BEFORE THE ARIZONA POWER PLANT
AND TRANSMISSION LINE SITING COMMITTEE

IN THE MATTER OF THE APPLICATION OF RE PAPAGO LLC, IN CONFORMANCE WITH THE REQUIREMENTS OF ARIZONA REVISED STATUTES, SECTIONS 40-360, et seq., FOR A CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AUTHORIZING CONSTRUCTION OF THE RE PAPAGO SOLAR GEN-TIE PROJECT, WHICH CONSISTS OF A 34.5/500kV SUBSTATION AND A 500kV GEN-TIE TRANSMISSION LINE INTERCONNECTING A PHOTOVOLTAIC SOLAR GENERATING FACILITY TO THE ADJACENT DELANEY SUBSTATION IN MARICOPA COUNTY NEAR SALOME HIGHWAY AND COURTHOUSE ROAD, APPROXIMATELY 5.5 MILES WEST OF TONOPAH, ARIZONA.	Docket No. _____ Case No. _____

APPLICATION FOR A CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY

RE Papago Solar Gen-tie Project

Prepared for:

State of Arizona Power Plant and Transmission Line Siting Committee
Arizona Corporation Commission Utilities Division
1300 West Washington Street
Phoenix, Arizona 85007

Prepared by:
RE Papago LLC
3000 Oak Road, Suite 300
Walnut Creek, California 94597

Date: May 7, 2021
Case No.: _____
Docket No.: _____

TABLE OF CONTENTS

List of Figures

List of Tables

ACRONYMS AND ABBREVIATIONS

ACEC	Area of Critical Environmental Concern
AGFD	Arizona Game and Fish Department
AM	amplitude modulation
APE	area of potential effect
APM	Applicant Proposed Measure
Applicant	RE Papago LLC
APS	Arizona Public Service
ARO	Archaeological Records Office
ARS	Arizona Revised Statute
ASLD	Arizona State Land Department
ASM	Arizona State Museum
BE	Biological Evaluation
BGEPA	Bald and Golden Eagle Protection
Act BLM	Bureau of Land Management
CEC	Certificate of Environmental Compatibility
CFR	Code of Federal Regulations
CPA	Comprehensive Plan Amendment
dB(a)	A-weighted decibel
DCRT	DCR Transmission, L.L.C.
EMF	Electric and Magnetic Fields
ERMA	Extensive Recreation Management
Area ESA	Endangered Species Act
FCC	Federal Communications Commission
FM	frequency modulation
gen-tie line	generation intertie electric transmission line
GPS	Global Positioning System
GLO	General Land Office
Hz	hertz
IPaC	Information for Planning and Conservation
KOP	Key Observation Point
kV	kilovolt
MBTA	Migratory Bird Treaty Act
MHz	megahertz
MWh	megawatt-hours
NESC	National Electric Safety Code
NRHP	National Register of Historic Places
NWR	National Wildlife Refuge
OERT	Online Environmental Review Tool Report
Project	RE Papago Solar Gen-tie Project
PV	photovoltaic
SHPO	State Historic Preservation Office
Solar Facility	solar photovoltaic electricity-generating and energy storage facility
Transcon	Transcon Environmental, Inc.
TVI	television interference
U.S.	United States
USC	U.S. Code
USFWS	United States Fish and Wildlife Service
VRM	Visual Resource Management

INTRODUCTION

Project Description

RE Papago LLC (Applicant) respectfully submits this application for a Certificate of Environmental Compatibility (CEC) for construction of the RE Papago Solar Gen-tie Project (Project). The Project is for a proposed substation and associated 500 kilovolt (kV) transmission gen-tie line in western Maricopa County, Arizona. The substation and 500-kV transmission line Project would connect with the Applicant's solar photovoltaic (PV) electricity-generating and energy storage facility (Solar Facility) that would be constructed in the vicinity. The Project would transmit clean and renewable electricity generated from the Solar Facility to the nearby existing Delaney Substation, which is owned and operated by Arizona Public Service (APS), and ultimately to the regional electric grid.

Project Location

The proposed Project is located in western Maricopa County, south of Interstate-10, and is approximately 5.5 miles west of the community of Tonopah, Arizona. The legal description is the southwest ¼ of Township 2 North, Range 8 West, Section 25 of the Gila and Salt River Baseline and Meridian, Arizona. The proposed Project would be located within the southeast corner of the Applicant's Solar Facility site on private land under site control by the Applicant (APN 506-31-006C). This parcel borders the Delaney Substation to the west and north. The proposed Project location is shown in **Figure 1**.

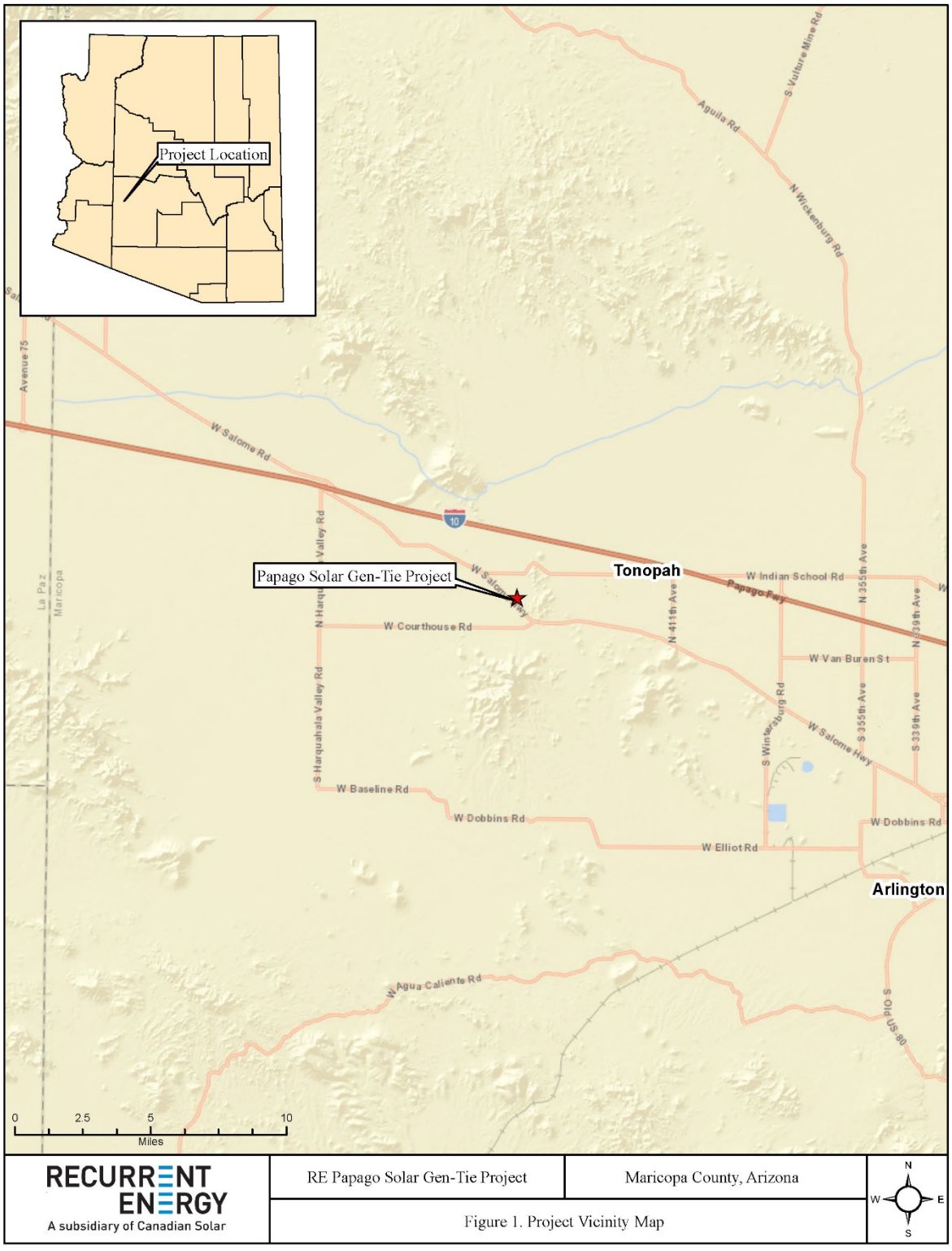


Figure 1. Project vicinity map

Transmission Gen-tie Line

The Project would consist of a 500-kV generation intertie electric transmission line (gen-tie line) that would be approximately 0.3 mile in length. The gen-tie line would consist of metal transmission towers, conductors, insulators, optical fiber cables, and safety equipment. The gen-tie line would connect ("tie-in") to APS's existing Delaney Substation, which is adjacent to the Project area, to bring solar-generated power to the nearby regional electricity grid.

The gen-tie line would be supported by up to four high-voltage support structures consisting of a combination of A-frame dead-end structures and either H-frame, 3-pole, or monopole structures. The number of support structures would be kept to the minimum needed based on potential engineering constraints. The support structures are anticipated to be approximately 126 feet in height but not more than 140 feet in height. Alignment of the gen-tie will likely be a linear connection to the Delaney Substation and not require the utilization of any turning structures; however, designs at this stage of the Project development are preliminary, and the final location of the proposed substation may be required to be shifted a few hundred feet away, which might necessitate the use of a turning structure. The likely linear gen-tie configuration and substation location scenario is displayed in **Figure 2a**, and an alternate scenario that shows a different gen-tie configuration (with a turning structure) and substation location is displayed in **2b**, below.

For the gen-tie line connection, overhead structure foundations would be installed by excavating foundation holes to a depth of approximately 35 feet using a truck-mounted drill rig. The size of the footprint for construction of the pole foundation would be approximately 100 square feet. Poles and support structures would be delivered on a flat-bed trailer and hoisted into place by a crane. The annular space between poles and holes would be backfilled with concrete or soil. Conductors would be strung between poles with heavy-duty trucks.

Substation

The Project would consist of a substation that would be located within an area of up to 13 acres. The substation would be located just west of the existing Delaney Substation. The substation would receive electricity from consolidated intermediate voltage cables from the Solar Facility's collection system and would increase the voltage up to 500 kV via one high-voltage transformer bank consisting of up to three individual transformers. The substation area would include a control building enclosure that would be used for communication purposes and contain relays and supervisory control and data acquisition (SCADA) equipment. This building would be approximately 40 feet long, 12 feet wide, and 11 feet in height. Conceptual layouts of the Project substation are shown in **Exhibit G-2** and **Exhibit G-3**. The size and design of the substation is subject to change as engineering details are refined and finalized.

