flow Channel

☐ Active Floodplain

☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

No floodplain unit was identified for this drainage.

Project ID:

Cross section ID:

Date:

Time:

Floodplain unit:

☐ Low-Flow Channel

☐ Active Floodplain

☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____% Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

☐ NA

☐ Early (herbaceous & seedlings)

☐ Mid (herbaceous, shrubs, saplings)

☐ Late (herbaceous, shrubs, mature trees)

Indicators:

☐ Mudcracks

☐ Ripples

☐ Drift and/or debris

☐ Presence of bed and bank

☐ Benches

☐ Soil development

☐ Surface relief

☐ Other: _____

☐ Other: _____

☐ Other: _____

Comments:

Floodplain unit:

☐ Low-Flow Channel

☐ Active Floodplain

☐ Low Terrace

GPS point: _____

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: _____% Tree: _____% Shrub: _____% Herb: _____%

Community successional stage:

☐ NA

☐ Early (herbaceous & seedlings)

☐ Mid (herbaceous, shrubs, saplings)

☐ Late (herbaceous, shrubs, mature trees)

Indicators:

☐ Mudcracks

☐ Ripples

☐ Drift and/or debris

☐ Presence of bed and bank

☐ Benches

☐ Soil development

☐ Surface relief

☐ Other: _____

☐ Other: _____

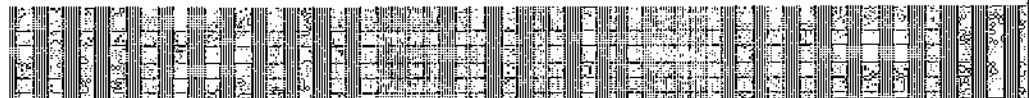
☐ Other: _____

Comments:

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K Road Solar Power
Preliminary Jurisdictional Determination Report

**Appendix D: Jurisdictional
Determination Form**



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APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD):

B. DISTRICT OFFICE, FILE NAME, AND NUMBER:

C. PROJECT LOCATION AND BACKGROUND INFORMATION:

State: Nevada County/parish/borough: Clark County City:
Center coordinates of site (lat/long in degree decimal format): Lat. 36.526881° N, Long. -114.758889° W
Universal Transverse Mercator:

Name of nearest waterbody: California Wash

Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: California Wash

Name of watershed or Hydrologic Unit Code (HUC): 15010012

☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.

☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc...) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

☐ Office (Desk) Determination. Date:

☒ Field Determination. Date(s): 12-13-10

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There ~~are no~~ "navigable waters of the U.S." within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [Required]

☐ Waters subject to the ebb and flow of the tide.

☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.
Explain: .

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There ~~are no~~ "waters of the U.S." within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [Required]

1. Waters of the U.S.

a. Indicate presence of waters of U.S. in review area (check all that apply):¹

- ☒ TNWs, including territorial seas
- ☒ Wetlands adjacent to TNWs
- ☐ Relatively permanent waters² (RPWs) that flow directly or indirectly into TNWs
- ☒ Non-RPWs that flow directly or indirectly into TNWs
- ☒ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
- ☒ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
- ☒ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
- ☒ Impoundments of jurisdictional waters
- ☒ Isolated (interstate or intrastate) waters, including isolated wetlands

b. Identify (estimate) size of waters of the U.S. in the review area:

Non-wetland waters: linear feet: width (ft) and/or acres.
Wetlands: acres.

c. Limits (boundaries) of jurisdiction based on: ~~Not Applicable~~

Elevation of established OHWM (if known): .

2. Non-regulated waters/wetlands (check if applicable):³

- ☒ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional.
Explain: During the field survey six drainages were mapped within the project; however, none were considered jurisdictional. It was noted that drainage 1,2,3 and 5 did not have OWWM and the OHWM on drainages 4 and 6 were discontinuous between the site boundary and the Railroad track boundary. In addition, there was no obvious change in vegetation or sediment across the drainage areas. The drainages convey water across upland areas during and

¹ Boxes checked below shall be supported by completing the appropriate sections in Section III below.

² For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).

³ Supporting documentation is presented in Section III.F.

immediately following a storm event and do not flow for any length of time. The swale areas meet the definition and description of non jurisdictional desert swales as described in the USACE Jurisdictional Determination Form Instructional Guidebook. Drainages 1, 2, and 3 flow off-site into a non-RPW that flows Under Interstate 15; drainage 4 and 5 flow off-site into a different non-RPW that joins the flow of drainages 1, 2, and 3 at Interstate 15. The water flows through a culvert under Interstate 15 and into a road side ditch, before flowing into California Wash.

One foot contour data for the project area was developed. Utilizing the contour data, in GIS, the sub-watershed areas were calculated for each drainage: Drainage 1=146.0; Drainage 2=200.7, Drainage 3=465.6; Drainage 4=481.8; Drainage 5=140.1; and Drainage 6=322.4 acres. Due to the small catchment area, modified channels (flowing under the Railroad track and Interstate 15, and discontinuous channelization that water within these drainages will not reach a TNW (except in extreme rainfall events).

Due to the dry nature of these drainages that only have water immediately after a rainfall event, use by migratory birds is considered minimal and the drainages will not support any aquatic wildlife.

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. TNW

Identify TNW: No TNW on site or adjacent to site.

Summarize rationale supporting determination:

2. Wetland adjacent to TNW

Summarize rationale supporting conclusion that wetland is "adjacent": No wetlands on site.

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody⁴ is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. Characteristics of non-TNWs that flow directly or indirectly into TNW

(i) General Area Conditions:

Watershed size: Pick List
Drainage area: Pick List
Average annual rainfall: 4.2 inches
Average annual snowfall: 0 inches

(ii) Physical Characteristics:

(a) Relationship with TNW:

- ☐ Tributary flows directly into TNW.
☐ Tributary flows through 2 tributaries before entering TNW.

Project waters are 5-10 river miles from TNW.
Project waters are 2-5 river miles from RPW.
Project waters are 5-10 aerial (straight) miles from TNW.
Project waters are 2-5 aerial (straight) miles from RPW.
Project waters cross or serve as state boundaries. Explain:

Identify flow route to TNW⁵: Water flows through swale, under railroad, through swale east under Interstate 15, and into non-RPW and west under Interstate 15 to California Wash.

⁴ Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

⁵ Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.

Tributary stream order, if known: .

(b) General Tributary Characteristics (check all that apply):

Tributary is: ☐ Natural
☐ Artificial (man-made). Explain: .
☐ Manipulated (man-altered). Explain: .

Tributary properties with respect to top of bank (estimate):

Average width: feet
Average depth: feet
Average side slopes: Pick List.

Primary tributary substrate composition (check all that apply):

<input type="checkbox"/> Silts	<input type="checkbox"/> Sands	<input type="checkbox"/> Concrete
<input type="checkbox"/> Cobbles	<input type="checkbox"/> Gravel	<input type="checkbox"/> Muck
<input type="checkbox"/> Bedrock	<input type="checkbox"/> Vegetation. Type/% cover: .	
<input type="checkbox"/> Other. Explain: .		

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: .

Presence of run/riffle/pool complexes. Explain: .

Tributary geometry: Pick List

Tributary gradient (approximate average slope): %

(c) Flow:

Tributary provides for: Pick List

Estimate average number of flow events in review area/year: Pick List

Describe flow regime: .

Other information on duration and volume: .

Surface flow is: Pick List. Characteristics: .

Subsurface flow: Pick List. Explain findings: .

☐ Dye (or other) test performed: .

Tributary has (check all that apply):

<input type="checkbox"/> Bed and banks	
<input type="checkbox"/> OHWM ⁶ (check all indicators that apply):	
<input type="checkbox"/> clear, natural line impressed on the bank	<input type="checkbox"/> the presence of litter and debris
<input type="checkbox"/> changes in the character of soil	<input type="checkbox"/> destruction of terrestrial vegetation
<input type="checkbox"/> shelving	<input type="checkbox"/> the presence of wrack line
<input type="checkbox"/> vegetation matted down, bent, or absent	<input type="checkbox"/> sediment sorting
<input type="checkbox"/> leaf litter disturbed or washed away	<input type="checkbox"/> scour
<input type="checkbox"/> sediment deposition	<input type="checkbox"/> multiple observed or predicted flow events
<input type="checkbox"/> water staining	<input type="checkbox"/> abrupt change in plant community
<input type="checkbox"/> other (list):	
<input type="checkbox"/> Discontinuous OHWM. ⁷ Explain: .	

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):

<input checked="" type="checkbox"/> High Tide Line indicated by:	<input checked="" type="checkbox"/> Mean High Water Mark indicated by:
<input type="checkbox"/> oil or scum line along shore objects	<input type="checkbox"/> survey to available datum;
<input type="checkbox"/> fine shell or debris deposits (foreshore)	<input type="checkbox"/> physical markings;
<input type="checkbox"/> physical markings/characteristics	<input type="checkbox"/> vegetation lines/changes in vegetation types.
<input type="checkbox"/> tidal gauges	
<input type="checkbox"/> other (list):	

(iii) Chemical Characteristics:

Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).

Explain: .

Identify specific pollutants, if known: .

⁶A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.

⁷Ibid.

(iv) **Biological Characteristics. Channel supports (check all that apply):**

- ☐ Riparian corridor. Characteristics (type, average width):
- ☐ Wetland fringe. Characteristics:
- ☐ Habitat for:
 - ☐ Federally Listed species. Explain findings:
 - ☐ Fish/spawn areas. Explain findings:
 - ☐ Other environmentally-sensitive species. Explain findings:
 - ☐ Aquatic/wildlife diversity. Explain findings:

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) **Physical Characteristics:**

(a) General Wetland Characteristics:

Properties:

Wetland size: acres

Wetland type. Explain:

Wetland quality. Explain:

Project wetlands cross or serve as state boundaries. Explain:

(b) General Flow Relationship with Non-TNW:

Flow is: **Pick List**. Explain:

Surface flow is: **Pick List**

Characteristics:

Subsurface flow: **Pick List**. Explain findings:

☐ Dye (or other) test performed:

(c) Wetland Adjacency Determination with Non-TNW:

☐ Directly abutting

☐ Not directly abutting

☐ Discrete wetland hydrologic connection. Explain:

☐ Ecological connection. Explain:

☐ Separated by berm/barrier. Explain:

(d) Proximity (Relationship) to TNW

Project wetlands are **Pick List** river miles from TNW.

Project waters are **Pick List** aerial (straight) miles from TNW.

Flow is from: **Pick List**.

Estimate approximate location of wetland as within the **Pick List** floodplain.

(ii) **Chemical Characteristics:**

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain:

Identify specific pollutants, if known:

(iii) **Biological Characteristics. Wetland supports (check all that apply):**

- ☐ Riparian buffer. Characteristics (type, average width):
- ☐ Vegetation type/percent cover. Explain:
- ☐ Habitat for:
 - ☐ Federally Listed species. Explain findings:
 - ☐ Fish/spawn areas. Explain findings:
 - ☐ Other environmentally-sensitive species. Explain findings:
 - ☐ Aquatic/wildlife diversity. Explain findings:

3. Characteristics of all wetlands adjacent to the tributary (if any)

All wetland(s) being considered in the cumulative analysis: **Pick List**

Approximately () acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)

Size (in acres)

Directly abuts? (Y/N)

Size (in acres)

Summarize overall biological, chemical and physical functions being performed:

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D:
2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D:
3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D:

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:
☐ TNWs: linear feet width (ft), Or, acres.
☐ Wetlands adjacent to TNWs: acres.
2. **RPWs that flow directly or indirectly into TNWs.**
☒ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial:
☒ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally:

Provide estimates for jurisdictional waters in the review area (check all that apply):

☐ Tributary waters: linear feet width (ft).

☐ Other non-wetland waters: acres.

Identify type(s) of waters: .

3. Non-RPWs⁸ that flow directly or indirectly into TNWs.

- ☐ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional waters within the review area (check all that apply):

☐ Tributary waters: linear feet width (ft).

☐ Other non-wetland waters: acres.

Identify type(s) of waters: .

4. Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.

- ☐ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.

☐ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

☐ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

5. Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.

- ☐ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

6. Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.

- ☐ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional wetlands in the review area: acres.

7. Impoundments of jurisdictional waters.⁹

As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.

☐ Demonstrate that impoundment was created from "waters of the U.S.," or

☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or

☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):¹⁰

☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.

☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.

☐ which are or could be used for industrial purposes by industries in interstate commerce.

☐ Interstate isolated waters. Explain: .

☐ Other factors. Explain: .

Identify water body and summarize rationale supporting determination: .

⁸See Footnote # 3.

⁹To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.

¹⁰Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA Memorandum Regarding CWA Act Jurisdiction Following Rapanos.

Provide estimates for jurisdictional waters in the review area (check all that apply):

☒ Tributary waters: linear feet width (ft).

☒ Other non-wetland waters: acres.

Identify type(s) of waters:

☒ Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):

☒ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.

☒ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.

☐ Prior to the Jan 2001 Supreme Court decision in "SWANCC," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).

☒ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain:

☒ Other: (explain, if not covered above): **Waters do not have a continuous OHWM.**

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):

☒ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).

☒ Lakes/ponds: acres.

☒ Other non-wetland waters: acres. List type of aquatic resource:

☒ Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):

☒ Non-wetland waters (i.e., rivers, streams): **34,378** linear feet, **2-4** width (ft).

☒ Lakes/ponds: acres.

☒ Other non-wetland waters: acres. List type of aquatic resource:

☒ Wetlands: acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):

☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant:

☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.

☐ Office concurs with data sheets/delineation report.

☐ Office does not concur with data sheets/delineation report.

☐ Data sheets prepared by the Corps:

☒ Corps navigable waters' study:

☒ U.S. Geological Survey Hydrologic Atlas:

☐ USGS NHD data.

☐ USGS 8 and 12 digit HUC maps.

☒ U.S. Geological Survey map(s). Cite scale & quad name:

☒ USDA Natural Resources Conservation Service Soil Survey. Citation:

☒ National wetlands inventory map(s). Cite name:

☒ State/Local wetland inventory map(s):

☒ FEMA/FIRM maps:

☒ 100-year Floodplain Elevation is: (National Geodetic Vertical Datum of 1929)

☒ Photographs: ☐ Aerial (Name & Date):

or ☐ Other (Name & Date):

☒ Previous determination(s). File no. and date of response letter:

☒ Applicable/supporting case law:

☒ Applicable/supporting scientific literature:

☒ Other information (please specify):

B. ADDITIONAL COMMENTS TO SUPPORT JD:

Appendix G — Hyperloop Verification



DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, SACRAMENTO DISTRICT
1325 J STREET
SACRAMENTO CA 95814-2922

May 16, 2016

Regulatory Division SPK-2016-00266

Hyperloop Technologies, Inc.
Attn: Mr. Afshin Pischevar
2161 Sacramento Street
Los Angeles, CA 90021

Dear Mr. Pischevar:

We are responding to your April 4, 2016 request for an approved jurisdictional determination for the Hyperloop Property, Las Vegas, Nevada site. The approximately 1100-acre project site is located approximately 18 miles northeast of the city of Las Vegas, 4.25 miles west of Interstate 95, and with the northern tip of the study area bordering Highway 93 in Clark County, Nevada. The center point of the project is: Latitude 36.404698°, Longitude -114.96531° (enclosure 1).

Based on available information, the 43 ephemeral washes totaling approximately 11,098 linear feet as identified on the enclosed April 14, 2016 drawing, titled "Hyperloop Sample Point Overview and Project Location" and prepared by NewFields Consultants, are intrastate isolated waters with no apparent interstate or foreign commerce connection. As such, these waters are not currently regulated by the Corps of Engineers. This disclaimer of jurisdiction is only for Section 404 of the Federal Clean Water Act. Other Federal, State, and local laws may apply to your activities.

This determination is valid for five years from the date of this letter, unless new information warrants revision of the determination before the expiration date. If you object to this determination, you may request an administrative appeal under Corps regulations at 33 Code of Federal Regulations (CFR) Part 331.

A combined Notification of Appeal Process and Request for Appeal form is enclosed (enclosure 3). If you request to appeal this determination you must submit a completed Request for Appeal form to the South Pacific Division Office at the following address: Administrative Appeal Review Officer, Army Corps of Engineers, South Pacific Division, CESPD-PDO, 1455 Market Street, 2052B, San Francisco, California 94103-1399, Telephone: 415-503-6574, FAX: 415-503-6646.

In order for a Request for Appeal to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR Part 331.5, and that it has been received by the Division Office within 60 days of the Notification of Appeal Process. Should you decide to submit a Request for Appeal form,

it must be received at the above address by 60 days from the date of this letter. It is not necessary to submit a Request for Appeal form to the Division Office if you do not object to the determination in this letter.

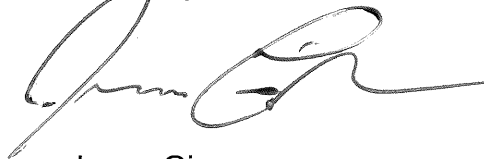
You should provide a copy of this letter and notice to all other affected parties, including any individual who has an identifiable and substantial legal interest in the property.

This determination has been conducted to identify the limits of Corps of Engineers' Clean Water Act jurisdiction for the particular site identified in this request. This determination may not be valid for the wetland conservation provisions of the Food Security Act of 1985. If you or your tenant are U.S. Department of Agriculture (USDA) program participants, or anticipate participation in USDA programs, you should request a certified wetland determination from the local office of the Natural Resources Conservation Service prior to starting work.

We appreciate your feedback. At your earliest convenience, please tell us how we are doing by completing our national customer survey from the link on our website.

Please refer to identification number SPK-2016-00266 in any correspondence concerning this project. If you have any questions, please contact Craig Brown, at the St. George Field Office, 196 East Tabernacle Street, Suite 30, St. George, Utah 84770, by email at Craig.J.Brown@usace.army.mil, or telephone at 435-986-3979. For more information regarding our program, please visit our website at www.spk.usace.army.mil/Missions/Regulatory.aspx.

Sincerely,

A handwritten signature in black ink, appearing to read 'Jason Gipson', with a stylized flourish at the end.

Jason Gipson
Chief, Utah-Nevada Branch
Regulatory Division

Enclosure:

cc: (w-Encl 1-2)

Mr. Ken MacDonald: kmacdonald@newfields.com

Appendix J

Site Restoration Plan

SITE RESTORATION PLAN

EAGLE SHADOW MOUNTAIN SOLAR PROJECT

CLARK COUNTY, NEVADA

June 2019

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Acronyms and Abbreviations

BIA	Bureau of Indian Affairs
BMP	Best Management Practice
BLM	Bureau of Land Management
SRP	Site Restoration Plan
NDOW	Nevada Department of Wildlife
NRS	Nevada Revised Statute
O&M	Operations and Maintenance
Project	Eagle Shadow Mountain Solar Project
PV	Photovoltaic
Reservation	Moapa River Indian Reservation
ROW	right-of-way

1 Introduction

1.1 Purpose

The purpose of this Site Restoration Plan (SRP) is to describe the proposed Eagle Shadow Mountain Solar Project (ESMSP or Project), considerations related to restoration and revegetation, and the various factors and methods to be applied toward restoring the site to as close to pre-project conditions as practicable. The goal of this SRP and its successful implementation is to mitigate the potential impacts associated with the proposed Project and to facilitate managed and natural restoration of the site and impacted areas toward achieving pre-project or similar drainage patterns.

The Environmental Impact Statement, Appendix C – Applicant Proposed Mitigation and Best Management Practices (BMPs) – Soils / Erosion and Biological Resources, states the following:

A Site Restoration would be implemented as needed to limit impacts to temporary disturbance areas as much as practicable; and

Potential closure activities could include re-grading and restoration of original site contours and re-vegetation of areas disturbed by closure activities in accordance with the Site Reclamation Plan. Revegetation seed mixes will be composed of native plant species.

The following procedure and task matrix (Table 1-1) identifies the specific Best Management Practices (BMPs) that will be implemented, as needed, to minimize disturbance and implement restoration of the Project site.

Table 1-1 Procedures and Task Matrix		
BMP #	Site Procedure(s)	Task Assignment and Schedule
1	Minimize temporary disturbance areas as much as practicable.	Construction Supervisors and Staff will coordinate and perform work to minimize temporary disturbance areas as much as practicable.
2	Minimize grading to only those areas where necessary to meet the construction and operational requirements of the Project.	Construction Supervisors and Staff will coordinate and perform work to minimize unnecessary grading as much as practicable.
3	All work area boundaries will be conspicuously staked, flagged, or otherwise marked to minimize surface disturbance activities. All workers, equipment, vehicles, and construction materials shall remain within the ROW, existing roads, and designated areas. Staging areas will be located in previously disturbed areas whenever possible.	Qualified Biologists and Environmental Managers will coordinate with Construction Supervisors and Staff to ensure that all work area boundaries are clearly marked as much as practicable and that all workers stay on designated roadways and in designated areas.
4	Preserve site-specific materials for use in the restoration phase, where practicable.	Construction Supervisors and Staff will preserve materials, as practicable, prior to the start of work.
5	Implement restoration practices in a timely manner, thereby reducing secondary effects including soil erosion and establishment of noxious plant species.	Construction Supervisors and Environmental Managers will coordinate to ensure revegetation occurs within a timely manner.

2 Roles and Responsibilities

All site Project construction and operation employees, contractors, and sub-contractors will be familiar with the SRP and will be responsible for implementing aspects of this SRP.

All Workers, Contractors, and Contractor Staff shall:

- Minimize initial disturbance within the proposed Project area;
- Preserve site-specific materials for use in the restoration phase where practicable;

Environmental Managers and/or Construction Supervisors shall:

- Implement restoration practices in a timely manner, thereby reducing secondary effects including soil erosion and establishment of noxious plant species; and
- Return temporary disturbance areas to conditions similar to those that existed prior to Project-initiation by restoring soils and topography, as feasible.

Individuals responsible for general program auditing and reporting include:

- Environmental Managers and Representatives, as they relate to restoration measures.

3 Project Summary

3.1 Project Location

The proposed Project would be located approximately 30 miles northeast of Las Vegas in Clark County, Nevada (**Figure 1**), west of I-15 and east of U.S. Highway 93. The ESMSP would be located on up to 2,200 leased acres within a study area of approximately 4,770 acres on the Reservation in Township 16 South, Range 64 East, Sections 1, 9, 10, 11, 14, 15, 16, 21 and 22, Mount Diablo Base Meridian. These lands are currently vacant except for roads, pipelines, a tribal aggregate mine, and two operating water wells. These existing tribal facilities will be excluded from the final lease and solar site area.

The proposed 12.5-mile gen-tie line would be located in Township 16 South, Ranges 64 and 65 East and Township 15 South, Ranges 65 and 66 East. The gen-tie line would be located within an existing utility corridor, adjacent to multiple existing linear electric transmission and pipeline utilities. Project components would include onsite facilities, offsite facilities, and temporary facilities needed to construct the Project (**Figure 2**).

3.2 Project Description

The following describes the major features of the proposed Project. For a comprehensive description of the proposed Project, refer to the associated Eagle Shadow Mountain Solar Project Draft Environmental Impact Statement (EIS) for the Project design details (subject to minor design changes).

325MK 8me LLC (Applicant), a subsidiary of 8minutenergy, has entered into an agreement with the Moapa Band of Paiute Indians to lease land, up to 50 years, on the Moapa River Indian Reservation (Reservation) for the purposes of constructing, operating, and maintaining the ESMSP, a 300 megawatt (MW) AC solar generating facility using photovoltaic (PV) technology and associated infrastructure.

The proposed solar generating facility would be constructed on up to 2,200 acres within a study area of approximately 4,770 acres of tribal trust land within the Reservation. The Project infrastructure would include a 230 kilovolt (kV) electric transmission generation interconnection (gen-tie) line. The gen-tie line would cross tribal as well as small sections of BLM and private lands. Main access to the ESMSP site for construction and through operations and decommissioning would be provided via existing roads. Access to this portion of the Reservation would be via I-15, US Highway 93, and North Las Vegas Boulevard to existing improved roads on the Reservation. These existing roads on the Reservation include the road built to provide access to the nearby existing K Road Solar Facility and the road providing access to the existing tribal aggregate operation and water wells that would be adjacent to the ESMSP.

Temporary disturbance areas would include laydown areas, temporary disturbance areas needed for construction of the gen-tie and solar field, and parking areas needed for construction and staging of materials.

4 Vegetation

The Mojave Desert hosts a wide variety of vegetation, including approximately 250 species of annual herbaceous plants, at least 80 of which are endemic (Randall et al. 2010). Native Mojave Desert vegetation is typically tolerant of low humidity, prolonged droughts, desiccating winds, high alkalinity or salinity, rocky or very sandy soils, and the periodic influx of high quantities of water in the form of surface flooding (NDOW 2012).

The most commonly found plant species in the Mojave Desert are creosote bush and white bursage. Approximately 70 percent of the Mojave Desert is covered by creosote bush-white bursage associations. Species associated with creosote bush-white bursage communities in the Mojave Desert include Shockley's goldenhead (*Acamptopappus shockleyi*), Anderson's wolfberry (*Lycium andersonii*), range ratany (*Krameria parvifolia*), Mojave yucca (*Yucca schidigera*), California joint fir (*Ephedra funerea*), spiny hop-sage (*Grayia spinosa*), and winterfat (*Krascheninnikovia lanata*). Other associated species are desert senna (*Cassia armata*), Nevada ephedra (*Ephedra nevadensis*) and white burrobrush (*Hymenoclea salsola*) (USDAFS 2010). Grasses regularly found are big galleta (*Pleuraphis rigida*), Indian rice grass (*Oryzopsis hymenoides*), bush muhly (*Muhlenbergia porteri*), fluff grass (*Erioneuron pulchellum*), red brome (*Bromus rubens*), desert needle (*Stipa speciosa*), Arabian grass (*Schismus arabicus*), snakeweed (*Gutierrezia spp*), desert trumpet (*Eriogonum inflatum*), fourwing saltbush (*Atriplex canescens*) and desert grass (*Blepharidachne kingii*).

The proposed Project area is dominated by open stands of creosote bush and white bursage. North American warm desert riparian, introduced desert riparian, Mojave desert riparian, mesquite bosque, Sonoran-Mojave mixed salt desert scrub, microphytic playa, North American warm desert pavement, and developed habitat types are also present in low quantities. Cactus and yucca species observed during the biological surveys were the Mojave yucca (*Yucca schidigera*) beavertail pricklypear (*Opuntia basilaris*), buckhorn cholla (*Cylindropuntia acanthocarpa*), cottontop cactus (*Echinocactus polycephalus*), Engelmann's hedgehog cactus (*Echinocereus engelmannii*), clustered barrel cactus (*Echinocactus polycephalus*), barrel cactus (*Ferocactus cylindraceus*), and common fishhook cactus (*Mammillaria tetracistra*). The majority of the proposed Project area was homogeneous creosote bush – white bursage with sporadic inclusions of other species.

A list of plant species observed in the proposed Project area is presented in **Appendix A**.

4.1 Federally-Listed and Candidate, Threatened or Endangered Plant Species

4.1.1 Las Vegas Buckwheat

In April 2008, the Center for Biological Diversity (CBD) petitioned the U.S. Fish and Wildlife Service (USFWS) to protect the Las Vegas buckwheat (*Eriogonum corymbosum nilesii*) under the federal

Endangered Species Act (ESA). The Las Vegas buckwheat was designated as a candidate for ESA listing on December 10, 2008. The Las Vegas buckwheat is also designated as a sensitive species by the BLM and is listed as “at risk” under the Nevada Natural Heritage Program (NNHP). The Las Vegas buckwheat is native to Las Vegas and is found in Clark and Lincoln counties.

In 2009 the Desert Conservation Program (DCP) developed two coarse soil GIS models to understand the distribution of rare plants covered under the Clark County Multiple Species Habitat Conservation Plan (MSHCP) (Hamilton and Kokos 2011). Results of this modeling show potential suitable habitat (gypsiferous soils) for Las Vegas buckwheat near, but not within, the proposed Project area (Hamilton 2019) and it was not observed within the proposed Project area during project surveys.

4.2 State Protected, Regulated, Listed and BLM Special Status Vegetation Species

The following section applies to BLM and private lands; the BIA has the discretion to utilize existing State regulatory guidelines as appropriate.

In the State of Nevada cacti and yucca are afforded protection. According to the Nevada Revised Statute (NRS 527.100):

“It is unlawful....to cut, destroy, mutilate, remove or possess any Christmas tree, cactus, yucca or branches thereof, or knowingly transport or sell any Christmas tree, cactus, yucca or its branches from any of the lands owned by or under the jurisdiction of the State of Nevada or its counties, or any reserved or unreserved lands owned by the United States, or from any privately owned lands, without permission from the legal owner, or the legal owner’s duly authorized agent, specifying locality by legal land description and number of plants to be removed or possessed.”

4.2.1 Vegetation Species Not Present on Project Site

The following state-protected, regulated, listed and BLM special-status vegetation species were not detected on or near the Project site during biological reconnaissance surveys, and are lacking suitable habitat for the species within the Project area:

- Blue diamond cholla (*Cylindropuntia multigeniculata*)
- Three-corner milkvetch (*Astragalus geyeri* var. *triquetrus*)
- Beaverdam breadroot (*Pediomelum castoreum*)

4.2.2 Mojave Yucca

The sale and transport of Mojave yucca is protected and regulated by the State of Nevada under Nevada Revised Statute (NRS) and Nevada Administrative Code (NAC) Chapter 527. Mojave yucca is a

common inhabitant of the creosote desert flats. This plant provides browse for a number of wildlife species during spring, summer, and fall. The flowerstalks and foliage of Mojave yucca are palatable to rodents and some wild ungulates during much of the year (Gucker 2006) and it provides shelter and shade for many mammals, birds and reptiles. There is an obligate, mutualistic relationship between the Mojave yucca and the small white yucca moth (*Tegeticula yuccasella*). Mojave yucca is present on the ESMSP solar site and was observed during biological reconnaissance surveys (Newfields 2018).

4.2.3 State Protected and Regulated Cacti Species

Cacti are another type of vegetation common to the proposed Project site. Cacti and yuccas, which are protected under Nevada state law (NRS 527.100 – Protection and Preservation of Timbered Lands, Trees and Flora), were found throughout the upland portions of the proposed Project site (**Table 4-1**).

TABLE 4-1 STATE PROTECTED AND REGULATED CACTI OBSERVED ON PROPOSED PROJECT SITE		
Scientific Name	Common Name	Protection Status
<i>Mammillaria tetrancistra</i>	Common fishhook	CY
<i>Echinocactus polycephalus</i>	Cottontop cactus	CY
<i>Opuntia basilaris</i>	Beavertail prickly pear cactus	CY
<i>Yucca schidigera</i>	Mojave yucca	CY
<i>Echinocereus engelmannii</i>	Engelmann's hedgehog cactus	CY
<i>Ferocactus cylindraceus</i>	Barrel cactus	CY
<i>Echinocactus polycephalus</i>	Clustered barrel cactus	CY
<i>Cylindropuntia acanthocarpa</i>	Buckhorn cholla	CY
<i>Cylindropuntia echinocarpa</i>	Silver cholla	CY
<i>Cylindropuntia ramosissima</i>	Pencil cholla	CY
Source: Nevada Natural Heritage 2010. CY = Protected as a Cactus, Yucca, or Christmas tree		

4.2.4 Nye Milkvetch

Nye milkvetch (*Astragalus nyensis*) is not designated a sensitive species by the BLM or protected by the State of Nevada, though it is on the NNHP At-Risk Tracking List (G3 S3 [NNHP 2001]). It is found in the foothills of desert mountains, calcareous outwash fans and gravelly flats, and sometimes in sandy soil. Associated plants are creosotebush, white bursage, and cheesebush, which are present throughout the ESMSP area. Nye milkvetch has the potential to be present within the Project area.

4.2.5 White Bearpoppy

The white bearpoppy (*Arctomecon merriamii*) is an evergreen perennial herb that blooms from April through July. This species is considered BLM sensitive and is on the NNHP At-Risk Tracking List (G3 S2 [NNHP 2016]). White bearpoppy is found in Nevada from Clark, Nye, and Lincoln counties on wide variety of dry to sometimes moist basic soils, including alkaline clay and sand, gypsum, calcareous alluvial gravels, and carbonate rock outcrops in chenopod scrub and rocky Mojave Desert communities from

1,600 to 6,280 feet. Suitable habitat for this species is limited to the badland areas on the western side of the proposed solar site. The biological reconnaissance survey did not detect this species within the ESMSP solar site or along the linear facilities but this species has a potential to be present within the Project solar site.

4.2.6 Rosy Twotone Beardtongue

The rosy twotone beardtongue (*Penstemon bicolor* ssp. *roseus*) is a perennial herb known in Nevada from Clark and Nye counties. This species is considered BLM sensitive and is on the NNHP At-Risk Tracking List (G3 S2 [NNHP 2016]). This species is found on rocky, calcareous, granitic, or volcanic soils in washes, roadsides, scree at outcrop bases, rock crevices, or similar places receiving enhanced runoff in creosote-bursage, blackbrush, mixed-shrub, Joshua tree woodland, and Mojave Desert communities from 1,800 to 4,084 feet. Suitable habitat for this species exists throughout the ESMSP area and it has the potential to be present within the Project area.

5 Restoration Actions

5.1 Pre-Construction Tasks

As previously described, aspects of the proposed Project occur on Tribal lands within the Moapa River Indian Reservation, on land managed by BLM, and on private land. In instances of cacti and yucca relocation and salvaging, both the Tribe and BLM will be consulted for guidance. Cacti or yucca that occur in areas that are proposed for permanent disturbance may be subject to salvage operations and either transplanted at an approved off-site location, or in areas on-site that are not proposed for disturbance and suitable to supporting these plants. The Tribe will be consulted prior to transplanting cacti or yucca to off-site Tribal lands.

The BLM manages cacti and yucca as special forest products with a commercial value. As appropriate, cacti and yucca that occur in areas proposed for temporary disturbance on BLM land will be removed and maintained onsite until temporary disturbance has concluded and appropriate restoration efforts have occurred to support replanting these plants in their original habitats.

On BLM land, all cacti and yucca planting activities shall be conducted by a qualified salvage contractor. BLM requires contractors to have at least three years of experience in Mojave Desert plant salvaging, including maintaining cacti and yucca. The contractor will also be required to use the BLM salvage protocol (included as **Appendix A**).

5.2 Post-Construction Tasks

Restoration efforts at temporarily disturbed sites will begin as soon as practical after completing the soil disturbing activities for the entire project. For sites that may be disturbed again during the construction phase, temporary soil covering, erosion control, and weed monitoring would occur.

Temporarily disturbed areas are limited to the construction laydown areas, construction trailers, temporary roads, and gen-tie line structure locations and at locations required for conductor stringing, splicing, and pulling operations to accommodate construction of the gen-tie, and do not include the areas where the vegetation has been mowed (e.g. under the solar arrays, where native vegetation will be left in place and mowed to a height of 18 inches leaving the roots intact and construction equipment would drive over and crush the vegetation during installation of the arrays). Temporarily disturbed areas will be reclaimed as much as practicable. Where appropriate, disturbed sites would be recontoured to pre-disturbance elevations and soils would be decompacted. The soil surface would then be textured. Seeding with local and weed-free seed mixes recommended by BIA or BLM would be conducted on suitable areas as necessary during appropriate months following construction. Temporary roads built for construction could be reclaimed or could be maintained for use during the operational life of the Project. The portions of construction roads to be reclaimed would be determined at the end of construction.

All restoration efforts should be implemented as soon as practical after disturbance of a site has concluded and prior to the typical rainy season of late summer and early fall. This will minimize the potential for soil loss and establishment of noxious weeds.

6 Phases of Restoration

Restoration and revegetation activities will occur primarily in two phases; 1) post-construction and 2) post-decommission.

6.1 Post-Construction

Post-construction restoration activities focus on areas that have been temporarily disturbed and will not experience additional surface disturbing activities (e.g. service roads required during construction, equipment and material laydown areas, stringing, splicing, and pulling sites, etc.). The restoration areas do not include areas where the vegetation has been mowed (e.g. under the solar arrays) since the mowing is performed to facilitate regrowth during operations since the roots are left intact. Seeds of native herbaceous plants may be used to revegetate temporary work areas and other areas that will not be disturbed following construction.

6.2 Post-Decommissioning

Post-decommissioning restoration efforts will focus on all areas within the solar facility. Other features that occur beyond the solar facility on BLM administered lands, including roads and transmission lines, will not be restored or revegetated. Post-decommission restoration will be based on similar regulations, guidelines, practices, and techniques as previously described in this report. The goal of post-decommission restoration is to restore the Project site to pre-construction conditions to the greatest extent practicable.