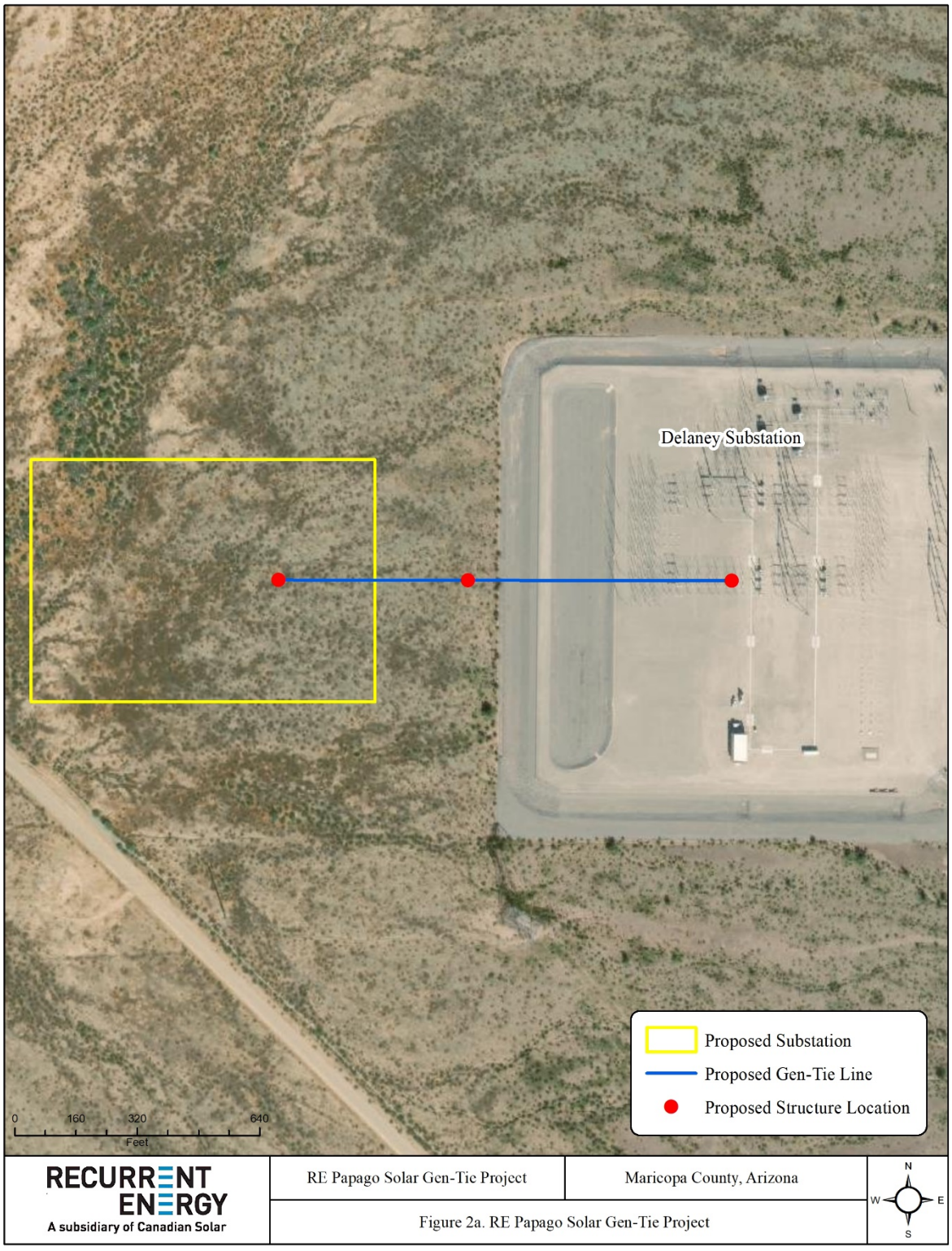


Figure 2a. Conceptual substation and gen-tie line location map showing a linear connection to Delaney Substation

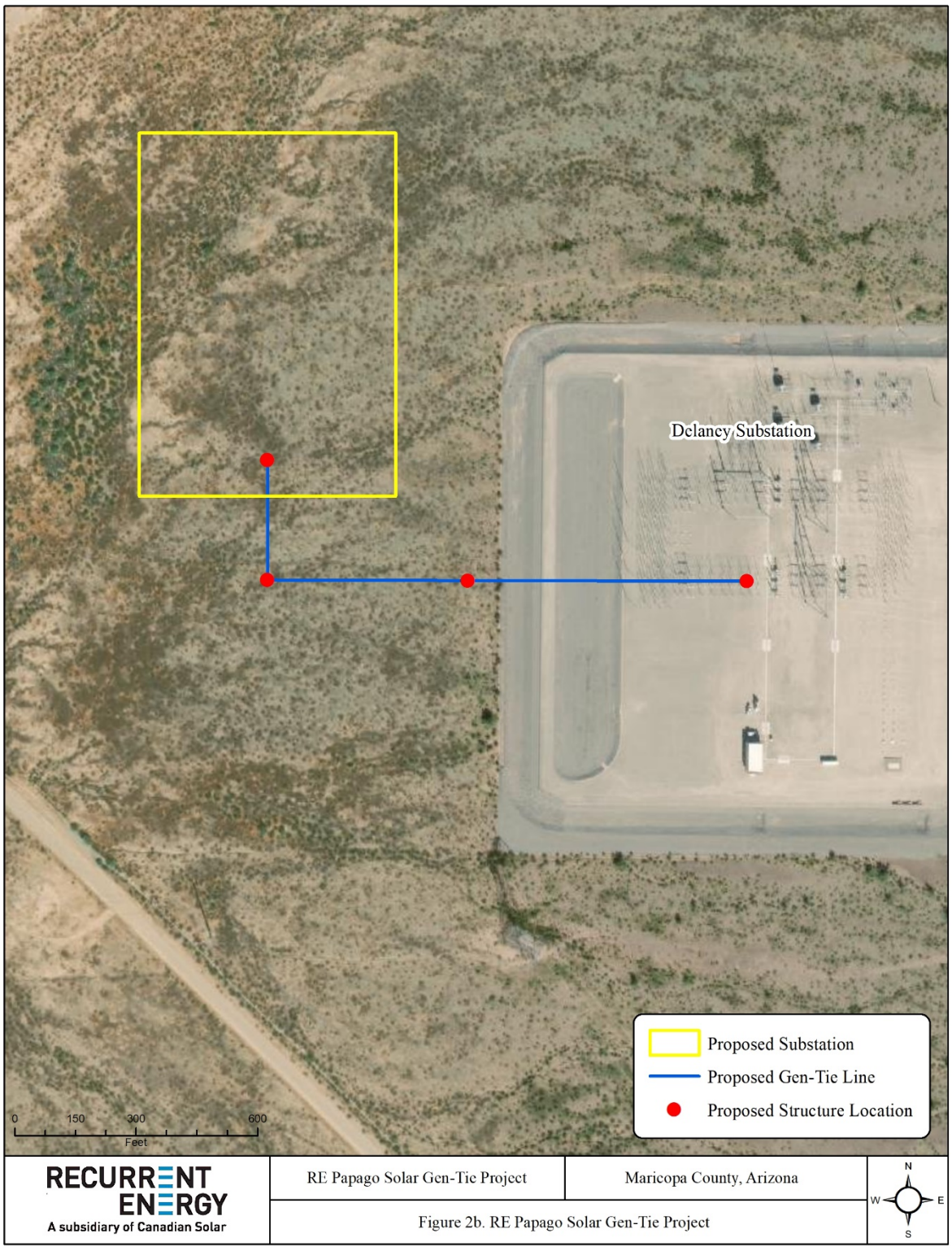


Figure 2b. Alternate conceptual project substation and gen-tie line location map showing a potential offset connection to Delaney Substation requiring the utilization of a turning structure

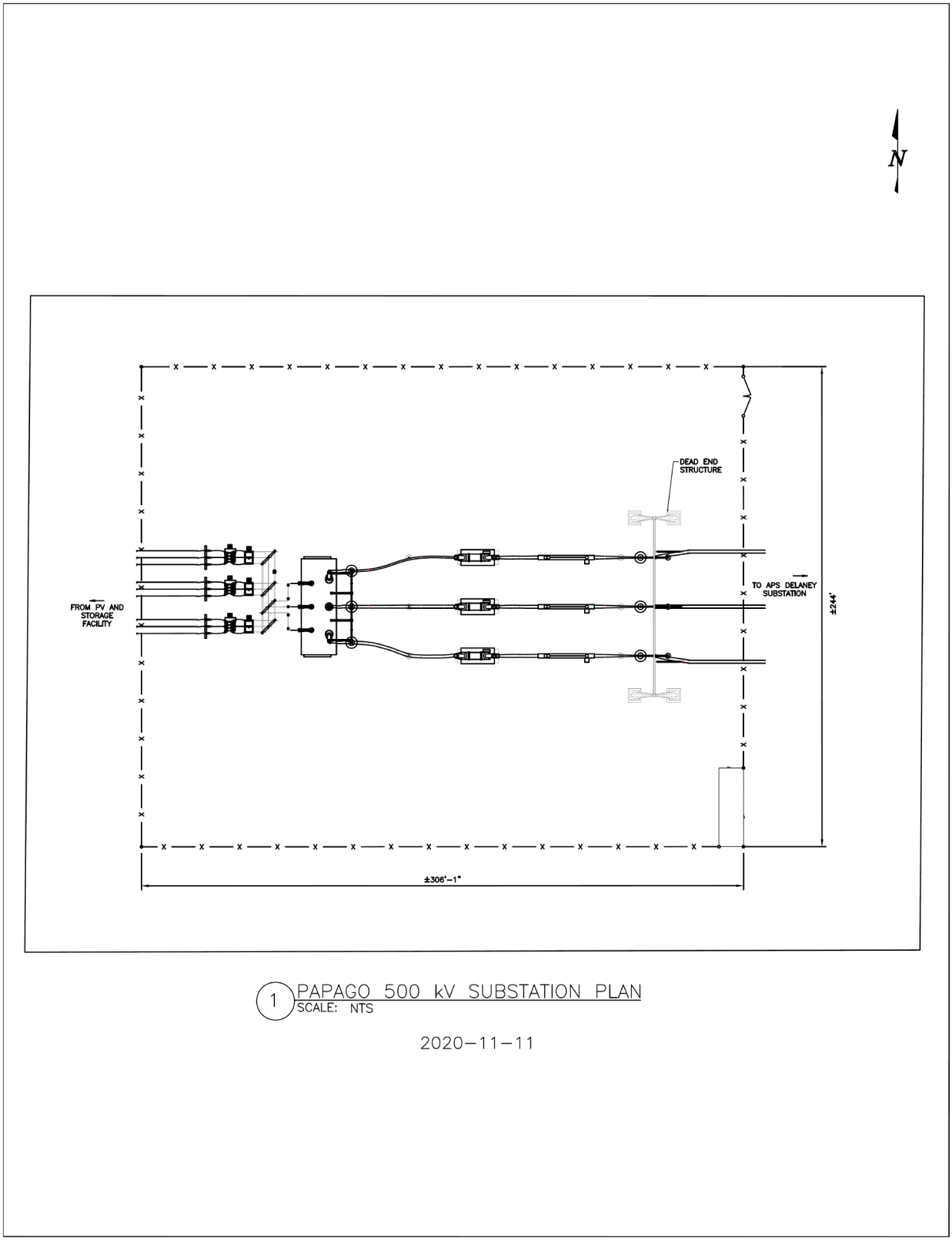


Figure 3. Conceptual Engineering Drawing of Project Substation

Electrical transformers, switchgear, and related substation facilities would be designed and constructed to transform medium-voltage power from the delivery system to a voltage of 500 kV and to transmit this power to the Delaney Substation via the gen-tie line (described below). The power would be transformed to 500 kV; therefore, high-voltage dead-end structures up to 140 feet in height may be required. The design and height of the dead-end structures would be refined as building permit applications are completed. Because support structures up to 140 feet in height would be required due to electrical design considerations, the Applicant is seeking a variance to Maricopa County's requirements that structures to support electrical transmission lines observe a maximum height of 120 feet (Article 1111.7 of the Maricopa County Zoning Ordinance).

The substation area would be graded and compacted to an approximately level grade. Concrete pads would be constructed on-site as foundations for substation equipment, and the remaining area would be graveled to a maximum depth of approximately 6 inches. The substation would be surrounded by an up to 8-foot-high chain-link fence topped with 1 foot of barbed wire.

Telecommunications infrastructure at the Project substation could include the installation of an antenna that would be less than 50 feet in height and would be either ground-mounted or installed atop the control building and may include the installation of a telecommunications tower, fiber optic infrastructure, or infrastructure to support a microwave communication system. The telecommunications tower would be up to 100 feet in height and located in the southeast portion of the substation site. If a microwave communications system is used, an antenna (repeater) would also be installed on an existing tower at an off-site location; however, no towers would be installed for this repeater, and no other telecommunications infrastructure would be installed outside of the footprint of the Project site.

Project Components

Preconstruction Activities and Site Preparation

Preconstruction activities for the gen-tie line and Project substation would occur prior to constructing the Project. These activities would include surveying and staking for the various Project features. Temporary work areas would be laid out. Site preparation activities that would occur prior to general construction include site clearing and grading, preparation of construction staging areas, and construction of the access route.

Clearing and Grading

An area up to 13 acres will be cleared for construction of the substation. Areas that are approximately 100 square feet would be cleared to construct each transmission line tower.

Prior to construction, the site would be cleared of vegetation and graded and compacted to the minimum extent needed. Site clearing and soil preparation would occur incrementally and would not commence until the area is needed for construction or equipment access. Vegetation cover would be retained for as long as possible, with overall ground disturbance minimized to the maximum extent practicable.

Construction Staging Area

The construction staging area would be located outside of the Project footprint immediately south of the proposed substation site, north of Salome Highway, on private land under site control by the Applicant. The staging area would be used for an operations and maintenance building, worker parking, a first-aid station, material and equipment storage and assembly, and a parking area for vehicles and equipment. The construction staging area would be approximately 2 acres in size and would be secured with an up to 8-foot-high chain-link fence topped with 1 foot of barbed wire. This staging area would eventually become a permanent part of the Solar Facility and be using for parking, storage, and operations.

Access Roads

Access to the Project area and construction staging area would be from a permanent Project access road constructed from Salome Highway. An access road would also be constructed around the perimeter of the proposed substation and construction staging area facilities.

The access roads would be designed according to Maricopa County standards, rules, and guidance. Road construction would typically proceed as follows: the ground would be grubbed (cleared of vegetation), scarified (loosened), moisture conditioned, compacted, and graded with a crown in the center. All roads would be constructed to be consistent with facility maintenance requirements, Maricopa County's Rural Metro Fire Department standards, the standards of the Harquahala Fire District, and/or any other applicable standards.

Water Requirements

During the construction phase, water would be used for dust suppression and other purposes. Water used during construction would come from a nearby well or could be trucked from a source within 60 miles of the site.

During Project operation of the Solar Facility, including the substation and transmission gen-tie line, water would be required for module washing and for the permanent operations and maintenance building restroom facilities. Up to ten permanent operations and maintenance staff would be required for the Project. Additional personnel occasionally on-site to perform periodic module washing (up to four times per year) would be provided with portable restrooms on the project site as well as bottled water for drinking and hand washing. Solar modules would be washed as needed (up to four times each year) using light utility vehicles with tow-behind water trailers, as needed, to maintain optimal electricity production. Water used for solar module washing would come from a nearby well or could be trucked from a source within 60 miles of the site.

Solar Facility

The proposed substation and gen-tie line would connect the Solar Facility to the Delaney Substation. This Solar Facility would generate 300 megawatts of alternating current electricity and up to 1,200 megawatt-hours (MWh) of energy storage from the installation of PV solar arrays on approximately 2,800.8 acres of unincorporated, privately-owned land in Maricopa County. The electricity generated from the Solar Facility would provide clean energy for up to approximately 57,000 homes. The Project limits of the Solar Facility are shown in **Figure 3**.

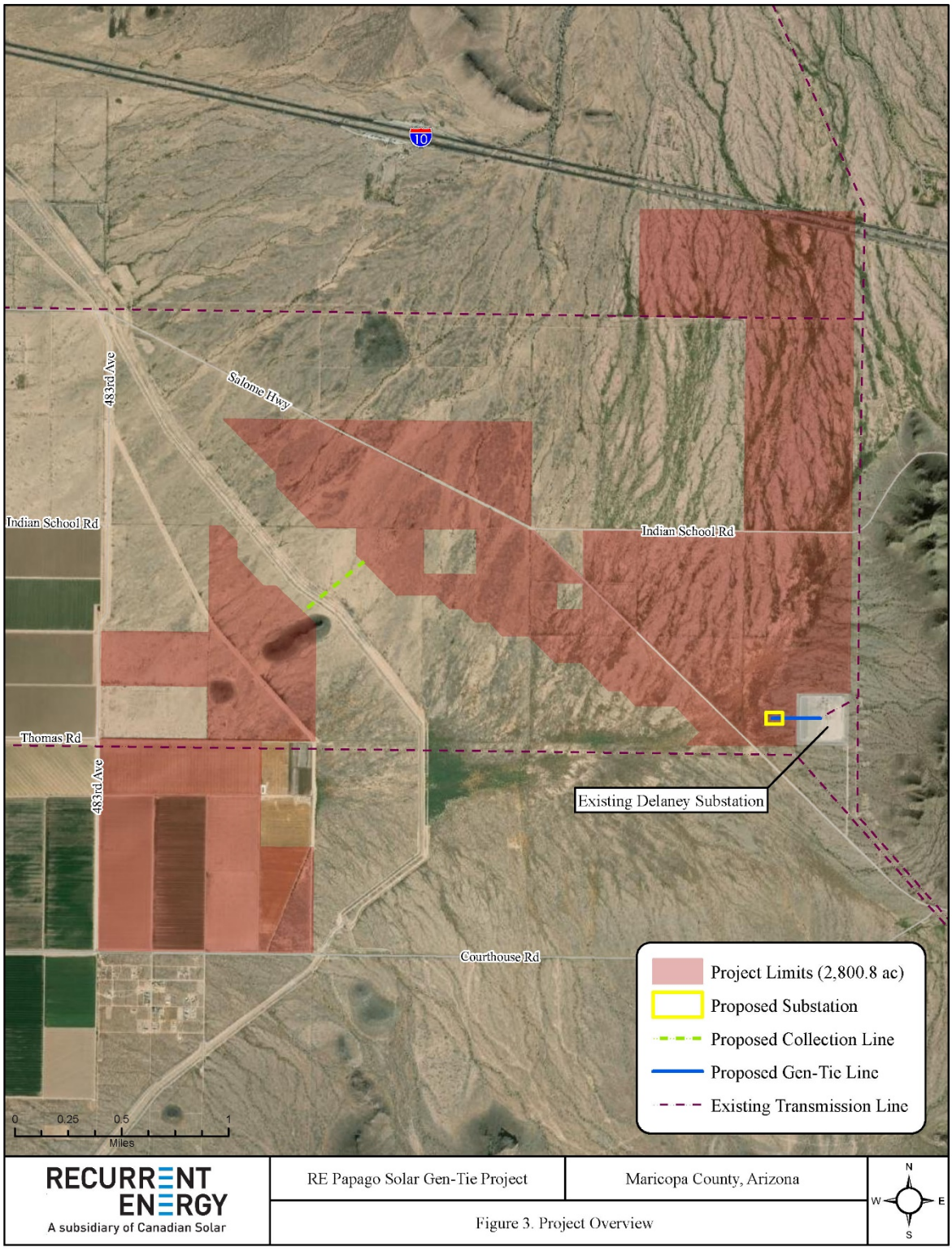


Figure 4. Project overview map

Below is a summary of the major components of the Solar Facility. It would include the following:

- Site preparation, including mowing/removal of vegetation and grading (as necessary)
- Installation of PV solar arrays, including approximately 1,396,000 PV modules, steel support structures, transformers, and up to 93 electrical inverters
- Installation of approximately 19,000 feet of both underground and overhead 34.5-kV electric collection lines to connect the two non-contiguous parts of the Project site as well as connect parts of the site to the Project substation
- Installation of an energy storage system at size of up to 1,200 MWh consisting of battery or flywheel enclosures and electrical cabling and appurtenant equipment. If batteries are selected, up to 360 battery containers would be installed
- Construction of temporary and permanent Project site perimeter fencing and access gates
- Construction of temporary and permanent on-site access roads for construction and maintenance activities
- Construction of other necessary infrastructure, including one permanent operation and maintenance building, a septic system and leach field, a SCADA system, and a meteorological data system

The Solar Facility is not part of this Application for a CEC as it is not within the permitting or approval jurisdiction of the Arizona Corporation Commission's Power Plant and Transmission Line Siting Committee. Information regarding the Solar Facility is provided to give insight into the larger scope of the entire facility the Project would support and its connection to the Project under the current application.

PURPOSE AND NEED

The purpose of the Project is to facilitate the transfer of clean and efficient renewable power from the Solar Facility to the adjacent existing Delaney Substation and ultimately to the regional electric grid to service utility customers' needs. The Project is needed in order to connect the Solar Facility to the existing Delaney Substation to transfer the renewable power.

SELECTION OF PROPOSED PROJECT

There was not a formal public routing study or alternative selection process completed for the Project. Due to the relatively narrow scope of the substation and gen-tie line and the engineering required to tie-in to the existing Delaney Substation, the Applicant considered two other alternatives.

The Applicant initially considered locating the gen-tie line along Arizona State Land Department (ASLD) land. This alignment would have crossed ASLD land north and east of the Delaney Substation. The alignment of the gen-tie line would have been approximately 1.25 miles in length. As the Project developed, this alternative was not considered feasible due to engineering and land use constraints. The Applicant also considered a second location west of the Delaney Substation on private land near the route of West Salome Highway; this gen-tie line option would have extended 1.1 miles and would have avoided being located on ASLD land.

The proposed Project under application was selected following an analysis of relevant engineering, environmental, and land use factors. The process of determining potential routes and the preferred alignment combined the information obtained through engineering, technical, and professional studies. Professional and technical studies to evaluate the compatibility of the Project were performed by qualified environmental planners, biologists, land use planners, archaeologists, engineers, and other relevant specialists to examine existing conditions and, to the extent possible, future conditions.

SUMMARY OF ENVIRONMENTAL COMPATIBILITY

The Project is environmentally compatible as proposed at the current site for the following reasons:

- There will be no significant impacts to the environment from the Project
- The analysis for this application shows that there will be no significant direct, indirect, or cumulative adverse effects on land use, biological resources (i.e., wildlife, plant life, fish), special interest wildlife and plant species, cultural resources, ground or surface water quality, earth and soil resources, air quality, visual resources, or noise
- The analysis also shows that several critical elements of concern are not present or will not be affected by the siting, construction, or operation of the Project, including solid and hazardous waste, Areas of Critical Environmental Concern (ACECs), or wild and scenic rivers
- No significant impacts to minority or low-income populations are expected to occur
- There will be short-term socio-economic benefits from the Project, as the construction work force can be expected to increase revenues in the retail and service sectors of the local and state economy
- There will be long-term socio-economic benefits from the Project, as the electric power available to the regional grid will provide a more robust and reliable service system to meet Arizona's electric needs and help meet the demand for clean, affordable, renewable energy
- The Project will reduce the use of fossil fuels
- There will be no significant or detrimental effects associated with noise emission levels or interference with communication signals
- Neither the Applicant nor jurisdictional agencies near the Project have any plans for future development of recreational facilities associated with the Project
- Project implementation would be consistent with safety considerations and regulations

REQUESTED ACTION

The Applicant requests that the Power Plant and Transmission Line Siting Committee issue their approval of a CEC authorizing the construction of one substation and an approximately 0.3-mile-long 500-kV gen-tie line, known as the RE Papago Solar Gen-tie Project. The Applicant believes it is beneficial to the state of Arizona to issue a CEC for the following reasons:

- The Project would facilitate transferring clean and renewable energy to the regional electric grid
- The selected site is very suitable for the Project, as it is located adjacent to the existing Delaney Substation
- The Project has received approval from Maricopa County for a Major Comprehensive Plan Amendment (CPA) and General CPA
- The Project is currently undergoing review from Maricopa County for a zoning change and is consistent with the land use designations for the lands on which it is proposed
- The Project would not result in any significant environmental impacts

The Applicant therefore requests approval of this application and submits that the Project and its location are environmentally compatible and requests that the Arizona Corporation Commission issue its Order affirming the CEC.

APPLICATION

1. Name and address of the Applicant:

RE Papago LLC
3000 Oak Road, #300
Walnut Creek, California 94597

2. Name, address, and telephone number of a representative of the Applicant who has access to technical knowledge and background information concerning the application in question and who will be available to answer questions or furnish additional information:

Ms. Christy Herron, Permitting Manager
RE Papago LLC
3000 Oak Road, #300
Walnut Creek, California 94597
Phone: 415-501-9418
Email: Christy.Herron@recurrentenergy.com

3. State each date on which the Applicant has filed a 10-year plan in compliance with ARS § 40-360.02 and designate each such filing in which the facilities or which this application is made were described. If they have not been previously described in a 10-year plan, state the reasons therefore:

In compliance with Arizona Revised Statute (ARS) § 40-360.02, the Applicant filed a 10-year plan for the proposed substation and gen-tie line on February 1, 2019. The Applicant later filed a revised 10-year plan on April 6, 2020.