7 Weed Management

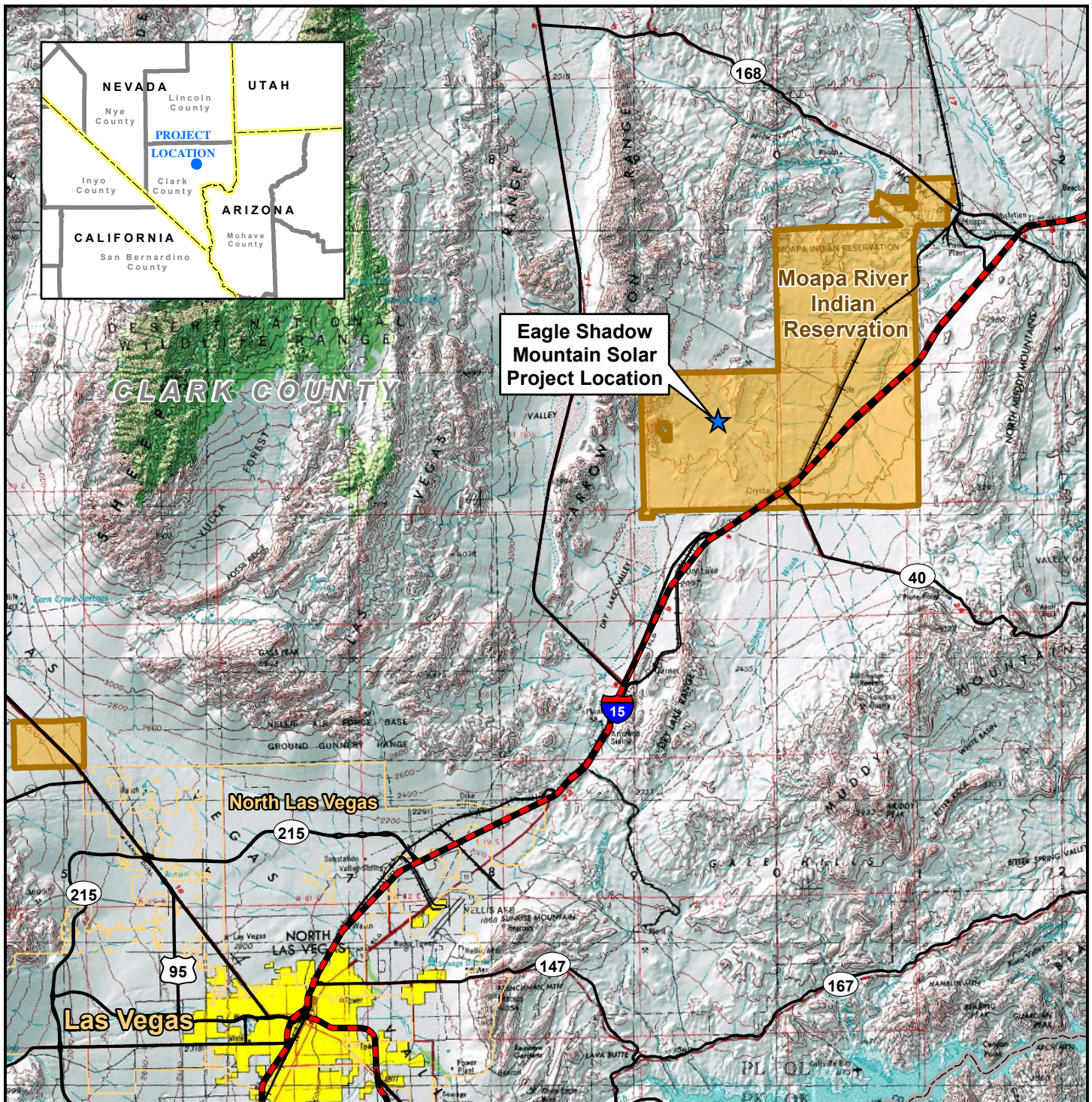
Weed management for this Project will be conducted throughout the life of the Project and in accordance with the Project-specific Weed Management Plan (Appendix F in Draft EIS).

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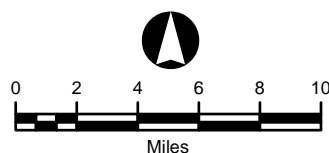
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FIGURES



Legend

- ★ Solar Project Location
- Interstate
- US/ State Highway
- Railroad
- Municipal Boundary
- Jurisdictional Land Ownership
- Indian Reservation



Universal Transverse Mercator
North American Datum 1983
Zone 11 North, Meters

Eagle Shadow Mountain Solar Project

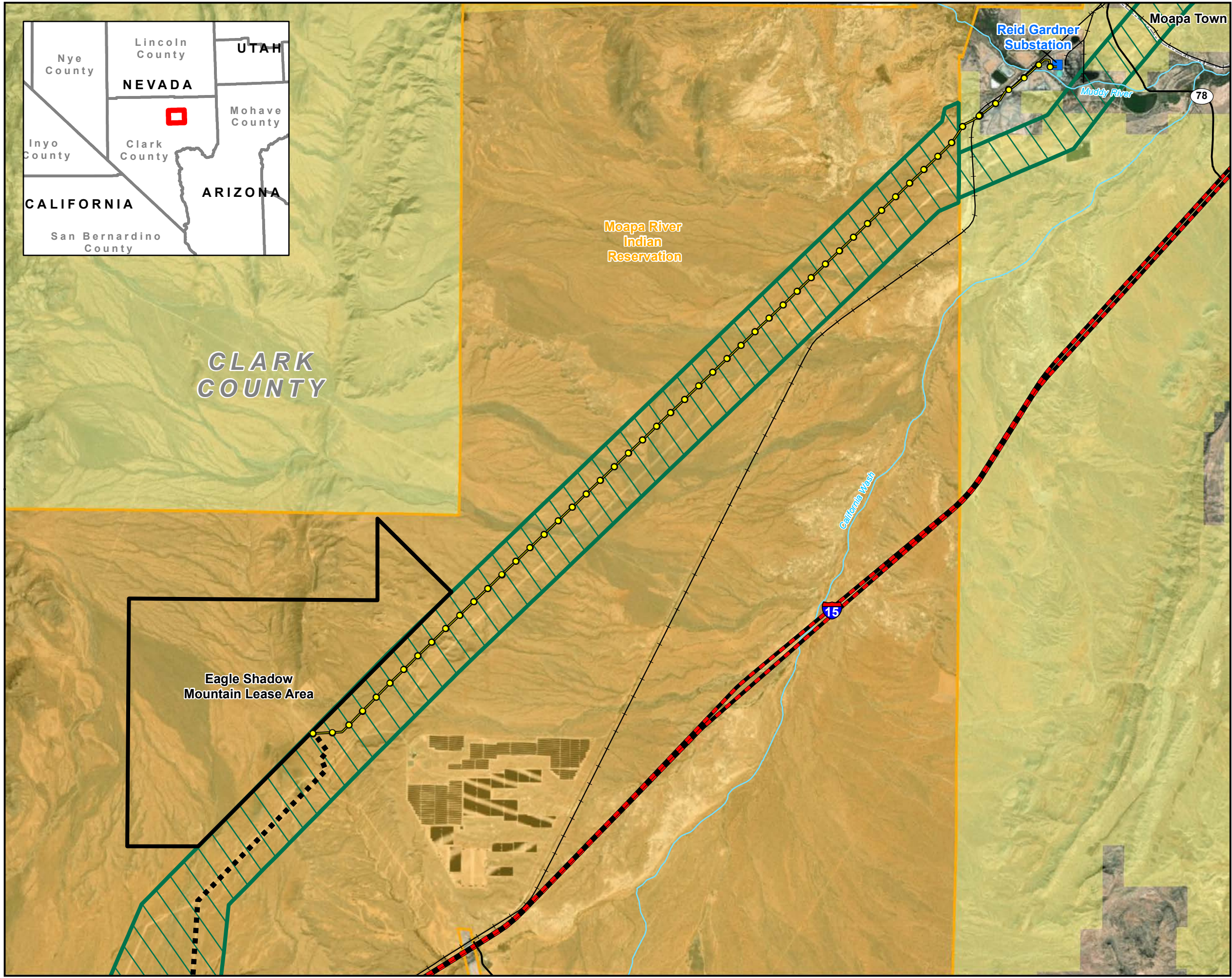
FIGURE 1
PROJECT LOCATION

Map Extent: Clark County, Nevada

Date: 11-06-18

Author: rnc

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Legend

- Project Components
- ESM Gen-Tie - Alternative
 - Eagle Shadow Mountain Solar Project Area
- General Features
- Existing Substation
 - Interstate
 - Major Highway
 - Railroad
 - Stream or River
 - Designated Utility Corridor
 - Municipal Boundary
- Jurisdictional Land Ownership
- Bureau of Land Management Land
 - Indian Reservation
 - Private Lands
- Existing Access Road



Universal Transverse Mercator
North American Datum 1983
Zone 11 North, Meters

**Eagle Shadow Mountain
Solar Project**

Figure 2
ESM Solar Project Components

Map Extent: Clark County, Nevada

Date: 03-20-19	Author: rnc
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APPENDIX A

Plant Species Observed on Proposed Project Site

APPENDIX A	
PLANT SPECIES OBSERVED ON PROPOSED PROJECT SITE	
Common Name	Scientific Name
Creosote bush	<i>Larrea tridentata</i>
White bursage	<i>Ambrosia dumosa</i>
Desert senna	<i>Senna armata</i>
Desert trumpet	<i>Eriogonum inflatum</i>
Big galleta	<i>Pleuraphis rigida</i>
Beavertail pricklypear	<i>Opuntia basilaris</i>
Buckhorn cholla	<i>Cylindropuntia acanthocarpa</i>
Devil's spineflower	<i>Chorizanthe rigida</i>
Desert globemallow	<i>Sphaeralcea ambigua</i>
Catclaw acacia	<i>Acacia greggii</i>
Rough jointfir	<i>Ephedra nevadensis</i>
Compact brome	<i>Bromus madritensis</i>
Mediterranean grass	<i>Schismus barbatus</i>
Threeawn	<i>Aristida purpurea</i>
Desert marigold	<i>Baileya multiradiata</i>
Wingnut cryptanth	<i>Cryptantha pterocarya</i>
Cleftleaf phacelia	<i>Phacelia crenulata</i>
Red brome	<i>Bromus tectorum</i>
Russian thistle	<i>Salsola tragus</i>
Gilia	<i>Gilia sp.</i>
Buckwheat	<i>Eriogonum sp.</i>
Threadleaf snakeweed	<i>Gutierrezia microcephala</i>
Cottontop cactus	<i>Echinocactus polycephalus</i>
Common fishhook cactus	<i>Mammillaria tetracistra</i>
Pincushion flower	<i>Chaenactis fremontii</i>
Brownplume wirelettuce	<i>Stephanomeria pauciflora</i>
Four o'clock	<i>Mirabilis sp.</i>
Desert indianwheat	<i>Plantago ovata</i>
Desert needlegrass	<i>Achnatherum speciosum</i>
Indian ricegrass	<i>Achnatherum hymenoides</i>
Low woollygrass	<i>Erioneuron pulchella</i>
Arrowweed	<i>Pluchea sericea</i>
Honey mesquite	<i>Prosopis glandulara</i>
Tamarisk	<i>Tamarix sp.</i>
Cheesebush	<i>Hymenoclea salsola</i>
Brittlebush	<i>Encelia farinosa</i>
Sahara mustard	<i>Brassica tournefortii</i>
Hedge mustard	<i>Sisymbrium sp.</i>
African mustard	<i>Strigosella africana</i>
Silver cholla	<i>Cylindropuntia echinocarpa</i>
Engelmann's hedgehog cactus	<i>Echinocereus engelmannii</i>
Pencil cholla	<i>Cylindropuntia ramosissima</i>

APPENDIX A	
PLANT SPECIES OBSERVED ON PROPOSED PROJECT SITE	
<i>Common Name</i>	<i>Scientific Name</i>
Clustered barrel cactus	<i>Echinocactus polycephalus</i>
Barrel cactus	<i>Ferocactus cylindraceus</i>
Spiny hopsage	<i>Grayia spinose</i>
Saltlover	<i>Hologeton glomeratus</i>
Ephedra	<i>Ephedra sp.</i>
White-margin sandmat	<i>Chamaesyce albomarginata</i>
Redstem filaree	<i>Erodium cicutarium</i>
Texas filaree	<i>Erodium texanum</i>
Rhatany	<i>Krameria erecta</i>
Purple sage	<i>Salvia dorrii</i>
Winding mariposa lily	<i>Calochortus flexuosus</i>
Apricot mallow	<i>Sphaeralcea ambigua</i>
Plantain	<i>Plantago ovata</i>
Cheatgrass	<i>Bromus tectorum</i>
Wild rhubarb	<i>Rumex hymenosepalus</i>
Box thorn	<i>Lycium andersonii</i>
Mojave Yucca	<i>Yucca schidigera</i>
Source: Newfields 2018, 2019, Heritage 2019	

Appendix K

Raven Control Plan

RAVEN CONTROL PLAN

Eagle Shadow Mountain Solar Project

Clark County, Nevada

June 2019

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Acronyms and Abbreviations

ACEC	Area of Critical Environmental Concern
APLIC	Avian Power Line Interaction Committee
BGEPA	Bald and Golden Eagle Protection Act
BIA	Bureau of Indian Affairs
BLM	Bureau of Land Management
CRMP	Common Raven Management Plan for Energy Development within the BLM Southern Nevada District
EIS	Environmental Impact Statement
ESA	Endangered Species Act
I-15	Interstate 15
kV	Kilovolt
MBTA	Migratory Bird Treaty Act
Mph	Miles per Hour
MW	Megawatt
NDOW	Nevada Department of Wildlife
O&M	Operations and maintenance
PV	Photovoltaic
RCP	Raven Control Plan
ROW	Right of way
SPGP	Solar Power Generation Plant
USFWS	U.S. Fish and Wildlife Service

1 Introduction

1.1 Purpose of the Plan

This Raven Control Plan (RCP) addresses activities at the proposed Eagle Shadow Mountain Solar Project (ESMSP; “Project”) that will occur during construction and operation that may attract the common raven (*Corvus corax*). As summarized below, for activities and structures along the gen-tie line, the project will follow the Common Raven Management Plan for Energy Development within the BLM Southern Nevada District (CRMP) (BLM 2014). The portions of the project on lands controlled by the Moapa Band of Paiute Indians (Band) and private lands will primarily follow the Common Raven Management Plan for Energy Development within the BLM Southern Nevada District CRMP, and the project-specific mitigation measures identified in the EIS. References to “raven” or “common raven” in this RCP should be interpreted to mean the common raven and other avian scavengers.

The desert tortoise (*Gopherus agassizii*) is a federally-listed threatened species known to occur in and proximal to the project area. The proposed project area is not located in designated Critical Habitat for the desert tortoise or in any BLM Area of Critical Environmental Concern (ACEC). This RCP has been developed as a mitigation measure to reduce the effects of common raven and other avian (raptors) predation on the desert tortoise and other native wildlife species as a result of increased human presence, the addition of potential roost and nest site substrate, increased availability of water sources, and facility operation.

The following list summarizes the raven-control avoidance and minimization measures (AMMs) that will be utilized in the design, construction, operational and decommissioning phases of the Project, and are explained in further detail in the body of this RCP.

- Employee, contractor, and visitor special status species (e.g., desert tortoise) and environmental awareness program education;
- Prohibitions on feeding wildlife;
- Trash and litter control;
- Limiting availability of water;
- Anti-perching and nesting – design of transmission line support and other facility structures;
- Removal of nesting material – inactive nests;
- Structure removal at the end of Project; and
- Monitoring and reporting during construction and operational phases.

The boundaries of the Project’s PV solar power generation facility (SPGF) portion, and associated access roads are entirely located on Tribal lands; the Project gen-tie line would include 12.5 miles located on Tribal lands, BLM-administered lands and private lands.

This RCP is being submitted by the Eagle Shadow Mountain Solar Project (325MK 8me LLC (Applicant), a wholly owned subsidiary of 8minutenergy Renewables or project proponent) to the Bureau of Land Management (BLM), Nevada Division of Wildlife (NDOW), United States Fish and Wildlife Service (USFWS), and Bureau of Indian Affairs (BIA) for approval prior to implementation. Once approved, the Applicant and its contractors will be responsible for implementing the plan.

2 Roles and Responsibilities

2.1 General Roles and Responsibilities

All site project employees, contractors, and sub-contractors will be familiar with applicable sections of the RCP and will be responsible for implementing aspects of this RCP. In addition, Project employees and Contractors/Sub-Contractors shall:

- Complete all required Worker Environmental Awareness Program (WEAP) training before starting work; raven management procedures will be a part of the WEAP training;
- Report potential raven control issues to their supervisors;
- Follow raven control procedures including:
 - Strict no littering policies;
 - Minimizing ponding water;
 - Limit speed limits to under 25 mph to reduce the potential for road kill, which attracts birds and increases roosting;
 - Reporting nests and signs of predation to onsite supervisors or environmental staff.

Environmental Managers and/or Construction Supervisors shall:

- Ensure that workers receive appropriate raven management training (including new or transferred personnel);
- Ensure all potential raven nests are identified and that nest surveys are being conducted per this RCP;
- Notify the Site or Corporate Environmental Manager when changes in operation increase the risk of potential raven control issues;
- Monitor work areas for potential raven control issues;
- Enforce raven control requirements in accordance with this plan and all applicable codes, regulations, and standards.

Individuals responsible for general program auditing and reporting include:

- Environmental Managers and Representatives, as they relate to raven control measures,

3 Project Summary

3.1 Project Location

The Proposed Project would be located approximately 30 miles northeast of Las Vegas in Clark County, Nevada (**Figure 1**). The solar project would be located on up to 2,200 acres of tribal trust land, west of I-15 and east of U.S. Highway 93, in Sections 1, 9, 10, 11, 14, 15, 16, 21 and 22 of Township 16 South, Range 64 East. These lands are currently vacant except for roads, pipelines, a tribal aggregate operation, and a well.

The portion of the proposed 12.5-mile gen-tie line located on Tribal lands within the designated utility corridor managed by the BLM occur within Sections 12, 13, and 14 in Township 16 South, Range 64 East; Sections 5, 6, and 7 in Township 16 South, Range 65 East; and Sections 12, 13, 14, 22, 23, 27, 28, 32, and 33 in Township 15 South, Range 65 East. The short segment on Federal lands managed by the BLM would be within Section 7 in Township 16 South, Range 66 East and the portion on private lands owned by NVE adjacent to the Reid-Gardner Substation would be within Sections 5 and 6 in Township 16 South, Range 66 East. All of these lands are adjacent to multiple existing linear electric transmission and pipeline utilities and private lands (owned by NV Energy) adjacent to the Reid-Gardner Substation.

3.2 Project Description

The following describes the major features of the proposed Project (**Figure 2**). For a comprehensive description of the proposed Project, refer to the associated Environmental Impact Statement for the Eagle Shadow Mountain Solar Project for the Project design details.

The Project will consist of an up to 300 megawatt alternating current (MWac) solar energy generating facility using photovoltaic (PV) technology and associated infrastructure. Project components include on-site facilities, off-site facilities, and temporary facilities needed to construct the Project. The solar site would be located entirely on Tribal lands. Major on-site facilities include the solar field comprised of multiple blocks of PV solar panels mounted on single-axis tracking systems, associated inverter and transformer equipment, an energy storage system (ESS), a project substation, and operation and maintenance (O&M) facilities.

The offsite facilities would include an approximately 12.5-mile dual-circuit 230kV gen-tie line located on Tribal lands, BLM-administered lands, and private lands owned by NV Energy. Most of the gen-tie would be within a Federally-designated utility corridor on Tribal lands. This line would require a right-of-way (ROW) width of 125 to 200 feet. The Applicant would construct the gen-tie from the Project substation to a structure located on BLM-administered land in the SW¼ of the NE¼ of Section 7 referred to as the Point of Change of Ownership (POCO). From the POCO structure, the remaining portion of the gen-tie would be constructed by NVE to the Reid Gardner Substation. Additional offsite facilities include an existing road that would provide access to the Project and electric distribution and communication lines. Temporary facilities that would be removed at the end of construction include laydown and construction areas and water storage tanks also located on Tribal lands.

Power produced by the Project would be conveyed to the regional transmission system via the gen-tie interconnection to NVE's existing 230kV Reid-Gardner Substation.

4 Biological and Regulatory Setting

4.1 Biological Setting

As outlined in the EIS, the Project infrastructure may indirectly cause mortality to wildlife by increasing the risk of predation on certain species by native predators such as ravens and raptor species. The list of federally threatened or endangered species occurring in Clark County was reviewed for potential occurrence in and around the project area. Three species listed under the Endangered Species Act (ESA) (1974) and one species protected by the Bald and Golden Eagle Protection Act (BGEPA) were identified as potentially occurring in or around the project area and potentially impacted by the Proposed Project. These include the desert tortoise, Yuma Ridgeway's rail, southwestern willow flycatcher and golden eagle. Surveys for special status species and habitat analysis was conducted for desert tortoise and these surveys confirmed that desert tortoise are present within and near the proposed ESMSP site (Newfields 2018).

The Proposed Project is not near any designated area of critical environmental concerns (ACECs) or other sensitive land use areas. More detail can be found in the Biological Assessment that has been prepared concurrently with the EIS (Appendix L of the EIS).

According to information summarized in the CRMP, over the past four decades local common raven numbers have increased between 1,000 to 1,500%, which is reflective of the economic and urban growth in the Mojave Desert region (Boarman 1993, Boarman 2003). Ravens are known to readily use structures associated with power lines for nesting and perching. Ravens have been demonstrated to prey on hatchling and juvenile desert tortoises by pulling off the head and limbs or pecking holes through the soft carapace or plastron. Coincident to the increase in raven populations, predation on desert tortoise hatchlings and juveniles has shifted the composition of desert tortoise populations to predominantly adults. Avoiding or minimizing the addition of new perch and nest site features and other raven attractants in desert tortoise habitat is an important objective in attempting to reduce desert tortoise predation.

Ravens are the largest of all North American passerine (song) birds, are very intelligent, and highly adaptable to a wide range of habitats and foods, thereby allowing them to thrive in human-altered habitats. The raven is a diurnally active (daytime hours), year-round resident of the Mojave and Great Basin deserts. While ravens are generally omnivores, they are successful predators of arthropods, amphibians, reptiles, birds (adults, chicks, and eggs), and small mammals. In the Mojave Desert, ravens spend an equal amount of time scavenging and live hunting. They have been documented foraging within 1.6 km (one mile) of linear rights-of-way (roads, railways, transmission power lines, and telephone lines) and spending 49 percent of the time foraging directly on linear rights-of-way. When human-subsidized food is present, ravens often concentrate their feeding at these food sources and may travel significantly shorter distances. Ravens typically concentrate their feeding activity in the morning and late afternoon, often coinciding with principal activity periods of species like the desert tortoise.

Raven nest material is made up primarily of sticks from various origins including those broken from a live source or pieces collected from old nests. Nest bases are located on a variety of substrates and are made up of sticks approximating 0.9 m (3 feet) long by 3-25 mm (approximately 1/10 to 1 inch) diameter. Generally, only one brood is raised per year. Nesting, egg hatching, and fledgling of young

may generally span the period of late January through mid-June. Seasonally, the majority of raven predation on desert tortoises can be expected to occur during the spring (April and May) when desert tortoises are most active, and ravens are feeding their young. Data also suggest that ravens in the eastern Mojave Desert spend 75 percent of their foraging time within 400 meters (1300 feet) of their nests. Therefore, the establishment of a new nest can have significant adverse effects on the local juvenile desert tortoise population.

4.2 Regulatory Setting

In addressing impacts involving special status species, avian management considerations include compliance with the Migratory Bird Treaty Act of 1918 (MBTA) and its subsequent amendments (16 U.S.C. 703-711). A 1972 amendment to the MBTA provided legal protection to corvids, which includes the raven. In brief, it is illegal for anyone to take, possess, import, export, transport, sell, purchase, or barter any migratory bird or the parts, nests, or eggs of such a bird except under the terms of a valid permit issued pursuant to Federal regulations. In 2017 the Department of Interior issued a memorandum (M-37050) which found that the MBTA did not prohibit take of covered bird species if the activity causing such take were otherwise legal and the take was incidental to that activity (i.e., takings and/or killings that directly and foreseeable result from, but are not the purpose of, an activity).

It is the mission of the Bureau of Land Management (BLM) to sustain the health, diversity, and productivity of the public lands for the use and enjoyment of present and future generations. Multiple-use activities on BLM-managed lands include but are not limited to recreational uses, mineral extraction, environmental education, livestock grazing, lands and realty actions, and energy development. In considering potential effects associated with the variety of public lands uses, BLM provides policy for certain biological resources in its Manual 6840 - Special Status Species Management (BLM 2008). BLM Manual 6840 establishes policy: 1) to conserve and/or recover species protected under the federal Endangered Species Act (ESA) and the ecosystems on which they depend so that ESA protections are no longer needed for these species; 2) to initiate proactive conservation measures that reduce or eliminate threats to BLM sensitive species to minimize the likelihood and need to list these species under the ESA; and, 3) to manage the species and its habitat, once it is declared sensitive, to minimize or eliminate threats affecting the status of the species or to improve the condition of the species' habitat.

Since the Mojave population of the desert tortoise was ESA-listed as threatened on April 2, 1990 (USFW 1994), the BLM has identified management actions needed to address impacts of various land-use activities. BIA is expected to implement similar actions for desert tortoise on tribal lands. Relative to energy development, potential impacts to the desert tortoise include the installation and operation of power generation facilities, transmission lines and tie-ins (gen-tie lines), and other infrastructure. Particular to power transmission lines, the BLM assesses the potential for direct effects such as take¹ of ESA listed species during project construction, operation and maintenance, habitat loss, and fragmentation. Indirect impacts are attributable to post-construction factors like access-related disturbances introduced by increased frequency of vehicle use on new and existing maintenance roads and increased vulnerability of desert tortoises to predation. In consideration of the latter is the response by mammalian (e.g., coyote, foxes, skunks) and avian predators (e.g., raptors and common ravens) that

commonly investigate project areas to scavenge and hunt displaced or exposed prey. Avian predators often take advantage of the new perching and nesting subsidies afforded by power transmission projects, notably tower structures and substations.

5 Raven Avoidance and Minimization Measures

Avoidance and minimization measures (AMMs) provided in this RCP and provided by the CRMP are designed to discourage raven (and other avian scavenger) presence and use of energy projects while in compliance with the MBTA. Each measure below is based on the recent CRMP issued by the BLM. The following table summarizes the best management practices (BMPs) that the Project will utilize to address each mitigation measure as well as the CRMP guidelines; references to Sections of this RCP to consult for further detail on each BMP are also included in the matrix.

TABLE 1 ESMSP RAVEN CONTROL MITIGATION MATRIX		
BMP#	Site Procedure(s)	RCP Section, Task Assignment and Schedule
1	Education: personnel involved with on-site construction, O&M, and commissioning will be presented a special status species (e.g., desert tortoise) and environmental awareness program prior to initiation of activities.	5.1 – Training will be provided to all employees prior to start of work on site
2	Waste Management: A litter and waste control program shall be implemented to reduce the attractiveness of the area to opportunistic predators such as kit foxes, coyotes, and ravens. Waste and food items will be disposed of properly in predator-proof containers with predator-proof lids. To reduce the possibility of ravens or other scavengers, such as coyotes, from ripping into the bags and exposing waste, plastic bags containing waste will not be left out for pickup. Instead, waste containers will be emptied and removed as needed from the project area and disposed of in an approved landfill. The project area will be kept free of waste for the life of the project. The proponent will also dispose of any animal road-kills on the project site and along the access road as encountered. Because predators are capable of locating and then excavating buried remains, road-kills will be deposited into predator-proof trash bins or another secure method until proper disposal is undertaken	5.2.1 – Project management will ensure appropriate waste and litter containers are readily available and all employees will be trained on the proper waste management policies and procedures
3	Prohibition on Intentionally Feeding Ravens and Other Wildlife: All workers (construction, O&M, and decommissioning) are prohibited from intentionally feeding ravens and other wildlife on and in the vicinity of the project site; this will be communicated in the environmental awareness training program.	5.2.2 – All employees will be instructed on this measure through the awareness program and will be responsible for complying with this measure
4	Limit Availability of Water, Control of Standing Rainwater, Ponding Water, and Construction/Decommissioning Water Storage Pond(s): The project proponent will ensure that ponds constructed for the project, if applicable, are not available to ravens or other wildlife. If evaporation ponds are required during project construction or decommissioning phases, tortoise-proof fencing will be installed around the perimeter of each pond to prevent access by desert tortoises. All ponds will be lined. If project biologists	5.2.3 – All employees will be trained on and expected to follow the proper water control policies and procedures

TABLE 1 ESMSP RAVEN CONTROL MITIGATION MATRIX		
BMP#	Site Procedure(s)	RCP Section, Task Assignment and Schedule
	<p>observe evaporation ponds being utilized by ravens, ponds may need to be covered</p> <p>Water used for dust suppression will be applied at a rate that discourages ponding.</p>	
5	<p>Anti-Perching and Anti Nesting: Transmission line support structures and other facility structures will be designed to discourage their use by raptors for perching or nesting (e.g., by use of anti-perching devices) in accordance with the most current APLIC guidelines (APLIC 2006) and the Avian Power Line Interaction Committee (APLIC 2006) and Reducing Avian Collisions with Power Lines by the U.S. Fish and Wildlife Service and the APLIC (APLIC 2012)¹. Exact locations of perch deterrent poles would be determined in consultation with wildlife agencies prior to construction of the line. For the gen-tie line on BLM land, the applicant will provide BLM the design plan indicating which deterrent types will be used, and BLM will approve the final design based on the best available science.</p> <p>The proponent will remove raven nests that are found on its structures immediately outside of the current breeding season or once a nest is determined inactive in accordance with USFWS, BLM, and NDOW approval.</p>	5.3, 5.4 – The project shall incorporate these designs as required
6	<p>Monitoring and Reporting (Construction): The applicant will follow the CRMP guidelines and inspect all Project structures annually during construction for nesting ravens and other predatory birds and report observations of nests on an annual basis to the appropriate agencies (USFWS, BIA, BLM). Incidental sightings during daily activities by onsite biologists or regular Project personnel will be recorded on standardized data forms.</p>	6.1.1 – The project will follow the CRMP guidelines presented in Section 6.1.1
7	<p>Monitoring and Reporting (Operations): For the gen-tie line: inspections will be conducted monthly during the raven breeding season for three years following construction during operation of the Project per CRMP guidelines, then annually for the life of the project, reporting requirements also apply, and incidental sightings during normal activities by biologists or regular Project personnel will be recorded on standardized data forms.</p>	6.1.2, 6.2 – The project shall follow the CRPM monitoring requirements for the applicable areas of the project
8	<p>Structure Removal Following Decommissioning: All elevated structures related to the project, including poles and towers, will be removed when the project is decommissioned if not utilized as a part of the integral part of the utility power grid.</p>	5.3.2 – This requirement will be met per Section 5.3.2

Implementing the raven AMMs will be the responsibility of the project for the life of the project. AMMs pertaining to construction, operation and maintenance (O&M), and/or decommissioning will be identified as such under each AMM heading below.

5.1 Education

As referenced in the terms and conditions of a project's right-of-way grant and/or other governing permit documents, all personnel involved with on-site construction, O&M, and decommissioning will be presented a special status species (e.g., desert tortoise) and environmental awareness program prior to initiation of activities. The program will include information concerning:

- the biology and distribution of special status species (desert tortoise, or other species as applicable);
- species conservation efforts, regulatory status, and occurrence in the project area;
- the definition of "take" and associated penalties;
- responsibilities of workers, monitors, and biologists;
- reporting procedures to be implemented in case of encounters with desert tortoise and other special status species, or non-compliance with project-related stipulations.

The program will also present information concerning the impact of ravens on the desert tortoise and project-specific AMMs being implemented to discourage the presence of ravens.

5.2 Reduce Access to Food and Water Resources

5.2.1 Waste Management

Waste management will occur during the construction, O&M, and decommissioning phases. A litter and waste control program shall be implemented to reduce the attractiveness of the area to opportunistic predators such as kit foxes, coyotes, and ravens. Waste and food items will be disposed of properly in predator-proof containers with predator-proof lids. To reduce the possibility of ravens or other scavengers, such as coyotes, from ripping into the bags and exposing waste, plastic bags containing waste will not be left out for pickup. Instead waste containers will be emptied and removed as needed from the project area and disposed of in an approved landfill. The project area will be kept free of waste for the life of the project; the gen-tie portion of the Project on BLM-managed land may be inspected by BLM during project renewals or other times.

The proponent will also dispose of any animal road-kills on the project site and along the access road as encountered. Because predators are capable of locating and then excavating buried remains, road-kills will be deposited into predator-proof trash bins or another secure method until proper disposal is undertaken.

5.2.2 Prohibition on Intentionally Feeding Ravens and other Wildlife

All workers (construction, O&M, and decommissioning) are prohibited from intentionally feeding ravens and other wildlife on and in the vicinity of the project site. The project-specific environmental awareness program will inform all personnel that they are prohibited from intentionally feeding ravens, and it will explain why feeding wildlife is detrimental to wildlife in the project area and under certain circumstances it may have public safety implications.

5.2.3 Limit Availability of Water

Water is a highly limited and valuable resource in the desert. Any natural or human-caused available water sources encourage greater visitation by wildlife, including ravens, during drier seasons of the year. While holding or evaporation ponds are not anticipated as part of the proposed project, the project proponent will make reasonable attempts to ensure that any holding or evaporation ponds constructed for the project are not available to ravens or other wildlife. If evaporation ponds are required during project construction or decommissioning phases, tortoise-proof fencing will be installed around the perimeter of each pond to prevent access by desert tortoises. All ponds will be lined. If project biologists observe evaporation or holding ponds being utilized by ravens, ponds may need to be covered or anti-perching devices installed along the perimeter pond fencing.

Truck cleaning areas will be kept free of standing water. Water used for dust suppression or PV panel washing will be applied at a rate that discourages ponding.

5.3 Discourage Nesting

Buildings, signs, utility poles, communication towers, landscape trees, and other structures in the BLM Southern Nevada District have augmented raven nesting opportunities that were otherwise absent or very limited. Over time, the density and distribution of human-related structures and activities over the desert landscapes increased suitable raven nest sites, which consequently resulted in proliferation of raven abundance and distribution. Raven predation on juvenile desert tortoises has been evidenced in the Mojave Desert by direct observations of desert tortoise carcasses and remains under raven nests, and by carcasses discovered having distinctive raven damage (Boarman 1992). Data suggest that ravens in the Mojave Desert spend 75 percent of their foraging time within 400 meters (1300 feet) of their nest (Sherman 1993). Therefore, the establishment of a new nest can have significant adverse effects on the local juvenile desert tortoise population.

5.3.1 Nesting Prevention and Discouragement during Construction and O&M

To prevent nesting on Project structures, the Applicant will implement the following measures during construction and maintain them throughout the O&M phase:

- **Utility structures.** The proponent will remove raven nests that are found on its structures immediately outside of the current breeding season or once a nest is determined inactive in accordance with USFWS, BLM, and NDOW approval, where appropriate. An inactive nest is defined by USFWS as the continuous absence of any adult, egg, or dependent young. The bird breeding season in the Southern Nevada District is generally from February 15 through August 31. Raptors and ravens, however, may breed earlier than February 15. Perch deterrents will also help prevent nesting and are discussed in **Section 5.4 - Discourage Perching**.
- **Building Structures.** The proponent will document when raven nests are found in/on any of the structures associated with the project (as stated under Section 6.0 Monitoring and Reporting).
- **Hazing.** The proponent will emphasize preventing or limiting raven attractants, such as nesting subsidies and artificially introduced food and water resources, rather than active hazing. Unless implemented properly, hazing could have unintended consequences; therefore, hazing will not be implemented.

5.3.2 Discourage Nesting Following Decommissioning

Elevated structures, including utility poles and towers, will be removed when decommissioned and dormant. However, any components of transmission lines that have become integral parts of the utility power grid would continue to be maintained and operated. Those retained components will fall under the annual monitoring and reporting requirements (see Sections 6.1 and 6.2).

5.4 Discourage Perching

Elevated perch locations offer ravens a view of their surroundings and prey below. Vertical structures provide perching opportunities in areas where natural perch sites are otherwise absent or limited. If allowed to perch or roost on new structures, raven predation on the desert tortoise will likely increase. Existing literature presents considerations in selecting perch deterrent designs and local environmental considerations.

Power line support structures and other facility structures shall be designed to discourage their use by ravens for perching or nesting in accordance with the most current APLIC guidelines. Innovation of novel approaches, or improvements to existing designs, which result in effective perch deterrents is encouraged. Deterrent types should be selected based on the most current and best available science. For the gen-tie line on BLM lands, the types of perch deterrents used will be proposed by the applicant and submitted to BLM for approval.

Anti-perching devices will be installed under the scenarios described in the sections below.

5.4.1 Perch Prevention Prior to Construction

As the Proposed Project is not near any designated ACECs or other sensitive land use areas, gen-tie towers are not required to consist of monopoles. New transmission lines that are the only lines on the landscape within non-critical tortoise habitat (and not co-located with existing lines) will have perch deterrents installed (though, note that the majority of the gen-tie line would be collocated with existing lines). The proponent will provide BLM the design plan indicating which deterrent types will be used, and BLM will approve the final design based on the best available science.

5.4.2 Perch Prevention during Construction

Construction activities may create temporary perch sites for ravens by introducing equipment or materials to the landscape that prove suitable for ravens. Area monitoring will evaluate the presence of ravens during construction. Methods for monitoring during construction are outlined under section 6.1.1 - Construction Monitoring. Measures will be taken to reduce the perching suitability of these materials and the location of such materials may be changed if ravens are regularly observed perching on building materials, equipment, waste piles, or other construction debris.

5.4.3 Perch Prevention During O&M

Contingency measures will be implemented on a case-by-case basis, in consultation with the BIA or BLM (as appropriate depending on the location of the area in question), if it becomes apparent that a particular structure is providing a favorable location for perching. This could include, for example,

installation of flight diverters, triangles, cones, and other deterrents to discourage nesting, per the APLIC Guidelines (APLIC 2006) and should be based upon the best available science. The APLIC document discusses the use of devices intended to discourage perching as well as the modification of structures to be avian-safe.

Perching may also occur on other project structures including buildings and fences. If this behavior is being documented in the annual reports (summarized in Section 6), or if desert tortoise remains are reported in these areas, deterrent structures will be installed in order to prevent perching from occurring in the future.

6 Monitoring and Reporting

6.1 Monitoring

The project proponent will monitor for the increased presence of ravens, other potential human subsidized predators in the vicinity of the project area, and frequency of occurrence and behavior in those areas as summarized below. The purpose of the monitoring will be to identify and document the sources of human-created resources and raven activity related to the project.

Inactive nests are not protected by the Migratory Bird Treaty Act (MBTA) and removal would be conducted prior to the next breeding season. Should nesting activity become a long-term issue, alternate measures to discourage nesting activities and removal of nesting materials prior to eggs being laid would be implemented. Prior to removing or relocating any nests, facility personnel would consult with USFWS and when necessary, proper permitting would be obtained. Nests will be identified during the inspection/monitoring with frequencies and duration described in this RCP, and removed during the appropriate time in the breeding season.

6.1.1 Construction Monitoring

Monitoring should focus on all potential attractant areas during construction, including waste disposal areas, erected structures, staging and lay-down sites where large equipment or material may be stored, batch plants and holding or evaporation ponds, any area where water is applied for fugitive dust control and erosion, and where there are recent surface disturbances. This monitoring can be done concomitantly with authorized desert tortoise biologists and/or desert tortoise monitors working on site during construction. Any raven witnessed nesting or perching by the biologists/monitors shall be documented (e.g., time/date accounts, GPS points in UTM's, dated photos). Any tortoise predation witnessed should be documented, as stated below, and BLM and the USFWS should be notified by e-mail or phone within 24 hours.

Biologists/monitors will be instructed to document raven observations during clearance surveys, when monitoring construction activity and environmental compliance, while conducting translocations of desert tortoises, and when monitoring translocated desert tortoises. All incidental observations of raven use along the gen-tie line on BLM lands, nest sightings, and desert tortoise predation during construction will be documented on an Incidental Raven Sighting Form (included in Appendix A of this plan) and submitted to the USFWS, BIA, and BLM (for gen-tie portion located on BLM land) at the end of each calendar year during construction and upon completion of construction.

6.1.2 Operation and Maintenance Monitoring

Monitoring for the entire length of the gen-tie line, both on Tribal and BLM managed lands will conform to the requirements within the CRMP as summarized below. A biologist will be assigned to oversee and conduct raven monitoring and will be responsible for implementing the Plan while ensuring that all monitoring and reporting requirements are met. The biologist, and other project biologists, will conduct surveys for ravens following project construction once operation has begun (pre-construction surveys are not part of this document). Generally, monitoring will consist of personnel conducting vehicular surveys of the project area, the nearby transmission alignments, substations, vertical structures, and

surrounding areas.

6.1.2.1 Gen-Tie Portion of Project

For the gen-tie portion of the project, monitoring will be conducted a minimum of once per month between February and September for 3 years following construction (monitoring reports will be submitted annually to BLM). Data for the gen-tie line will be documented using the Raven Monitoring form, the Bird Nest and Carcass form, and the Dead or Injured Bird form contained in the CRMP and included in Appendix A of this plan. The project biologist(s) working and implementing the Plan shall be approved by the project proponent. Names of the approved biologist(s) shall be submitted to the BLM and resumes made available upon request. All biologists will have the following minimum qualifications:

- A bachelor's degree in biological sciences, zoology, botany, ecology, or a related field and 3 years of experience with biology fieldwork; and,
- At least one year of field experience with biological resources in the Mojave Desert or similar ecosystem.

Specific methods for conducting monitoring are as follows. Roads will be driven slowly searching for ravens, nests, and reproductive behavior (e.g., carrying nest material, courtship, copulation). Binoculars and spotting scopes will be used to observe raven activity on the proponent's lines and/or vertical structures and any adjacent transmission lines/structures. Monitoring must be completed from a vantage point where all potential nesting areas are thoroughly visible. If tower structures contain platforms, the platform material should be grated for see-through visibility from the ground. If platforms are made of opaque material, they will be surveyed from the air or from a vantage point allowing clear viewing of the entire platform. Right-of-way renewal of an existing transmission line (single or multi-conductor configuration) or other vertical structure within desert tortoise habitat, and that is the only line on the landscape (not co-located with other alignments within a corridor), will require monitoring of the transmission line and/or structure for nests during annual maintenance flights and comply with annual reporting requirements.

All raven observations will be documented, including date, time, location (GPS point coordinates in UTM's using Zone 11, NAD 83), habitat, number of individuals, behavior (e.g., courtship, nesting, perching, flocking, foraging), and locations of occupied and potential nests. The location of the nest (GPS point in UTM's, position on structure) and a clear photo will be taken followed immediately by surveys for animal carcasses/remains. The carcass/remains survey will cover a 15-meter radius beginning at the edge of the disturbance footprint (e.g., tower/pole structure) where the nest is located. This area will be walked using 10-meter interval transects. If a desert tortoise carcass is found, BLM (if on BLM-controlled land) and USFWS will be notified within 24 hours by e-mail or phone. Documentation of desert tortoise remains (clear photos of remains in situ, and GPS points in UTM's) will be recorded, along with use-status of the nest (e.g., not in use - abandoned or deteriorating; active and raven attending or sitting in nest, feeding nestlings) and provided to BLM and/or USFWS at time of occurrence. All carcasses, regardless of species, shall be documented on the data form.

The nest should be monitored twice per month until it is inactive. The nest must be removed once determined it is inactive or after the current breeding season is over in accordance with MBTA and USFWS, BLM, and NDOW guidance. An inactive nest is defined by USFWS as the continuous absence of any adult, egg, or dependent young. Monitoring the nest twice per month will allow take of desert tortoises to be quantified. If a nest is found outside of the breeding season, the proponent will be

responsible for removing it. Nest removal may be completed by the proponent or by a contractor. Stick nest materials should be removed well away from the nest site to prevent reuse of materials.

Should ravens be found to habitually prey on desert tortoises or other special status species within the first 3 years following project construction, such matters will be resolved with either use of additional raven deterrents or removal of the offending ravens by the project proponent or its agent. Removal of the offending raven(s) by lethal means will require a depredation permit from the USFWS and is considered a last-resort effort. The proponent may also contract with a person, company, or agency having a current depredation permit to perform lethal removals.

Upon reviewing monitoring data from the first 3 years, subsequent monitoring will be completed during the annual operation and maintenance flight/drive surveys, preferably during the breeding season (February through August). This is a one-time monitoring session per year coinciding with the maintenance flight/drive of the energy project lines. Any nests visible during the annual maintenance flight/drive shall be documented on the data form and relayed to BLM, or BIA, as appropriate. Preventing access to anthropogenic food and water resources; nest monitoring and removal; searches for desert tortoise remains; preventing nesting, and those components of or consistent with the Plan that discourage perching, will remain in effect throughout the duration of the project until decommissioned.

6.2 Reporting

The project applicant will submit monitoring summary reports: 1) for the SPGF, at the end of each calendar year during construction, at completion of construction, and one calendar year following completion of construction; 2) for the gen-tie line monitoring, at the end of the first 3 calendar years once operation has commenced (unless extended by BLM); and 3) for the gen-tie line monitoring, at the end of every calendar year of operation after the first 3 years (to be completed during the maintenance flight/drive); and 4) at the end of every calendar year after decommissioning should structures and components remain. Annual reports are submitted to the BIA, BLM, USFWS, and NDOW as appropriate. The annual reports (standard forms created by BLM) will include:

- Start and end points (UTM coordinates) and dates of monitoring;
- Number and behavior of observed ravens within project area, including:
 - Exact raven nest and perch locations including GPS points in UTM coordinates and photos;
 - Location on the structure (e.g., crossarm, insulator) the nest or perch is located;
 - Photos of the nest;
- Number of nests that were removed in the project area;
- Recommendations for improving raven management in locations where nesting and perching was documented;
- Wildlife mortality/injury attributed to predators, including photos and GPS locations in UTM coordinates;
 - Observations of raven predation on desert tortoises (including diagnostic sign) will be reported to the designated contacts at BLM and USFWS by an e-mail or phone call within 24 hours of the observation.

6.3 ADAPTIVE MANAGEMENT

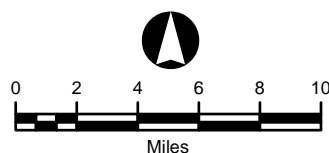
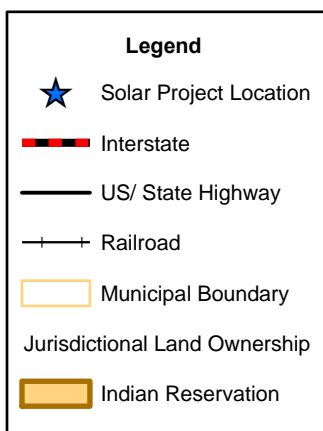
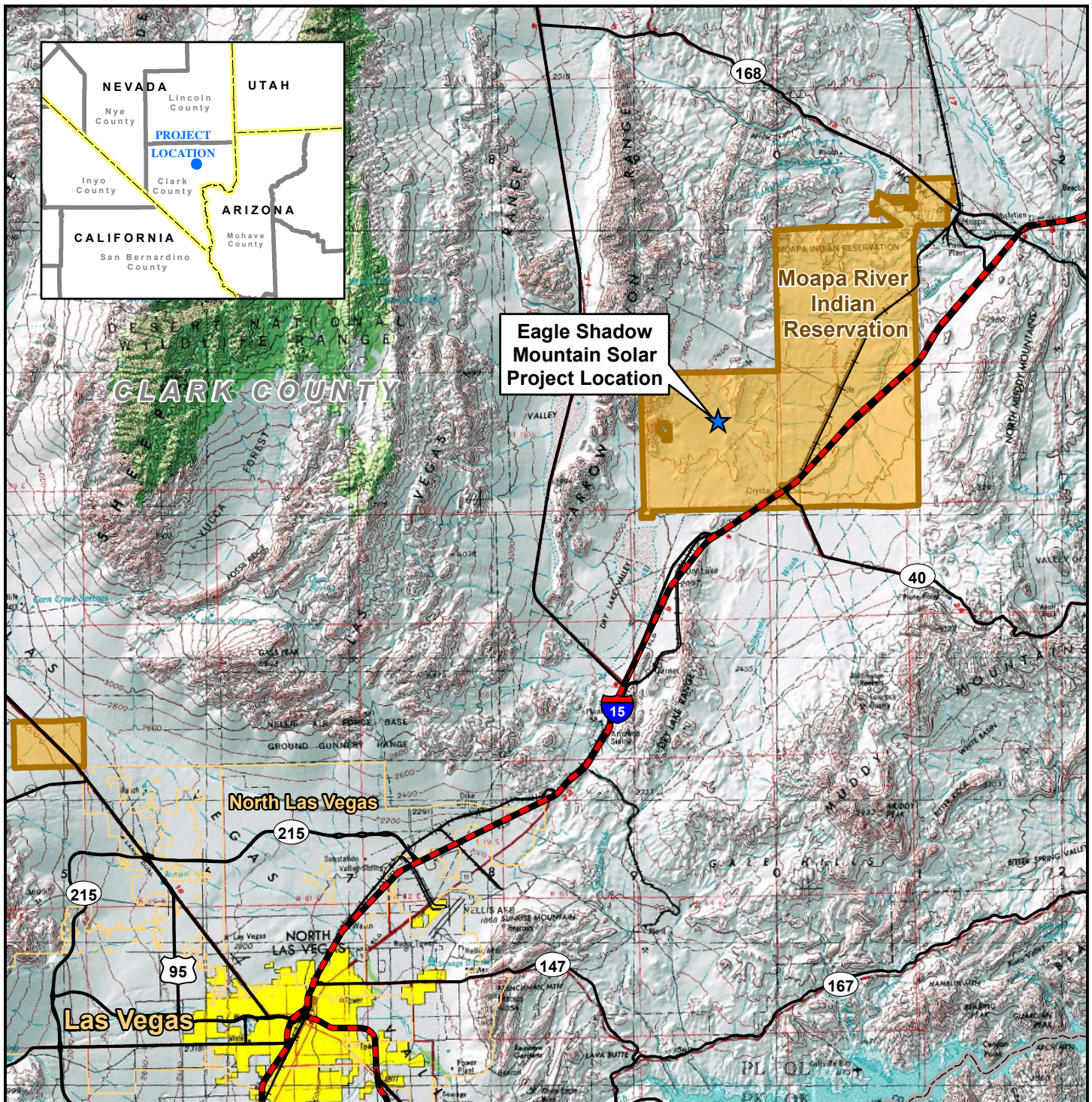
Ravens are famously adaptive, resourceful, and clever; demonstrating problem-solving abilities further necessitating the need for adaptive management. Flexibility and a willingness to adopt new or experimental methods and measures are likely to be crucial for the effectiveness of any long-term raven management plan.

For the project gen-tie line, BLM will review the results of raven AMMs and BMPs in cooperation with the project applicant, and other agencies, as necessary. Because the conservation of the desert tortoise and other special status species identified as vulnerable to raven predation is a high priority, the BLM will determine if changes to project design features are warranted (e.g., installing perch deterrents) during the first 3 years of commercial operation of the project. Adaptive management should be responsive to identified problems occurring within any reporting year. Reports received by BLM interim to annual monitoring reports suggesting that current AMMs and BMPs are ineffective at reducing raven occurrences, will result in action taken to swiftly and effectively resolve the situation.

This Plan is a living document and will be revised and updated as innovative solutions are developed to minimize impacts, agency guidance is adjusted, and/or conditions of the project warrants. Additional, project-specific AMMs may be required by BLM at any time to minimize impacts.

7 References

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Universal Transverse Mercator
North American Datum 1983
Zone 11 North, Meters

Eagle Shadow Mountain Solar Project

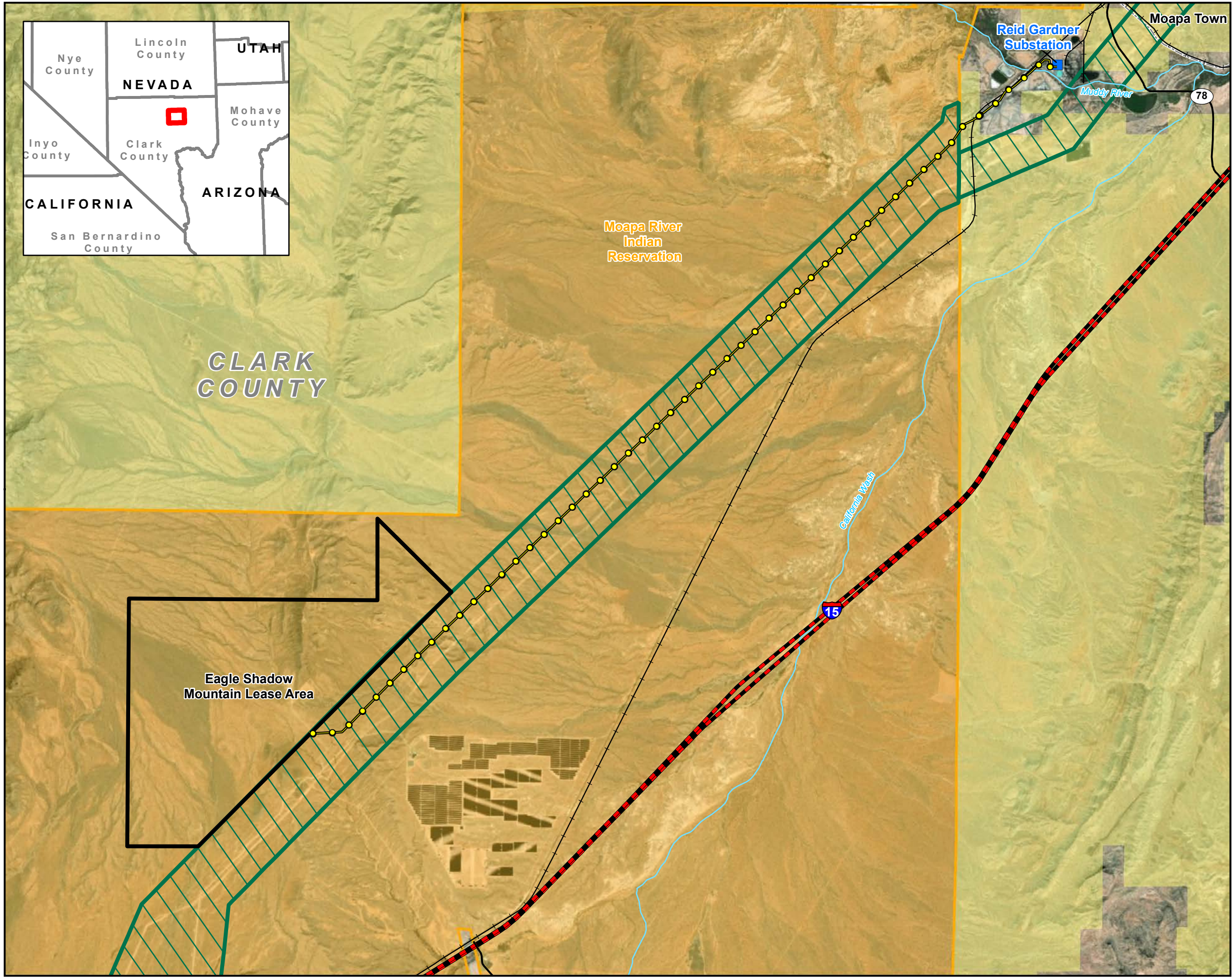
**FIGURE 1
PROJECT LOCATION**

Map Extent: Clark County, Nevada

Date: 11-06-18

Author: rnc

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Legend

- Project Components
- ESM Gen-Tie - Alternative
 - Eagle Shadow Mountain Solar Project Area

- General Features
- Existing Substation
 - Interstate
 - Major Highway
 - Railroad
 - Stream or River
 - Designated Utility Corridor
 - Municipal Boundary

- Jurisdictional Land Ownership
- Bureau of Land Management Land
 - Indian Reservation
 - Private Lands



Universal Transverse Mercator
North American Datum 1983
Zone 11 North, Meters

Eagle Shadow Mountain Solar Project

Figure 2
ESM Solar Project Components

Map Extent: Clark County, Nevada

Date: 03-20-19	Author: rnc
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APPENDIX A
RAVEN MONITORING AND REPORTING FORMS

[illegible]

[illegible]

Incidental Raven Sighting Form

Project Name: _____

Case File #: _____ Biological Opinion #: _____

Date found: _____ Time found: _____

Biologists: _____

[illegible]

[illegible]

Bird Nest and Carcass Form

Project Name: _____

Case File #: _____ Biological Opinion #: _____

Date found: _____ Time found: _____

Biologists: _____

* Make sure to take photos * *Report tortoise carcasses to BLM and USFWS within 24 hours of observation*

NEST Active _____ Inactive _____ Partial _____ Unknown _____

If active, what species was witnessed? _____

Activity witnessed _____

Are eggs or young apparent? If so, please describe. _____

Condition of nest _____

Structure & Location
(Cross arm, top of pole...)

Location in UTM's (NAD83 Zone 11) _____

What would prevent future nesting? _____

Comments _____

CARCASSES

Found during 15-meter Carcass Survey

*** Take photo of each carcass ***

[illegible]

Dead or Injured Bird Form

Project Name: _____

Case File #: _____ Biological Opinion #: _____

Date found: _____ Time found: _____

Biologists: _____

* Make sure to take photos *

* Report mortalities and injuries: <https://birdreport.fws.gov/> *

BIRD #

Species _____ Bird Count _____

Sign of death or injury (circle one)

Collision Electrocution Unknown Other _____

Location in UTM's _____

What could have prevented this? _____
(Cover transformer, install insulator cover, install perch deterrent...)

Weather conditions at time of death if known _____

Comments _____

BIRD #

Species _____ Bird Count _____

Sign of death or injury (circle one)

Collision Electrocution Unknown Other _____

Location in UTM's _____

What could have prevented this? _____
(Cover transformer, install insulator cover, install perch deterrent...)

Weather conditions at time of death if known _____

Comments _____

Appendix L

Biological Assessment

Biological Assessment

Eagle Shadow Mountain Solar Project



Prepared for:

Bureau of Indian Affairs Western Regional Office
2600 N. Central Avenue
Phoenix, AZ 85004-3050

June 2019

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Appendix A – USFWS Species List

1.0 INTRODUCTION

The purpose of this Biological Assessment (BA) is to review the Eagle Shadow Mountain Solar Project (ESMSP or Project) and to determine to what extent the Project would affect federally listed threatened or endangered species; species proposed for listing; and/or designated or proposed critical habitat. The Project would use land held in trust by the Bureau of Indian Affairs (BIA) for the benefit of the Moapa Band of Paiutes (Band).

The proposed Project would be located approximately 30 miles northeast of Las Vegas in Clark County, Nevada (**Figure 1-1**), west of I-15 and east of U.S. Highway 93. The ESMSP would be located on up to 2,200 leased acres within an area of approximately 4,770 acres on the Reservation in Sections 1, 9, 10, 11, 14, 15, 16, 21 and 22 of Township 16 South, Range 64 East, Mount Diablo Base Meridian. These lands are currently vacant except for roads, pipelines, a tribal aggregate mine, and two operating water wells. These lands and facilities would be excluded from the final lease area.

The proposed 12.5-mile gen-tie line would be located in Township 16 South, Ranges 64 and 65 East and Township 15 South, Ranges 65 and 66 East. The gen-tie line would be located within an existing utility corridor, adjacent to multiple existing linear electric transmission and pipeline utilities. **Figure 1-2** shows the location of the proposed components of the Project and associated facilities. Project components would include onsite facilities, offsite facilities, and temporary facilities needed to construct the Project.

Project components on Tribal land would include the solar facility and the majority of the generation-tie transmission line (gen-tie). The remaining portion of the gen-tie and associated facilities would be on land managed by the Bureau of Land Management (BLM) and private land. As such, this BA has been prepared in coordination with both BIA and BLM for submittal to the U.S. Fish and Wildlife Service (USFWS).

1.1 Project Overview

325MK 8me LLC (“Applicant”), a subsidiary of 8minutenergy, proposes to construct, operate, maintain, and decommission the Project, consisting of up to a 300-megawatt (MW) alternating current (AC) solar photovoltaic (PV) power generating facility on approximately 2,200 acres of land on the Moapa River Indian Reservation (Reservation) in Clark County, Nevada (**Figure 1-1**). Major Project components include the following:

- Solar field
- Onsite substation
- Operation and maintenance (O&M) facilities
- 230-kilovolt (kV) gen-tie
- Short access roads
- Electric distribution and communication lines
- Temporary construction facilities including staging areas.

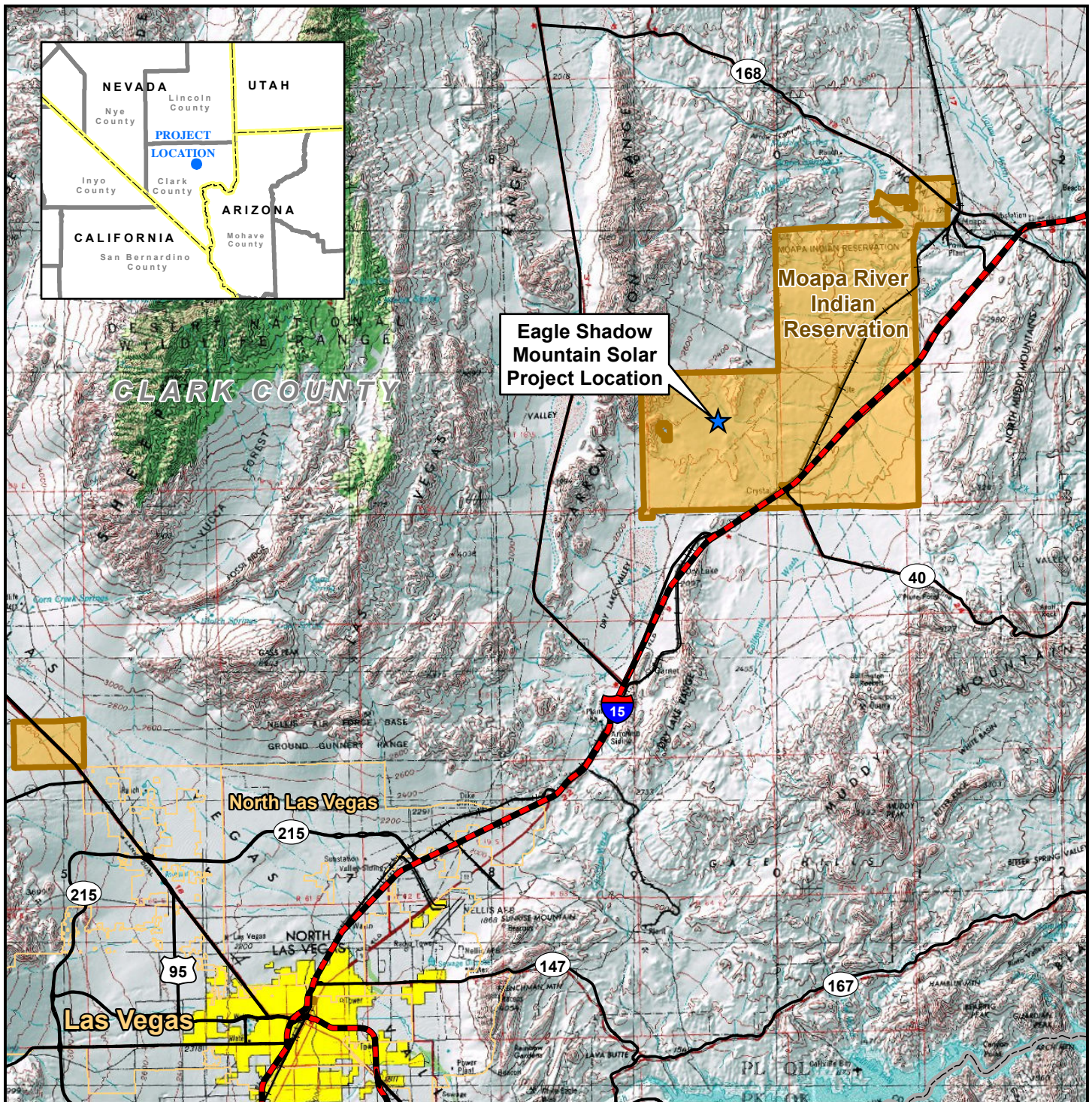
A complete Project description is presented in Chapter 2 of this BA.

Power produced by the Project would be conveyed to the Nevada Power bulk transmission system via the gen-tie, which would interconnect to the existing Reid-Gardner Substation.

1.2 Consultation History

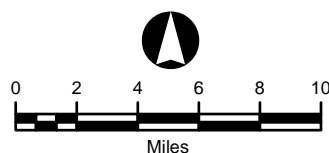
On May 9, 2019, a list of species that may occur within the Project area was obtained from the USFWS website Information for Planning and Consultation System (IPaC) (**Appendix A**) and other species were considered due to proximity to the Project area (USFWS 2019). **Table 1-1** lists these species, their status, critical habitat (if any) and proximity of the same to the proposed Project area, and the recommended effects determination.

Additionally, the applicant met with USFWS on March 6, 2019, at the USFWS Las Vegas Field Office to discuss the Section 7 process, timing, options for tortoise relocation and potential project designs that would minimize impacts to desert tortoise. Attendees included Carla Wise (USFWS, Las Vegas Field Office), Roy Averill-Murray (USFWS Desert Tortoise Recovery Office, Reno), Chip Lewis (BIA), Tamara Dawes (BIA), Christina Varela (BIA), Jason Moretz (8Minutenergy), Luke Shillington (8Minutenergy), Randy Schroeder (EnValue), Patrick Golden (EnValue), and Patricia McCabe (Logan Simpson).



Legend

- ★ Solar Project Location
- Interstate
- US/ State Highway
- Railroad
- Municipal Boundary
- Jurisdictional Land Ownership
- Indian Reservation



Universal Transverse Mercator
North American Datum 1983
Zone 11 North, Meters

Eagle Shadow Mountain Solar Project

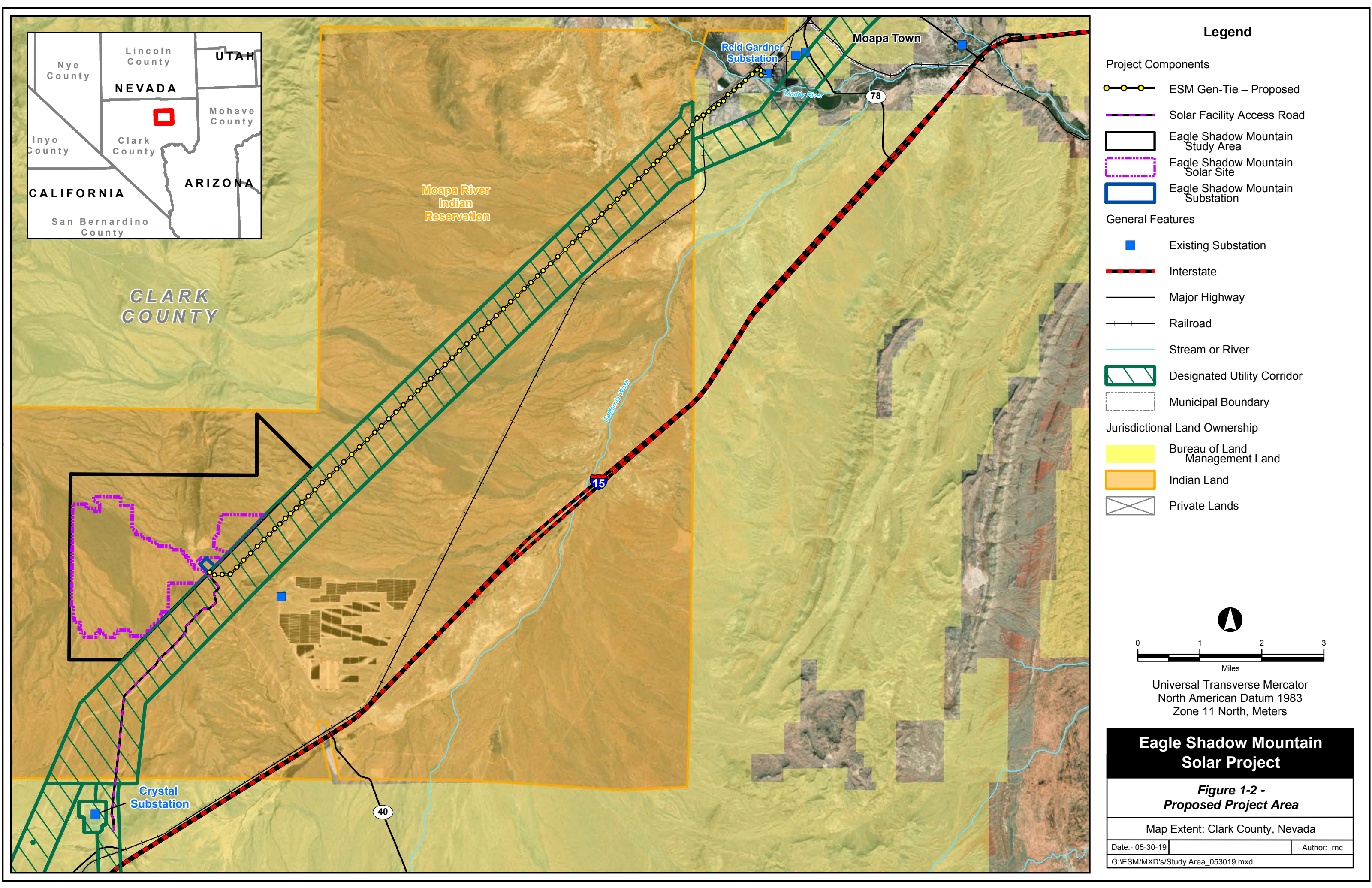
**FIGURE 1-1
PROJECT LOCATION**

Map Extent: Clark County, Nevada

Date: 11-06-18

Author: rnc

G:\Eagle Shadow Mountain Solar Project\MXD's\Project Location 8.5x11 110618.mxd



**Table 1-1
LISTED SPECIES CONSIDERED**

Species	Status	Critical Habitat/Location	Recommended Determination of Effects
Birds			
Yellow-billed cuckoo (<i>Coccyzus americanus</i>) Population: Western U.S. Distinct Population Unit	Threatened	USFWS Proposed Critical Habitat located approximately 5 miles northwest of the gen-tie line.	<i>May affect, not likely to adversely affect</i> <i>No effect to proposed critical habitat</i>
Yuma clapper (Ridgway's) rail (<i>Rallus longirostris yumanensis</i>) Population: U.S. only	Endangered	No USFWS Designated Critical Habitat	<i>May affect, not likely to adversely affect</i>
Southwestern willow flycatcher (<i>Empidonax trailii extimus</i>)	Endangered	USFWS Designated Critical Habitat approximately 20 miles east of the Project area	<i>May affect, not likely to adversely affect</i> <i>No effect to designated critical habitat</i>
Reptiles			
Desert tortoise (<i>Gopherus agassizii</i>) Mojave population	Threatened	USFWS designated Critical Habitat approximately 10 miles west of the Project area	<i>May affect, likely to adversely affect</i> <i>No effect to designated critical habitat</i>
Fish			
Moapa dace (<i>Moapa coriacea</i>)	Endangered	No USFWS Designated Critical Habitat	<i>May affect, likely to adversely affect</i>

* Yellow-billed cuckoo and Moapa dace were not included in the USFWS official species letter but are addressed in this BA due to the proximity of the species' ranges/proposed critical habitat to the project area.

2.0 DESCRIPTION OF THE PROPOSED ACTION

This chapter provides a detailed description of the proposed Project. It describes the various components of the Project and includes discussions of the proposed construction process, O&M procedures, and decommissioning.

The solar site would be located entirely on the Reservation. Major onsite facilities include a 300MW AC solar field comprised of multiple blocks of PV solar panels mounted on single-axis tracking systems, associated inverter and transformer equipment, an energy storage system (ESS), a project substation, and O&M facilities. The offsite facilities would include an approximately 12.5-mile single- or dual-circuit 230kV gen-tie located on the Reservation, BLM-administered lands, and private lands. Most of the gen-tie would be within a Federally-designated utility corridor on the Reservation. This line would require a ROW width of 125 to 200 feet. Additional offsite facilities include an existing road that would provide access to the Project and electric distribution and communication lines. Temporary facilities that would be removed at the end of construction include laydown and construction areas and water storage tanks also located on the Reservation. **Table 2-1** summarizes the principle components of the Project and the associated agency actions.

Power produced by the Project would be conveyed to the regional transmission system via the gen-tie interconnection to NV Energy's existing 230kV Reid Gardner Substation.

In addition to the Federal agency jurisdictions mentioned above, the approximately 1.3-mile portion of the gen-tie crossing private lands would be subject to Clark County jurisdiction and would require a Special Use Permit (SUP).

The Project would include the following onsite key elements located within the 2,200-acre solar lease boundary, which are discussed further below. Onsite facilities would impact only a portion of the 2,200-acre lease area (solar site).

- Solar Field
- Energy Storage System
- Onsite Electrical Collection System and Substation
- Site Security and Fencing
- Communication Systems Infrastructure
- Operations and Maintenance Area
- Internal Project Roads
- Lighting
- Water Supply
- Wastewater Treatment
- Waste and Hazardous Materials Management
- Fire Protection

Table 2-1
SUMMARY OF AGENCY LANDS / JURISDICTION
PROPOSED EAGLE SHADOW MOUNTAIN SOLAR PROJECT

Agency	Project Component	Location	Agency Action	Mileage / Acreage *
BIA	Solar Field	Reservation	Lease	Up to 2,200 acres
	230 kV Line	Reservation	ROW	Up to 0.1 miles / 2.4 acres
	TOTAL BIA			2,202.4 acres
BLM	230 kV Line	Designated Utility Corridor on Tribal Lands and managed by BLM	ROW	10.8 miles / 261 acres
	230 kV Line	BLM Lands	ROW	0.3 miles / 8.1 acres
	Site Access Road	Designated Utility Corridor on Tribal Lands and managed by BLM	ROW	4.2 miles / 12.1 acres
	Site Access Road	BLM Lands	ROW	0.8 miles / 2.2 acres
	TOTAL BLM			16.1 miles / 283 acres
PRIVATE	230 kV Line	Private Lands owned by NV Energy	N/A	1.3 miles / 8.1 acres
	TOTAL Private			1.3 miles / 8.1 acres

* Acreage and mileage are approximate. Gen-tie acreage is based on a 200-foot ROW and only a portion of the ROW would be disturbed. Access road is existing – no new impacts expected by ROW issued for its use. Only a portion of the 2,200-acre potential solar site and lease area would be permanently disturbed by the final footprint of the solar project.