4. Description of the proposed facility:

a. With respect to an electric generating plant:

Not applicable.

b. With respect to a proposed transmission line:

i. Nominal voltage for which the line is designed, description of the proposed structures and switchyards or substations associated therewith, and purpose for construction of said transmission line.

Nominal voltage for the transmission line design:

The proposed gen-tie line is designed for a nominal voltage of 500 kV.

Description of the proposed structures:

The proposed gen-tie line would use up to four steel structures that are anticipated to be approximately 126 feet in height but no greater than 140 feet in height. The gen-tie line would be approximately 0.3 mile in length and would be supported by one or more of a variety of possible structures, including monopole, 3-pole, H-frame, and/or A-frame dead-end structures. It would originate at the Project substation and connect with the

existing Delaney Substation operated by APS. Conceptual designs of the structures are shown in **Exhibit G**.

Description of associated switchyard or substation:

The Project would consist of a new 34.5/500-kV substation. The up to 13-acre substation site would be entirely fenced for security with an up to 8-feet-high chain-link fence topped with 1 foot of barbed wire. A conceptual layout of the Project substation is shown in **Exhibit G**.

Purpose of transmission line:

The purpose for constructing the transmission line is to connect a proposed solar generating facility (Solar Facility) with the regional electric grid by way of the Delaney Substation. A description of the Solar Facility is provided in the Introduction section of this application.

ii. Description of geographical points between which the transmission line will run, the straight-line distance between such points, and the length of the transmission line for each alternative route for which the application is made.

The gen-tie line would originate on the dead-end structure within the Project substation and terminate on the dead-end structure within the existing Delaney Substation. The straight-line distance between such points would be approximately 0.3 mile. Designs at this stage of the Project development are preliminary, and the final location of the proposed substation may be required to be shifted a few hundred feet away, which might necessitate the use of a turning structure.

iii. Nominal width of the right-of-way required, nominal length of spans, maximum height of supporting structures, and minimum height of conductor above ground.

- Proposed right-of-way width would be up to 200 feet
- Average span length is 520 to 770 feet
- Maximum height of any structure is 140 feet with typical structure heights in the range of 126 to 140 feet
- Minimum height of conductor above the ground is approximately 28.4 feet

iv. To the extent available, the estimated costs of proposed transmission line and route stated separately (if application contains alternative routes, furnish an estimate for each route and a brief description of the reasons for any variations in estimates).

- The estimated cost of the proposed transmission line including right-of-way is $440,000
- The estimated cost for the substation including property costs is $20,000,000
- Total costs for the Project are approximately $20,440,000

v. Description of proposed route and switchyard locations (if application contains alternative routes, list routes in order of Applicant's preference with a summary of reasons for such order of preference and any changes such alternative routes would require in the plans reflected in [i] through [iv] hereof).

The Project would be located in western Maricopa County, south of Interstate-10, approximately 5.5 miles west of the community of Tonopah, Arizona (see **Figure 1**). The legal description of the Project is within the southwest ¼ of Township 2 North, Range 8 West, Section 25 of the Gila and Salt River Baseline and Meridian, Arizona. The proposed gen-tie line would originate at the Project substation and connect with the existing Delaney Substation (see **Figure 2a**). The Project substation would be located approximately 0.3 mile west of the Delaney Substation. Both the gen-tie line and substation would be located northeast of Salome Highway.

vi. For each alternative route for which the application is made, list the ownership percentages of land traversed by the entire route (e.g., federal, state, Indian, private, etc.).

The entire Project for which the application is being made is located on private land under site control by RE Papago LLC.

5. List the areas of jurisdiction (as defined in ARS § 40-360[1]) affected by each alternative site or route and designate those proposed sites or routes, if any, which are contrary to the zoning ordinances or master plans of any such areas of jurisdiction:

The entire Project would be located on unincorporated private land under the jurisdiction of Maricopa County. The Project was included in an area approved under a Major CPA in December 2019 for the entire Solar Facility Project, a second General CPA that was approved in January 2020, and is currently under application for a permit for a Zone Change with Industrial Overlay (anticipated in mid-2021). Within the Zone Change application, a variance request is included for Maricopa County's requirements that structures to support electric transmission lines observe a maximum height of 120 feet (Article 1111.7 of the Maricopa County Zoning Ordinance). The proposed Project would be compatible with all zoning ordinances of Maricopa County prior to beginning construction.

6. Describe any environmental studies Applicant has performed or has caused to be performed in connection with this application or intends to perform or to cause to be performed in such connection, including the contemplated date of completion:

The environmental studies completed by the Applicant (through their environmental consultant Transcon Environmental, Inc. [Transcon]) are described in the exhibits included in this application. In addition to the analysis described in the application, a separate Biological Evaluation was prepared to analyze potential impacts to biological resources, and a Class I Cultural Resources Analysis was prepared to analyze potential impacts to cultural resources. It has been determined that an Air Quality permit is not required; however, the Applicant will obtain a Dust Control Permit, complete a plan for Spill Prevention Control and Countermeasures, and complete a Stormwater Pollution Prevention Plan prior to beginning construction activities. Preconstruction surveys for burrowing owls will be completed 96 hours prior to construction in all suitable habitats that will be disturbed.

Applicant Authorization

Respectfully submitted this 7th day of May, 2021

by: _____

Name
Title
RE Papago LLC

I certify that on this 7th day of May, 2021, I have delivered to the Arizona Corporation Commission 25 copies of this Application for a Certificate of Environmental Compatibility.

By: _____

EXHIBIT A

PROJECT LOCATION AND LAND USE

EXHIBIT A—PROJECT LOCATION AND LAND USE

As stated in Arizona Administrative Code R14-3-219:

> *Where commercially available, a topographic map, 1:250,000 scale, showing the proposed plant site and the adjacent area within 20 miles thereof. If application is made for alternative plant sites, all sites may be shown on the same map, if practicable, designated by applicant's order of preference.*
>
> *Where commercially available, a topographic map, 1:62,500 scale, or each proposed plant site, showing the area within 2 miles thereof. The general land use plan within this area shall be shown on the map, which shall also show the areas of jurisdiction affected and any boundaries between such areas of jurisdiction. If the general land use plan is uniform throughout the area depicted, it may be described in the legend in lieu of an overlay.*
>
> *Where commercially, available, a topographic map, 1:250,000 scale, showing any proposed transmission line route of more than 50 miles in length and the adjacent area. For routes of less than 50 miles in length, use a scale of 1:62,500. If application is made for alternative transmission line routes, all routes may be shown on the same map, if practicable, designated by applicant's order of preference.*
>
> *Where commercially available, a topographic map, 1:62,500 scale, of each proposed transmission line route of more than 50 miles in length showing that portion of the route within 2 miles of any subdivided area. The general land use plan within the area shall be shown on a 1:62,500 map required for Exhibit A-3 and for the map required by this Exhibit A-4, which shall also show the areas of jurisdiction affected and any boundaries between such areas of jurisdiction. If the general land use plan is uniform throughout the area depicted, it may be described in the legend in lieu of on an overlay.*

EXHIBIT A-1	Project Location Map
EXHIBIT A-2	Land Jurisdiction Map
EXHIBIT A-3	Existing Land Use Map
EXHIBIT A-3a	Future Land Use Map
EXHIBIT A-4	Zoning Map

Map Exhibits A-1, A-2, A-3, A-3a, and A-4 have been sized to a scale of 1:31,250. Given the scope and size of the Project, this scale has been used so that the Project features are observable on the maps.

Project Location

The Project would be located in western Maricopa County, south of Interstate-10, approximately 5.5 miles west of the community of Tonopah, Arizona (**Exhibit A-1**, **Exhibit A-2**). The legal description of the Project is within the southwest ¼ of Section 25, Township 2 North, Range 8 West, of the Gila and Salt River Baseline and Meridian, Arizona. The proposed gen-tie line would originate at the Project substation and connect with the existing Delaney Substation. The Project substation would be located approximately 0.3 mile west of the Delaney Substation. Both the gen-tie line and substation would be located northeast of Salome Highway.

Land Ownership and Jurisdiction

The entire Project area is located within unincorporated private land under site control by the Applicant and within the jurisdiction of Maricopa County. The majority of lands surrounding the Project are also privately owned, administered by the Arizona State Land Department (ASLD), or managed by the Bureau of Land Management (BLM). ASLD lands are primarily located in the northern and eastern portions of the

surrounding area. Within approximately 1 mile to the south of the proposed gen-tie line alignment, federal lands are managed by the BLM. Private lands within the nearby vicinity of the Project area are unincorporated and located within and administered by Maricopa County.

Exhibits A-1 and **A-2** depict the proposed Project and the land ownership and jurisdiction near the proposed Project.

Existing Land Use

Existing land uses near the vicinity of the Project include linear utility and transportation facilities, rangeland, grazing and agriculture, and undeveloped open space. These are described in greater detail below.

Linear Facilities

Utilities

Transmission lines include lattice tower and wood-pole electrical transmission lines having a capacity of 69 kV or greater (i.e., 230 kV and 500 kV). In the immediate and surrounding vicinity of the proposed Project, there are two 500-kV transmission lines that currently exist outside the Project and connect with the Delaney Substation (Palo Verde to Delaney and Delaney to Sun Valley transmission lines) as well as the Harquahala Gas Generating Facility gen-tie line and the Devers to Palo Verde transmission line. There are no electric distribution lines in the vicinity.

Transportation

Ground transportation features are roads and highways such as interstate freeways, federal highways, state highways, county roads, and railroads. Interstate federal or state highways include all dedicated federal or state highway routes maintained by the Arizona Department of Transportation (ADOT). County roads include all major roads maintained by the respective counties that represent major interconnections between interstate, federal, or state highways with major access routes in agricultural areas.

Nearby surface transportation features that are most commonly used by the public are all outside of the proposed Project area. These would also be the roads most commonly used for access to the proposed Project site, including the following:

- Salome Highway, which is outside of and immediately to the southeast of the Project
- Courthouse Road, which is approximately 1 mile south of the Project
- Indian School Road, which is approximately 1 mile north of the Project
- Interstate-10, which is approximately 2.5 miles north of the Project

Rangeland, Grazing, and Agriculture

Livestock grazing and agricultural uses do not occur directly within the proposed Project site. Agricultural uses occur near the Project vicinity, approximately 2.5 miles west of the Project. Grazing occurs through an existing grazing permit on adjacent land managed by the ASLD. BLM land is designated as available for perennial/ephemeral grazing allotments in accordance with their approved resource management plan for the area.

Open/Undeveloped

Open/undeveloped areas generally consist of natural desert areas but may also include areas that have been cleared for development and then abandoned or areas that were formally used for agriculture but are now abandoned. Excluding the utility and road infrastructure that has been described, most of the area

surrounding the Project consists of undeveloped open desert land.

Maricopa County zoning for the area is currently RU-43 (**Exhibit A-4**), which is designated as 1 acre per dwelling unit. There are no residential uses within the vicinity of the proposed Project area. The closest residence is approximately 1.8 miles away.

Planned and Future Land Use

Planned land uses traversed by or adjacent to the proposed alignments for each affected jurisdiction are described below and are depicted in **Exhibit A-3**. Future land use is depicted in **Exhibit A-3a**. The area nearest to the Project is designated as action open space. There are no residential developments planned within the vicinity of the proposed Project area.

Linear Facilities

There is a proposed 500-kV transmission line, known as the Ten West Link project, that would also connect to the Delaney Substation. This proposed transmission line would be constructed along private land north and west of the Delaney Substation and connect at the west side of the Delaney Substation, north of Applicant's proposed gen-tie line. This transmission line would be constructed by DCR Transmission, L.L.C. (DCRT). The Applicant has consented to easement agreements whereby DCRT's transmission line would be located on land under site control by the Applicant. The Applicant will also work directly with APS to determine the engineering that will allow both projects to connect with the Delaney Substation.

Potential Effects

Land Ownership and Jurisdiction

No changes to land ownership and jurisdiction would occur as a result of Project implementation. The proposed Project facilities are located on private land under site control by the Applicant. No facilities would cross other land jurisdictions managed by the ASLD or the BLM. No changes to land jurisdiction would occur from Project implementation.