The Project would include the following offsite key elements located outside of the 2,200-acre solar lease boundary, which are discussed further below:

- 230kV Transmission Line (Gen-Tie) and Access/Spur Roads
- Site Access Road
- The Project would also include the following temporary key elements associated with construction that would be removed once construction is complete:
 - Contractor use areas on the solar field
 - Contractor use areas along gen-tie line

The total acreage of temporary and permanent disturbance associated with the ESMSP facilities is summarized in **Table 2-2**.

Table 2-2
TEMPORARY AND PERMANENT DISTURBANCE

Project Component	Temporary Disturbance (acres)	Permanent Disturbance (acres)
<u>Solar Field and Ancillary Facilities</u>		
Tracker Posts	0	5
Inverter Skids	0	2
Misc. Laydown	0	3
O&M/Parking/Laydown	0	3
Substation	0	17
Energy Storage System (BESS)	0	15
Solar Facility Access Roads	0	55
Solar Facility and Ancillary Facilities	2,086	0
Subtotal	2,086¹	100²
<u>230kV Gen-Tie Line</u>		
Access Road	2	5.9
Structure Work Areas	12.5	0
SAG and Tension	11.6	0
Structures	0	1.1
Subtotal	26	7
Total	2,112	107

¹ The solar field includes all facilities within its boundary including solar arrays, internal site roads, substation, O&M facility, and all associated components.

² These acres would be graded and kept free of vegetation for the duration of operations while the remainder would not be graded with vegetation left in place.

Development of the ESMSP would include implementation of best management practices (BMPs) designed to guide project planning, construction activities, and operation of facilities to minimize environmental impacts. The BMPs and other design features incorporated into the ESMSP are summarized in **Appendix C** of the EIS.

2.1 Onsite Project Facilities

2.1.1 Solar Field

The solar field would include mounted PV modules, inverters, and transformers that would be combined to form array blocks approximately 3 MW in size (block size may change based on final design). The blocks would be repeated to create up to 300 MW of AC electrical capacity. Inverter stations are generally located centrally within the blocks. Blocks would produce direct electrical current (DC), which is converted to alternating electrical current (AC) at the inverter stations. **Figure 2-1** shows the conceptual site plan for the ESMSP solar field.

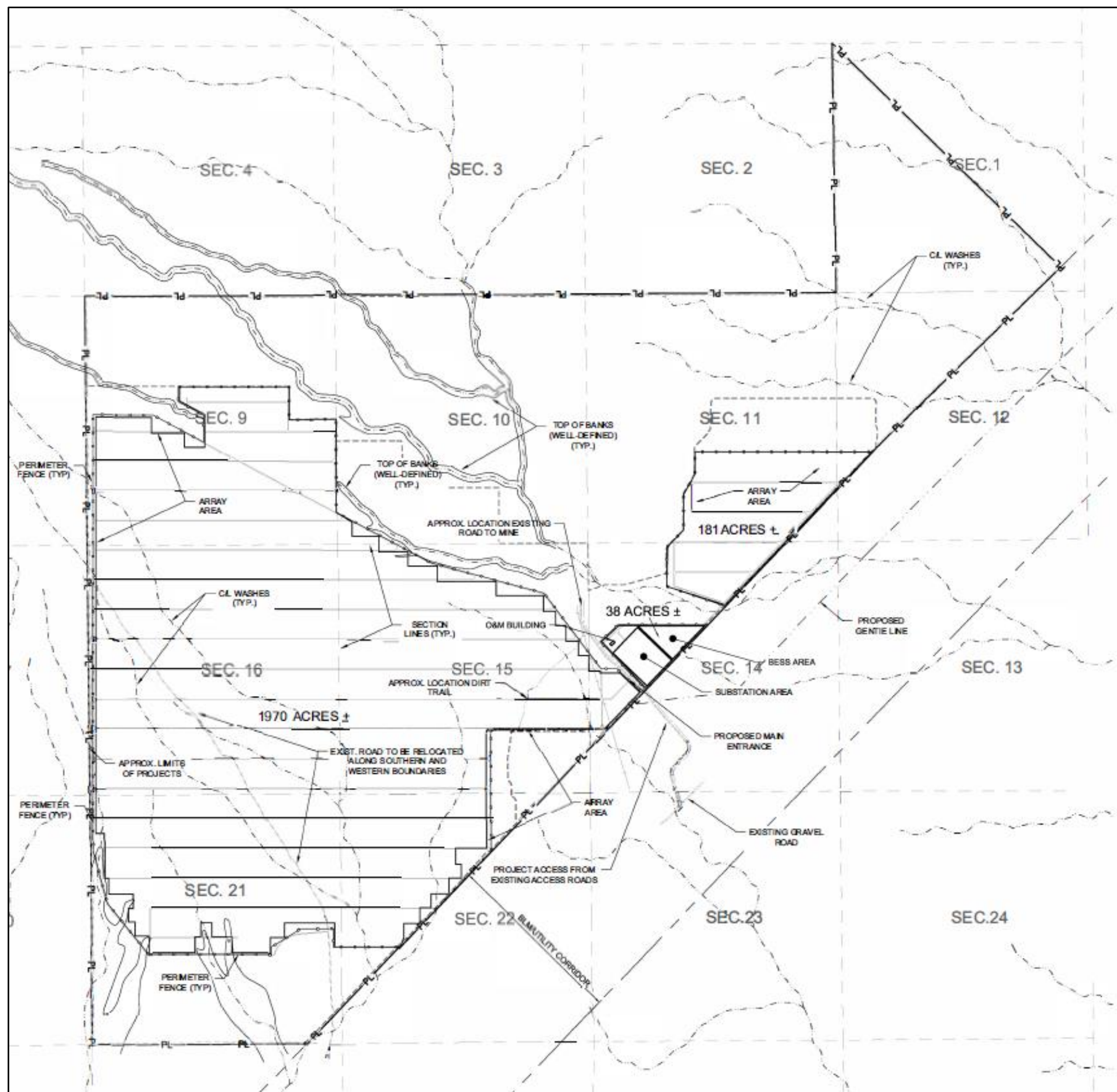
The Project would be constructed using photovoltaic panels or modules that convert sunlight directly into electricity. Panels would be installed on single-axis tracker mount systems oriented in north-south rows that would rotate to follow the sun over the course of the day.

The foundations for the mounting structures would be embedded driven steel posts or other embedded foundation design approximately 8 feet below ground, depending on the structure, soil conditions, and wind loads, and may be encased in concrete or utilize small concrete footings. Final solar panel layout and spacing would be optimized for site characteristics and the desired energy production profile.

A typical panel array layout using single-axis trackers is shown on **Figure 2-2**. The highest point for a tracker would be achieved during the morning and evening hours when the trackers are tilted at their maximum angle and would be up to 20 feet above the ground surface depending on the grade where the posts are installed (**Figure 2-3**). The preferred mounting configuration would use directly embedded driven posts with concrete piers or screw anchors used only if subsurface conditions do not support driven posts.

In the tracking system, each tracker panel array would be powered by a low-voltage electric drive motor. The motors would normally be operated for a few seconds every 5 to 10 minutes during daylight conditions to move the panels in approximately one-degree increments.

Meteorological monitoring stations located at multiple locations (up to 7) within the solar array would monitor wind speed and communicate with the tracker units. This would allow for the trackers to rotate to a flat position during high winds. Meteorological stations would be mounted on or around the inverter units and would not exceed 16 feet in height from the ground.



GENERAL NOTES

1. ALL DIMENSIONS SHOWN ARE APPROXIMATE AND SUBJECT TO CHANGE.
2. ALL EQUIPMENT SELECTION AND SPECIFICATIONS SUBJECT TO CHANGE WITH FINAL DESIGN.

LEGEND

EXISTING		NEW
○	ELECTRICAL/TELEPHONE POLE	●
— OWE —	OVERHEAD POWER LINE	— OWE —
—	UNDERGROUND POWER LINE	—
—	EXISTING FENCE	—
—	NEW CHAIN LINK FENCE	— □ —
—	PROPERTY LINE	—
—	SETBACK LINE	—
—	CENTERLINE	—
---	STREAM / WATER COURSE	---
— 215 —	MAJOR CONTOURS	— 215 —
— 214 —	MINOR CONTOURS	— 214 —
---	SECTION LINE	---

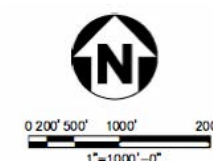


Figure 2-1
Conceptual Site Plan
Eagle Shadow Mountain Solar Project

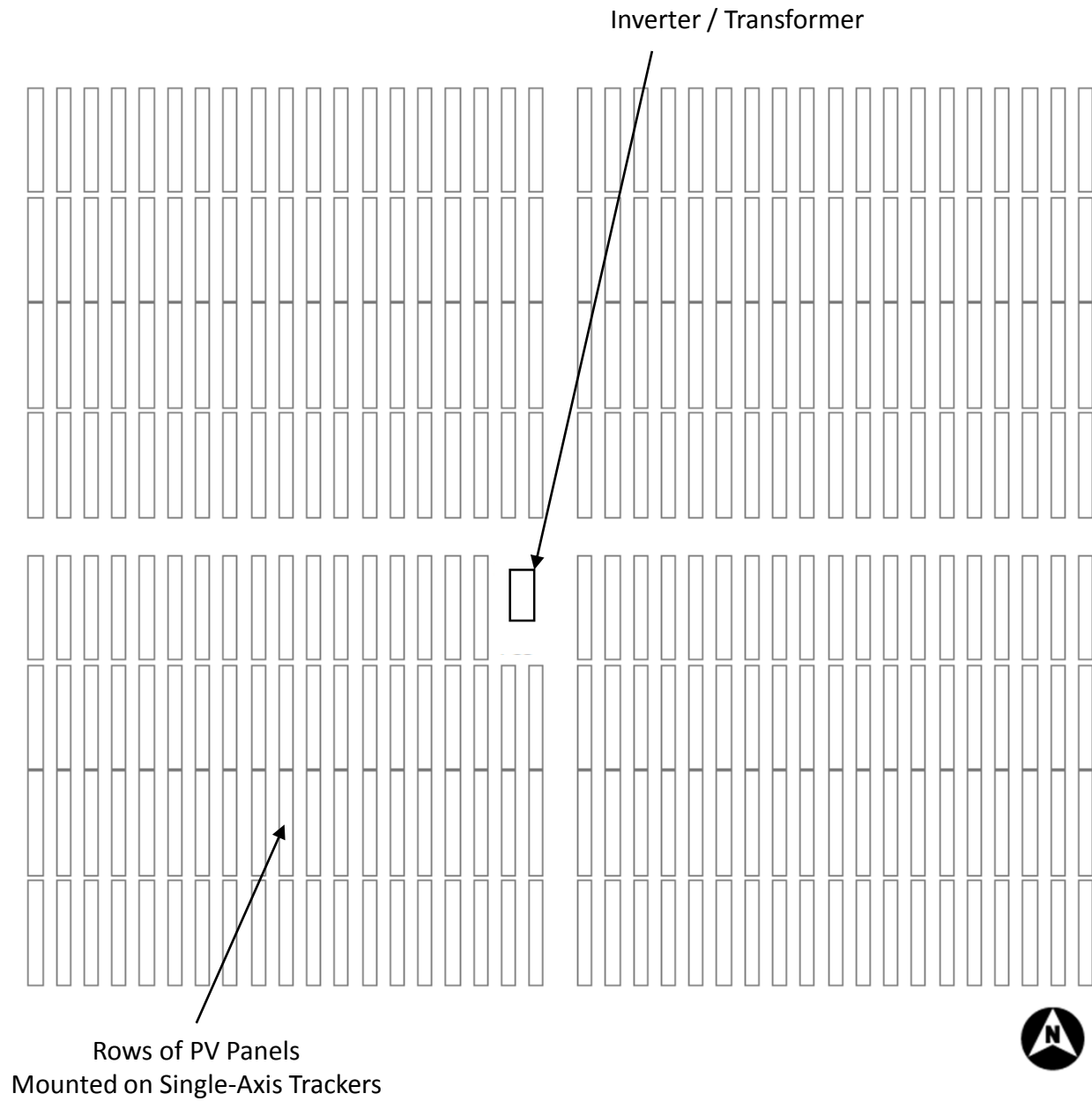


Figure 2-2
Typical Single-Axis Tracker Array Layout

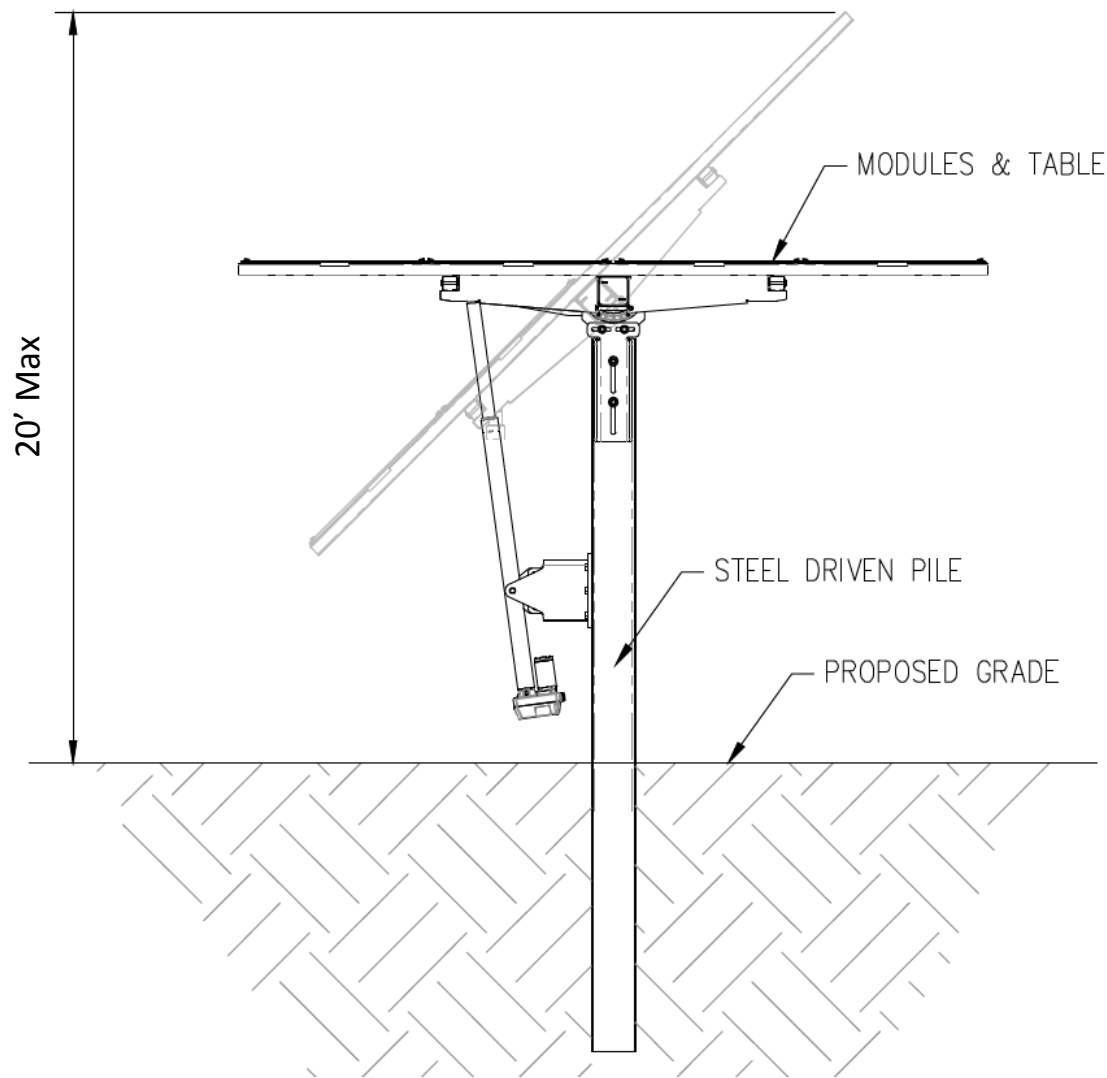


Figure 2-3
Typical Single-Axis Tracker Cross Sectional View

2.1.2 Energy Storage System

The ESMSP may include one or more ESSs, located onsite. The ESSs would consist of modular and scalable battery packs and battery control systems that conform to national safety standards. The ESS modules, which may include commercially available flow batteries, typically consist of industry-standard containers (approximately 40 feet x 8 feet x 8 feet) in pad- or post-mounted, stackable metal structures, but could also be housed in a dedicated building in compliance with applicable regulations. The maximum height of a building is not expected to exceed 25 feet. The actual dimensions and number of energy storage modules and structures would vary depending on the application, supplier, chosen configuration, and applicable building standards.

2.1.3 Electrical Collection System and Substation

PV modules convert sunlight into DC electricity. The DC electricity generated from the PV modules in each array block would be collected and delivered through underground or above ground cables to a station near the center of the array where an inverter converts the DC electricity to AC electricity and a medium-voltage transformer steps up the voltage to 34.5 kV. This converted AC electricity then would be delivered to the onsite substation via the 34.5 kV AC collection system. At the substation, the electricity again would be stepped up to 230 kV for delivery to NV Energy's transmission grid.

The inverter units would have a rated power of up to 3 MW each, a unit transformer, and voltage switch gear. The unit transformer and voltage switch gear would be housed in steel enclosures, while the inverter unit(s) would be housed in cabinets. The inverter station could also be within an enclosed or canopied metal structure on a skid or concrete mounted pad.

The 34.5 kV collector system would be installed either as overhead single- or double-circuit lines and fiber optic communication lines on wood poles with post insulators and underground in trenches depending on soil characteristics. The 34.5kV alternating current (AC) collection system would convey electricity from the Inverter Stations to the onsite substation. Pole height would be up to 75 feet above grade and approximately 150-foot spacing between poles and perch deterrents would be installed to prevent perching and predation. Wood poles typically would be directly embedded to 10 percent of the pole height plus two feet. If the collector system is buried in trenches, the cabling and fiber optic lines would be buried as deep as 4 feet in trenches as wide as 10 feet depending on the number of circuits being collected.

The onsite Project substation would fully contain several components including auxiliary power transformers, distribution cabinets, revenue metering systems, a microwave transmission tower, voltage switch gear, a small control building, and a mechanical electrical equipment room. The substation would occupy an area of approximately 17 acres and would be secured separately by an additional chain-link fence. The proposed location of the Project substation would be near the main site entrance as shown on **Figure 1-2**.

2.1.4 Site Security and Fencing

The Project site would be enclosed within a chain link fence, potentially with barbed wire, measuring up to eight feet in height (from finished grade). The fence would have controlled access points, lighting, and possibly security alarms, security camera systems with remote monitoring, and security guard vehicle

patrols to deter trespassing and/or unauthorized activities. Additional fencing also would be installed around the onsite substation.

Temporary desert tortoise exclusion fencing would be installed immediately outside of the chain link perimeter fence during construction. The permanent perimeter fence would be installed to leave an 8 inch opening at the bottom of the fence to allow the movement of desert tortoises across and through the site when the temporary tortoise fence is removed following construction. The specifications for the perimeter fencing would be determined through consultation with the USFWS. Substation fencing would include approved desert tortoise exclusion fencing to prevent tortoises from entering the substation.

2.1.5 Communication Systems Infrastructure

Telecommunications systems would be installed at the Project substation consisting of a remote terminal unit (RTU) and equipment necessary for the solar facility. This equipment would include a communications line (i.e., T-1 line), a microwave receiver mounted on the control building or on a lattice tower up to 100 feet tall, and miscellaneous communication cables and link equipment, as required. Fiber optics would be installed in one of the shield wires of the gen-tie line to link the project substation to the Reid Gardner Substation. Support equipment (i.e., metering class current transformers and potential transformers) would also be installed to facilitate metering of all applicable energy outputs. In addition, an up to 100-foot tall lattice structure may be erected near the substation/control building to facilitate wireless communications to provide a back-up option for site telecommunications.

The Project would have a Supervisory Control and Data Acquisition (SCADA) system that would allow for the remote monitoring and control of inverters and other Project components. The SCADA system would be able to monitor Project output and availability and to run diagnostics on the equipment. This equipment would be located in the O&M building and would connect to the communications system.

2.1.6 Operations and Maintenance Area

The Project would include an O&M building with associated facilities and on-site parking on approximately 3 acres. The O&M building would be steel framed with metal siding and roof panels up to 20 feet by 80 feet. The O&M building may include offices, repair facility/parts storage, control room, restrooms, potable and non-potable water, and a septic tank and leach field. The design and construction of this building would be consistent with Clark County building standards and approved by the Band and BIA.

Additional components of the O&M area would include a temporary construction laydown and storage area, above-ground water storage tanks, security gate, signage, flagpole, and trash containers. The O&M area would be equipped with exterior lighting as approved by the Band and BIA. The water supply for the O&M area would be provided via the Band's nearby well.

2.1.7 Internal Project Roads

Within the solar field, access ways would be built to provide vehicle access to the solar equipment (PV modules, inverters, transformers) for O&M activities. These access ways would 15 feet wide and located between the array blocks to facilitate access to array blocks and inverters. Hammerhead turnarounds would be constructed at the terminus of interior access roads to facilitate vehicle and equipment

turnarounds. The existing soil surface of all interior access ways would be bladed. In addition to grading, interior access ways that lead to inverter stations would be compacted using onsite materials.

The vegetation on the portions of the site not covered by roads, O&M facilities, and the site substation would be mowed to a height of 18-inches and drive-and-crush construction methods would be implemented; vegetation would quickly regrow following construction. Vegetation would be maintained to a height as needed for movement of the solar panels, site maintenance, and fire-risk management using mechanical and chemical controls during operations.

2.1.8 Lighting

Minimal lighting would be used on-site and would be directed inward and downward. Site lighting could include motion sensor lights for security purposes. Lighting used on-site would be of the lowest intensity foot candle level, in compliance with any applicable regulations, measured at the property line after dark.

2.1.9 Water Supply

The Project's construction water requirements would be met from existing water rights owned by the Moapa Band of Paiutes. The Applicant would have access to this water supply through an agreement with the Band.

Up to 200 acre-feet (AF) of water would be required over approximately 18 months for construction-related activities, including dust control. During operations, water demand for panel washing and O&M domestic use is not expected to exceed 20 acre-feet per year. A small water treatment system may be installed to provide deionized water for panel washing. One or more above-ground water storage tanks may be placed on-site near the O&M building.

2.1.10 Wastewater Treatment

Wastewater generated during construction and operation would include sanitary waste. Portable toilets would be used during construction. A septic tank and drain field system could be used for collection, treatment, and disposal of sanitary waste during operations. If a septic system is not installed, portable toilets would be used during operations.

2.1.11 Waste and Hazardous Materials Management

The primary wastes generated at the Project during construction, operation, and maintenance would be nonhazardous solid and liquid wastes. Limited quantities of hazardous materials would be used and stored on site and the primary hazardous materials on site during construction would be the fuels, lubricating oils and solvents associated with construction equipment. The nonhazardous wastes produced by construction and O&M activities would include defective or broken electrical materials, empty containers, the typical refuse generated by workers and small office operations, and other miscellaneous solid wastes. The types of wastes and their estimated quantities are discussed in Appendix D in the Draft Environmental Impact Statement (DEIS).

The Applicant has prepared an Emergency Response Plan and Spill Response Plan that address waste and hazardous materials management including BMPs related to storage, spill response, transportation, and handling of materials and wastes. These draft plans are included in Appendices E and F in the DEIS.

Waste management would emphasize the recycling of wastes where possible and would identify the specific landfills that would receive wastes that cannot be recycled.

2.1.12 Fire Protection

The Project's fire protection water system may be supplied from the water storage tank(s) located near the O&M building which would have the appropriate fire department connections to facilitate use for fire suppression purposes and be consistent with Clark County requirements. During construction, one electric and one diesel-fueled backup firewater pump would deliver water to the fire protection water-piping network. Fire protection pump flow rates would be in accordance with applicable standards.

The electrical equipment enclosures that house the inverters, transformers, and ESS would be metal structures. Any fire that could occur would be contained within the structures which would be designed to meet National Electric Manufacturers Association (NEMA) 1 or NEMA 3R IP44 standards for electrical enclosures (heavy duty sealed design to withstand harsh outdoor environmental conditions).

The construction contractor would develop and implement a Fire Management Plan for construction and the Applicant would prepare and implement a Fire Management Plan for operations.

2.2 Offsite Project Facilities

2.2.1 230 kV Transmission Line (Gen-Tie)

The Project would require the construction of an approximately 12.5-mile single- or dual-circuit 230kV gen-tie for interconnection to the regional transmission grid system. The proposed gen-tie route would proceed east from the Project substation on tribal land before entering the designated BLM utility corridor for approximately 10.8 miles. While in the utility corridor a new transmission line would parallel the existing transmission lines heading northeast to the point where it would exit the Reservation. When leaving the utility corridor, the gen-tie line would enter BLM-administered lands for approximately 0.3 miles, traverse private lands for approximately 1.3 miles, and then terminate at NVE's Reid Gardner substation. An approximate 125 to 200-foot wide ROW would be required from the land managing agencies. **Figure 1-2** shows the location of the proposed gen-tie route and the table below provides the Township, Range, and Section(s) that would be crossed by the proposed gen-tie line, by land managing agency.

Reservation (within designated utility corridor)		
Township 16 South	Range 64 East	Sections 12, 13, and 14
Township 16 South	Range 65 East	Sections 5, 6, and 7
Township 15 South	Range 65 East	Sections 12, 13, 14, 22, 23, 27, 28, 32, and 33
BLM		
Township 16 South	Range 66 East	Section 7
Private		
Township 16 South	Range 66 East	Sections 5 and 6

Information based on the Mount Diablo Base Meridian

The Applicant would construct the gen-tie from the Project substation, through the designated utility corridor to a Point of Change of Ownership (POCO) pole structure located on BLM-administered land.

From the POCO pole structure, the remaining portion of the gen-tie would be constructed by NV Energy to the Reid Gardner Substation.

The portion of the overhead 230kV line on federally-administered lands would be installed on approximately 73 support structures spaced approximately 700 to 900 feet apart depending on the topographic, hydrologic, and geologic conditions of the underlying lands. The structures would be up to approximately 150 feet above grade with minimum ground clearance of 25 feet per local and national electrical code requirements. In addition, one of the shield wires on the gen-tie line would include a fiber optic communications cable to link the project substation to the Reid Gardner Substation. **Figure 2-4** shows the dimensions of the typical transmission structure. Most of the structures would be accessed via new spur roads constructed from existing utility access roads. Where the line does not parallel existing lines, a new road would be developed within the ROW to facilitate access to the gen-tie transmission structures. The proposed ROW would be 125 to 200 feet wide.

All overhead electrical lines would be designed and installed in accordance with the Avian Power Line Interaction Committee's (APLIC) Suggested Practices for Avian Protection on Power Lines (APLIC 2006, 2012).

2.2.2 Project Access Road

Main access to the ESMSP site for construction and through operations and decommissioning would be provided via existing roads. Access to this area of the Reservation would be via I-15, US Highway 93, and North Las Vegas Boulevard to existing improved roads on the Reservation. These existing roads on the Reservation include the road built to provide access to the nearby existing K-Road Solar Facility and the road providing access to the existing tribal aggregate operation and water wells that would be adjacent to the ESMSP. No upgrades to these existing roads are anticipated to be necessary to provide the access needed for this Project, other than maintenance during construction and operations, as required. **Figure 1-2** shows the location of the existing road that would be used.

Additionally, one existing road used by the Band to access a potential cement mining operation currently crosses the lease area and therefore would be rerouted outside of the proposed solar facility lease boundary.

2.3 Project Construction

Prior to any activity on the site, required resource protection plans would be developed and regulatory and permit conditions would be integrated into the final construction compliance documents. Project construction would begin once all applicable approvals and permits have been obtained. Construction is expected to take approximately 18 months and would include mobilization, grading and site preparation, installation of drainage and erosion control measures, PV panel/tracker assembly, solar field and gen-tie component construction. The Applicant expects that Project construction would commence in the third quarter of 2020.

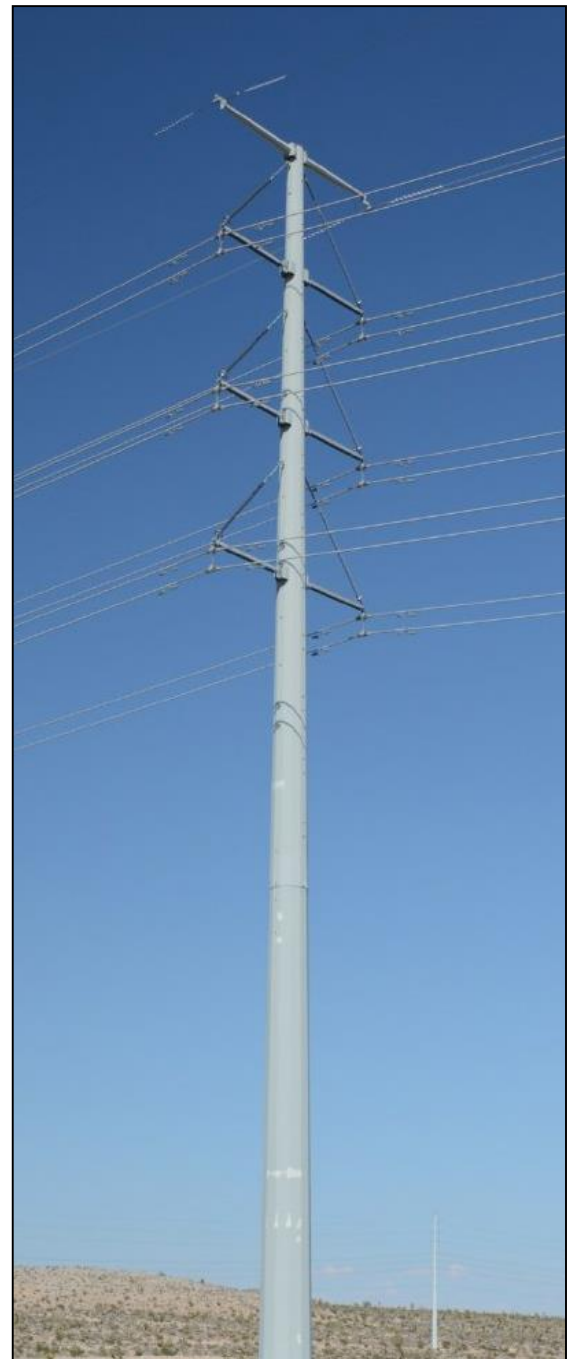
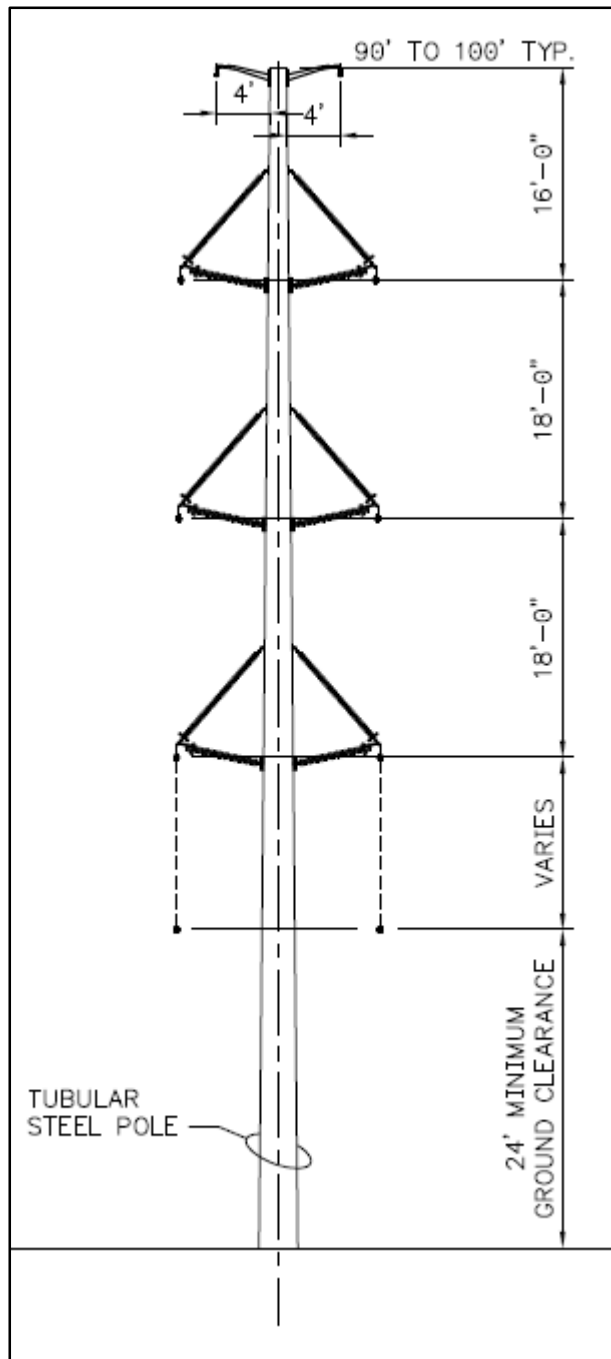


Figure 2-4
Typical Gen-Tie Transmission Structure

2.3.1 Onsite Project Facilities Construction

The following construction components occur onsite within the solar lease property and solar field boundary.

Site Preparation - Environmental clearance surveys would be performed at the Project site prior to commencement of construction activities. During the environmental clearance phase, the boundaries of the construction area would be delineated and marked. The site then would be prepared for use by selectively removing vegetation and grading which would be minimized to the extent reasonably practicable.

Initially, a construction office and staging area and entrance and exit gates would be established at the Project's main access where the existing roads on the Reservation enter the site.

Surveying/Staking - Prior to construction, the limits of construction disturbance areas would be determined by surveying and staking. Where necessary, the construction areas and sensitive areas to be avoided would be flagged with appropriate buffers and all construction activities would be limited to prevent unnecessary impacts to the sensitive areas.

Clearance Surveys/Temporary Fencing - During the site clearance phase, the boundaries of the construction areas would be surveyed for sensitive species during appropriate timeframes. Approved temporary tortoise fencing would be installed around the perimeter of the construction areas to prevent tortoises from moving onto the site from adjacent areas. Authorized biologists would be retained to survey for and relocate desert tortoises and perform other sensitive species surveys, removal, and mitigation.

Vegetation Removal - Vegetation would be permanently cleared from roadways, access ways, and at inverter equipment, substations, and O&M facilities. Within the solar field, native vegetation would be left in place to the extent possible with some mowing and selective trimming as needed to create a safe work environment and avoid interference with the movement of the solar panels. Vegetation within the solar arrays would be mowed to a minimum height of 18 inches and construction equipment would be allowed to drive and crush that vegetation during construction to facilitate regrowth during operations.

Site Clearing/Grading/Excavation - The cuts and fills associated with all earthwork required on the site are planned to be balanced on-site. Within the solar field, some grading would be required for roads and access ways between the solar arrays and for electrical equipment pads. The amount of the grading would be limited where the panel support foundations are driven or drilled. A small graded pad could be required within each solar array to accommodate the inverter and transformer or they could be installed on driven piers.

Gravel/Aggregate/Concrete - Concrete would be trucked in and poured in place for equipment, gen-tie structures, and building foundations. Aggregate material would be used for parking areas, substation area, and where needed for the access roads. Riprap material could be required for erosion control. This material would be sourced from the Band, as available.

PV Solar Array Assembly and Construction - The construction sequence for the solar field would follow a generally specified order sequenced by arrays. Each array would contain solar panels, an

inverter, and a step-up transformer and construction work within each array would generally proceed as follows:

- Install foundations for inverter units;
- Prepare trenches for underground cable;
- Install underground cable as required;
- Backfill trenches;
- Install inverter and transformer equipment;
- Install steel posts and tracker assemblies;
- Install PV modules;
- Install concrete footings for transformers, and substation equipment;
- Perform electrical terminations; and
- Inspect, test, and commission equipment.

Cable trenches would contain electrical conductors for power generation and fiber optic cables for equipment communication. Trenches would vary between 3 to 10 feet wide and 3 to 4 feet deep. Trench excavation would be performed with conventional trenching equipment and excavated soil would be placed adjacent to the trench and used as backfill once installation is complete.

The assembled solar equipment would be installed on steel posts to which steel tracker assemblies would be attached. The structural steel posts may be galvanized to mitigate corrosive soils, as needed. Trucks would be used to transport the PV modules to the solar field. Final solar field assembly would require small cranes, tractors, and forklifts.