Existing Land Use

Impacts to existing land uses are generally direct and are considered to be substantial if the construction, operation, maintenance, or abandonment of the proposed facilities would displace existing residential, commercial, industrial, agricultural or government facilities or substantially alter current land use practices.

The proposed Project facilities will be located on privately owned, undeveloped land under site control by the Applicant and will have little to no impact on existing land uses. The Project facilities would be accessed through a road constructed from Salome Highway, which would have minor impacts to additional travel along this transportation route. The Applicant would construct this access in accordance with Maricopa County requirements. The Project would have no impact to existing utility infrastructure as no relocation or other impacts would be anticipated. The Applicant is working directly with APS for interconnection of the gen-tie line to the Delaney Substation. There would be no impacts to areas designated by the ASLD or the BLM for grazing purposes. The Project would not be within or cross any developed land.

Planned and Future Land Use

Impacts to planned land uses are generally considered to be substantial if the construction, operation, maintenance, or abandonment of the proposed facilities would (1) conflict with applicable land use plans, policies, goals, or regulations of an agency with jurisdiction over lands affected by the proposed Project facilities or (2) substantially change the land use patterns or trends within the Project vicinity.

The Project facilities will not be located near or otherwise have any impact on any proposed future transportation routes. The Applicant is working directly with DCRT for the proposed Ten West Link project, as the facilities for that project would also connect with the Delaney Substation; however, there are no anticipated impacts on the Ten West Link project itself.

The Project area was approved under a Major and General CPA in December 2019 and January 2020, respectively. The Applicant has applied with Maricopa County for a permit for a Zone Change with Industrial Overlay (anticipated in mid-2021). The proposed Project would be consistent with Maricopa County plans prior to beginning construction activities. The Project would not conflict with applicable land use plans or substantially change the land use patterns or trends within the Project vicinity.

EXHIBIT A-1

PROJECT LOCATION MAP

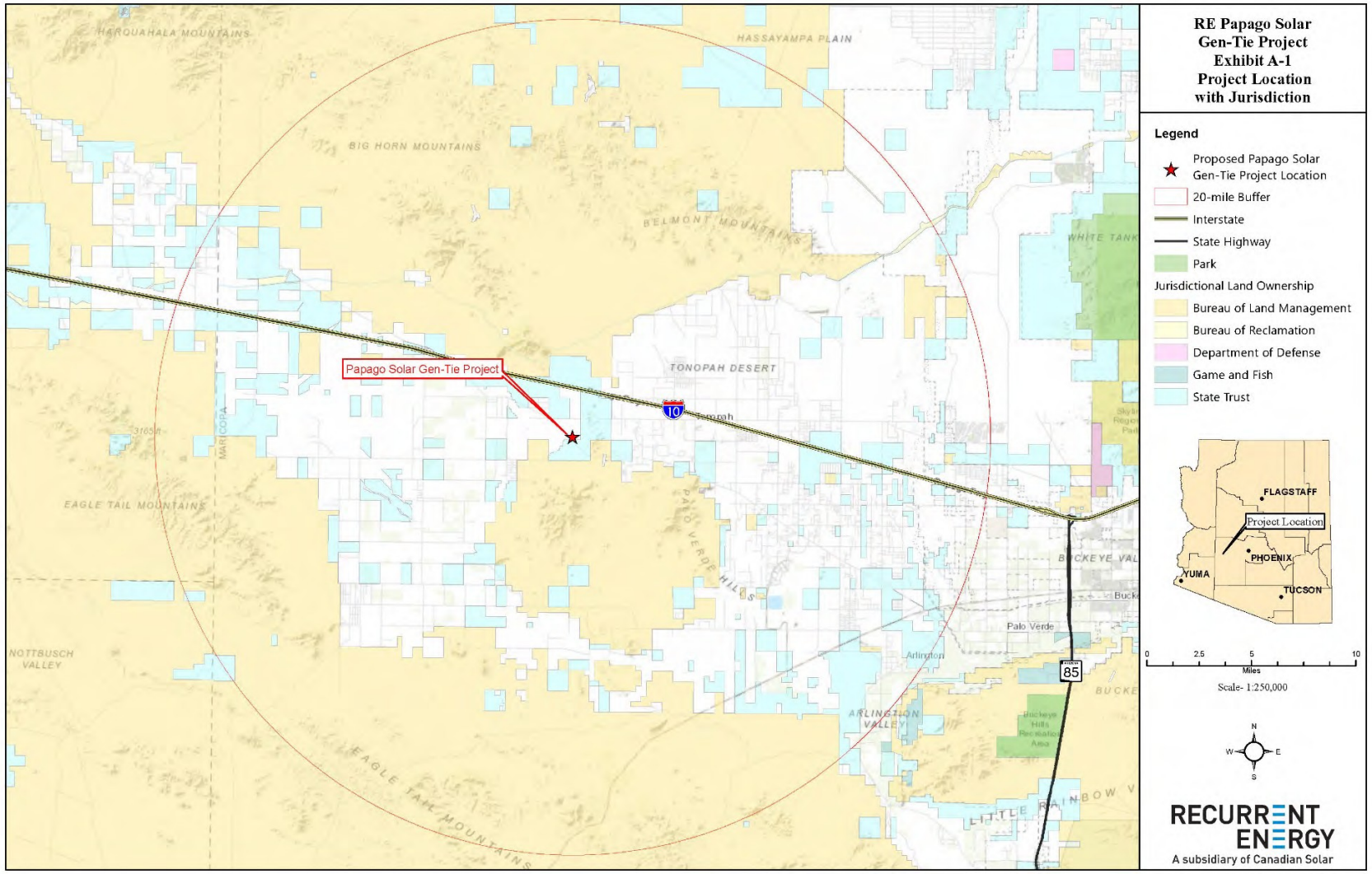

RE Papago Solar
Gen-Tie Project
Exhibit A-1
Project Location
with Jurisdiction
Legend
Proposed Papago Solar Gen-Tie Project Location
20-mile Buffer
Interstate
State Highway
Park
Jurisdictional Land Ownership
Bureau of Land Management
Bureau of Reclamation
Department of Defense
Game and Fish
State Trust
Papago Solar Gen-Tie Project
HARQUAHALA MOUNTAINS
HASSAYAMPA PLAIN
BIG HORN MOUNTAINS
BELMONT MOUNTAINS
TONOPAH DESERT
EAGLE TAIL MOUNTAINS
PALO VERDE HILLS
NOTTBUSCH VALLEY
ARLINGTON VALLEY
EAGLE TAIL MOUNTAINS
LITTLE RAINBOW V
MARICOPA
Palo Verde
Arlington
10
85
FLAGSTAFF
Project Location
PHOENIX
YUMA
TUCSON
0 2.5 5 10
Miles
Scale- 1:250,000
N
W
E
S
RECURRENT ENERGY
A subsidiary of Canadian Solar

EXHIBIT A-2

LAND JURISDICTION MAP

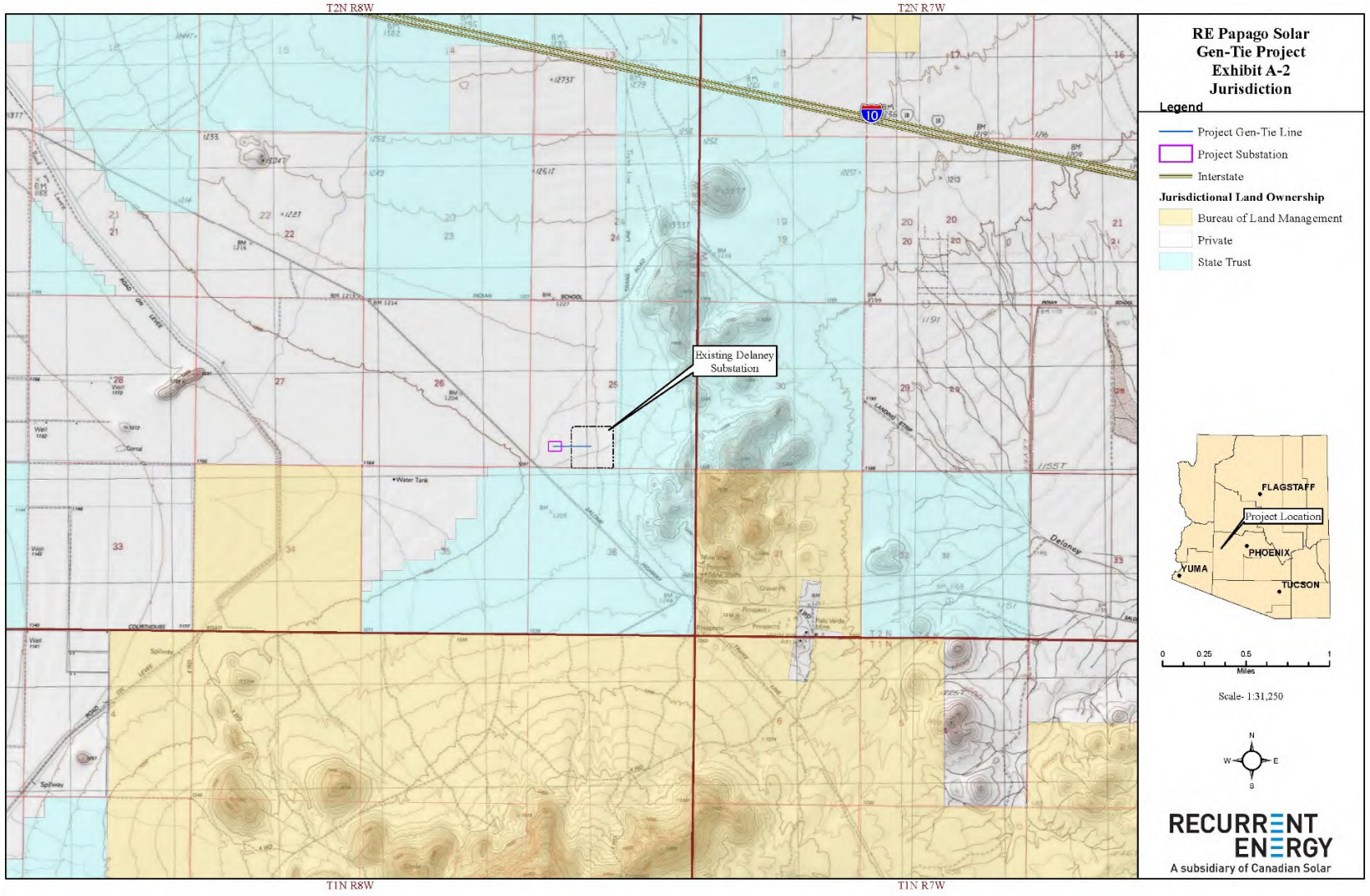

T2N R8W
T2N R7W
T1N R8W
T1N R7W
Existing Delaney Substation
RE Papago Solar
Gen-Tie Project
Exhibit A-2
Jurisdiction
Legend
Project Gen-Tie Line
Project Substation
Interstate
Jurisdictional Land Ownership
Bureau of Land Management
Private
State Trust
FLAGSTAFF
Project Location
PHOENIX
YUMA
TUCSON
0 0.25 0.5 1
Miles
Scale- 1:31,250
N
W
E
S
RECURRENT ENERGY
A subsidiary of Canadian Solar

EXHIBIT A-3

EXISTING LAND USE MAP

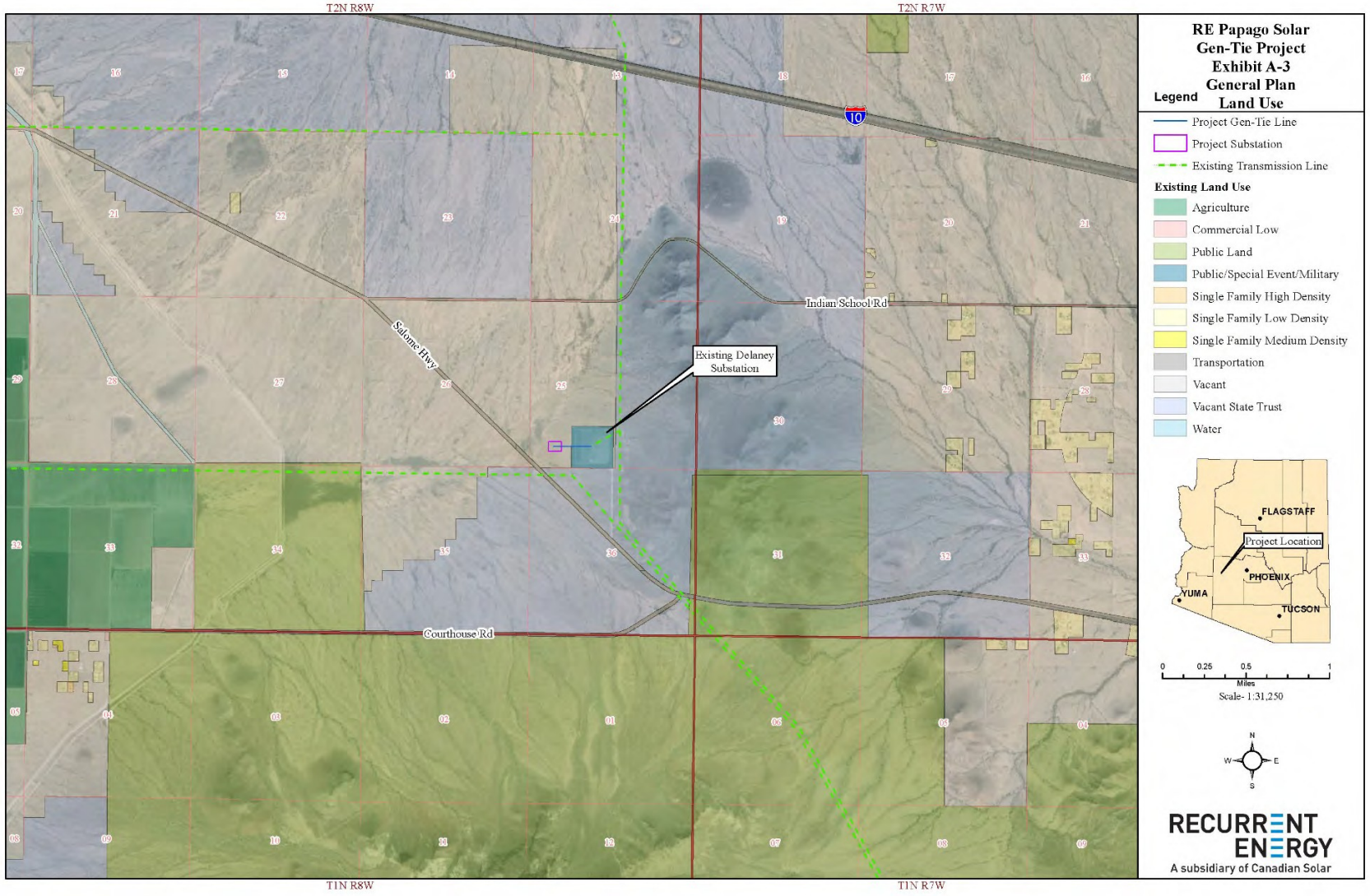

T2N R8W
T2N R7W
T1N R8W
T1N R7W
Indian School Rd
Salome Hwy
Existing Delaney Substation
Courthouse Rd
10
RE Papago Solar
Gen-Tie Project
Exhibit A-3
General Plan
Land Use
Legend
Project Gen-Tie Line
Project Substation
Existing Transmission Line
Existing Land Use
Agriculture
Commercial Low
Public Land
Public/Special Event/Military
Single Family High Density
Single Family Low Density
Single Family Medium Density
Transportation
Vacant
Vacant State Trust
Water
FLAGSTAFF
Project Location
PHOENIX
YUMA
TUCSON
0 0.25 0.5 1
Miles
Scale- 1:31,250
N
W
E
S
RECURRENT ENERGY
A subsidiary of Canadian Solar

EXHIBIT A-3a

FUTURE LAND USE MAP

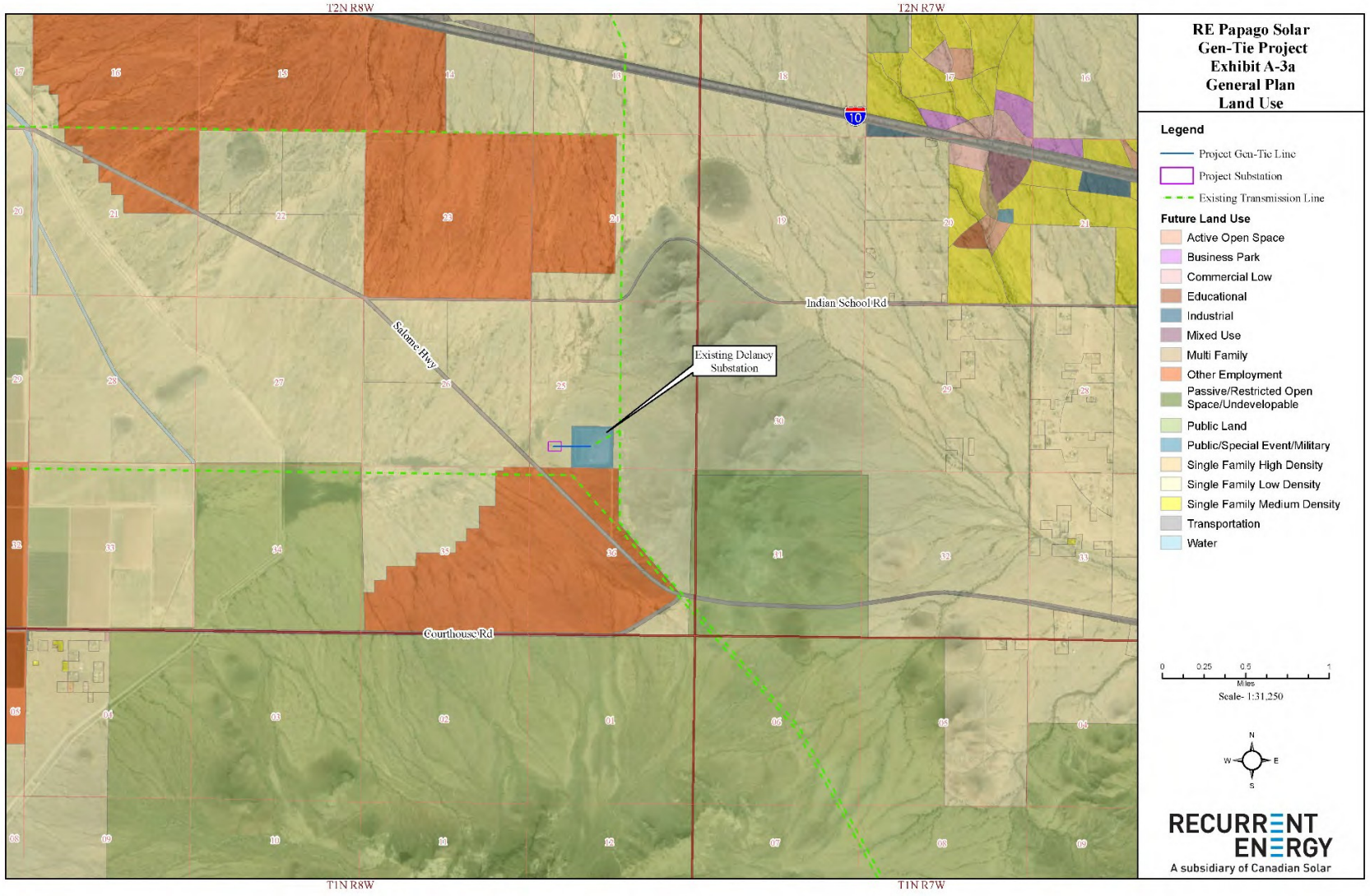

T2N R8W
T2N R7W
T1N R8W
T1N R7W
Indian School Rd
Salome Hwy
Existing Delaney Substation
Courthouse Rd
10
RE Papago Solar
Gen-Tie Project
Exhibit A-3a
General Plan
Land Use
Legend
Project Gen-Tie Line
Project Substation
Existing Transmission Line
Future Land Use
Active Open Space
Business Park
Commercial Low
Educational
Industrial
Mixed Use
Multi Family
Other Employment
Passive/Restricted Open Space/Undevelopable
Public Land
Public/Special Event/Military
Single Family High Density
Single Family Low Density
Single Family Medium Density
Transportation
Water
0 0.25 0.5 1
Miles
Scale- 1:31,250
N
W
E
S
RECURRENT ENERGY
A subsidiary of Canadian Solar

EXHIBIT A-4
ZONING MAP

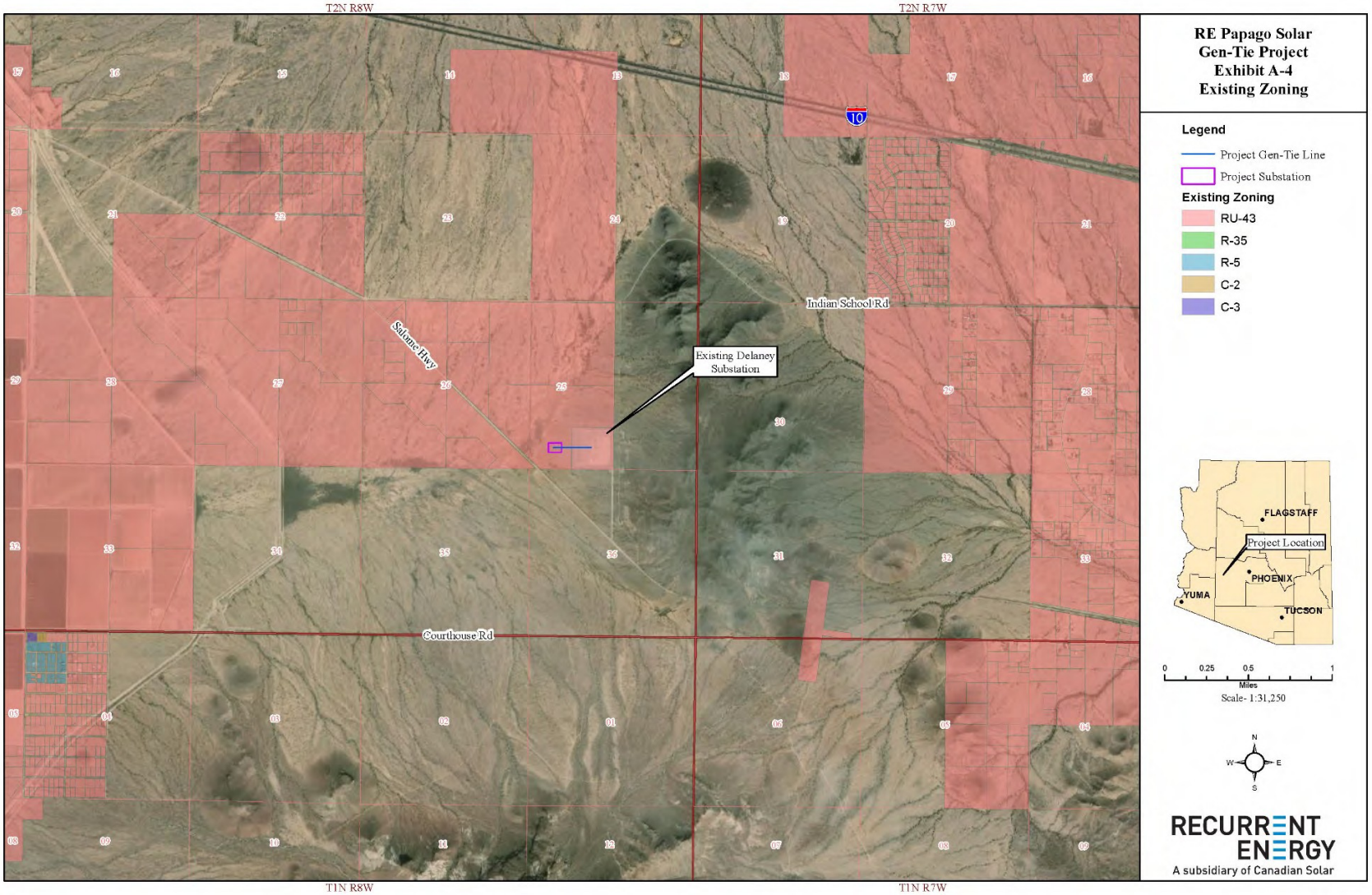

T2N R8W
T2N R7W
T1N R8W
T1N R7W
Indian School Rd
Salome Hwy
Courthouse Rd
Existing Delaney Substation
RE Papago Solar
Gen-Tie Project
Exhibit A-4
Existing Zoning
Legend
Project Gen-Tie Line
Project Substation
Existing Zoning
RU-43
R-35
R-5
C-2
C-3
FLAGSTAFF
Project Location
PHOENIX
YUMA
TUCSON
0 0.25 0.5 1
Miles
Scale- 1:31,250
N
W
E
S
RECURRENT ENERGY
A subsidiary of Canadian Solar

EXHIBIT B

ENVIRONMENTAL STUDIES

EXHIBIT B—ENVIRONMENTAL STUDIES

As stated in Arizona Administrative Code R14-3-219:

Attach any environmental studies which applicant has made or obtained in connection with the proposed site(s) or route(s). If an environmental report has been prepared for any federal agency or if a federal agency has prepared an environmental statement pursuant to Section 102 of the National Environmental Policy Act, a copy shall be included as part of this exhibit.