Installation of electrical equipment and necessary infrastructure to energize the equipment would consist primarily of the following tasks:

- Equipment—Installation of all electrical equipment including inverters, transformers, circuit breakers, switches and switchgear, lighting, communication, control, and SCADA equipment.
- Cables—Installation of all cables necessary to energize the Project equipment. Cables would be routed via cable trays, above-grade conduits, below-grade conduit, and overhead structures.
- Grounding—All equipment and structures would be grounded as necessary.
- Telecommunications—Communication systems including T-1 internet cables, fiber optic, and telephone would be installed during electrical construction.

Standard transmission line construction techniques would be used to construct the 34.5 kV collector lines. Primary stages in construction would be foundation installation, tower installation, and conductor stringing. Wood poles used for the overhead 34.5 kV collector line would be directly embedded into the ground and would be installed by auguring holes and placing the poles into the holes using backhoes or heavy lifter vehicles.

Substation Construction - The Project substation would be constructed on the solar site in compliance with applicable electrical safety codes. The onsite substation would require a graded site to create a relatively flat surface approximately one percent maximum slope in any direction. The substation interior would be covered with aggregate surfacing for safe operation.

The substation systems could include heating, ventilating, and air conditioning (HVAC) systems; distribution panels; lighting; communication and control equipment; and lightning protection.

The 17-acre substation area would be excavated to a depth of approximately 10 feet and a copper grounding grid designed to meet the applicable electrical requirements would be installed and the foundations for transformers and metal structures would be prepared. Final ground grid design would be based on site-specific information such as available fault current and local soil resistivity. Typical ground grids consist of direct buried copper conductors with copper-clad ground rods arranged in a grid pattern covering the substation area plus a small buffer outside the fence. After installation of the grounding grid, the area would be backfilled, compacted and leveled followed by the application of aggregate rock base.

Installation of the transformers, breakers, buswork, and metal dead-end structures would follow. A transformer containment area would be lined with an impermeable membrane covered with gravel to capture any expected leaks. A pre-fabricated control house would be installed to house the electronic components required for the substation equipment.

O&M Building Construction - The O&M area would be graded and after the O&M building is constructed, the remaining area would be appropriately surfaced for parking, roads, material storage and the erection of a temporary assembly structure for use during the construction phase of the Project. Following site preparation of the O&M area, construction of the O&M building would commence. Concrete foundations would be poured to support the permanent O&M building and a modular steel building approximately 2,000-3,000 square-foot would be erected. An area adjacent to the building would be developed for parking and an aggregate base may be installed on unpaved areas within the O&M area.

A potable and non-potable water treatment system could be installed in the O&M building. Alternatively, bottled water could be used for potable water. If a potable water system is developed, above ground water tanks could be erected and connected to a service pump to provide water to the building. Active and reserve septic fields could also be established and connected to O&M buildings waste system if portable toilets aren't used during operations. Temporary construction power would be connected to the O&M building.

2.3.2 Offsite Project Facilities Construction

Gen-Tie Line Construction - Construction equipment access would be required at each transmission structure. The Project would use a combination of existing and new access roads and spur roads to get construction equipment to each structure location.

Most of the proposed gen-tie route would be sited to follow existing roads to minimize ground disturbance. Construction of the gen-tie would begin with development of access roads and spur roads where they are needed. New access roads and spur roads would typically be 12 feet wide and bladed and would be compacted to ensure stability if needed. Access roads parallel to the gen-tie alignment and spur roads would not be maintained following construction.

To access the gen-tie service road within the ROW, construction vehicles would use the existing Hidden Valley Road near the Reid Gardner substation on the northern end of the gen-tie route, the existing unnamed gravel road from I-15 Exit 80, and the proposed Project access road via North Las Vegas Boulevard for the southern end of the gen-tie route.

Where the gen-tie would parallel existing lines, the road associated with the existing line would be used and upgraded as needed and short spur roads developed to access structure locations. Spur roads could cross drainages at grade where needed.

Structure Sites - A 125-foot by 50-foot (6,250 square-foot) area would be needed around each of the approximately 73 structure sites on federally-administered land for construction. These areas would be temporarily disturbed during the construction period and would be cleared of vegetation only as required for safety and efficiency. Holes would be developed for each transmission structure using a truck-mounted drill rig or a standalone auger rig if required. The poles would be set within an augured hole (for tangent structures) or on a concrete pier foundation (dead-end structures). The primary equipment used in setting foundations would be concrete trucks, auger rigs, pickup trucks, crane and front-end loaders. Excavated spoil material would be spread around the temporary work areas.

Foundation Installation - The steel poles used for the gen-tie would be supported by steel-reinforced poured pier concrete foundations where needed for the conditions at each structure site. These foundations would be constructed by auguring a cylindrical hole using a truck-mounted drilling rig. Reinforcing steel and anchor bolt cages would be installed in the hole and then the hole would be backfilled with concrete. Foundations could range in size from approximately 4 to 7 feet in diameter and from 12 to 30 feet in depth. Larger diameter and deeper foundations would be needed where the transmission line turns at an angle of 30 degrees or greater.

Structure Installation - Structures would be staged in designated laydown/stringing areas or delivered and unloaded adjacent to their respective final locations. Poles would be delivered on a flat-bed trailer and lifted into place using a crane. For the direct-imbedded (tangent) poles, the open space between the poles and walls of the auger holes would be backfilled with concrete or soil. The poles would be supported, as necessary, during installation to ensure correct pole seating in the hole or on the foundation.

Conductor Stringing - After the structures are erected, the conductors and static wires would be strung between them and attached. Pull and tensioning sites are the locations where equipment would be located to pull the conductors and wires into place. Multiple pulling and tensions sites would be required for installing the conductors on the transmission structures and these sites would be approximately 100 feet wide by 400 feet long and located within the ROW except at angle structures where they would be at least partially outside the ROW. These areas would not be bladed. Stringing would likely be conducted one conductor at a time, with all equipment in the same location until all lines are in place.

Conductor stringing is typically accomplished with heavy-duty trucks and telescoping boom lift. If necessary, some sections of line could be strung either by helicopter or by walking a light pulling rope between structures that is used to pull in the heavier conductor. Truck-mounted cable-pulling equipment would be placed at the first and last towers or poles in a segment - pulling equipment at the front end and braking or tensioning equipment at the back end. After the conductors are pulled through the segment, they would be attached to the insulators, and the conductor tension would be increased to achieve a ground clearance of at least 25 feet prior to moving to the next section.

Equipment/Personnel - Typical equipment expected to be used for transmission line construction include bulldozers, graders, compactors, drilling rigs, cranes, boom trucks, flat-bed trucks, crew trucks, concrete trucks, bucket lift trucks, and heavy-duty trucks (puller and tensioner). A detailed list of this equipment and the anticipated construction personnel is included in the POD for the gen-tie found in **Appendix H** of the DEIS.

2.3.3 Site Stabilization, Protection and Reclamation

During and following construction of both onsite and offsite facilities, appropriate water erosion and dust-control measures would be implemented to prevent increased dust and erosion around the site. Dust generated by construction would be controlled and minimized by applying water (obtained from the Band). If needed to control dust during construction, palliatives that are approved by agencies prior to use would be applied to interior access roads after they are constructed at the beginning of the construction period. Depending on the site preparation technique, organic matter could also be worked into the upper soil layers or mulched onsite and redistributed into the fill (except under equipment foundations, trenches and roadways) to aid in dust control.

Soil stabilization measures would be used to prevent soil being eroded by storm water runoff. The Applicant would employ BMPs to protect the soil surface from erosion. The construction contractor would develop and implement an erosion-control plan for the Project. Temporary laydown areas would be established in flat areas of the site and would not be bladed. The Applicant would prepare a Site Restoration Plan that would outline all measures to be implemented immediately after construction.

2.3.4 Construction Workforce Schedule, Equipment and Materials

The construction workforce for the solar facility and gen-tie would consist of laborers, craftsmen, supervisory personnel, support personnel, and construction management personnel. The construction workforce is anticipated to be an average of 300 construction workers with a peak not expected to exceed 750 workers at any given time. Most construction staff and workers would commute daily to the jobsite from within Clark County primarily from the Reservation and the Las Vegas area. The Applicant would prepare a Worker Environmental Awareness Plan (WEAP) for the Project that would address Project-specific safety, health and environmental concerns and all construction workers would be required to complete WEAP training.

Construction generally would occur between 5:00 a.m. and 5:00 p.m. and could occur seven days a week. Additional hours could be necessary to make up schedule deficiencies, or to complete critical construction activities. For instance, during hot weather, it may be necessary to start work earlier (e.g., at 3:00 am) to avoid work during high ambient temperatures. Further, construction requirements would require some night-time activity for installation, service or electrical connection, inspection and testing activities. Nighttime activities would be performed with temporary lighting.

Initial grading work would include the use of primarily rubber-tired tractors, track-driven excavators, graders, dump trucks, and end loaders, in addition to the support pickups, water trucks, and cranes. Throughout the construction process, temporary above ground fuel storage tanks would be located at the site for construction equipment fueling. For civil work, equipment would include road graders, trenching machines, pumps, excavators for foundations, tractors, and additional support vehicles. Construction materials such as concrete, pipe, PV modules, wire and cable, fuels, reinforcing steel, and small tools and consumables would be delivered to the site by truck.

Appendix I in the DEIS provides a description of the onsite equipment expected to be used for solar panel array and collection system construction, onsite substation construction, and gen-tie line construction. Actual construction equipment details and durations may vary.

2.3.5 Construction Traffic

Typical construction traffic would consist of trucks transporting construction equipment and materials to and from the site and vehicles of management and construction employees during the construction period. Most construction staff and workers would commute daily to the jobsite from within Clark County, primarily from the Reservation and Las Vegas area. All construction traffic would use I-15, Highway 93, North Las Vegas Boulevard, and existing improved roads on the Reservation to access the site. The Applicant has prepared a draft Transportation Management Plan to address Project-related traffic (Appendix J in the DEIS).

2.3.6 Health and Safety Program

The Applicant would require that all employees and contractors adhere to appropriate health and safety plans and emergency response plans. All construction and operations contractors would be required to operate under a Health and Safety Program (HASP) that meets industry standards. All site personnel would be required to go through a new hire orientation and follow the WEAP outlining safety, health and environmental requirements.

2.4 Temporary Construction Facilities (to be removed following construction)

2.4.1 Onsite Temporary Project Construction Facilities

The Project construction contractor would establish approximately 20-acres of temporary construction laydown areas near the main entrance to the solar field lease area and in various other locations within each individually fenced portion of the solar field. The selected areas would be cleared of vegetation but would not need to be bladed or compacted. Where practical, laydown areas used to facilitate construction of one portion of the solar facility would itself be developed with solar arrays after it is no longer needed and development of the site progresses. Following construction, equipment would be removed from laydown areas not developed with solar arrays and be revegetated.

The approximately 35-acre portion of the solar facility immediately east of the main access road (**Figure 1-2**) would be used for development of the project substation (approximately 17 acres), an ESS (approximately 12 acres), and an O&M building and parking area (approximately 6 acres). Although this entire 35-acre area is included in the permanent disturbance acreage estimate, during construction, portions of this area would also be used for temporary construction trailers with administrative offices, temporary generators to provide power for the trailers and administrative offices during construction, construction vehicle parking, tool sheds, and equipment and construction materials delivery and storage. Following construction, these facilities would be removed from the site.

Additional temporary project construction facilities include up to ten temporary water holding tanks and temporary generators to provide power the pumps at two existing wells. These facilities would be installed in pre-disturbed areas adjacent to the existing wells and would be removed following construction.

2.4.2 Offsite Temporary Project Construction Facilities

Temporary construction areas would be located at each gen-tie line structure location and at locations required for conductor stringing, splicing, and pulling operations to accommodate construction of the

gen-tie. These areas would be required for staging equipment and materials for foundation construction and tower / conductor installation.

2.5 Operations and Maintenance

2.5.1 Onsite Project Facilities

The O&M requirements for a PV solar generation facility includes regular monitoring, periodic inspections, and conducting any needed maintenance. Operation of the Project is expected to require a workforce of up to 5 full time-equivalent (FTE) positions. This workforce would include administrative and management personnel, operators, and security and maintenance personnel. Typically, up to three (3) staff would work during the day shift (sunrise to sunset) and the remainder during the night shifts and weekends. Employees would be based at the O&M building.

During the first year of operation, the frequency of inspections would be higher than normal to address any identified post-construction issues. Periodic routine maintenance would include monthly, quarterly, semi-annual and annual inspections and service. Panel washing could be conducted periodically as needed to improve power generation efficiency (likely on foot and by hand). At designated intervals, approximately every 10 to 15 years, major equipment maintenance would be performed.

O&M would require the use of vehicles and equipment including crane trucks for minor equipment maintenance. Additional maintenance equipment would include forklifts, manlifts, and potential chemical application equipment for weed abatement. Pick-up trucks would be in daily use on the site. No heavy equipment would be used during normal plant operation.

Dust during operations and maintenance would be controlled and minimized by applying water. Palliatives would only be applied at the beginning of construction, if necessary, and only on roads in areas where desert tortoise have been excluded.

Safety precautions and emergency systems would be implemented as part of the design and construction of ESMSP to ensure safe and reliable operation. Administrative controls would include classroom and hands-on training in operating and maintenance procedures, general safety items, and a planned maintenance program. These would work with the system design and monitoring features to enhance safety and reliability. The Project would also have an Emergency Response Plan (ERP). The ERP would address potential emergencies including chemical releases, fires, and injuries. All employees would be provided with communication devices, cell phones, or walkie-talkies, to provide aid in the event of an emergency.

The Applicant has prepared a draft Integrated Weed Management Plan for the Project that follows an integrated approach as required by BIA and BLM (Appendix K in the DEIS). Although mechanical control is expected and desirable for the Project, desert tortoise-safe herbicides may also be used to control noxious weeds during the less-active season, if mechanical treatments are not successful. The plan contains a list of desert tortoise-safe herbicides and would be implemented as needed during operations. Pest control may also be required, including control of rodents and insects inside of the buildings and electrical equipment enclosures.

2.5.2 Offsite Project Facilities

The gen-tie line would operate continuously throughout the life of the Project. Following construction, operational activities associated with the gen-tie would involve periodic inspection and occasional maintenance and repair. Bi-annual visual inspections would be conducted by ground crews to inspect insulators, overhead grounds, and transmission structure hardware. Gen-tie access roads would not be regularly maintained but could be graded as needed to provide access to transmission structures for maintenance activities.

Other O&M activities could include insulator washing (as needed), periodic air inspections (as needed), repair or replacement of conductor (as needed), replacement of insulators (as needed), and response to emergency situations (outages) to restore power. With the exception of emergency situations and outages, most maintenance work would take place during daylight hours.

2.6 Decommissioning

The anticipated operational life of the ESMSP would be up to 50 years after which, the Project would be decommissioned and existing facilities and equipment would be removed. Decommissioning would involve removal of the solar arrays and other facilities with some buried components (such as cabling) potentially remaining in place. Following decommissioning, the area would be reclaimed and restored according to applicable regulations at the time of decommissioning.

To ensure that the permanent closure of the facility does not have an adverse effect, the Applicant has prepared a draft Decommissioning Plan included as Appendix L in the DEIS. The final Decommissioning Plan would be developed near the time of decommissioning in coordination with the Band and BIA and with input from other agencies as appropriate. The final plan would address future land use plans, removal of hazardous materials, impacts and mitigation associated with closure activities, schedule of closure activities, equipment to remain on the site, and conformance with applicable regulatory requirements and resource plans.

Gen-tie components would also be decommissioned and removed from the ROW in accordance with local, state and federal laws. Prior to dismantling or removal of equipment, staging areas would be delineated along the gen-tie as appropriate. All decommissioning activities would be conducted within designated areas. Work to decommission the transmission line is anticipated to be conducted within the boundaries of existing easements and rights of way.

Following decommissioning, the disturbed areas would be stabilized and be revegetated. Native species would be used for revegetation, if appropriate, and seeding using BLM and BIA recommended seed mixes. Re-seeding would take place during appropriate months. Seed would be planted using drilling, straw mulching, or hydromulching, as appropriate.

2.7 Management Plans, Minimization Measures, and Compensatory Mitigation

2.7.1 Management Plans

The Applicant would be required to prepare the following management plans, which would be submitted to the Moapa Band of Paiutes, BIA, BLM, and USFWS (as appropriate) for approval:

- Integrated Weed Management Plan
- Raven Control Plan
- Decommissioning Plan
- Site Restoration Plan
- Dust Abatement Plan
- Spill Prevention and Emergency Response Plan
- Health and Safety Program
- Fire Management Plan
- Hazardous Materials and Waste Management Plan
- Stormwater Pollution Prevention Plan
- Site Drainage Plan
- Traffic Management Plan
- WEAP
- Bird and Bat Conservation Strategy

2.7.2 Minimization Measures

The following proposed minimization measures would be implemented as part of the Project proposed by the Applicant to avoid or reduce environmental impacts associated with the proposed action to federally protected species. Minimization will include the general conservation strategies (i.e., BMPs), as well as adhere to the specific desert tortoise minimization measures and comply with the terms and conditions of the USFWS BO issued for this Project.

2.7.3 Construction Minimization Measures

The following measures would be implemented to reduce effects on the desert tortoise and other terrestrial and avian wildlife species during construction, operation, and maintenance:

1. **Construction area flagging.** Work areas will be flagged prior to beginning construction activities and disturbance confined to the work areas. A biological monitor will escort all survey crews on site prior to construction. All survey crew vehicles will remain on existing roads and stay within the flagged areas to the maximum extent practicable. In cases where construction vehicles are required to go off existing roads, a biological monitor (on foot) will precede the vehicles.
2. **Desert tortoise fencing.** Temporary tortoise-proof fencing will be installed around the boundary of the solar facility. If permissible by the Project-issued BO, biological monitors under supervision of an authorized biologist (approved by USFWS) will be present during fence installation to relocate all tortoises in harm's way to outside the work area. Additional clearance surveys and activities will be conducted after completion of the tortoise fence to ensure that no tortoises remain fenced inside the construction boundaries.

Fence specifications will be consistent with those approved by USFWS (USFWS 2009b). Tortoise guards will be placed at all road access points where desert tortoise-proof fencing is interrupted to exclude desert tortoises from the Project footprint. Gates or tortoise exclusion guards will be installed with minimal ground clearance and shall deter ingress by desert tortoises. The temporary tortoise-proof fencing will be removed once the Project is commissioned allowing tortoises to re-occupy the site during operations.

3. **Field Contact Representative.** The BIA and Applicant will designate a Field Contact Representative (FCR) who will be responsible for overseeing compliance of the Terms and Conditions of the BO. The FCR will be onsite during all active construction activities that could result in the “take” of a desert tortoise. The FCR will have the authority to briefly halt activities that are in violation of the desert tortoise protective measures until the situation is remedied.

4. **Authorized desert tortoise biologist.** All authorized desert tortoise biologists (and monitors) are agents of BIA and USFWS and will report directly to BIA, USFWS, BLM, and the Applicant concurrently regarding all compliance issues and take of desert tortoises; this includes all draft and final reports of non-compliance or take. Authorized desert tortoise biologists, monitors, and the FCR will be responsible for ensuring compliance with all conservation measures for the Project as described in the BO. Prior to starting construction, authorized biologist(s) will submit documentation of authorization from the USFWS and approval of NDOW. Potential authorized desert tortoise biologists will submit their statement of qualifications to USFWS.

An authorized desert tortoise biologist will record each observation of a desert tortoise handled in the tortoise monitoring reports. This information will be provided directly to BIA, USFWS, and BLM.

5. **Biological monitoring.** Under supervision of an authorized biologist, biological monitors will be present at all active construction locations (not including the solar field after it has been fenced with desert tortoise fencing and clearance surveys have been completed). Desert tortoise monitors will provide oversight to ensure proper implementation of protective measures; record and report desert tortoises and tortoise sign observations in accordance with approved protocol; and report incidents of noncompliance in accordance with the BO and other relevant permits. The biological monitor(s) will survey the construction area to ensure that no tortoises are in harm’s way. If a tortoise is observed entering the construction zone, work in the immediate vicinity will cease until the tortoise moves out of the area. Tortoises found above ground during construction activities will be moved offsite by an authorized biologist following the protocols described in the Desert Tortoise Translocation Plan.

6. **Desert tortoise clearance surveys and translocation.** After installation of tortoise fencing around the perimeter of the solar facility and prior to surface-disturbing activities, biological monitors and the authorized desert tortoise biologists who supervise them will conduct a clearance survey to locate and remove all desert tortoises from harm’s way including those areas to be disturbed, using techniques that provide full coverage of construction zones (USFWS 2009b).

No surface-disturbing activities shall begin until two consecutive surveys find no live tortoises. In sectors or zones where a live tortoise is found, surveys will be repeated until the two-pass standard is met.

An authorized biologist will excavate burrows potentially containing desert tortoises located in the area to be disturbed with the goal of locating and removing all desert tortoises and desert tortoise eggs. Typical tortoise burrows have a characteristic shape with a flat bottom and arched top similar to a capital letter ‘D’ with the flat side down. Clearance will include evaluation of caliche caves and dens will also be evaluated, as tortoises are known to shelter there. Caliche is a naturally occurring hardened cemented soil composed of calcium carbonate, gravel, sand, and silt. The practice of excavating every obvious tortoise burrow will not be done as it has shown to be ineffective and inefficient in locating tortoises; instead, all obvious tortoise burrows will be scoped for presence and possible extraction. During clearance surveys, all handling of desert tortoises and their eggs and excavation of burrows shall be conducted solely by an authorized desert tortoise biologist in accordance with the most current USFWS-approved guidance (USFWS 2009b). If any active tortoise

nests are encountered, USFWS must be contacted immediately prior to removal of any tortoises or eggs from those burrows to determine the most appropriate course of action. Unoccupied burrows will remain in place to allow for tortoise use during operations. Outside construction work areas, all potential desert tortoise burrows and pallets within 50 feet of the edge of the construction work area will be flagged. If a desert tortoise occupies a burrow during the less-active season, the tortoise may be temporarily penned or will be translocated following USFWS approval, contingent upon weather conditions and health assessment results. No stakes or flagging will be placed on the berm or in the opening of a desert tortoise burrow. Desert tortoise burrows will not be marked in a manner that facilitates poaching. Avoidance flagging will be designed to be easily distinguished from access route or other flagging, and will be designed in consultation with experienced construction personnel and authorized biologists. This flagging will be removed following construction completion.

An authorized desert tortoise biologist or biological monitor will inspect areas to be backfilled immediately prior to backfilling. Burrows with the potential to be occupied by tortoises within the construction area will be searched for presence. In some cases, a fiber optic scope will be used to determine presence or absence within a deep burrow.

A translocation plan following the 2018 guidance will be approved by the USFWS prior to the start of construction (USFWS 2018). The plan identifies potentially suitable recipient locations, control site options, post-translocation densities, procedures for pre-disturbance clearance surveys and tortoise handling, as well as disease testing and post-translocation monitoring and reporting requirements. Tortoises found within 500 meters of the project boundary (fenceline) will be relocated outside of the nearest fence to a location that contains suitable habitat; tortoises found within the interior of the project site (>500 meters from a boundary fence) will be translocated to somewhere within the 4,770-acre lease area that contains suitable habitat.

BIA and the Applicant will have an authorized biologist relocate tortoises following the USFWS-approved protocol (USFWS 2009b) and according to the approved translocation plan. If the USFWS releases a revised protocol for handling desert tortoises before initiation of Project activities, the revised protocol will be implemented. The relocation/translocation effort will adhere to the following procedures as well as those stipulated in the BO Terms and Conditions:

Tortoises found within the project area will be relocated outside of the ROW to an area of suitable habitat as directed by the USFWS. Translocation will follow installation of exclusionary tortoise fence, as determined in coordination with the agencies. Translocation events will occur to specific locations outlined in the approved project-specific translocation review package (TRP) and disposition plan, based on construction and translocation timing considerations for each tortoise. The project will employ two strategies for translocating tortoises, depending on the initial capture location of each animal.

1. **Short-distance Relocations:** Tortoises found within 500 meters of the solar site fenceline or within the gen-tie construction area would be relocated to areas immediately outside of the project's temporary exclusion fencing or outside of harm's way in the vicinity of the gen-tie ROW. Following the completion of construction, the exclusion fencing would be removed; the permanent site fencing would be permeable to desert tortoises and existing vegetation on the project site is expected to be left relatively intact during construction and operation of the project. Therefore, the short-distance translocation strategy is designed to allow tortoises to freely re-occupy the site following construction.

2. Study Area Translocation: Tortoises found in the interior of the solar site fenceline (>500 meters from the exclusion fence) would be translocated to receiver sites identified within the larger 4,770-acre lease area identified for the project but not proposed for project development.

- An authorized biologist will perform health assessments and draw blood samples for each tortoise to be relocated. Blood testing will determine whether any desert tortoise suffer from upper respiratory tract disease (URTD).
- Tortoises will be temporarily tagged with combination global positioning system (GPS)/radio-transmitter tags so if the results of blood work indicate that a tortoise is infected with URTD, the tortoise can be retrieved and handled as directed by USFWS.
- When determining a release location for an individual tortoise, release site preference will be to find a like-for-like shelter resource. Every attempt will be made to find similar cover sites and habitat to that at the location of each individual on the Project site, otherwise all translocatees shall be released at the most appropriate and available unoccupied shelter sites (e.g., soil burrows, caliche caves, rock caves, etc.). Because of the impermanent nature of soil burrows and cave availability, prior to submitting the final Disposition Plan and determining exact areas of release, potential release sites will be re-investigated for existing burrows and caliche or rock caves that can be used for shelter sites. Known active/inactive tortoise burrows discovered during the surveys would be re-investigated for this purpose. If insufficient shelter sites exist in an area to be used for translocation, the Applicant shall coordinate with the agencies to determine the most appropriate course of action, such as reviewing an alternate release site, modifying/improving existing burrows and partial burrows, or artificially creating burrows per USFWS protocols, prior to translocation. The number of artificial burrows per translocated tortoise will be included in the TRP/Disposition Plan, as feasible, and may include more than one burrow per tortoise to increase translocation success (i.e. tortoises remaining within their release locations). The disposition of relocated tortoises will be evaluated and reported on following the Terms and Conditions of the BO.
- If a tortoise voids its bladder while being handled, it will be given the opportunity to rehydrate before release. Tortoises will be offered fluids by soaking in a shallow bath, or an authorized desert tortoise biologist will administer nasal-oral fluid, or injectable epicoelomic fluids. Any tortoise hydration support beyond offering water or shallow soaking would only be provided by an authorized biologist who has received advanced training in health assessments and been specifically approved by USFWS for these procedures.

7. Integrated Weed Management Plan. Prior to construction, an Integrated Weed Management Plan will be developed that includes measures designed to reduce the propagation and spread of designated noxious weeds, undesirable plants, and invasive plant species, or as determined by the cooperating or reviewing agencies (BIA, BLM, NDOW, etc.). Measures in the plan will include, but are not limited to the following:

- Areas with current weeds will be mapped. Topsoil with the presence of weeds will not be salvaged and reused elsewhere in the Project. The topsoil from such areas will be disposed of properly.
- Inspect heavy equipment for weed seeds before they enter the Project area. Require that such equipment be cleaned first to remove weed seeds before being allowed entry. Clean equipment that has been used in weed infested areas before moving it to another area.

- Any straw or hay wattles are used for erosion control must be certified weed free.
8. **WEAP.** A WEAP will be presented to all personnel onsite during construction. This program will contain information concerning the biology and distribution of the desert tortoise, desert tortoise activity patterns, and its legal status and occurrence in the proposed Project area. The program will also discuss the definition of "take" and its associated penalties, measures designed to minimize the effects of construction activities, the means by which employees limit impacts, and reporting requirements to be implemented when tortoises are encountered. Personnel will be instructed to check under vehicles before moving them as tortoises often seek shelter under parked vehicles. Personnel will also be instructed on the required procedures if a desert tortoise is encountered within the proposed Project area. WEAP training will be mandatory, as such, workers will be required to sign in and wear a sticker on their hardhat to signify that they have received the training and agree to comply.
9. **Access roads.** Construction access will be limited to the Project area and established access roads.
10. **Speed limits and signage.** Until the desert tortoise fence has been constructed, a speed limit of 15 miles per hour will be maintained during the periods of highest tortoise activity (March 1 through November 1) and a limit of 25 mph during periods of lower tortoise activity. This will reduce dust and allow for observation of tortoises in the road. Speed-limit and caution signs will be installed along access roads and service roads. After the tortoise proof fence is installed and the tortoise clearance surveys are complete, speed limits within the fenced and cleared areas will be established by the construction contractor and based on surface conditions and safety considerations and remain with limits established by USFWS in the BO.
11. **Trash and litter control.** Trash and food items will be disposed properly in predator proof containers with resealing lids. Trash will be emptied and removed from the Project site on a periodic basis as they become full. Trash removal reduces the attractiveness of the area to opportunistic predators such as ravens, coyotes, and foxes.
12. **Raptor control.** The applicant will inspect structures annually for nesting ravens and other predatory birds and report observations of nests to the USFWS and BIA. Transmission line support structures and other facility structures will be designed to discourage their use by raptors for perching or nesting (e.g., by use of anti-perching devices) in accordance with the most current APLIC guidelines (APLIC 2006, 2012). In addition to increasing desert tortoise protection, following these guidelines during transmission line construction will reduce the possibility of avian electrocution and other hazards.
13. **Overnight hazards.** No overnight hazards to desert tortoises (e.g., auger holes, trenches, pits, or other steep-sided depressions) will be left unfenced or uncovered; such hazards will be eliminated each day prior to the work crew and monitoring biologists leaving the site. All excavations will be inspected for trapped desert tortoises at the beginning, middle, and end of the workday, at a minimum, but will also be continuously monitored by a biological monitor or authorized biologist. Should a tortoise become entrapped, the authorized biologist will remove it immediately.
14. **Blasting.** If blasting is required in desert tortoise habitat, detonation will only occur after the area has been surveyed and cleared by an authorized desert tortoise biologist no more than 24 hours prior. A 200-foot radius buffer area around the blasting site will be surveyed and all desert tortoises above ground within this 200-foot buffer of the blasting site will be moved 500 feet from the blasting site, placed in unoccupied burrow, and temporarily penned to prevent tortoises that have been temporarily relocated from returning to the site. Tortoises located outside of the immediate blast zone

and that are within burrows will be left in their burrows. All burrows, regardless of occupied status, will be stuffed with newspapers, flagged, and location recorded using a global positioning system (GPS) unit. Immediately after blasting, newspaper and flagging will be removed. If a burrow or cover site has collapsed that could be occupied, it will be excavated to ensure that no tortoises have been buried and are in danger of suffocation. Tortoises removed from the blast zone will be returned to their burrow if it is intact or placed in a similar unoccupied or constructed burrow.

15. **Penning.** Tortoises may be held *in-* or *ex-situ* (e.g., if temperatures do not allow for translocation, or if tortoises do not pass the health assessment) for a maximum of 12 months. Previously constructed and approved enclosure pens are present adjacent to the Project site and would be used if any quarantine is necessary. Quarantine is not the preferred option for tortoises to be translocated and would only be used as necessary, in coordination with USFWS.

16. **Stormwater Pollution Prevention Plan.** The applicant will oversee the establishment and functionality of sediment control devices as outlined in the stormwater pollution prevention plan.

2.7.4 Operations and Maintenance Minimization Measures

The following minimization measures will be implemented during O&M of the Proposed Action to reduce effects on the desert tortoise and other species:

17. **WEAP Training.** WEAP training will be required for all O&M staff for the duration of the Project. In addition to an overview of minimization measures, the training will include specific BMPs designed to reduce effects to the desert tortoise.

18. **Biological Monitoring.** A biological monitor(s) will be present during ground-disturbing and/or off-road O&M activities outside of the fenced solar facility to ensure that no tortoises are in harm's way. Tortoises found above ground during O&M activities will be avoided or moved by an authorized biologist, if necessary. Pre-maintenance clearance surveys followed by temporary exclusionary fencing also will be required if the maintenance action requires ground or vegetation disturbance. A biological monitor will flag the boundaries of areas where activities would need to be restricted to protect tortoises and their habitat. Restricted areas will be monitored to ensure their protection during construction.

19. **Speed Limits.** Speed limits within the project area, along transmission line routes, and access roads will be restricted to less than 25 mph during O&M. Speed limits in the solar facility will be restricted to 15 mph during O&M.

2.7.5 Decommissioning Minimization Measures

The same minimization measures used for construction will be used for decommissioning and are listed in **Section 2.7.3**.

2.7.6 Compensatory Mitigation

The applicant will pay the following required compensatory mitigation requirement:

20. **Habitat Compensation.** Prior to surface disturbance activities within desert tortoise habitat, the Project proponent will pay a one-time remuneration fee (per acre of proposed disturbance). The remuneration fees will be submitted to the account that USFWS designates in the BO. The

compensation for habitat loss under Section 7 of the Endangered Species Act (ESA) is an annually adjusted rate, currently \$902/acre (subject to change annually on March 1).

21. Habitat Use Study

The Project proponent will work with the University of Nevada, Las Vegas (UNLV), U.S. Geological Survey (USGS), or other agency to design and implement a 2-3-year study to compare on-site and off-site desert vegetation and climate (e.g., annual and perennial plant growth and cover, ambient temperature) to address metrics of habitat change, including how desert tortoises use the vegetation on site for forage and cover. Results from tortoise monitoring as approved in the Project's Desert Tortoise Translocation Plan (in draft) would inform the tortoise use portion of this study.

3.0 ACTION AREA AND EXISTING CONDITIONS

3.1 Action Area

Section 7 (a)(2) of the ESA defines the “Action Area” as the areas to be affected directly or indirectly by the federal action. For this Project, the Action Areas are defined as 1) the area of direct impacts (solar site, access roads, and gen-tie ROW)(2,200 acres plus 277-acre ROW), and 2) the area of indirect impacts, or recipient areas for short- and long-distance tortoise translocations (2,570 acres). The Muddy River downstream of Muddy Spring is also part of the area of indirect impacts because the Project would use groundwater.

The Action Area is located within the Mojave Desert approximately 20 miles north of Las Vegas, Nevada, largely within the Moapa River Indian Reservation. The Mojave Desert is cooler and wetter than the Sonoran Desert to the south and warmer and drier than the high-elevation Great Basin Desert to the north (Brown 1994).

The Mojave Desert occupies portions of southeastern California, southern Nevada, southwestern Utah and northwestern Arizona. The Mojave Desert region, and the area surrounding the Action Area specifically, displays typical basin and range topography.

3.2 Habitat and Vegetation

Mojave creosotebush-white bursage is the dominant vegetation community in the Action Area. This vegetation community is dominant throughout Clark County. It is dominated by creosote bush (*Larrea tridentata*) and white bursage (*Ambrosia dumosa*) with other associated species. **Table 3-1** lists all the plant species that were observed during field surveys. Also, Sahara mustard (*Brassica tournefortii*), a plant species designated by the Nevada Department of Agriculture (NDA) as a Category B weed species, is found in small isolated areas. Category B species are defined by NDA as “weeds established in scattered populations in some counties of the state; actively excluded where possible, and actively eradicated from nursery stock dealer premises; control required by the state in areas where populations are not well established or previously unknown to occur.”

Table 3-1 Plant Species Observed in the Project Area	
Common Name	Scientific Name
Creosote bush	<i>Larrea tridentata</i>
White bursage	<i>Ambrosia dumosa</i>
Desert senna	<i>Senna armata</i>
Desert trumpet	<i>Eriogonum inflatum</i>
Big galleta	<i>Pleuraphis rigida</i>
Devil’s spineflower	<i>Chorizanthe rigida</i>
Desert globemallow	<i>Sphaeralcea ambigua</i>
Catclaw acacia	<i>Acacia greggii</i>
Rough joint fir	<i>Ephedra nevadensis</i>

Table 3-1 Plant Species Observed in the Project Area	
Common Name	Scientific Name
Compact brome	<i>Bromus madritensis</i>
Mediterranean grass	<i>Schismus barbatus</i>
Three awn	<i>Aristida purpurea</i>
Desert marigold	<i>Baileya multiradiata</i>
Wingnut cryptanth	<i>Cryptantha pterocarya</i>
Cleftleaf phacelia	<i>Phacelia crenulata</i>
Red brome	<i>Bromus tectorum</i>
Russian thistle	<i>Salsola tragus</i>
Gilia	<i>Gilia sp.</i>
Buckwheat	<i>Eriogonum sp.</i>
Threadleaf snakeweed	<i>Gutierrezia microcephala</i>
Cottontop cactus	<i>Echinocactus polycephalus</i>
Mojave yucca	<i>Yucca schidigera</i>
Golden Cholla	<i>Cylindropuntia echinocarpa</i>
Common fishhook cactus	<i>Mammillaria tetrancistra</i>
Desert barrel cactus	<i>Ferocactus cylindraceus</i>
Beavertail pricklypear	<i>Opuntia basilaris</i>
Buckhorn cholla	<i>Cylindropuntia acanthocarpa</i>
Pincushion flower	<i>Chaenactis fremontii</i>
Brownplume wirelettuce	<i>Stephanomeria pauciflora</i>
Four o'clock	<i>Mirabilis sp.</i>
Desert indianwheat	<i>Plantago ovata</i>
Desert needlegrass	<i>Achnatherum speciosum</i>
Indian ricegrass	<i>Achnatherum hymenoides</i>
Low woollygrass	<i>Erioneuron pulchella</i>
Four-winged salt brush	<i>Atriplex canescens</i>
Cheesebush	<i>Hymenoclea salsola</i>
Broom snakeweed	<i>Gutierrezia sarothrae</i>
Mormon tea	<i>Ephedra nevadensis</i>

Disturbed areas, both within and adjacent to the Action Area, are associated with multiple dirt roads and less impacted offroad vehicle trails, adjacent railroad and interstate highway (to the east) and adjacent transmission line and natural gas line corridors (to the north and west), substations and nearby residential construction. **Table 3-2** lists the acreages of the various vegetative cover types occurring within the Project area.

Table 3-2 Vegetative Covertypes within the Project Area Solar Site and ROWs		
Project Component	Vegetation Covertype	Acreage
Solar Site	Sonoran-Mojave Creosotebush-White Bursage	2,116.3
	North American Warm Desert Riparian Systems	1.8
	Mojave North American Warm Desert Riparian Mesquite Bosque	5.3
	Sonoran-Mojave Mixed Salt Desert Scrub	57.7
	Microphytic Playa Sparse Vegetation	0.6
	Agriculture-Cultivated Crops and Irrigated Agriculture	0.2
Proposed Gen-tie ROW	Sonoran-Mojave Creosotebush-White Bursage	288.4
	North American Warm Desert Riparian Systems	2.6
	Developed	5.1
	North American Warm Desert Badland	0.3
	Microphytic Playa Sparse Vegetation	0.6
	Introduced Riparian Vegetation	1.2
PROJECT AREA TOTAL		2,483.8

3.3 Wildlife

Species observed in the Action Area during the biological surveys included species of birds, mammals, and a variety of reptiles. Commonly observed avian species include: black-throated sparrow (*Amphispiza bilineata*), ash-throated flycatcher (*Myiarchus cinerascens*), black-tailed gnatcatcher (*Poliophtila melanura*), loggerhead shrike (*Lanius ludovicianus*), common raven (*Corvus corax*), burrowing owl (*Athene cunicularia*), red tailed-hawk (*Buteo jamaicensis*) and lesser nighthawk (*Chordeiles sp.*) (Newfields 2018a, 2018b). Small mammal residents include kangaroo rats (*Dipodomys spp.*), pack rats (*Neotoma cinerea*) and white-tailed antelope squirrels (*Ammospermophilus leucurus*). Common larger mammals may include coyotes (*Canis latrans*), kit foxes (*Vulpes macrotis*), and black-tailed jackrabbits (*Lepus californicus*). Reptiles include western whiptail lizards (*Aspidoscelis tigris*), side-blotched lizards (*Uta stansburiana*), horned lizard (*Phrynosoma sp.*), desert iguana (*Dipsosaurus dorsalis*), bull snake (*Pituophis catenifer sayi*), coachwhip (*Masticophis flagellum*) and desert tortoise.

3.4 Ground Water Resources

The Proposed Action is in the Colorado River Basin Region of Nevada's Hydrographic Regions. The Colorado River Basin is one of the larger hydrographic regions in Nevada, covering 5,612 square miles

and includes 27 hydrographic areas. The Action Area is located in and around the area called Arrow Canyon Range Cell. The hydrogeology of the Arrow Canyon Range Cell is recognized as unique yet poorly understood in terms of detailed documentation. Seven groundwater management basins are superimposed on the Arrow Canyon Range field. The Arrow Canyon Range Cell is composed of a series of north-south trending structural blocks related to extensional faulting that are almost entirely composed of Paleozoic carbonate rock (K Road FEIS 2012). The Action Area is located within the California Wash hydrographic basin, which is an unconsolidated sand and gravel aquifer.

The basin is a westward-thickening section of Paleozoic carbonate rocks, in part unconformably overlain by generally fine-grained sediments of the Muddy Creek Formation (Longwell et al. 1965). The carbonate-rock terrain that constitutes the Arrow Canyon Range Cell incorporates both recharge areas and one major spring discharged area, and is bounded by generally less permeable basin or bedrock lithologies. The California Wash Basin around the Action Area is around 5,000 feet thick (K Road FEIS 2012). Regional patterns of precipitation combined with terrain elevation results in the highest mountain ranges receiving the majority of precipitation that becomes recharge. The carbonate terrain is efficient in retaining a relatively high percentage of precipitation as recharge.

Groundwater data from several Reservation monitoring and test wells in the vicinity of the Action Area indicate the static water level ranges in depth from 354 to 526 feet below the surface and the wells yielding over 1,000 gallons per minute (gpm; K Road FEIS 2012). Pump and step-drawdown testing of the carbonate aquifer yielded a range of transmissivity of 50,000 to 100,000 ft./day, hydraulic conductivity of 20 ft./day and specific yield (Sy) of 0.03 to 0.008 (BIA 2012).

4.0 DESCRIPTION OF SPECIES

Only one federally listed species under the ESA was documented within or near the Project: the desert tortoise. **Section 4.2** lists details of the survey protocol and the results. Moapa dace are endemic to the Muddy River, located approximately 10 miles north of the Project site, and the proposed gen-tie would span it. The Muddy River and associated springs would be in the area of effects for groundwater pumping associated with the Proposed Action. Other species considered for analysis are described in **Section 4.1**.

No Designated Critical Habitat for any listed plant or animal species occurs within the Action Area, though critical habitat units for the desert tortoise occur approximately 10 miles west of the Action Area on the west side of the Arrow Canyon Range.

4.1 Federally Listed Bird Species

4.1.1 Yellow-billed Cuckoo

On October 3, 2014, the yellow-billed cuckoo (*Coccyzus americanus*) was listed as threatened under the ESA (79 FR 59992; USFWS 2014). The yellow-billed cuckoo has always been rare in Nevada and while there are still small areas of suitable habitat within the state, breeding populations of the species are apparently extirpated from Nevada (Center for Biological Diversity 1998). Yellow-billed cuckoos may still utilize remnant habitats present within the state during migration.

Based on historic accounts, the species was widespread and locally common in California and Arizona, locally common in a few river reaches in New Mexico, locally common in Oregon and Washington, and locally uncommon in scattered drainages of the arid and semiarid portions of western Colorado, western Wyoming, Idaho, Nevada, and Utah. The scattered cottonwoods on the Colorado River tributaries (Virgin, Muddy, and Pahranaagat) are the last places in Nevada where the yellow-billed cuckoo can potentially occur. The only known nesting sites in Nevada for the yellow-billed cuckoo are at Warm Springs Ranch Natural Area along the Muddy River in the Moapa Valley (SNWA 2019), approximately 5 miles northwest of the proposed gen-tie crossing and 10 miles north of the Project site. During 2018 surveys, one probable breeding territory was identified in this area, though there is no suitable habitat for the species along the Muddy River where the proposed gen-tie would cross the River.

4.1.2 Yuma (Ridgway's) Clapper Rail

The Yuma clapper rail (*Rallus longirostris yumanensis*) was listed as an endangered species on March 11, 1967 (32 FR 4001). The Recovery Plan was finalized in 1983 and portions of the Action Plan were initiated over the ensuing years. The Yuma clapper rail is one of the smaller subspecies of clapper rail, with adult males standing eight inches tall and weighing 266.8 grams on average (Todd 1986). Females are slightly smaller. Adult Yuma clapper rails of both sexes are similar in plumage; they possess a long, slender bill and long legs and toes compared to body size (Todd 1986).

The present range of the Yuma clapper rail in the U.S. includes portions of Arizona, California, and Nevada. The Yuma clapper rail lives in freshwater marshes dominated by cattail (*Typha* sp.) and bulrush (*Scirpus* ssp.) with a mix of riparian tree and shrub species (*Salix exigua*, *S. gooddingii*, *Tamarix* sp., *Tessaria serica*, and *Baccharis* sp.) along the shoreline of the marsh (Eddleman 1989). No habitat for this species occurs within the Action Area. This species is known to occur along the Muddy River within the

Overton Wildlife Management Area over 15 miles downstream of the proposed gen-tie crossing. There is no suitable habitat for the species along the Muddy River where the proposed gen-tie would cross the River

4.1.3 Southwestern Willow Flycatcher

The southwestern willow flycatcher (*Empidonax traillii extimus*) was listed by the USFWS as an endangered species within its entire range on February 27, 1995 (FR 60: 10693-10715). Critical habitat for the species was originally established in 1997 (FR 62: 39129-39147) but subsequently vacated and incidental protection provided along the Virgin River and its 100-year floodplain from the Arizona/Nevada border to Halfway Wash in Nevada (FR 65: 4140-4156).

Critical habitat was again proposed on October 12, 2004 (FR 69: 60706-60736), redefined and re-instituted in 2005 (FR 70: 60886-61009; USFWS 1997), and designated in 2013 (USFWS 2013). Critical habitat for the southwestern willow flycatcher in Nevada is currently limited to portions of the Virgin River above its confluence with the Muddy River (FR 70: 60886-61 009).

For nesting, southwestern willow flycatchers require dense riparian habitats with microclimatic conditions dictated by the local surroundings. Saturated soils, standing water, or nearby streams, pools, or cienegas are a component of nesting habitat that also influences the microclimate and density of the vegetation component. No suitable riparian or microhabitat conditions exist within the Action Area. The closest known breeding habitat for this species is located along the Muddy River, at Warm Springs Ranch, approximately 5 miles northwest of the proposed gen-tie crossing and 10 miles north of the Project site. During 2018 surveys, eight southwestern willow flycatcher territories were identified, including three confirmed pairs with nests, during the early nesting season, and one territory was confirmed during the late season, though there is no suitable habitat for the species along the Muddy River where the proposed gen-tie would cross the River.

4.2 Desert Tortoise

Desert tortoise is listed as threatened under the ESA on April 2, 1990 (USFWS 1990). A total of 6.4 million acres of Critical Habitat was designated in 1994 (USFWS 1994). Within those six recovery units, DWMAs were identified, where populations of tortoises facing similar threats would be managed with the same strategies.

The Action Area is within the Northeastern Mojave Recovery Unit, which encompasses almost 5 million acres extending from southwestern Utah/northwestern Arizona (northern boundary) to Las Vegas/Las Vegas Wash (southern boundary). This unit includes the Beaver Dam Slope, Gold Butte-Pakoon, and Mormon Mesa Critical Habitat Units. Characteristically, tortoises in this unit are active in late summer and early autumn in addition to spring, reflecting the fact that this region receives up to about 40 percent of its annual rainfall in summer and supports two distinct annual floras on which tortoises can forage (USFWS 2012). Desert tortoise also feed on cacti, perennial grasses, and herbaceous perennials. Desert tortoises may den together in caliche caves in bajadas, washes, or caves in sandstone rock outcrops (USFWS 2011).

If basic habitat requirements are met, the desert tortoise can survive and reproduce within the varied vegetation communities of the Mojave region (USFWS 1994). These requirements include sufficient suitable plants for forage and cover, suitable substrates for burrow and nest sites, and freedom from disturbance. Throughout most of the Mojave region, the desert tortoise occurs

primarily on flats and bajadas with soils ranging from sand to sandy-gravel characterized by scattered shrubs and abundant inter-shrub space for herbaceous plant growth. Desert tortoises are also found on rocky terrain and slopes.

4.2.1 Distribution and Abundance in the Action Area

Field Surveys

To assess the status of the desert tortoise in the Action Area, field surveys were conducted in September and October 2018. Team members included more than one biologist previously approved by USFWS as an Authorized Biologist on multiple prior projects. To be granted authorized status, USFWS requires that the biologist has thorough knowledge of desert tortoise behavior, natural history, and ecology, and demonstrates substantial field experience and training to successfully:

- Handle desert tortoises
- Excavate burrows to locate desert tortoise or eggs
- Relocate desert tortoises
- Reconstruct desert tortoise burrows
- Unearth and relocate desert tortoise eggs
- Locate, identify, and record all forms of desert tortoise sign; and
- Follow USFWS-approved protocols.

The survey area was located using topographical maps, aerial photographs, and GPS coordinates, and additional coordination with representatives of the Moapa Band of Paiutes. Handheld Garmin 60 GPS units were pre-loaded with the Project area boundaries and were used for orienteering during the surveys. The areas within the study area (4,770 acres) and gen-tie route (300 acres) were surveyed in accordance with current USFWS protocols (USFWS 2010).

The team of biologists surveyed using 10-meter (33-foot) wide parallel pedestrian transects. USFWS refers to this methodology as “100 percent coverage.” According to the USFWS, the objective of the field survey is to determine presence or absence of desert tortoises, estimate the number of tortoises (abundance), and assess the distribution of tortoises within the Action Area (USFWS 2010).

Observations of tortoise sign (live tortoises, carcasses, shell, bones, scutes, scat, burrows, pellets, tracks, egg shell fragments, etc.) were recorded in the field using the Fulcrum application program. Fulcrum is a mobile data collection platform for survey data. Fulcrum uses an online interface to smartphones or tablets for data collection in the field. Data are backed-up automatically to a server or “cloud” as data are collected in the field. At the end of each survey day the data are reviewed for quality control so that survey data sheets can be generated.

Field Survey Results

Data collected within the survey area were analyzed using the USFWS 2010 Protocol equation to determine the estimated number of tortoises within the Action Area. This method uses the number of tortoises observed above ground, the probability that a tortoise is above ground, the probability of detecting a tortoise if above ground, and the size of the area surveyed. The equation is illustrated below.

$$\left(\begin{array}{c} \text{Estimated number of tortoises} \\ \text{within action area} \end{array} \right) = \left(\begin{array}{c} \text{Number of tortoises} \\ \text{observed above ground} \end{array} \right) \left(\begin{array}{c} \text{Size of action area} \\ \text{Size of area surveyed} \end{array} \right) \left(\begin{array}{c} \text{Probability that} \\ \text{a tortoise is} \\ \text{above ground (P}_a\text{)} \end{array} \right) \left(\begin{array}{c} \text{Probability of} \\ \text{detecting a tortoise,} \\ \text{if above ground (P}_d\text{)} \end{array} \right)$$

Seventy-three live adult tortoises were observed within the Action Areas (44 within the proposed development area, or fenceline, and 29 within the lease area but outside of the fenceline [the area proposed for translocation efforts]). Two were observed along the proposed gen-tie. The estimated number of tortoises in the Action Area was calculated to be 145, with a 95% confidence interval of 76 to 277. The estimated number of tortoises within the solar site was calculated to be 73 (44 adults found during the survey), with a 95% confidence interval of 36 to 145 adult tortoises (**Figure 4-1**). **Table 4-1** summarizes tortoise sign found in the entire 4,770-acre lease area.

Table 4-1 TORTOISE SIGN FOUND IN PROJECT AREA						
	Class 1 (Used today)	Class 2 (Used this week)	Class 3 (Used this season)	Class 4 (Old Requires Excavation)	Class 5 (Old Collapsed)	Total
Burrow	335	451	469	70	25	1,350
Carcass	2	5	5	9	70	91
Pallet	9	35	73	2	2	121
Scat	2	38	22	13	1	76
Other (Eggs, Mating Circle, Etc.)	9					

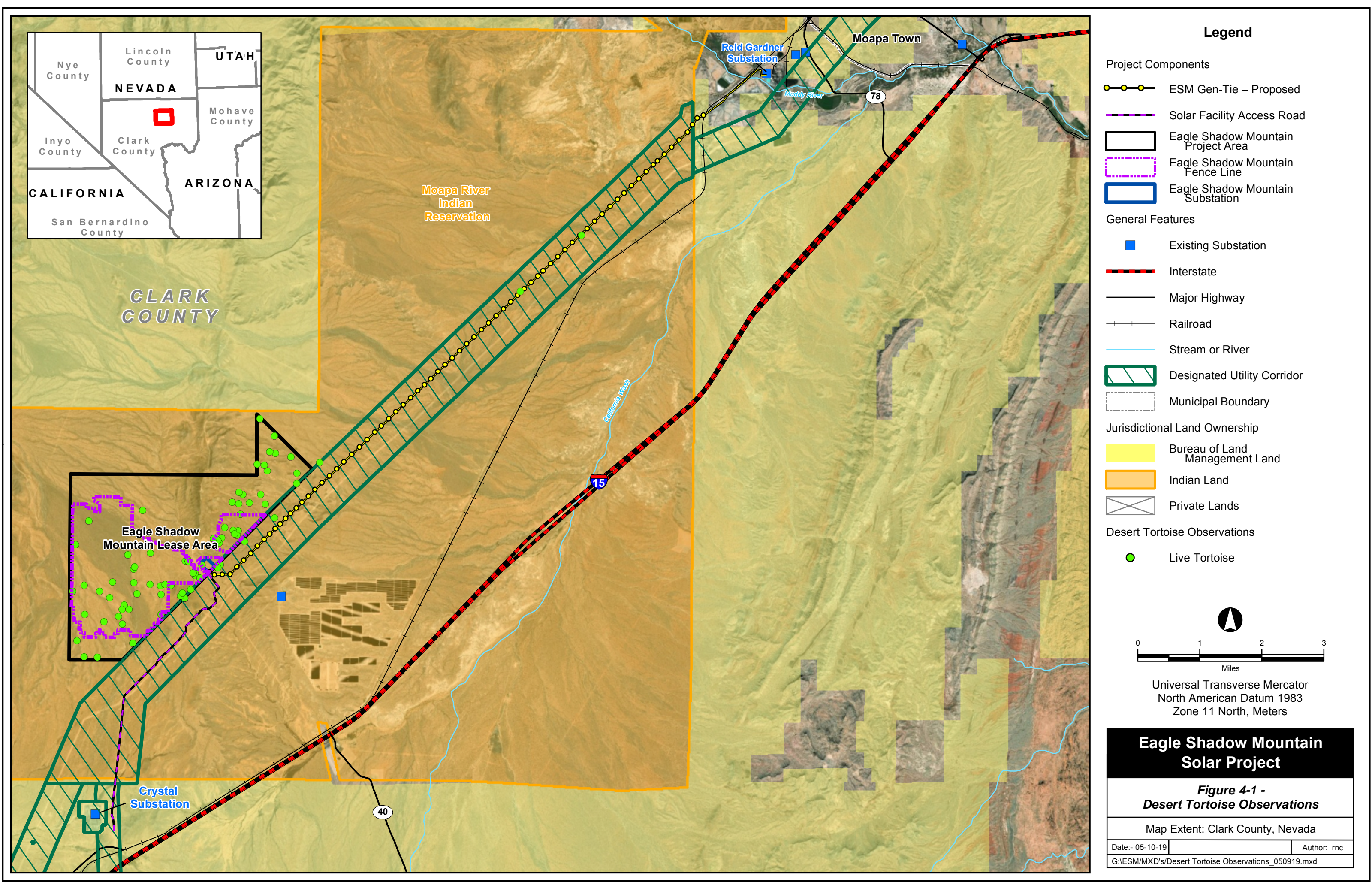
The USFWS model predicts 76 to 277 tortoises in the 4,900-acre Action Area, resulting in a calculated range of about 10 to 36 tortoises per square mile in the Action Area. The USFWS model predicts 36 to 145 tortoises in the 2,200-acre solar site, resulting in a calculated range of about 11 to 43 tortoises per square mile.

These results are generally consistent with USFWS recent findings presented in the Revised Recovery Plan for the Mojave Population of the Desert Tortoise (2011). The NE Mojave Recovery Unit was found to be the only unit that increased in abundance from 2004 through 2014 (Allison and McLuckie 2018).

4.2.2 Factors That May Affect the Desert Tortoise in the Action Area

Upper Respiratory Tract Disease

Upper respiratory track disease (URTD) was discovered in 1990 and is currently a major cause of mortality in the western Mojave Desert population. Habitat degradation, poor nutrition, and drought have increased the desert tortoises' susceptibility to this disease (USFWS 1994). It is thought that URTD is transmitted between desert tortoise populations when desert tortoises are captured as pets, then subsequently released.



General Anthropogenic Factors

The factors causing the decline of the desert tortoise are primarily human related. These factors include collection of desert tortoises for pets, food, and commercial trade; collision with vehicles on roads and highways; mortality from gunshots; predation; and off-road vehicle (ORV) travel cross-country or on trails. Predation by the common raven is intense on younger age classes of desert tortoise. Raven populations have shown a 15-fold increase in the Mojave Desert from 1968 to 1988 (Berry 1990). Increased food supplies from road kills, landfills, trash, garbage dumps, agricultural development and new perch and nest sites all contribute to the increased population of ravens. Berry (1990) speculated that raven predation has resulted in such high juvenile desert tortoise loss in some portions of the Mojave that recruitment of juveniles into the adult population has been halted. In the Project area, previous disturbance from OHV travel, weeds and ground disturbance from multiple linear facilities such as pipelines and transmission lines were observed.

Connectivity

Habitat connectivity is important to maintain desert tortoise access to required resources (e.g., water or burrow sites), minimize energetic expenditures to access resources, limit risk of travel-related injury or death by minimizing the need to move through risky or uninhabitable areas, maintain social behaviors and gene flow, and enable movement with a change in environmental conditions, such as climate shift (Webster et al. 2002; Lowe and Allendorf 2010). In a review of numerous definitions of habitat connectivity published in the scientific literature, Kindlmann and Burel (2008) defined habitat connectivity simply as “the ease with which individuals can move about within a landscape.” This definition encompasses both structural (based entirely on landscape configuration independent of the animal) and functional connectivity (including animal responses to landscape features). It is important to note that natural barriers—such as rivers or mountains—often can limit habitat connectivity. In addition to natural barriers, human structures including housing developments, roads, farmland, and fences have increasingly reduced habitat connectivity (Fahrig 2003). This reduced connectivity has resulted from both habitat destruction and fragmentation the division of habitat into smaller, discontinuous units.

Factors in assessing the potential effects of the Project on desert tortoise habitat connectivity include:

- Natural barriers to tortoise movement
- Anthropogenic barriers to tortoise movement
- Habitat fragmentation

Genetic connectivity can be defined as the degree to which gene flow affects evolutionary processes within populations. For gene flow to occur across an area, populations of desert tortoises need to be connected by areas of suitable habitat that support sustainable numbers of reproductive individuals. Natural barriers, such as mountain ranges and rivers, reduce genetic connectivity and are thought to have partly resulted in some broad-scale genetic differentiation among tortoise populations within the Mojave Desert (Averill-Murray et al. 2013). In the Action Area there are currently no natural barriers that would affect genetic connectivity from south to north. Tortoise movement to the east may be limited by Interstate 15 and a railroad, and by the mountains to the west. Genetic connectivity is currently maintained as tortoises can exchange

genetic material with populations in suitable habitat areas north and south of the project area. Given the existing natural and anthropogenic barriers, because most vegetation would be maintained on the Project site, and the perimeter fence would remain permeable to allow tortoises to occupy and move through the solar arrays. Project activities would be unlikely to further reduce genetic connectivity in the area.

Habitat Fragmentation

The Proposed Project is not expected to substantively contribute to habitat fragmentation because it is surrounded by large tracts of undeveloped land that support a healthy tortoise population. Additionally, the preservation of native vegetation on site and a permeable fence would allow tortoises to re-occupy the site after construction.

4.2.3 Desert Tortoise Designated Critical Habitat

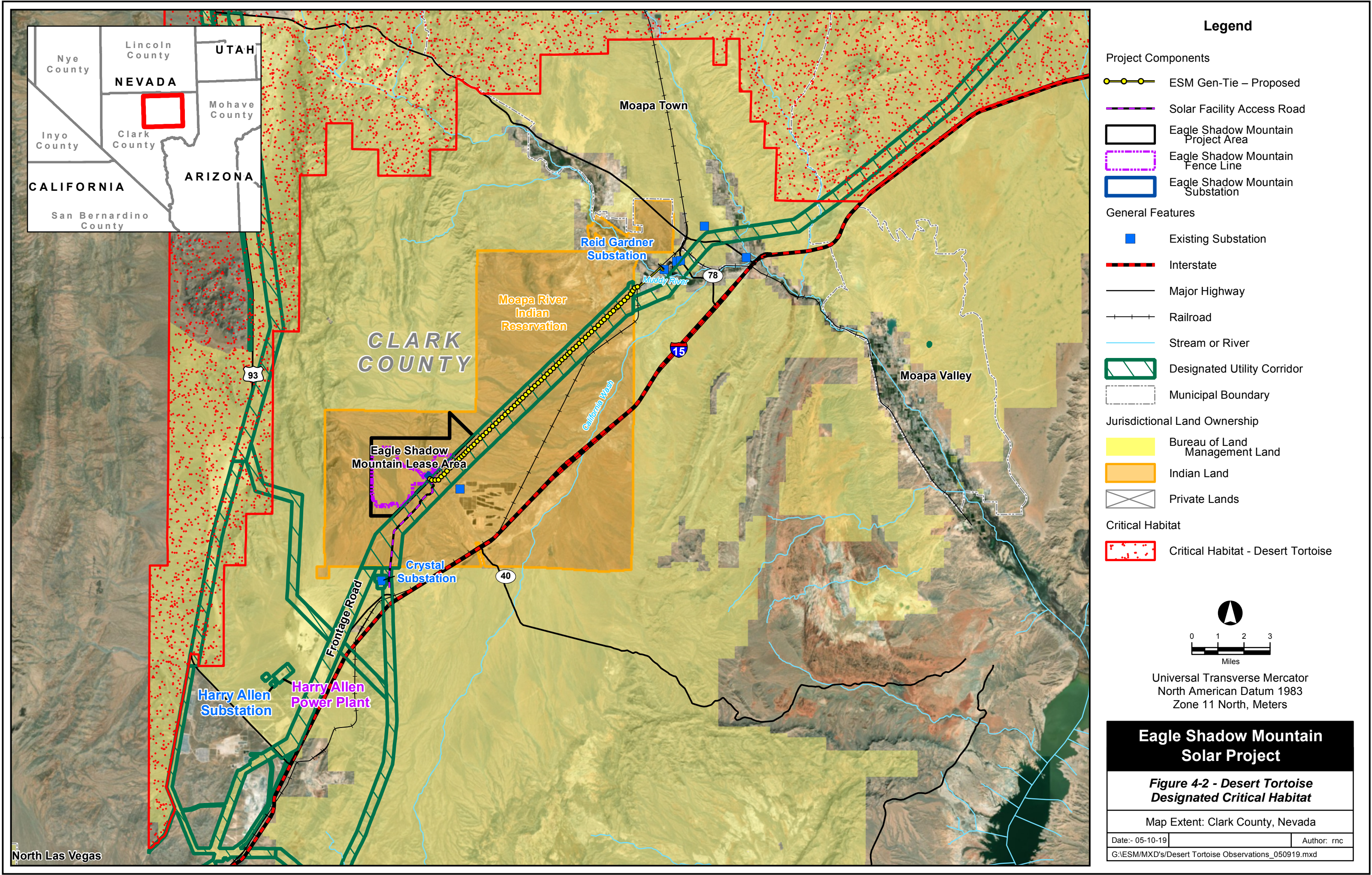
In 1990, USFWS listed the desert tortoise as threatened over 30 percent of its geographic range. In response to this listing, the *Desert Tortoise (Mojave Population) Recovery Plan* was created to aid in the preservation of the species. In this plan, six population units termed “recovery units,” were identified using available data on genetic variability, morphology, ecosystem types, and population behavior.

Within these recovery units, 14 desert wildlife management areas (DWMA) were identified as areas where tortoise populations could be managed for recovery. The guidelines used to delineate the 14 DWMA were used by USFWS to designate federally protected desert tortoise “Critical Habitat” in 1994. Of the original 22,616 to 27,407 square kilometers recommended for protection in the 14 DWMA, 26,087 square kilometers became Designated Critical Habitat (DCH). Primary constituent elements of DCH for the desert tortoise are those physical and biological attributes that are necessary for the long- term survival of the species. These elements were identified as sufficient space to support viable populations within each of the five Recovery Units and to provide for movement, dispersal, and gene flow; sufficient quantity and quality of forage species and the proper soil conditions to provide for the growth of such species; suitable substrates for burrowing, nesting, and overwintering; burrows, caliche caves, and other shelter sites; sufficient vegetation for shelter from temperature extremes and predators; and habitat protected from disturbance and human-caused mortality (USFWS 2011).

The Project area is not located within USFWS desert tortoise DCH (USFWS 2019). **Figure 4-2** depicts the nearest DCH, which is approximately 4 miles to the west of the proposed Project. The Project activities would not have indirect effects on the physical characteristics of designated critical habitat that are required to support the recovery of the species.

4.3 Moapa Dace

The Moapa dace was listed as an endangered species under the ESA on March 11, 1967 (32 Federal Register [FR] 4001). Since the Moapa dace represents a monotypic genus, this species was assigned a recovery priority of 1 (highest ranking) by the USFWS in 1995. The original recovery plan for this species was prepared in 1983 and subsequently revised in 1995.



4.3.1 Distribution and Life History

The Moapa dace is endemic to and occurs in the Muddy River system (and associated thermal spring systems). Specifically, it occurs in the Warm Springs area in which encompasses 10 thermal spring provinces that form the Muddy River. Moapa dace likely inhabited 25 springs and approximately 16 kilometers of the upper Muddy River (Ono et al. 1983). Historically, the Muddy River was 48.4 kilometers long; however, in 1935, with the completion of the Hoover Dam, Lake Mead flooded the lower 8 kilometers of the river, rendering it unsuitable for Moapa dace. Previous surveys found adult Moapa dace occurring in low numbers in restricted portions of 3 springs and less than 2 miles of spring outflow and river in the Warm Springs area (USFWS 1983).

The Moapa dace inhabits a variety of habitats throughout its several life stages. As individuals age, they occupy habitats with increasing flow velocities such that larval dace are apparently limited to slackwater portions of the upper reaches of tributaries of the Moapa River, whereas adults can be found in the river's mainstem. The species prefers warmer temperatures (67-89.6°F); thus, cooler temperatures in the middle portion of the Moapa River mainstem may function as a barrier to downstream movements (USFWS 1996).

The species is omnivorous; stomach contents have included beetles, moths, butterflies, true flies, leaf hoppers, true bugs, caddisflies, mayflies, damselflies, dragonflies, worms, scuds, crustaceans, snails, filamentous algae, vascular plants, detritus and sand. The dace primarily forages on drift items but will also forage on the stream or spring substrate. The species often forages from drift stations in large groups (up to 30 individuals). These sites are often characterized by overhanging vegetation or particularly deep areas (USFWS 1996).

4.3.2 Threats to the Species

Threats to the Moapa dace include habitat loss and alteration, introduction of non-native species, and parasites. Habitat loss and alteration has been ongoing in the Warm Springs areas for the purposes of recreational, industrial and municipal projects. Several headwater springs were completely channelized or diverted for use as swimming pools. Irrigation for agricultural purposes historically had impacts on headwater springs in the Warm Springs area, though agricultural activity in the area has declined.

Moapa dace persist within several warm springs and associated springbrooks that have been altered greatly by humans. Downstream habitats, where adult dace from different spring systems mixed historically, are now infested with exotic predatory fish. In many cases infested habitats are intentionally blocked from upstream areas by fish barriers built to prevent the spread of exotic fish. Specifically, a fish barrier (known as the refuge barrier) and a water diversion exist upstream of the Project's gen-tie crossing. The resulting fragmented population structure threatens the dace's genetic and demographic health, although barriers must be maintained until the threats of exotic fish are eliminated (USFWS 2009a).

The gen-tie crossing is located almost 2 miles (downstream) of the area selected for USFWS snorkel surveys for Moapa dace from 2005-2013, and was not surveyed because the Action Area is not considered suitable dace habitat.

4.3.3 Critical Habitat

There is no designated critical habitat for the Moapa dace.

5.0 EFFECTS OF THE PROPOSED ACTION AND DETERMINATION OF EFFECTS

This section presents the potential direct, indirect, and cumulative effects of the Proposed Action on listed species. Impacts resulting from the implementation of the Proposed Action include:

- Injury of mortality of desert tortoises from construction activities;
- Temporary stress on desert tortoises from handling during relocation efforts;
- Temporary constriction of movement corridors for desert tortoises during construction;
- Disturbance from vibrations during construction that could affect tortoises near the boundary of the construction area;
- Temporary and permanent loss of desert tortoise habitat and burrows;
- Disturbance and displacement of desert tortoises during construction of the associated access roads and proposed gen-tie;
- Potential noise and lighting effects on tortoise behavior and movement;
- Introduction of weeds and invasive species within the construction area during construction and operation;
- Exposure to chemicals (herbicides, palliatives and spills from equipment);
- Potential increased raven and other predator populations resulting from perches provided by the solar structures, transmission lines and towers, and perimeter fencing, and human introduction of trash within or near the Action Area boundary;
- Groundwater use from the same hydrographic basin that supports the Moapa dace (incremental or additive effects), yellow-billed cuckoo, Yuma clapper rail, and southwestern willow flycatcher.

5.1 Federally Listed Bird Species

5.1.1 Yellow-billed Cuckoo

There is no suitable habitat along the Muddy River at the proposed gen-tie crossing and no habitat would be removed or affected by the Proposed Action. Proposed critical habitat occurs approximately 5 miles upstream of the Project area near the Warm Springs Ranch and potential breeding was observed there in 2018. While few yellow-billed cuckoos are known to occur there, they may use the Muddy River for migration to and from breeding habitat and for dispersal, and those individuals may be at risk of colliding with the proposed gen-tie. While groundwater withdrawals may result in insignificant reductions in flow in the Muddy River, the magnitude of effects would be too small to affect yellow-billed cuckoo or cuckoo habitat (e.g., riparian vegetation)(see analysis in Section 5.3).

Determination

Due to the low number of yellow-billed cuckoos that occur near the Action Area and the lack of habitat in the Project area, the potential for direct mortality to this species is low. Potential risk would be insignificant and discountable and potential indirect effects would be negligible. The Proposed Action **may affect, but is not likely adversely affect** the yellow-billed cuckoo. No proposed or designated critical habitat is within the project vicinity along the Muddy River; therefore, the project would have *no effect* to **proposed critical habitat**.

5.1.2 Yuma (Ridgway's) Clapper Rail

There is no suitable habitat along the Muddy River at the proposed gen-tie crossing and no habitat would be removed or affected by the Proposed Action. This species is known to occur along the Muddy River within the Overton Wildlife Management Area over 15 miles downstream of the proposed gen-tie crossing. Critical habitat has not been designated for this species. While the nearest suitable habitat is over 15 miles from the Project area, rails may use the Muddy River as a migration corridor, and those individuals may be at risk of colliding with the proposed gen-tie. While groundwater withdrawals may result in insignificant reductions in flow in the Muddy River, the magnitude of effects would be too small to affect Yuma clapper rail habitat (e.g., hydrophytic vegetation)(see analysis in Section 5.3).

There have been two isolated incidents involving Yuma clapper rail near solar projects. One mortality was discovered near the solar field at a PV solar project in Riverside County, California. Field data collected in connection with that incident failed to provide evidence of any direct impact or collision with a PV module. Another Yuma clapper rail mortality was discovered at a PV solar project in Imperial County, California. There was no evidence of a collision with a PV module.

In response to these incidents, USFWS addressed the potential for solar projects to result in injury or mortality to Yuma clapper rail in an incidental take statement for a project in Imperial County, California. The USFWS recognized that interactions between Yuma clapper rail and PV facilities are improbable when such projects are distant from this species' habitat. The USFWS concurred with the BLM's finding that the project, located near the Colorado River in Riverside County, California, was "not likely to adversely affect" Yuma clapper rail. Similar to the ESM Project, that project area did not include aquatic habitat for Yuma clapper rail, was not located in a flight path that would connect aquatic features.

Determination

Due to the low number of Yuma clapper rail mortalities at PV solar facilities and the lack of habitat in the Action Area, the potential for direct mortality to this species is low. Potential risk would be insignificant and discountable and potential indirect effects would be negligible. The Proposed Action **may affect, but is not likely adversely affect** the Yuma clapper rail.

5.1.3 Southwestern Willow Flycatcher

There is no suitable habitat along the Muddy River at the proposed gen-tie crossing and no habitat would be removed or affected by the Proposed Action. There is no designated critical habitat in the Action Area. Suitable habitat occurs approximately 5 miles upstream of the Project area near the Warm Springs Ranch and potential breeding was observed there in 2018. While few southwestern willow flycatchers are known to occur there, they may use the Muddy River for migration to and from breeding habitat and for dispersal, and those individuals may be at risk of colliding with the proposed gen-tie.

While groundwater withdrawals may result in insignificant reductions in flow in the Muddy River, the magnitude of effects would be too small to affect southwestern willow flycatcher or its habitat (e.g., riparian vegetation)(see analysis in Section 5.3).

Determination

Due to the low number of southwestern willow flycatchers that occur near the Action Area and the lack of habitat in the Project area, the potential for direct mortality to this species is low. Potential risk would be insignificant and discountable and potential indirect effects would be negligible. The Proposed Action **may affect, but is not likely adversely affect** the southwestern willow flycatcher. No proposed or designated critical habitat is within the Action Area along the Muddy River; therefore, the project would have *no effect* to **designated critical habitat**.