The results of the environmental studies and analyses conducted by the Applicant are discussed in subsequent exhibits of this application.

- **Exhibit A** includes relevant maps and describes existing and proposed land use and consistency with land use plans
- **Exhibit C** addresses potential impacts to sensitive biological resources in the Project area
- **Exhibit D** discusses potential impacts to other biological resources in the area
- **Exhibit E** summarizes the potential effects on the area's scenic quality and cultural resources
- **Exhibit F** describes the potential effects on recreation resources
- **Exhibit G** provides depictions and visual simulations of the facilities
- **Exhibit H** describes how the Project could affect existing and local plans in the Project area
- **Exhibit I** discusses the noise and communication signal impacts that would be expected
- **Exhibit J** describes the public outreach conducted for the Project

There is no federal agency involved in the Project; therefore, no environmental studies are being prepared for or by a federal agency. The United States (U.S.) Army Corps of Engineers was contacted on August 31, 2020; they confirmed that any ephemeral waterway crossings are non-jurisdictional and that no further review was required. The BLM was included in all public outreach, including that conducted for the proposed Solar Facility and more specifically notifying them of the Applicant's intent to file a CEC application, and no comment was received.

EXHIBIT C

AREAS OF BIOLOGICAL WEALTH

EXHIBIT C—AREAS OF BIOLOGICAL WEALTH

As stated in Arizona Administrative Code R14-3-219:

> *Describe any areas of the vicinity of the proposed site or route which are unique because of biological wealth or because they are habitats for rare and endangered species. Describe the biological wealth or species involved and state effects, if any, the proposed facilities will have thereon.*

Exhibit C-1 Biological Evaluation

Protected or Special-Status Species

This exhibit addresses special-status species with the potential to occur in or near the proposed Project area, including federally-listed species, Arizona state sensitive and conservation agreement species, and avian species protected under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA). A Biological Evaluation (BE) has been prepared and is included as **Exhibit C-1**.

Study Methods

Prior to field reconnaissance, biologists from Transcon conducted background research to determine any special-status species or federally-protected habitat that may occur in the proposed Project area. These species were identified using the U.S. Fish and Wildlife Service (USFWS) Information for Planning and Conservation tool (IPaC) tool. The Arizona Game and Fish Department (AGFD) Online Environmental Review Tool Report (OERT) was also utilized to provide information on documented occurrences of special-status species near the Project area. Search results from IPaC and the OERT sites are included in **Appendix B** of the BE (**Exhibit C-1**).

Transcon biologists conducted multiple field visits between January 2019 and August 2020 to verify the desktop review results and to assess habitat for special-status species that may occur within the Project area. Prior to conducting fieldwork, aspects such as ecology and habitat requirements of each special-status species were reviewed. Habitat conditions and wildlife observations on and around the Project were noted. Information including habitat requirements, known occurrences, and habitat types was used to evaluate the potential for occurrence of each species and to analyze the potential effects of the Project.

Study Results

Endangered Species Act Protected Species

Transcon obtained an official species list for the Project area from the USFWS IPaC system on August 13, 2020 (**Appendix B** of **Exhibit C-1**). The list included four Endangered Species Act (ESA)-listed Threatened, Endangered or Candidate species that should be evaluated for the Project area: Sonoran pronghorn (*Antilocapra americana sonoriensis*), California least tern (*Sterna antillarum browni*), yellow-billed cuckoo (*Coccyzus americanus*), and Sonoran desert tortoise (*Gopherus morafkai*). A qualified biologist reviewed the list to determine species that may occur in the Project vicinity. Additionally, field reconnaissance was conducted to determine habitat suitability multiple times between January 2019 and August 2020. Species included in the USFWS list but excluded from further evaluation are addressed in **Table 1**. Species further evaluated are discussed below.

TABLE 1 SPECIES EXCLUDED FROM FURTHER EVALUATION			
Common Name *Scientific Name*	**Status***	**Habitat**	**Exclusion Justification**
Sonoran pronghorn (*Antilocapra americana sonoriensis)*	Endangered and 10(j) Nonessential Experimental Population	This species can be found in broad inter-mountain alluvial valleys in low-elevation Sonoran desertscrub with creosote-bursage and paloverde-mixed cacti associations at elevations between 400 and 1,600 feet. Within Arizona, they are found on the Cabeza Prieta National Wildlife Refuge, the Organ Pipe Cactus National Monument, the Luke Air Force Barry M. Goldwater Gunnery Range, and possibly the Tohono O'odham Indian Reservation.	The Sonoran pronghorn population, which is listed as endangered, occurs in Maricopa, Pima, and Yuma counties. The Project area is not within the historic, present, or potential distribution range for this species according to the AGFD's HabiMap™ Arizona species distribution model. In 2013, a 10(j) Nonessential Experimental Population was established on Kofa National Wildlife Refuge (NWR) in Yuma County. This population has since expanded beyond the NWR in Yuma County and into Maricopa County. The boundaries of the 10(j) Nonessential Experimental Population areas include portions of Maricopa, La Paz, Pima, Pinal, Santa Cruz, and Yuma counties. Based on the 2016 Recovery Plan, these areas are not within proximity of the Project area.
California least tern *(Sterna antillarum browni)*	Endangered	This species can be found in open, bare, or sparsely vegetated sand, sandbars, gravel pits, or exposed flats along shorelines of inland rivers, lakes, reservoirs, or drainage systems below 2,000 feet. They are rarely found within Arizona, with individuals found within large lakes, recharge basins, or wetland areas in Maricopa County.	Suitable habitat for this species is not present in the Project area, and the Project area is outside the historic, present, and potential distribution range for this species according to the AGFD's HabiMap™ Arizona species distribution model. No individuals were identified in the Project vicinity in AGFD species occurrence data.
Yellow-billed cuckoo *(Coccyzus americanus)*	Threatened	Suitable habitat is west of the Continental Divide and is limited to narrow, and often widely separated, riparian cottonwood-willow galleries; salt cedar is also used by cuckoos. Dense understory foliage appears to be an important factor in nest site selection. In addition to cottonwood-willow galleries, cuckoos in Arizona can be found in larger mesquite bosques. They are rarely observed as transients in xeric desert or urban settings and are generally found in southern and central Arizona and in extreme northeast portions of the state	Suitable habitat for this species is not present in the Project area, and the Project area is outside the historic, present, and potential distribution range for this species according to the AGFD's HabiMap™ Arizona species distribution model. No individuals were identified in the Project vicinity in AGFD species occurrence data.

Sonoran Desert Tortoise

The Sonoran desert tortoise, an ESA-listed Candidate species, is found within the Sonoran desertscrub community and occurs primarily on rocky slopes and bajadas. Suitable habitat for the Sonoran desert tortoise is located within the Project area. According to the U.S. Geological Society Gap Analysis Program, the unnamed mountain near the Project area contains suitable habitat for the Sonoran desert tortoise; this was confirmed during field reconnaissance. Additionally, the majority of the undeveloped native land within the Project area contains suitable dispersal habitat that connects the suitable mountainous habitat near the Project area. A Sonoran desert tortoise was observed by a Transcon biologist crossing Indian School Road, several miles away and outside of the proposed Project area.

Due to the presence of suitable habitat within the proposed Project area and the confirmed presence of an individual tortoise near the proposed Project area, implementation of the proposed Project could potentially impact Sonoran desert tortoise species. To reduce the potential for Project-related impacts to Sonoran desert tortoises, it is recommended that the Applicant and their contractor adhere to the AGFD's "Guidelines for Handling Sonoran Desert Tortoises Encountered on Development Projects" revised September 22, 2014. No other standard mitigation measures or survey protocols are in place at this time for the Sonoran desert tortoise as it was recently listed as a Candidate species.

There is no federally-designated or proposed critical habitat for the Sonoran desert tortoise.

Protected State Sensitive Species

Transcon utilized the AGFD OERT to determine the potential occurrence of special-status species within 5 miles of the Project area. Special-status species include those that are state protected and/or federally listed. The OERT listed one documented occurrence of special-status species within 5 miles of the Project vicinity, the Sonoran desert tortoise. According the AGFD, the Sonoran desert tortoise is listed as a Tier 1A Species of Greatest Conservation Need by the AGFD and has a Candidate Conservation Agreement by the USFWS. The OERT did not indicate that this species was listed as a Candidate species by the USFWS, likely because this listing occurred recently. Due to its listing as a Candidate species by the USFWS, a habitat suitability assessment was discussed in the "Federally-Listed Species" section above. No additional mitigation measures outside of what is discussed above are recommended at this time.

Important Connectivity Zones

In addition to special-status species, the OERT indicates whether or not the Project is within or near an Important Connectivity Zone—a zone indicated by the AGFD as being an area of land used by wildlife to move between or within habitat blocks in order to complete activities necessary for survival and reproduction. One such zone, Big Horn/Burnt Mountains—Saddle Mountains, has been identified as intersecting the northeastern section of the Project area. The Project is not anticipated to significantly impact connectivity because much of the Important Connectivity Zone is outside of the Project area and most of the species utilizing the Important Connectivity Zone prefer rockier and more mountainous habitat, on which this Project will have very little impact. Additionally, the AGFD has identified the potential for wildlife in the area to utilize the Saddle Mountain flood retarding structure as an alternative to the existing corridor, which is not within the Project area (AGFD 2012).

Migratory Bird Treaty Act and Bald and Golden Eagle Protection Act

Migratory birds are protected under the MBTA of 1918, as amended (16 U.S. Code [USC] 703–712). The MBTA states that it is unlawful to take, kill, or possess migratory birds, their eggs, parts, and/or nests that are listed under its protection unless authorized under a valid permit (50 Code of Federal Regulations [CFR] 21.11).

An examination of the USFWS IPaC site identified five migratory bird species of conservation concern that

could potentially occur near the Project area: Bendire's thrasher (*Toxostoma bendirei*), Costa's hummingbird (*Calypte costae*), Gila woodpecker (*Melanerpes uropygialis*), gilded flicker (*Colaptes chrysoides*), and Le Conte's thrasher (*Toxostoma lecontei*). None of these species or their nests were located during field reconnaissance. No other active or abandoned nests were observed in trees, shrubs, or power poles within the Project area; however, at least two burrowing owl (*Athene cunicularia*) pairs and their burrows were observed in the western portion of the Project area along the canals adjacent to the agricultural fields. A migratory nest survey was not conducted throughout the Project area. In order to minimize impacts to migratory birds, burrowing owls, and other potential nesting migratory bird species, appropriate mitigation measures should be followed.