5.2 Desert Tortoise

5.2.1 Injury and Mortality

A federal take of a species listed pursuant to the federal ESA is defined as “Take – to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in any such conduct” (50 CFR 17.3). An estimated 73 adult desert tortoises (95% CI = 36 – 145; plus approximately 2 tortoises associated with the gen-tie corridor) occur within the Action Area (based on 2018 USFWS protocol calculations). Therefore, construction of the Proposed Action may result in impacts to up to 73 (95% CI = 36 to 145) adult desert tortoises through harassment, direct mortality, and impacts on desert tortoise habitat. Two desert tortoises were observed within the gen-tie survey area. No take estimates were generated along this linear feature.

Beside the initial construction, the use of the site access road as well as O&M activities inside and outside the solar site could represent a source of ongoing mortality. Biological monitors would accompany all activities along the access road and gen-tie during construction. As such, direct take of desert tortoises resulting from these activities is expected to be very low.

5.2.2 Relocation, Translocationing and Handling

Temporary desert tortoise exclusion fencing would be installed prior to construction and desert tortoises would be relocated via clearance surveys before the construction phase of the project. Relocation of desert tortoises can potentially represent take via harassment and/or mortality, as there is a possibility for tortoises to be killed or injured as a result of this process. Desert tortoises would be relocated to Tribal lands within the Action Area as described in the Project’s translocation plan. It is expected that all tortoises would be captured and safely released outside the exclusion fence adjacent to the Project site. Tortoises encountered along the gen-tie would be relocated out of harm’s way in the immediate vicinity of where they were found.

5.2.3 Loss of Occupied Habitat

The Proposed Action includes the installation of temporary desert tortoise exclusion fencing around the solar facility, utilizing gates and cattle guards (with ramps) at ingress/egress locations. The permanent perimeter fence would be constructed inside of the exclusion fencing. Exclusion fencing would be removed after construction, allowing tortoises to move onto and through the site during operations.

Vegetation would be cleared along access roads, at the Project substation and O&M building, at inverters, and along cable trenches. However, most native vegetation within the solar arrays would be left in place during construction. Equipment would drive and crush vegetation, preserving the integrity of root balls and allowing it to regrow after construction. Tall shrubs would be trimmed to allow for installation of panels. Native vegetation would remain in the solar arrays during operations and would provide suitable habitat for tortoises during operations.

A total of approximately 107 acres of occupied desert tortoise habitat would be permanently disturbed and up to approximately 2,108 acres would be temporarily disturbed as a result of project implementation (**Table 2-2**).

Construction equipment would not operate beyond the fenced boundary with the exception of the access road and the gen-tie ROWs. Roads that are not designated as open by the Applicant and Tribe are not to be used by project personnel unless accompanied by a biological monitor.

5.2.4 Constriction of Movement

The Proposed Action is currently located in an area where desert tortoise movement is generally unrestricted. Topography in the area is gently sloping to rolling with no major barriers to movement. Disturbance resulting from the construction of the gen-tie line may affect tortoise movement via avoidance during construction, but generally would not restrict tortoise movement. The railroad and Interstate 15 to the east and the Arrow Canyon Range likely represent barriers to movement out of the Dry Lake Valley to the east or west. North and/or south movement within the valley is generally unrestricted.

Temporary exclusionary fencing would be installed around the perimeter of the site in order to exclude tortoises during construction. The exclusionary fencing would restrict desert tortoise movement on the site during construction, but would not preclude north-south movement through the Dry Lake Valley. During operations, tortoises would be allowed to move freely through the site. No permanent exclusionary fencing would be used on the access road or gen-tie line. These areas would experience temporary disturbance that could affect tortoise movement but would not directly restrict it.

Biological monitors would be in place along the access road during construction to minimize any impacts from vehicles. Once exclusion fencing has been installed and clearance surveys are completed, biological monitors would not be required.

5.2.5 Vibration and Noise

Equipment that would cause surface disturbance and otherwise operate during construction would be limited to what would be needed to grade dirt access roads, equipment to install solar arrays, trenching equipment for installation of cable and wiring and equipment to install the small operations building and the proposed electric substation. Areas outside of the exclusion fence may experience short-term vibrations and increased noise that could potentially disturb desert tortoises. Vibration is unlikely to be noticeable more than 40 or 50 feet beyond the source; noise would be increased at greater distances though would also be temporary and sporadic. Construction taking place near the perimeter edge of the exclusion fence is limited. Ground-disturbing activities during O&M would be substantially less than during construction of the Proposed Action, such that no adverse effects on desert tortoise from ground vibration or noise are expected to occur during O&M.

5.2.6 Dust

Construction activities and O&M vehicle traffic on the roads within the Action Area could generate dust that could affect vegetation adjacent to the Action Area in the short-term; long-term adverse effects on vegetation are not expected to occur. The buildup of dust on plant leaves could affect photosynthetic productivity and nutrient and water uptake resulting in loss of potential foraging plants for desert tortoises. It is assumed that this low-level dusting effect during construction would be minimal and most likely washed away during rainstorms. Construction BMPs would be in place to monitor and decrease dust pollution if required by use of polymeric stabilizers in the soil or with frequent watering with water trucks or other means.

5.2.7 Lighting

Temporary lighting would be used during construction at dawn and dusk at the construction offices, laydown yard and substation area. There may also be mobile lighting located at entrances during construction. Lighting would likely be used more during the wintertime to ensure safe working conditions for personnel. Minimal lighting would be used on-site and would be directed inward and downward. Site lighting could include motion sensor lights for security purposes. Lighting used on-site would be of the lowest intensity foot candle level, in compliance with any applicable requirements from the Band, measured at the property line after dark. The Project's lighting system would provide O&M personnel with illumination for both normal and emergency conditions near the main entrance, O&M building and the Project substation. Lighting would be designed to provide the minimum illumination needed to achieve safety and security objectives and would be downward facing and shielded to focus illumination on the desired areas only. Therefore, light trespass on surrounding properties would be minimal. If lighting at individual solar panels or other equipment is needed for night maintenance, portable lighting would be used. Project lighting is not expected to have a more than negligible effect on desert tortoises near and adjacent to the Proposed Action

5.2.8 Edge Effects

The edge effect is the effect of the juxtaposition or placing side by side of contrasting environments on an ecosystem. This term is commonly used in conjunction with the boundary between natural habitats and disturbed or developed land. The Proposed Action includes placement of a temporary exclusionary perimeter fence during construction. Other than impacted burrows or desert tortoises that need to be relocated during fence construction we assume that there would be no permanent or long-term edge effects as a result of the Proposed Action. The fence may create roosting sites for ravens or birds of prey; these effects would be mitigated through the preparation and implementation of a Raven Control Plan.

5.2.9 Introduction of Weeds and Invasive Species

Introduction of weeds and invasive species would be controlled using an integrated weed management plan and would prevent or minimize the spread/colonization of weeds onsite and off-site. Invasive species could be introduced to the area via transport by construction vehicles and equipment. The ground would be disturbed during construction providing increased opportunity for weed establishment, though much less than if the site were to be graded. The integrated weed management plan (Appendix G of the DEIS) would identify management and operational practice to avoid the introduction or spread of existing invasive species within the Action Area. The goal of this plan would be to minimize potential effects from weeds and invasive species within the Action Area and adjacent

lands, as well as to avoid adverse effects on desert tortoise foraging habitat off-site. Implementation of this plan would result in no adverse effects on desert tortoises from weeds or invasive species within the Action Area or on adjacent lands.

5.2.10 Exposure to Chemicals

The primary wastes generated at the Project during construction, operation, and maintenance would be nonhazardous solid and liquid wastes. Limited quantities of hazardous materials would be used and stored on the solar site. The ESS, if included, could include lithium-ion batteries that would need replacement periodically and the used batteries would need to be disposed of according to appropriate protocols. The primary hazardous materials on site during construction would be the fuels, lubricating oils and solvents associated with construction equipment. The nonhazardous wastes produced by construction and O&M activities would include defective or broken electrical materials and batteries, empty containers, the typical refuse generated by workers and small office operations, and other miscellaneous solid wastes. The types of wastes and their estimated quantities will be discussed in a hazardous materials plan that will be developed for the Project.

The Applicant has prepared an Emergency Response Plan and a Spill Response Plan that address waste and hazardous materials management including BMPs related to storage, spill response, transportation, and handling of materials and wastes. These draft plans are included in Appendices E and F of the DEIS. Waste management would emphasize the recycling of wastes where possible and would identify the specific landfills that would receive wastes that cannot be recycled.

Mechanical treatment of weeds is the preferred method for the Project; however, herbicides may be used if necessary. Herbicide use would follow those approved in BLM's Programmatic EIS (PEIS) for Vegetation Treatments Using Aminopyralid, Fluroxypyr, and Rimsulfuron on BLM Managed Lands in 17 Western States (BLM 2016). The applicant would implement a Site Restoration Plan and an Integrated Weed Management Plan that specifies procedures for managing vegetation and minimizing the spread of non-native and noxious weeds, including integrated pest management and use of herbicides. Standard Operating Procedures (SOPs) would be incorporated into the Integrated Weed Management Plan (Appendix G of the DEIS) and implemented. The herbicides that may be used in mowed areas, based on those allowed on BLM lands, include aminopyralid, clopyralid, imazapyr, imazapic, glyphosate, metasulfuron methyl, and rimsulfuron. Herbicides that are believed to have deleterious effects on reptiles, such as 2,4-D, would not be allowed. Any herbicide use would be used during the less active tortoise season.

Water is the preferred method for reducing dust for the Project; however, palliatives may be used in permanent disturbance areas at the beginning of construction where tortoises have been excluded. Approved palliatives for use in desert tortoise habitat include Road Bond 1000, Soil Cement (for roads and heavy traffic areas), Formulated Soil Binder (FSB) 1000 (for non-traffic areas on finer soils) and Plas-Tex (For non-traffic areas on sandier/rockier soils). Since palliatives would only be used in areas where tortoises have been excluded, they should not come into contact with these substances.

5.2.11 Attraction of Human Subsidized Predators

Avian predators and scavengers such as the common raven (*Corvus corax*) and canids benefit from a myriad of resource subsidies provided by human activities as a result of substantial development within the desert as compared to undeveloped desert landscapes (Boarman et al. 1996). These subsidies can include food (e.g. garbage), water (e.g. detention ponds), nesting substrates (e.g. transmission lines and

fencing), and safety from inclement weather or predators (e.g. buildings). Ravens and other predators may be attracted to elevated structures associated with the Proposed Action such as the perimeter fencing, gen-tie line poles, collector line poles and the O&M building. There is a potential for increased sources of food, trash or water both during construction and operation of the Project, particularly at facilities where people concentrate; however, a Raven Control Plan (RCP)(Appendix K of the DEIS) was developed and would be approved prior to the initiation of construction activities. It addresses trash and litter control. These would reduce or eliminate potential raven (or other avian predators) related impacts to desert tortoises.

5.2.12 Operations and Maintenance

Because the solar site would be enclosed with permeable fencing and most vegetation would be maintained on site during operations, it is likely that tortoises would pass through the solar site and reoccupy it to some extent, though the extent to which tortoise would reoccupy the site is unknown at this time. The presence of desert tortoises on the solar site may result in take (injuries or death). Tortoises may be injured or killed during routine maintenance of facilities inside and outside of the fenced solar site caused by truck traffic along the gen-tie line and/or associated access roads and maintenance vehicles on the solar site. Mitigation measures, such as biological monitors for ground disturbing activities, speed limits, and WEAP, would help to minimize impacts to desert tortoise during these routine maintenance activities (Refer to Section 2.7.4).

Determination

Implementation of the Proposed Action “**may affect, and is likely to adversely affect**” the desert tortoise in the Action Area. This determination is based on the following considerations:

- Construction-related impacts on the desert tortoise could include direct mortality or injury as a result of being crushed by vehicles and disturbance of soil. During pedestrian surveys of the Action Area, desert tortoise sign (e.g., scat, tracks, burrows, shell fragments) as well as live tortoises were observed. In addition to the direct and indirect effects of construction on the tortoise, temporary and permanent disturbance to desert tortoise habitat would occur.
- Capturing, handling, and relocating desert tortoises out of the solar site may result in harassment and possibly injury or death (Blythe et al. 2003). To minimize this effect, tortoises would be handled in accordance with USFWS handling protocols (Minimization Measures 4, 5, and 6).
- O&M activities along the gen-tie, access roads, and within the solar site could include direct mortality or injury as a result of being crushed by vehicles. Desert tortoises are expected to re-inhabitant the solar site during operations, the extent of which is unknown at this time. Minimization measures (**Section 2.7.4**) would be implemented to minimize this risk.

5.3 Moapa Dace

The Moapa dace is only known to occur in the Muddy River and several associated headwater springs in the Warm Springs area. Those springs represent the primary water source for the Muddy River to which the Moapa dace is endemic. The Proposed Action would include water withdrawal from the EC-1 well of up to 200 acre-feet (AF) during the 18-month construction period and up to 20 acre-feet per year (afy)

for panel washing and domestic use during the O&M period. Groundwater withdrawals represent the only potential effect to Moapa dace from the Proposed Action.

5.3.1 Water Drawdowns

The entire flow of the Muddy River is derived from the discharge from the regional carbonate aquifer, except during infrequent precipitation events that increase River flows for up to a few days. Consumptive uses include 1) natural evapotranspiration, 2) surface-water diversions, and 3) groundwater diversions.

On July 14, 2005, a Memorandum of Agreement (MOA) was signed by the Southern Nevada Water Authority (SNWA), Meadow Valley Wash Water District (MVWWD), Coyote Springs Investments (CSI), Band and the USFWS regarding the withdrawal of 16,100 afy from the regional carbonate aquifer in Coyote Spring Valley and California Wash Basins that included conservation measures for the Moapa dace. The MOA outlined specific conservation actions that each party would complete in order to minimize potential impacts to the Moapa dace should water levels decline in the Muddy River system as a result of the cumulative withdrawal of 16,100 af of groundwater from the two basins. On January 20, 2006, the USFWS concluded intra-service consultation and issued a programmatic biological opinion (PBO) entitled the *Intra-Service Programmatic Biological Opinion for the Proposed Muddy River Memorandum of Agreement Regarding the Groundwater Withdrawal of 16,100 Acre-Feet per Year from the Regional Carbonate Aquifer in Coyote Spring Valley and California Wash Basins, and Establish Conservation Measures for the Moapa Dace, Clark County, Nevada* (PBO).

The PBO indicated that the adverse effects associated with the withdrawal of 16,100 afy of groundwater would not result in “jeopardy” for the Moapa dace. Current monitoring data indicate that no instream flow trigger points have been reached.

The Moapa dace would not be directly affected by the construction or O&M of the proposed action. However, groundwater withdrawals associated with the proposed action would indirectly affect the Moapa dace. The effects of these groundwater withdrawals were previously analyzed in the 2006 PBO which evaluated the cumulative effects associated with the withdrawal of up to 16,100 afy from the carbonate aquifer in Coyote Spring Valley and California Wash basins. The Tribe is one of several parties that would withdraw water under this analysis. Up to 2,500 afy of Tribal withdrawals were included for the Tribe out of the total 16,100 analyzed in the 2006 PBO; the 200 AF (construction) and 20 afy (operations) of withdrawals proposed by the Project would be included in the previously permitted 2,500 afy. The K-road Project has already been built and is permitted to use up to 20 afy during operations; the Moapa Solar Energy Center not been built but is permitted to use 100 AF during construction and up to 30 afy during operations; and the Aiya Solar Project has not been built but would use approximately 100 AF during construction. Water would be supplied by a local water utility during operations for Aiya. Total water use from the Muddy River system for all four projects would be up to 300 AF during construction (which would not likely occur at the same time) and up to 70 afy during operations, well under the allotted 2,500 afy for the Tribe. The use of the 200 AF and 20 afy would contribute to ongoing adverse effects to Moapa dace as was analyzed in the 2006 PBO to which this document tiers.

Determination

Groundwater pumping associated with the Proposed Action “**may affect, and is likely to adversely affect**” Moapa dace because the withdrawal of water (200 AF during construction and 20 afy during operations) could contribute to ongoing adverse effects as analyzed in the 2006 PBO.

5.4 Cumulative Effects

Cumulative effects are those effects from future private, state, or Tribal activities that are likely to occur within the Action Area. Future federal actions are excluded as these are subject to Section 7 consultation under the ESA (50 CFR 402.02). The Band has no future projects planned for the area surrounding the Action Area that would not involve the BIA as the lead agency; therefore, the cumulative effects analysis is not warranted. The Arrow Canyon Solar Project (200 MW PV project) and the Southern Bighorn Solar and Storage Center (300 MW and 135 MW storage system) have recently been proposed and would be located on the Reservation. Additionally, the BLM is currently completing NEPA for the Gemini Solar and Battery Storage Project (690 MW and 380 MW storage system) which is located on BLM land southeast of the Reservation.

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Appendix A.

USFWS Species List



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Southern Nevada Fish And Wildlife Office
4701 N. Torrey Pines Drive
Las Vegas, NV 89130-2301
Phone: (702) 515-5230 Fax: (702) 515-5231



In Reply Refer To:

May 07, 2019

Consultation Code: 08ENVS00-2019-SLI-0100

Event Code: 08ENVS00-2019-E-00176

Project Name: Eagle Shadow Mountain Solar

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>; <http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
 - USFWS National Wildlife Refuges and Fish Hatcheries
 - Migratory Birds
 - Wetlands
-

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Southern Nevada Fish And Wildlife Office

4701 N. Torrey Pines Drive

Las Vegas, NV 89130-2301

(702) 515-5230

Project Summary

Consultation Code: 08ENVS00-2019-SLI-0100

Event Code: 08ENVS00-2019-E-00176

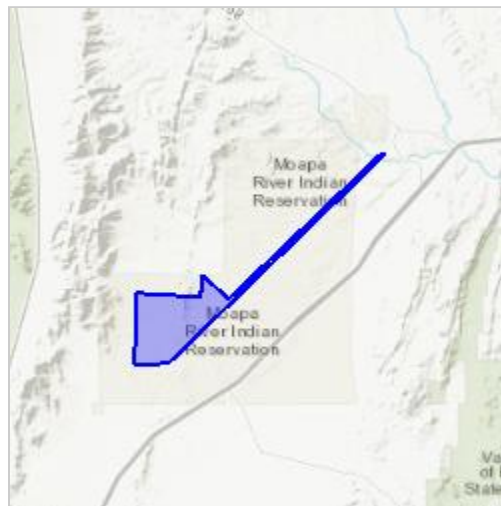
Project Name: Eagle Shadow Mountain Solar

Project Type: POWER GENERATION

Project Description: Located 30-miles north of Las Vegas. 2,200 acre solar site with a 12.5 mile transmission line. This IPaC will support BIA's consultation with the USFWS.

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/36.58779573393167N114.72443004106725W>



Counties: Clark, NV

Endangered Species Act Species

There is a total of 3 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Birds

NAME	STATUS
Southwestern Willow Flycatcher <i>Empidonax traillii extimus</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6749	Endangered
Yuma Clapper Rail <i>Rallus longirostris yumanensis</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/3505	Endangered

Reptiles

NAME	STATUS
Desert Tortoise <i>Gopherus agassizii</i> Population: Wherever found, except AZ south and east of Colorado R., and Mexico There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/4481	Threatened

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

USFWS National Wildlife Refuge Lands And Fish Hatcheries

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

Migratory Birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

-
1. The [Migratory Birds Treaty Act](#) of 1918.
 2. The [Bald and Golden Eagle Protection Act](#) of 1940.
 3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern](#) (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ [below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birds and the general public have sighted birds in and around your project area, visit the [E-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bendire's Thrasher <i>Toxostoma bendirei</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9435	Breeds Mar 15 to Jul 31
Burrowing Owl <i>Athene cunicularia</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9737	Breeds Mar 15 to Aug 31

Probability Of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ “Proper Interpretation and Use of Your Migratory Bird Report” before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)

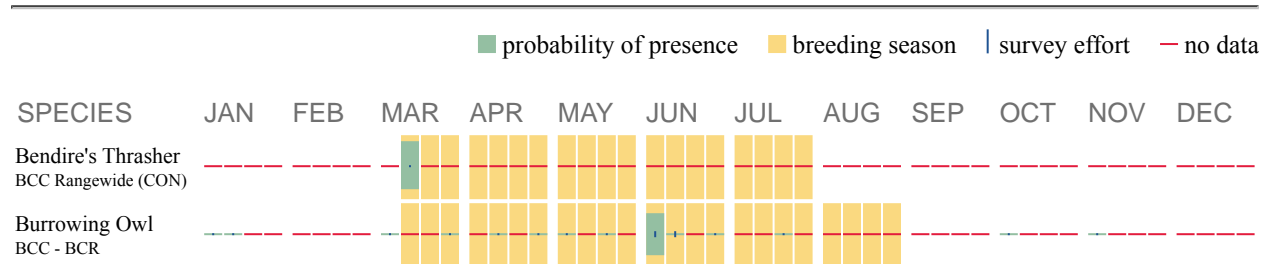
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

No Data (—)

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



Additional information can be found using the following links:

- Birds of Conservation Concern <http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>
- Measures for avoiding and minimizing impacts to birds <http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>
- Nationwide conservation measures for birds <http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf>

Migratory Birds FAQ

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) and/or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as

occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [AKN Phenology Tool](#).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: [The Cornell Lab of Ornithology All About Birds Bird Guide](#), or (if you are unsuccessful in locating the bird of interest there), the [Cornell Lab of Ornithology Neotropical Birds guide](#). If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC

species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ “What does IPaC use to generate the migratory birds potentially occurring in my specified location?”. Please be aware this report provides the “probability of presence” of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the “no data” indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ “Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds” at the bottom of your migratory bird trust resources page.

Wetlands

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

FRESHWATER POND

- [PUBF](#)

RIVERINE

- [R4SBC](#)
 - [R5UBH](#)
-

Appendix M

Cultural Resources Consultation



United States Department of the Interior

BUREAU OF INDIAN AFFAIRS
WESTERN REGIONAL OFFICE
2600 North Central Avenue
Phoenix, Arizona 85004-3008



IN REPLY REFER TO:

Environmental Quality Services
MS620-EQS

OCT 17 2018

Ms. Rebecca L. Palmer
State Historic Preservation Officer
Nevada State Historic Preservation Office
901 South Stewart Street, Suite 5004
Carson City, Nevada 89701-5248

Dear Ms. Palmer:

This letter and the enclosures constitute initiation of the process prescribed by Section 106 of the National Historic Preservation Act of 1966, as amended (NHPA), and codified at 36 CFR 800. As Lead Agency Official at 36 CFR 800.2(a)(2), the Bureau of Indian Affairs (BIA) has determined that the proposed project constitutes a federal undertaking: **approval of a lease and rights-of-way for the Eagle Shadow Mountain Solar Project and associated infrastructure, Clark County, Nevada (Project No. 2018-126)**. The undertaking can be characterized as construction of a 300 megawatt solar photovoltaic electricity generation facility on the Moapa River Indian Reservation. The ground lease for the solar facility would encumber up to 2,300 acres on land of the Moapa Band of Paiute Indians. The proposed undertaking will require right-of-way approval by the Bureau of Land Management (BLM) for an associated transmission line and access road.

Pursuant to 36 CFR 800.3, we wish to initiate the consultation process for the undertaking with the Nevada State Historic Preservation Office (SHPO). We are writing to request your views and consult regarding the following prescribed steps:

Involving the public pursuant to 36 CFR 800.3(e): We plan to continue to involve the public while developing an Environmental Impact Statement (EIS) under the National Environmental Policy Act (NEPA). As part of the NEPA review process, we will employ BIA, BLM, and Tribal notification procedures for addressing our responsibilities as defined at 36 CFR 800.2(d).

Identifying other consulting parties pursuant to 36 CFR 800.3(f): Besides your office, the consulting parties identified to date for this undertaking include the Moapa Band of Paiute Indians as identified at 36 CFR 800.3(d), 325 MK 8ME, LLC (project proponent), BLM Las Vegas Field Office, and National Park Service (NPS). Pursuant to 36 CFR 800.2(c)(2)(ii), we presently are approaching Tribes in the region that may attach religious and cultural significance to historic properties that may be affected by the undertaking. Pursuant to 36 CFR 800.2(c)(5), we also are approaching the Old Spanish Trail Association.

Determining the Area of Potential Effects (APE) pursuant to 36 CFR 800.4(a)(1): We presently consider the APE to include the parcel of approximately 2,500 contiguous acres for the solar energy center lease and all associated facilities, alternative transmission routes, and associated access roads. We propose the indirect APE for the undertaking to extend from the solar field lease area a radius of five miles or the visual horizon, whichever is closer. The indirect APE for the transmission Gen-Tie line will be one mile from the center line. Please see the enclosed map showing the direct and indirect APEs for the project.

Any additional efforts that may be necessary to identify historic properties in the APE pursuant to 36 CFR 800.4(b): As we follow subsequent steps in the consultation process, we will submit an archeological survey report for your review that covers the proposed lease area, transmission line alignment(s), and any other associated facilities. We anticipate a viewshed analysis will be used to identify areas in the indirect APE from which the undertaking may be visible.

We look forward to your views on these steps and additional efforts we may employ to satisfy our responsibilities as prescribed by the NHPA. If there are any questions, please contact Mr. Garry J. Cantley, Regional Archeologist, at (602) 379-6750 extension 1256 or by email at Garry.Cantley@bia.gov.

Sincerely,



Regional Director

Enclosures

cc: Superintendent, Southern Paiute Agency (w/enc)
Attn: Environmental Coordinator
Chairman, Moapa Business Council (w/enc)
Chairperson, Moapa Cultural Committee (w/enc)
Field Manager, Las Vegas Field Office, BLM (w/enc)
Cultural Resource Specialist, Nat'l Trails System-Intermtn. Region, NPS (w/enc)
Manager, Siting & Permitting, 8minutenergy (w/enc)
Regional Realty Officer, WRO (w/enc)



NEVADA
**STATE HISTORIC
PRESERVATION OFFICE**

Department of Conservation and Natural Resources

**Brian Sandoval, Governor
Bradley Crowell, Director
Rebecca L. Palmer, Administrator, SHPO**

November 20, 2018

Bryan Bowker
Western Regional Office Director
Bureau of Indian Affairs
2600 North Central Avenue
Phoenix, AZ 85004-3008

Re: Lease and Rights-Of-Way for the Eagle Shadow Mountain Solar Project and Associated Infrastructure, Clark County, Nevada (Project No. 2018-126)
Environmental Quality Services MS620-EQS / SHPO Undertaking #2019-5682

Dear Mr. Bowker:

The Nevada State Historic Preservation Office (SHPO) has reviewed the subject documents received in hard copy on October 23, 2018 and via email on November 20, 2018 in accordance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended.

Project Description

The SHPO understands this undertaking to be the Bureau of Indian Affairs' (BIA) approval of a lease and rights-of-way for the construction of a 300 megawatt solar photovoltaic electrical generation facility with associated infrastructure and access on the Moapa River Indian Reservation.

Area of Potential Effect (APE)

The BIA has determined that the direct effects as a result of this undertaking will be contained within a 2,500-acre area. Furthermore, the BIA has determined that indirect and cumulative effects as a result of this undertaking will be contained within a 5-mile radius of the solar field's direct APE or to the visual horizon, whichever is closer. The indirect APE is defined as a 1-mile radius from the centerline of the transmission line extending from the solar field. Since the BLM did a visual analysis of the Gemini solar field's visibility during their CRINA process, it may be helpful for the public if the BIA also does a viewshed analysis to further refine the indirect APE for this undertaking.

The SHPO **concurs** with the BIA's determination that this APE accounts for all potential direct, indirect, and cumulative effects that may result from this undertaking in keeping with 36 CFR §800.4(a)(1) and 36 CFR §800.16(d).

Identification Effort for Historic Properties

The SHPO notes that the proposed identification effort for archaeological properties within the direct APE is adequate for this undertaking. However, it is unclear what efforts the BIA is taking to identify other historic properties (e.g., architectural or traditional cultural properties) that could be within the indirect APE. If BIA is seeking SHPO review and comment on the proposed identification effort for the indirect APE, please submit additional information to our office.

Native American Consultation

The SHPO notes that consultation with the affected Native American tribes has been identified per 36 CFR §800.2(c)(2)(i)(B). If this consultation results in the identification of properties of religious and/or cultural significance that could be affected by the undertaking, the SHPO looks forward to consulting with the BIA on the National Register eligibility and possible effects of the undertaking per 36 CFR §800.4(c) and 36 CFR §800.4(d). In order to maintain a complete and accurate record of consultation, please forward a brief narrative summary of the results of this consultation to our office so this may be added to the administrative record for this undertaking.

Consulting Parties and Public Consultation

The SHPO notes that consultation with the public and representatives of organizations that have a demonstrated interest in historic properties have been identified for consultation on this undertaking by the BIA in keeping with 36 CFR Part §800.2(c)(5). If this consultation results in the identification of historic properties that could be affected by the undertaking, the SHPO looks forward to consulting with the BIA concerning the National Register eligibility and possible effects of the undertaking. In order to maintain a complete and accurate record of consultation, please forward a brief narrative summary of the results of this consultation to our office so this may be added to the administrative record for this undertaking.

Should you have any questions concerning this correspondence, please contact Jessica Axsom at (775)684-3445 or by email at jaxsom@shpo.nv.gov or SHPO staff architectural historian Kristen Brown at (775) 684-3439 or by email at knbrown@shpo.nv.gov.

Sincerely,



Robin K. Reed
Deputy State Historic Preservation Officer

cc via email: Garry J. Cantley, BIA



United States Department of the Interior

BUREAU OF INDIAN AFFAIRS
WESTERN REGIONAL OFFICE
2600 North Central Avenue
Phoenix, Arizona 85004-3008



IN REPLY REFER TO:

Environmental Quality Services
MS620-EQS

DEC -7 2018

Ms. Rebecca L. Palmer
State Historic Preservation Officer
Nevada State Historic Preservation Office
901 South Stewart Street, Suite 5004
Carson City, Nevada 89701-5248

Dear Ms. Palmer:

The Bureau of Indian Affairs (BIA) is in receipt of your letter dated November 20, 2018, in response to our initiation of the consultation process for the proposed undertaking, **approval of a lease and rights-of-way for the Eagle Shadow Mountain Solar Project and associated infrastructure, Clark County, Nevada (Project No. 2018-126; SHPO Undertaking #3019-5682)**. We are writing to submit additional information in reply to your comment about our proposed efforts to identify historic properties in the indirect area of potential effect (APE).

We plan to conduct a Class I overview of the indirect APE as defined in our previous correspondence. The overview will include a review of historic maps and aerial photographs, including the General Land Office (GLO) Historical Index and Plat Maps, to identify possible cultural resources that have not been recorded and/or previously evaluated for eligibility for the National Register of Historic Places (National Register). If historic resource locations are confirmed via cross-referencing with modern aeriels, we will plan to visit the location with the intent of recording and evaluating the site's eligibility. Previously recorded sites within the indirect APE will be addressed with a site revisit and evaluation using the following proposed conditions:

- Unevaluated rock shelters (with cultural material recorded on site form) that are visible from and face toward the project area;
- Unevaluated petroglyphs that are visible from the project area;
- Unevaluated linear sites without architecture, e.g., roads, railroads, etc.;
- Unevaluated structures;
- The resource is potentially eligible under some criteria other than that listed at 36 CFR 60.4(d); those that fall under this criterion will not be visited or evaluated;
- If the site has been previously evaluated, we will tend to accept that evaluation, keeping in mind that the passage of time, changing perceptions of significance, or incomplete evaluation may require us to review each case.

In regard to identifying any traditional cultural properties (TCP), besides the Moapa Band of Paiute Indians, we have approached eight Tribes in the region that may attach religious and cultural significance to historic properties that may be affected by the undertaking. We shall ensure that consultation with any Tribe that advises us of such will continue throughout the life of the project to identify, evaluate, document, and mitigate possible impacts to TCPs.

We look forward to your views on our proposed efforts to identify historic properties in the indirect APE, as well as any additional efforts we may employ to satisfy our responsibilities as prescribed by the National Historic Preservation Act.

If there are any questions, please contact Mr. Garry J. Cantley, Regional Archeologist, at (602) 379-6750 extension 1256 or by email at Garry.Cantley@bia.gov.

Sincerely,



Regional Director

cc: Superintendent, Southern Paiute Agency
Attn: Environmental Coordinator
Chairman, Moapa Business Council
Chairperson, Moapa Cultural Committee
Field Manager, Las Vegas Field Office, BLM
Cultural Resource Specialist, Nat'l Trails System-Intermtn. Region, NPS
Manager, Siting & Permitting, 8minutenergy
Regional Realty Officer, WRO



United States Department of the Interior

BUREAU OF INDIAN AFFAIRS
WESTERN REGIONAL OFFICE
2600 North Central Avenue
Phoenix, Arizona 85004-3008



IN REPLY REFER TO:

Environmental Quality Services
MS620-EQS

OCT 24 2018

Honorable Timothy L. Nuvangyaoma
Chairman, Hopi Tribal Council
P.O. Box 123
Kykotsmovi, Arizona 86039

Dear Chairman Nuvangyaoma:

As Agency Official for purposes of Section 106 of the National Historic Preservation Act of 1966, as amended (NHPA), the Western Regional Office of the Bureau of Indian Affairs (BIA) wishes to consult with the Hopi Tribe about the proposed project: **approval of a lease and rights-of-way for the Eagle Shadow Mountain Solar Project and associated infrastructure, Clark County, Nevada (Project No. 2018-126)**. The undertaking can be characterized as construction of a 300 megawatt solar photovoltaic electricity generation facility on the Moapa River Indian Reservation. The ground lease for the solar facility would encumber up to 2,300 acres on land of the Moapa Band of Paiute Indians. The proposed undertaking will require right-of-way approval by the Bureau of Land Management (BLM) for an associated transmission line and access road.

The BIA is serving as Lead Federal Agency as described at 36 CFR 800.2(a)(2) for the project. Consulting parties identified to date for this undertaking include the Moapa Band of Paiute Indians, Nevada State Historic Preservation Office, 325 MK 8ME, LLC (project proponent), BLM Las Vegas Field Office, and the National Park Service (NPS). A cultural resource inventory report will be prepared for the proposed area of potential effects (APE).

Following provisions of the NHPA, we are seeking counsel with your office regarding the proposed undertaking to identify any concerns about historic properties; advice on our identification efforts and evaluation of historic properties; articulate views on the undertaking's effects; and participate in the resolution of any adverse effects. We specifically are asking to be advised if the Hopi Tribe attaches religious and cultural significance to any historic properties in the APE.

We look forward to your views on this project and other efforts we may employ to satisfy our responsibilities as prescribed by the NHPA.

If there are any questions, please contact Mr. Garry J. Cantley, Regional Archeologist, at (602) 379-6750 extension 1256 or by email at Garry.Cantley@bia.gov.

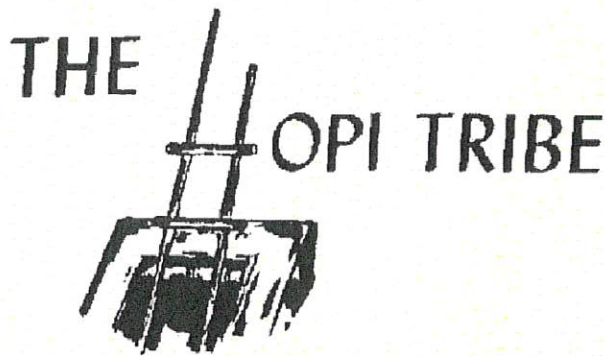
Sincerely,

Sgd) Bryan L. Bowker

Regional Director

Enclosures

cc: Superintendent, Southern Paiute Agency
Attn: Environmental Coordinator
Superintendent, Hopi Agency
Chairman, Moapa Business Council
Chairperson, Moapa Cultural Committee
Field Manager, Las Vegas Field Office, BLM
Cultural Resource Specialist, Nat'l Trails System-Intermtn. Region, NPS
Manager, Siting & Permitting, 8minutenergy
Director, Cultural Preservation Office, Hopi Tribe (w/enc)



Timothy L. Nuvangyaoma
CHAIRMAN

Clark W. Tenakhongva
VICE-CHAIRMAN

November 5, 2018

Regional Director
Attention: Gary J. Cantley, Archaeologist
Bureau of Indian Affairs, Western Regional Office
2600 North Central Avenue
Phoenix, Arizona 85004-3008

Re: Eagle Shadow Mountain Solar Project

Dear Regional Director,

Thank you for your correspondence dated October 24, 2018, regarding the Bureau of Indian Affairs wishing to consult on the approval of a lease and rights-of-way for the Eagle Shadow Mountain Solar Project and associated infrastructure in Clark County, Nevada. The Hopi Tribe claims cultural affiliation to earlier identifiable cultural groups in the Southwest, including the Virgin Anasazi cultural group in southern Nevada. The Hopi Cultural Preservation Office supports the identification and avoidance of our ancestral sites, and we consider the prehistoric archaeological sites of our ancestors to be "footprints" and Traditional Cultural Properties. Therefore, we appreciate the Bureau of Indian Affairs' continuing solicitation of our input and your efforts to address our concerns.

The Hopi Cultural Preservation Office requests consultation on any proposal in southern Nevada that has the potential to effect prehistoric Ancestral Pueblo sites. We understand the undertaking is characterized as a 300 megawatt solar photovoltaic electricity generating facility on 2300 acres of the Moapa River Paiute Reservation, and Bureau of Land Management right-of-way for an associated transmission line and access road. We also understand a cultural resources survey will be conducted.

Therefore, to enable us to determine if this proposal may affect cultural resources significant to the Hopi Tribe, we request continuing consultation on this proposal including being provided with a copy of the cultural resources survey report for review and comment. If you have any questions or need additional information, please contact Terry Morgart at the Hopi Cultural Preservation Office at 928-734-3619 or tmorgart@hopi.nsn.us. Thank you again for your consideration.

Respectfully,

Stewart B. Koyiyumptewa, Program Manager
Hopi Cultural Preservation Office

xc: Nevada State Historic Preservation Office





United States Department of the Interior

BUREAU OF INDIAN AFFAIRS
WESTERN REGIONAL OFFICE
2600 North Central Avenue
Phoenix, Arizona 85004-3008



IN REPLY REFER TO:

Environmental Quality Services
MS620-EQS

OCT 24 2018

Honorable Charles F. Wood
Chairman, Chemehuevi Tribal Council
P.O. Box 1976
Havasu Lake, California 92363

Dear Chairman Wood:

As Agency Official for purposes of Section 106 of the National Historic Preservation Act of 1966, as amended (NHPA), the Western Regional Office of the Bureau of Indian Affairs (BIA) wishes to consult with the Chemehuevi Indian Tribe (CIT) about the proposed project: **approval of a lease and rights-of-way for the Eagle Shadow Mountain Solar Project and associated infrastructure, Clark County, Nevada (Project No. 2018-126)**. The undertaking can be characterized as construction of a 300 megawatt solar photovoltaic electricity generation facility on the Moapa River Indian Reservation. The ground lease for the solar facility would encumber up to 2,300 acres on land of the Moapa Band of Paiute Indians. The proposed undertaking will require right-of-way approval by the Bureau of Land Management (BLM) for an associated transmission line and access road.

The BIA is serving as Lead Federal Agency as described at 36 CFR 800.2(a)(2) for the project. Consulting parties identified to date for this undertaking include the Moapa Band of Paiute Indians, Nevada State Historic Preservation Office, 325 MK 8ME, LLC (project proponent), BLM Las Vegas Field Office, and the National Park Service (NPS). A cultural resource inventory report will be prepared for the proposed area of potential effects (APE).

Following provisions of the NHPA, we are seeking counsel with your office regarding the proposed undertaking to identify any concerns about historic properties; advice on our identification efforts and evaluation of historic properties; articulate views on the undertaking's effects; and participate in the resolution of any adverse effects. We specifically are asking to be advised if the Chemehuevi Indian Tribe attaches religious and cultural significance to any historic properties in the APE.

We look forward to your views on this project and other efforts we may employ to satisfy our responsibilities as prescribed by the NHPA.

If there are any questions, please contact Mr. Garry J. Cantley, Regional Archeologist, at (602) 379-6750 extension 1256 or by email at Garry.Cantley@bia.gov.

Sincerely,

Sad) Bryan L. Bowker

Regional Director

Enclosures

cc: Superintendent, Southern Paiute Agency
Attn: Environmental Coordinator
Superintendent, Colorado River Agency (w/enc)
Chairman, Moapa Business Council
Chairperson, Moapa Cultural Committee
Field Manager, Las Vegas Field Office, BLM
Cultural Resource Specialist, Nat'l Trails System-Intermtn. Region, NPS
Manager, Siting & Permitting, 8minutenergy
Director of Cultural Resources, CIT (w/enc)



United States Department of the Interior

BUREAU OF INDIAN AFFAIRS
WESTERN REGIONAL OFFICE
2600 North Central Avenue
Phoenix, Arizona 85004-3008



IN REPLY REFER TO:

Environmental Quality Services
MS620-EQS

OCT 24 2018

Honorable Dennis Patch
Chairman, Colorado River Tribal Council
26600 Mohave Road
Parker, Arizona 85344-7737

Dear Chairman Patch:

As Agency Official for purposes of Section 106 of the National Historic Preservation Act of 1966, as amended (NHPA), the Western Regional Office of the Bureau of Indian Affairs (BIA) wishes to consult with the Colorado River Indian Tribes (CRIT) about the proposed project: **approval of a lease and rights-of-way for the Eagle Shadow Mountain Solar Project and associated infrastructure, Clark County, Nevada (Project No. 2018-126)**. The undertaking can be characterized as construction of a 300 megawatt solar photovoltaic electricity generation facility on the Moapa River Indian Reservation. The ground lease for the solar facility would encumber up to 2,300 acres on land of the Moapa Band of Paiute Indians. The proposed undertaking will require right-of-way approval by the Bureau of Land Management (BLM) for an associated transmission line and access road.

The BIA is serving as Lead Federal Agency as described at 36 CFR 800.2(a)(2) for the project. Consulting parties identified to date for this undertaking include the Moapa Band of Paiute Indians, Nevada State Historic Preservation Office, 325 MK 8ME, LLC (project proponent), BLM Las Vegas Field Office, and the National Park Service (NPS). A cultural resource inventory report will be prepared for the proposed area of potential effects (APE).

Following provisions of the NHPA, we are seeking counsel with your office regarding the proposed undertaking to identify any concerns about historic properties; advice on our identification efforts and evaluation of historic properties; articulate views on the undertaking's effects; and participate in the resolution of any adverse effects. We specifically are asking to be advised if the CRIT attaches religious and cultural significance to any historic properties in the APE.

We look forward to your views on this project and other efforts we may employ to satisfy our responsibilities as prescribed by the NHPA.

If there are any questions, please contact Mr. Garry J. Cantley, Regional Archeologist, at (602) 379-6750 extension 1256 or by email at Garry.Cantley@bia.gov.

Sincerely,

(Sgd) Bryan L. Bowker

Regional Director

Enclosures

cc: Superintendent, Southern Paiute Agency
Attn: Environmental Coordinator
Superintendent, Colorado River Agency
Chairman, Moapa Business Council
Chairperson, Moapa Cultural Committee
Field Manager, Las Vegas Field Office, BLM
Cultural Resource Specialist, Nat'l Trails System-Intermtn. Region, NPS
Manager, Siting & Permitting, 8minutenergy
Tribal Historic Preservation Officer, CRIT (w/enc)



United States Department of the Interior

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WESTERN REGIONAL OFFICE
2600 North Central Avenue
Phoenix, Arizona 85004-3008



IN REPLY REFER TO:

Environmental Quality Services
MS620-EQS

OCT 24 2018

Honorable Timothy Williams
Chairman, Fort Mojave Tribal Council
500 Merriman Avenue
Needles, California 92363

Dear Chairman Williams:

As Agency Official for purposes of Section 106 of the National Historic Preservation Act of 1966, as amended (NHPA), the Western Regional Office of the Bureau of Indian Affairs (BIA) wishes to consult with the Fort Mojave Indian Tribe (FMIT) about the proposed project: **approval of a lease and rights-of-way for the Eagle Shadow Mountain Solar Project and associated infrastructure, Clark County, Nevada (Project No. 2018-126)**. The undertaking can be characterized as construction of a 300 megawatt solar photovoltaic electricity generation facility on the Moapa River Indian Reservation. The ground lease for the solar facility would encumber up to 2,300 acres on land of the Moapa Band of Paiute Indians. The proposed undertaking will require right-of-way approval by the Bureau of Land Management (BLM) for an associated transmission line and access road.

The BIA is serving as Lead Federal Agency as described at 36 CFR 800.2(a)(2) for the project. Consulting parties identified to date for this undertaking include the Moapa Band of Paiute Indians, Nevada State Historic Preservation Office, 325 MK 8ME, LLC (project proponent), BLM Las Vegas Field Office, and the National Park Service (NPS). A cultural resource inventory report will be prepared for the proposed area of potential effects (APE).

Following provisions of the NHPA, we are seeking counsel with your office regarding the proposed undertaking to identify any concerns about historic properties; advice on our identification efforts and evaluation of historic properties; articulate views on the undertaking's effects; and participate in the resolution of any adverse effects. We specifically are asking to be advised if the FMIT attaches religious and cultural significance to any historic properties in the APE.

We look forward to your views on this project and other efforts we may employ to satisfy our responsibilities as prescribed by the NHPA.

If there are any questions, please contact Mr. Garry J. Cantley, Regional Archeologist, at (602) 379-6750 extension 1256 or by email at Garry.Cantley@bia.gov.

Sincerely,

(Sgd) Bryan L. Bowker

Regional Director

Enclosures

cc: Superintendent, Southern Paiute Agency
Attn: Environmental Coordinator
Superintendent, Colorado River Agency
Chairman, Moapa Business Council
Chairperson, Moapa Cultural Committee
Field Manager, Las Vegas Field Office, BLM
Cultural Resource Specialist, Nat'l Trails System-Intermtn. Region, NPS
Manager, Siting & Permitting, 8minutenergy
Director, Aha Makav Cultural Society, FMIT (w/enc)



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2600 North Central Avenue
Phoenix, Arizona 85004-3008



IN REPLY REFER TO:

Environmental Quality Services
MS620-EQS

OCT 24 2018

Honorable Dr. Damon R. Clarke
Chairman, Hualapai Tribal Council
P.O. Box 179
Peach Springs, Arizona 86434

Dear Chairman Clarke:

As Agency Official for purposes of Section 106 of the National Historic Preservation Act of 1966, as amended (NHPA), the Western Regional Office of the Bureau of Indian Affairs (BIA) wishes to consult with the Hualapai Indian Tribe about the proposed project: **approval of a lease and rights-of-way for the Eagle Shadow Mountain Solar Project and associated infrastructure, Clark County, Nevada (Project No. 2018-126).** The undertaking can be characterized as construction of a 300 megawatt solar photovoltaic electricity generation facility on the Moapa River Indian Reservation. The ground lease for the solar facility would encumber up to 2,300 acres on land of the Moapa Band of Paiute Indians. The proposed undertaking will require right-of-way approval by the Bureau of Land Management (BLM) for an associated transmission line and access road.

The BIA is serving as Lead Federal Agency as described at 36 CFR 800.2(a)(2) for the project. Consulting parties identified to date for this undertaking include the Moapa Band of Paiute Indians, Nevada State Historic Preservation Office, 325 MK 8ME, LLC (project proponent), BLM Las Vegas Field Office, and the National Park Service (NPS). A cultural resource inventory report will be prepared for the proposed area of potential effects (APE).

Following provisions of the NHPA, we are seeking counsel with your office regarding the proposed undertaking to identify any concerns about historic properties; advice on our identification efforts and evaluation of historic properties; articulate views on the undertaking's effects; and participate in the resolution of any adverse effects. We specifically are asking to be advised if the Hualapai Indian Tribe attaches religious and cultural significance to any historic properties in the APE.

We look forward to your views on this project and other efforts we may employ to satisfy our responsibilities as prescribed by the NHPA.

If there are any questions, please contact Mr. Garry J. Cantley, Regional Archeologist, at (602) 379-6750 extension 1256 or by email at Garry.Cantley@bia.gov.

Sincerely,

(Sgd) Bryan L. Bowker

Regional Director

Enclosures

cc: Superintendent, Southern Paiute Agency
Attn: Environmental Coordinator
Superintendent, Truxton Canon Agency
Chairman, Moapa Business Council
Chairperson, Moapa Cultural Committee
Field Manager, Las Vegas Field Office, BLM
Cultural Resource Specialist, Nat'l Trails System-Intermtn. Region, NPS
Manager, Siting & Permitting, 8minutenergy
Tribal Historic Preservation Officer, Hualapai Indian Tribe (w/enc)



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2600 North Central Avenue
Phoenix, Arizona 85004-3008



IN REPLY REFER TO:

Environmental Quality Services
MS620-EQS

OCT 24 2018

Honorable Ona Segundo
Chairwoman, Kaibab Paiute Tribal Council
HC 65 Box 2
Fredonia, Arizona 86022

Dear Chairwoman Segundo:

As Agency Official for purposes of Section 106 of the National Historic Preservation Act of 1966, as amended (NHPA), the Western Regional Office of the Bureau of Indian Affairs (BIA) wishes to consult with the Kaibab Band of Paiute Indians (Kaibab Band) about the proposed project: **approval of a lease and rights-of-way for the Eagle Shadow Mountain Solar Project and associated infrastructure, Clark County, Nevada (Project No. 2018-126)**. The undertaking can be characterized as construction of a 300 megawatt solar photovoltaic electricity generation facility on the Moapa River Indian Reservation. The ground lease for the solar facility would encumber up to 2,300 acres on land of the Moapa Band of Paiute Indians. The proposed undertaking will require right-of-way approval by the Bureau of Land Management (BLM) for an associated transmission line and access road.

The BIA is serving as Lead Federal Agency as described at 36 CFR 800.2(a)(2) for the project. Consulting parties identified to date for this undertaking include the Moapa Band of Paiute Indians, Nevada State Historic Preservation Office, 325 MK 8ME, LLC (project proponent), BLM Las Vegas Field Office, and the National Park Service (NPS). A cultural resource inventory report will be prepared for the proposed area of potential effects (APE).

Following provisions of the NHPA, we are seeking counsel with your office regarding the proposed undertaking to identify any concerns about historic properties; advice on our identification efforts and evaluation of historic properties; articulate views on the undertaking's effects; and participate in the resolution of any adverse effects. We specifically are asking to be advised if the Kaibab Band attaches religious and cultural significance to any historic properties in the APE.

We look forward to your views on this project and other efforts we may employ to satisfy our responsibilities as prescribed by the NHPA.

If there are any questions, please contact Mr. Garry J. Cantley, Regional Archeologist, at (602) 379-6750 extension 1256 or by email at Garry.Cantley@bia.gov.

Sincerely,

(Sgd) Bryan L. Bowker

Regional Director

Enclosures

cc: Superintendent, Southern Paiute Agency
Attn: Environmental Coordinator
Chairman, Moapa Business Council
Chairperson, Moapa Cultural Committee
Field Manager, Las Vegas Field Office, BLM
Cultural Resource Specialist, Nat'l Trails System-Intermtn. Region, NPS
Manager, Siting & Permitting, 8minutenergy
Cultural Resources Director, Kaibab Band (w/enc)



United States Department of the Interior

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2600 North Central Avenue
Phoenix, Arizona 85004-3008



IN REPLY REFER TO:

Environmental Quality Services
MS620-EQS

OCT 24 2018

Honorable Bennie Tso
Chairman, Las Vegas Paiute Tribe
One Paiute Drive
Las Vegas, Nevada 89106

Dear Chairman Tso:

As Agency Official for purposes of Section 106 of the National Historic Preservation Act of 1966, as amended (NHPA), the Western Regional Office of the Bureau of Indian Affairs (BIA) wishes to consult with the Las Vegas Paiute Tribe (LVPT) about the proposed project: **approval of a lease and rights-of-way for the Eagle Shadow Mountain Solar Project and associated infrastructure, Clark County, Nevada (Project No. 2018-126)**. The undertaking can be characterized as construction of a 300 megawatt solar photovoltaic electricity generation facility on the Moapa River Indian Reservation. The ground lease for the solar facility would encumber up to 2,300 acres on land of the Moapa Band of Paiute Indians. The proposed undertaking will require right-of-way approval by the Bureau of Land Management (BLM) for an associated transmission line and access road.

The BIA is serving as Lead Federal Agency as described at 36 CFR 800.2(a)(2) for the project. Consulting parties identified to date for this undertaking include the Moapa Band of Paiute Indians, Nevada State Historic Preservation Office, 325 MK 8ME, LLC (project proponent), BLM Las Vegas Field Office, and the National Park Service (NPS). A cultural resource inventory report will be prepared for the proposed area of potential effects (APE).

Following provisions of the NHPA, we are seeking counsel with your office regarding the proposed undertaking to identify any concerns about historic properties; advice on our identification efforts and evaluation of historic properties; articulate views on the undertaking's effects; and participate in the resolution of any adverse effects. We specifically are asking to be advised if the LVPT attaches religious and cultural significance to any historic properties in the APE.

We look forward to your views on this project and other efforts we may employ to satisfy our responsibilities as prescribed by the NHPA.

If there are any questions, please contact Mr. Garry J. Cantley, Regional Archeologist, at (602) 379-6750 extension 1256 or by email at Garry.Cantley@bia.gov.

Sincerely,

(Sgd) Bryan L. Bowker

Regional Director

Enclosures

cc: Superintendent, Southern Paiute Agency
Attn: Environmental Coordinator
Chairman, Moapa Business Council
Chairperson, Moapa Cultural Committee
Field Manager, Las Vegas Field Office, BLM
Cultural Resource Specialist, Nat'l Trails System-Intermtn. Region, NPS
Manager, Siting & Permitting, 8minutenergy
Manager, Environmental Programs, LVPT (w/enc)



United States Department of the Interior

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2600 North Central Avenue
Phoenix, Arizona 85004-3008



IN REPLY REFER TO:

Environmental Quality Services
MS620-EQS

OCT 24 2018

Honorable Tamra Borchardt-Slayton
Chairwoman, Paiute Indian Tribe of Utah Tribal Council
440 North Paiute Drive
Cedar City, Utah 84720-2613

Dear Chairwoman Borchardt-Slayton:

As Agency Official for purposes of Section 106 of the National Historic Preservation Act of 1966, as amended (NHPA), the Western Regional Office of the Bureau of Indian Affairs (BIA) wishes to consult with the Paiute Indian Tribe of Utah (PITU) about the proposed project: **approval of a lease and rights-of-way for the Eagle Shadow Mountain Solar Project and associated infrastructure, Clark County, Nevada (Project No. 2018-126)**. The undertaking can be characterized as construction of a 300 megawatt solar photovoltaic electricity generation facility on the Moapa River Indian Reservation. The ground lease for the solar facility would encumber up to 2,300 acres on land of the Moapa Band of Paiute Indians. The proposed undertaking will require right-of-way approval by the Bureau of Land Management (BLM) for an associated transmission line and access road.

The BIA is serving as Lead Federal Agency as described at 36 CFR 800.2(a)(2) for the project. Consulting parties identified to date for this undertaking include the Moapa Band of Paiute Indians, Nevada State Historic Preservation Office, 325 MK 8ME, LLC (project proponent), BLM Las Vegas Field Office, and the National Park Service (NPS). A cultural resource inventory report will be prepared for the proposed area of potential effects (APE).

Following provisions of the NHPA, we are seeking counsel with your office regarding the proposed undertaking to identify any concerns about historic properties; advice on our identification efforts and evaluation of historic properties; articulate views on the undertaking's effects; and participate in the resolution of any adverse effects. We specifically are asking to be advised if the PITU attaches religious and cultural significance to any historic properties in the APE.

We look forward to your views on this project and other efforts we may employ to satisfy our responsibilities as prescribed by the NHPA.

If there are any questions, please contact Mr. Garry J. Cantley, Regional Archeologist, at (602) 379-6750 extension 1256 or by email at Garry.Cantley@bia.gov.

Sincerely,

(Sgd) Bryan L. Bowker

Regional Director

Enclosures

cc: Superintendent, Southern Paiute Agency
Attn: Environmental Coordinator
Chairman, Moapa Business Council
Chairperson, Moapa Cultural Committee
Field Manager, Las Vegas Field Office, BLM
Cultural Resource Specialist, Nat'l Trails System-Intermtn. Region, NPS
Manager, Siting & Permitting, 8minutenergy
Cultural Resource Director, PITU (w/enc)



United States Department of the Interior

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WESTERN REGIONAL OFFICE
2600 North Central Avenue
Phoenix, Arizona 85004-3008



IN REPLY REFER TO:
Environmental Quality Services
MS620-EQS

OCT 24 2018

Mr. Dennis Ditmanson
Association Manager
Old Spanish Trail Association
P.O. Box 909
Las Vegas, New Mexico 87701

Dear Mr. Ditmanson:

As Agency Official for purposes of Section 106 of the National Historic Preservation Act of 1966, as amended (NHPA), the Western Regional Office of the Bureau of Indian Affairs (BIA) wishes to consult with the Old Spanish Trail Association (OSTA) about the proposed project: **approval of a lease and rights-of-way for the Eagle Shadow Mountain Solar Project and associated infrastructure, Clark County, Nevada (Project No. 2018-126)**. The undertaking can be characterized as construction of a 300 megawatt solar photovoltaic electricity generation facility on the Moapa River Indian Reservation. The ground lease for the solar facility would encumber up to 2,300 acres on land of the Moapa Band of Paiute Indians. The proposed undertaking will require right-of-way approval by the Bureau of Land Management (BLM) for an associated transmission line and access road.

The BIA is serving as Lead Federal Agency as described at 36 CFR 800.2(a)(2) for the project. Consulting parties identified to date for this undertaking include the Moapa Band of Paiute Indians, Nevada State Historic Preservation Office, 325 MK 8ME, LLC (project proponent), BLM Las Vegas Field Office, and the National Park Service (NPS). A cultural resource inventory report will be prepared for the proposed area of potential effects (APE). We anticipate a viewshed analysis will be used to identify areas in the indirect area of potential effect from which the undertaking may be visible. We are enclosing a map of the direct and indirect effects areas.

Following provisions of the NHPA, we are seeking counsel with the OSTA regarding the proposed undertaking to identify any concerns about historic properties; advice on our identification efforts and evaluation of historic properties; articulate views on the undertaking's effects; and participate in the resolution of any adverse effects. We specifically are asking to be advised if the OSTA has any concerns about the effects of

the project on the Old Spanish Trail Corridor and any related trail segments. We look forward to your views on this project and other efforts we may employ to satisfy our responsibilities as prescribed by the NHPA.

If there are any questions, please contact Mr. Garry J. Cantley, Regional Archeologist, at (602) 379-6750 extension 1256 or by email at Garry.Cantley@bia.gov.

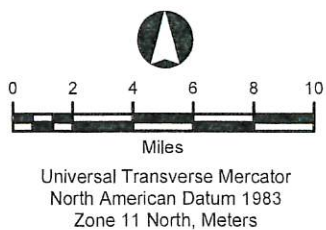
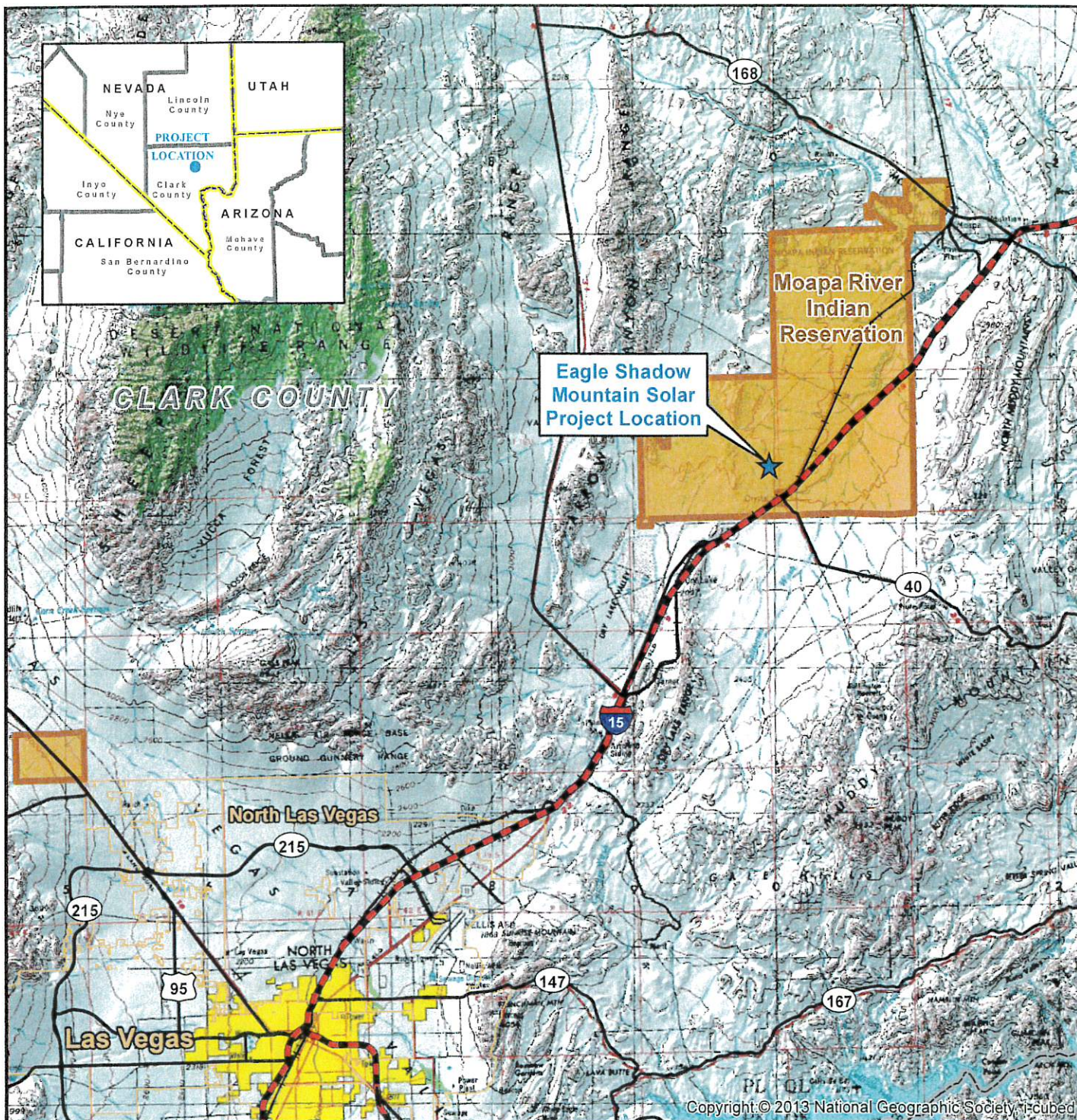
Sincerely,



Regional Director

Enclosures

cc: Superintendent, Southern Paiute Agency
Attn: Environmental Coordinator
Chairman, Moapa Business Council
Chairperson, Moapa Cultural Committee
Field Manager, Las Vegas Field Office, BLM
Cultural Resource Specialist, Nat'l Trails System-Intermtn. Region, NPS
Manager, Siting & Permitting, 8minutenergy
Nevada Director, Board of Directors, OSTA (w/enc)
President, Nevada Chapter, OSTA(w/enc)
President, Board of Directors OSTA(w/enc)



Eagle Shadow Mountain Solar Project

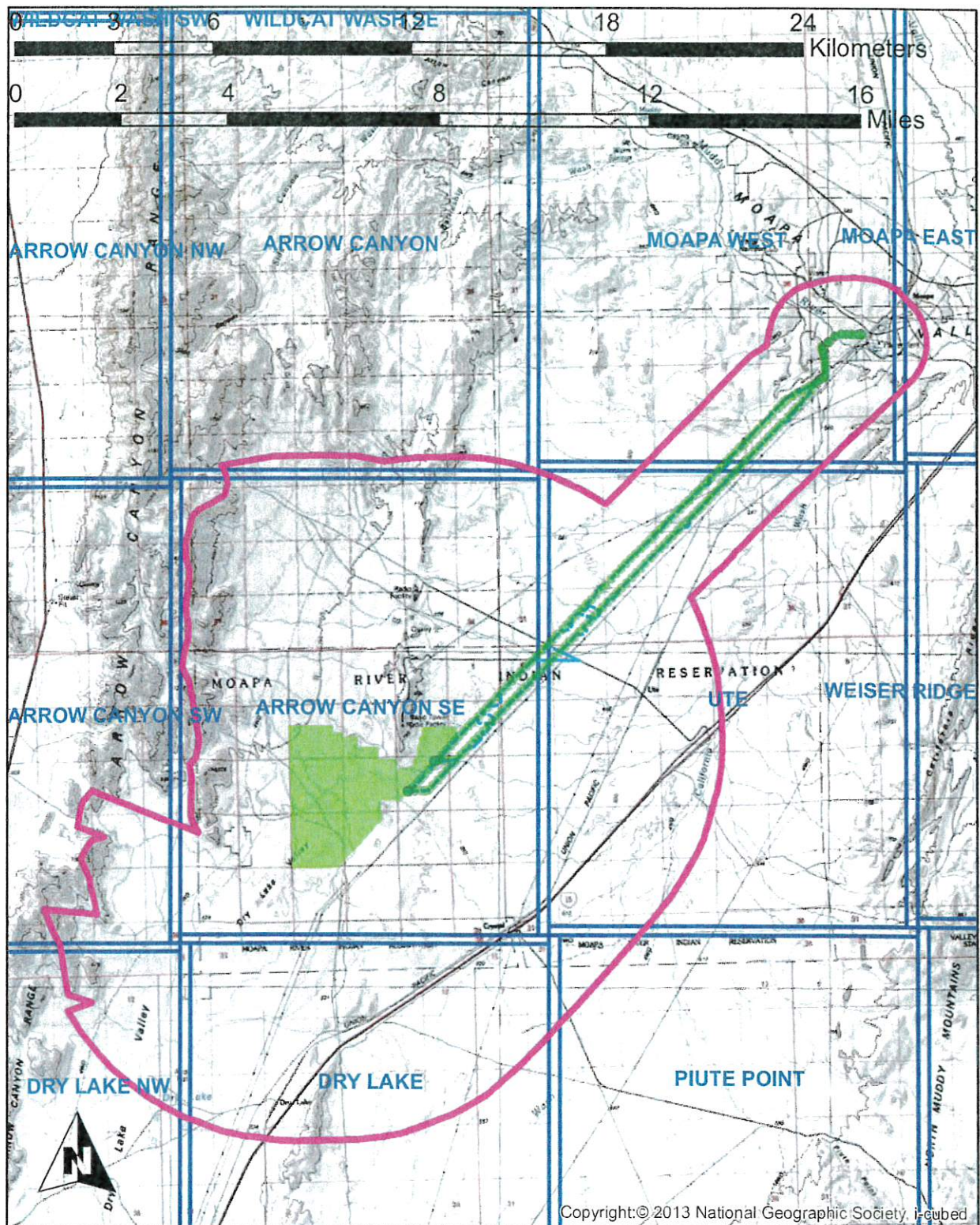
**FIGURE 1-1
PROJECT LOCATION**

Map Extent: Clark County, Nevada

Date: 08-13-18

Author: rnc

G:\Eagle Shadow Mountain Solar Project\MXD's\Project Location 8.5x11 081318.mxd



Eagle Shadow Mountain Solar Overview
 Cultural Resource Project Area and Indirect APE
 Preliminary Pole Locations Shown
 200 Foot Wide Gen-Tie Corridor
 September 5, 2018
 Knight & Leavitt Associates, Inc.
 Map by A. J. Thompson

- Solar Field and Gen-Ties Indirect APE
- Eagle Shadow Mtn Solar Field and Gen-Tie
- Access Roads

Appendix N

List of Acronyms

Acronyms Used in the EIS

AC	Alternating Current
ACC	Air-cooled Condenser
ACEC	Areas of Critical Environmental Concern
ac-ft	acre-feet
ADEIS	Administrative Draft Environmental Impact Statement
ADT	Annual Average Daily Traffic
AFY	acre-feet per year
ANL	Argonne National Laboratory
APE	Area of Potential Effect
ASME	American Society of Mechanical Engineers
APP	Avian Protection Plan
BACT	Best Available Control Technology
Band	Moapa Band of Paiute Indians
BBCS	Bird and Bat Conservation Strategy
BGEPA	Bald and Golden Eagle Protection Act
BIA	Bureau of Indian Affairs
BLM	Bureau of Land Management
Blvd.	Boulevard
BMPs	Best Management Practices
CAA	Clean Air Act
CDP	Census Designated Place
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
cfs	cubic feet per second
cm	centimeter
CO	carbon monoxide
CO ₂ e	CO ₂ Equivalent
CPV	Concentrating Photovoltaic
CSI	Coyote Springs Investment
CSP	Concentrating Solar Power
CT	Census Tract
CWA	Clean Water Act
DAQEM	Department of Air Quality and Environmental Management
DEIS	Draft Environmental Impact Statement
DEMs	Digital Elevation Models
DOT	Department of Transportation
DWMA	Desert Wildlife Management Area
EIS	Environmental Impact Statement

EPA	Environmental Protection Agency
EPC	Engineering, Procurement and Construction
EPRI	Electric Power Research Institute
ESA	Endangered Species Act
ESMSP	Eagle Shadow Mountain Solar Project
ESS	Energy Storage System
FEIS	Final Environmental Impact Statement
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FLPMA	Federal Land Policy Management Act
FTE	Full-time Equivalent
GHG	Greenhouse Gas
GIS	Geographic Information System
gpm	gallons per minute
GPS	Global Positioning System
HA	Hydrographic Area
HMA	Herd Management Area
hp	horsepower
I-15	Interstate 15
IBC	International Building Code
IECC	International Energy Conservation Code
IPCC	Intergovernmental Panel on Climate Change
IPP	Intermountain Power Project
ITA	Indian Trust Assets
IWAC	Invasive Weed Awareness Coalition
JD	Jurisdictional Determination
K Road	K Road Moapa Solar LLC
KOPs	Key Observation Points
kV	kilovolt
LEP	Limited English Proficiency
LOS	Level of Service
LWC	Lands with Wilderness Characteristics
m	meter
MBTA	Migratory Bird Treaty Act
mm	millimeter
MMT	million metric tons
MOA	Memorandum of Agreement
mph	miles per hour
MSDS	Material Safety Data Sheet
MSEC	Moapa Solar Energy Center
MSHCP	Multiple Species Habitat Conservation Plan
MVWD	Meadow Valley Water District

MW	megawatt
MWac	megawatts of alternating current
NAAQS	National Ambient Air Quality Standards
NAC	Nevada Administrative Code
NAD	North American Datum
NCCAC	Nevada Climate Change Advisory Committee
NDEP	Nevada Department of Environmental Protection
NDOT	Nevada Department of Transportation
NDOW	Nevada Department of Wildlife
NDWR	Nevada Division of Water Resources
NEC	National Electric Code
NEMA	National Electrical Manufacturers Association
NEPA	National Environmental Policy Act
NESC	National Electrical Safety Code
NFPA	National Fire Protection Association
NNHP	Nevada Natural Heritage Program
NO ₂	Nitrogen Dioxide
NOA	Notice of Availability
NOI	Notice of Intent
NO _x	nitrogen oxide
NPDES	National Pollution Discharge Elimination System
NPS	National Park Service
NRCS	National Resources Conservation Service
NREL	National Renewable Energy Laboratory
NRHP	National Register of Historic Places
NRS	Nevada Revised Statute
NSR	New Source Review
NV	Nevada
O ₃	ozone
O&M	Operations and Maintenance
OEM	original equipment manufacturer
OHV	off highway vehicle
OSHA	Occupational Safety and Health Administration
Pb	lead
PBO	Programmatic Biological Opinion
PCEs	primary constituent elements
PCS	Plant Control System
PLC	Programmable Logic Controller
PM	particulate matter
PM ₁₀	particulate matter 10 microns or less
PM _{2.5}	particulate matter 2.5 microns or less
POD	Plan of Development

PPA	Power Purchase Agreement
PPE	personal protective equipment
psi	pound(s) per square inch
PV	photovoltaic
PVC	polyvinyl chloride
RCRA	Resource Conservation Recovery Act
Reservation	Moapa River Indian Reservation
RO	reverse osmosis
ROD	Record of Decision
ROW	right(s)-of-way
RPS	Renewable Portfolio Standard
SCADA	Supervisory Control and Data Acquisition
SHPO	State Historic Preservation Office
SIP	State Implementation Plan
SMA	Special Management Areas
SNWA	Southern Nevada Water Authority
SO ₂	sulfur dioxide
SPCC	Spill Prevention, Control, and Countermeasures Plan
SWIP	Southwest Intertie Project
SWPPP	Storm Water Pollution Prevention Plan
T&E	threatened and endangered
TDS	Total Dissolved Solids
TERO	Tribal Employment Rights Ordinance
TES	Thermal Energy Storage
Travel Plaza	Moapa Travel Plaza
Tribe	Moapa Band of Paiute Indians
TSD	Treatment, Storage and Disposal Facility
μm	micrometer
UMC	Uniform Mechanical Code
UPC	Uniform Plumbing Code
URTD	Upper Respiratory Tract Disease
U.S.	United States
USACE	United States Army Corps of Engineers
U.S.C.	United States Code
USCB	United State Census Bureau
USDA	United States Department of Agriculture
USDI	United States Department of the Interior
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service
USGCRP	United States Global Change Research Program
USGS	United States Geological Survey
USTs	Underground Storage Tanks

UTM	Universal Transverse Mercator
VOC	Volatile Organic Compounds
VRI	Visual Resource Inventory
VRM	Visual Resource Management
WEAP	Worker Environmental Awareness Program
WSA	Wilderness Study Areas
°C	degrees Centigrade
°F	degrees Fahrenheit

Appendix 0

References

References

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- _____. 2006. Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006. Edison Electric Institute, APLIC, and the California Energy Commission. Washington, D.C., and Sacramento, California.
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