In addition to the MBTA, bald and golden eagles are protected under the BGEPA, which was originally passed in 1940 and amended in 1962. The BGEPA prohibits the take, possession, sale, purchase, barter, offer to sell, transport, export, or import of any bald or golden eagle, alive or dead, including any part, nest, or egg, unless allowed by permit (16 USC 668[a]; 50 CFR 22). The definition of take includes both direct take of individuals and take due to disturbance.

In Maricopa County, Sonoran Desert population bald eagle breeding territories have been documented in the vicinity of Apache, Canyon, and Saguaro lakes; along the Verde River near Fort McDowell; below Horseshoe Reservoir; above and below Bartlett Reservoir; near Lake Pleasant; within the City of Mesa along the Salt River; near the confluence of the Gila and Salt Rivers; near Canyon Creek; near Buckhorn Mountain; and at various other points along the Salt and Verde rivers including their confluence. They typically nest in tall trees and saguaros adjacent to water bodies and opportunistically feed on fish, injured waterfowl, various small mammals, and carrion. Bald eagles also actively hunt live prey, scavenge, and pirate food from other birds (AGFD 2011). Suitable nesting and foraging habitat for bald eagles is not located within or in the vicinity of the Project area.

Golden eagles are usually found in open country, prairies, arctic and alpine tundra, open wooded country, and barren areas, especially in hilly or mountainous regions. They nest on rock ledges, cliffs, or in large trees. Golden eagle pairs may have several alternate nests and may use the same nests for consecutive years or shift to alternate nests. In Arizona they are found in mountainous areas and are virtually vacant after breeding in some desert areas (AGFD 2002). No suitable nesting habitat is located within the Project area; however, Saddle Mountain, located approximately 1 mile south of the Project area, does provide suitable nesting cliffs. The Project area does contain marginal foraging habitat for golden eagles.

It is not anticipated the bald or golden eagles would inhabit the Project area. The implementation of the proposed Project would not likely result in the take of individual bald or golden eagles or their nests due to the lack of suitable nesting habitat within or adjacent to the Project area.

EXHIBIT C-1
BIOLOGICAL EVALUATION

BIOLOGICAL EVALUATION

RE Papago, LLC Photovoltaic Solar Energy Generation and Storage Project
Maricopa County, Arizona

Prepared for:

Recurrent Energy
300 California Street
8th Floor
San Francisco, California 94104

Prepared by:

Transcon Environmental, Inc.
1745 South Alma School Road, Suite 220
Mesa, Arizona 85210

Transcon environmental

Planners & Scientists

August 2020

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF APPENDICES

INTRODUCTION

RE Papago, LLC is proposing to construct, operate, maintain, and eventually decommission a solar photovoltaic (PV) electricity-generating and energy storage facility and associated infrastructure as part of an endeavor collectively referred to as the RE Papago Photovoltaic Solar Energy Generation and Storage Project (project). The project as proposed would generate 300 megawatts (MW) of alternating current (AC) electricity and up to 1,200 megawatt-hours (MWh) of energy storage on approximately 2,800.08 acres of privately owned land.

The project would be constructed to provide clean and efficient renewable energy to the regional electric grid. The project is compatible with nearby land uses as it is located adjacent to the Delaney Substation, multiple existing high voltage electric utility lines, and the likely corridor for the future Ten West Link high-voltage electric transmission line proposed to be in service by 2021. Electricity produced from this project would provide clean energy for up to approximately 57,000 homes.

RE Papago, LLC contracted Transcon Environmental, Inc. (Transcon) to assess the project area for potential impacts to natural resources, including species protected under the Endangered Species Act, Arizona state-listed sensitive and conservation agreement species, and avian species protected under the Migratory Bird Treaty Act (MBTA). All of these species are collectively referred to as special-status species.

This Biological Evaluation (BE) was prepared to evaluate the potential impacts that this project may have on special-status species and to document potential occurrence of the species and the presence of suitable and/or critical habitat.

Throughout this BE the term "project area" is used to define the project footprint.

PROJECT LOCATION AND DESCRIPTION

The proposed project consists of an approximately 2,791-acre solar power generating facility, a substation, and a 500-kilovolt (kV) generation intertie (gen-tie) transmission line. The project area is located approximately 6 miles west of Tonopah, Arizona between Interstate 10 and Courthouse Road in Maricopa County, Arizona. The entire project area is within privately owned land, and Maricopa County Flood Control District (FCDMC) property bisects the project site. The additional surrounding land is a combination of Bureau of Land Management land, Arizona State Land Department (ASLD) land, privately owned land, and Interstate-10, which is owned and managed by the Arizona Department of Transportation and the Federal Highway Administration.

The project area is located in Sections 13, 14, 21, 22, 24, 26, 27, and 28 of Township 2 North, Range 8 West of the Gila and Salt River Baseline and Meridian and on the United States Geological Survey (USGS) Burnt Mountain and Saddle Mountain, Arizona 7.5-Minute quadrangle maps (**Figures 1** and **2**).

The proposed project involves the construction, operation, maintenance, and eventual decommission of a 300-MW solar PV power and energy storage facility and associated infrastructure.

The majority of the project will consist of solar arrays including PV modules and steel support structures, electrical inverters, transformers, cabling, fencing, and other infrastructure. Modules would be arranged in rows in either a single-axis or fixed-tilt system. A single-axis tracking system would contain rows approximately 300 feet long along the north/south axis. Fixed-tilt systems contain rows with multiple tables approximately 65 feet long along the east/west axis with 1 foot of space between each table and 14 feet of space between each row. Supporting structures of PV modules would consist of steel piles, or other similar piles, spaced 10 feet apart and driven into the ground using pneumatic techniques. The module system

would be up to 12 feet in height from the ground surface. Where excavations are required, the majority of proposed construction activities would be limited to a depth of less than 6 feet; however, some excavations, such as those undertaken for the installation of electricity collection poles and dead-end structures, may reach depths of 20 feet or more.

The project would include one electrical substation with an electrical control building. The substation site would be approximately 75,000 square feet (244 feet by 306 feet) in size, or approximately 1.71 acres. The substation would be located in the southeastern portion of the project area just west of the Delaney substation (**Figure 3**). The substation area would be graded and compacted to an approximately level grade. Concrete pads would be constructed on-site as foundations for substation equipment, and the remaining area would be graveled to a maximum depth of approximately 6 inches. The substation would be surrounded by an up to 6-foot-high chain link fence topped with 1 foot of barbed wire.

An operation and maintenance (O&M) building would be required for the project. The building would be approximately 2,000 square feet in size (approximately 40 feet by 50 feet by 15 feet at its tallest point) and would be located near the project substation. The O&M building would include permanent plumbing and restroom facilities for use by the staff. The O&M building would be constructed on a concrete foundation. A septic system and leach field may be installed adjacent to the O&M building to support the restroom facilities and sewage needs of staff at the O&M building during operation.

The project would include a comprehensive supervisory control and data acquisition (SCADA) system to allow remote monitoring of facility operations and/or remote control of critical components. The fiber optic or other cabling required for the monitoring system typically would be installed in buried conduit leading to a SCADA system cabinet centrally located within the project site or a series of appropriately located SCADA system cabinets constructed within the O&M building. The dimensions of each cabinet would be approximately 20 feet by 8 feet by 9 feet. The project's SCADA system would connect to a fiber optic network. Some trenching work may be required to bury fiber optic cables, or such cables may be installed on overhead poles.

A meteorological data collection system was installed on-site in early 2019.

The project would require inverters and transformers designed and laid out in approximately 2-MW increments, containing an inverter equipment area of approximately 40 feet by 25 feet (if AC coupled; this area would be approximately twice this size if direct current coupled). Up to 150 inverters would be installed. Each 2-MW increment would include an inverter-transformer station constructed on a concrete pad or steel skid and centrally located within the PV arrays. Each inverter-transformer station would contain a switchboard approximately 8 to 11 feet high. The collection cables would be buried underground or installed overhead on wood poles typically 50 to 70 feet tall and spaced in 250-foot intervals (most would be overhead). Some of the wood poles could be located at the outside edge of the property line, but a majority of these poles are expected to be located in the interior of the site.

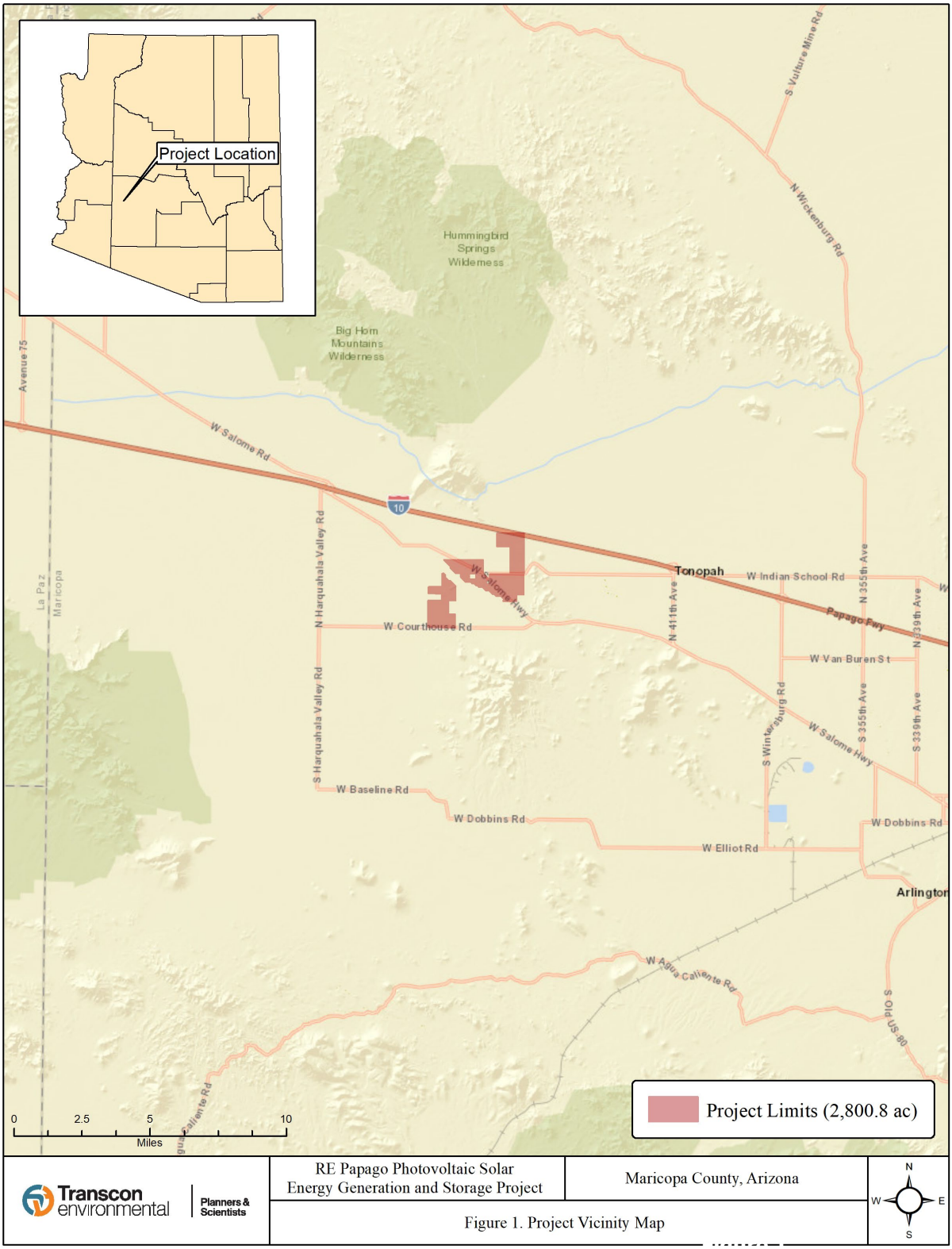
The project would include a 500-kV gen-tie electric transmission line approximately 0.3 mile in length consisting of up to four metal transmission towers, conductors, insulators, optical fiber cables, and safety equipment, which would connect the project substation to the Delaney substation.

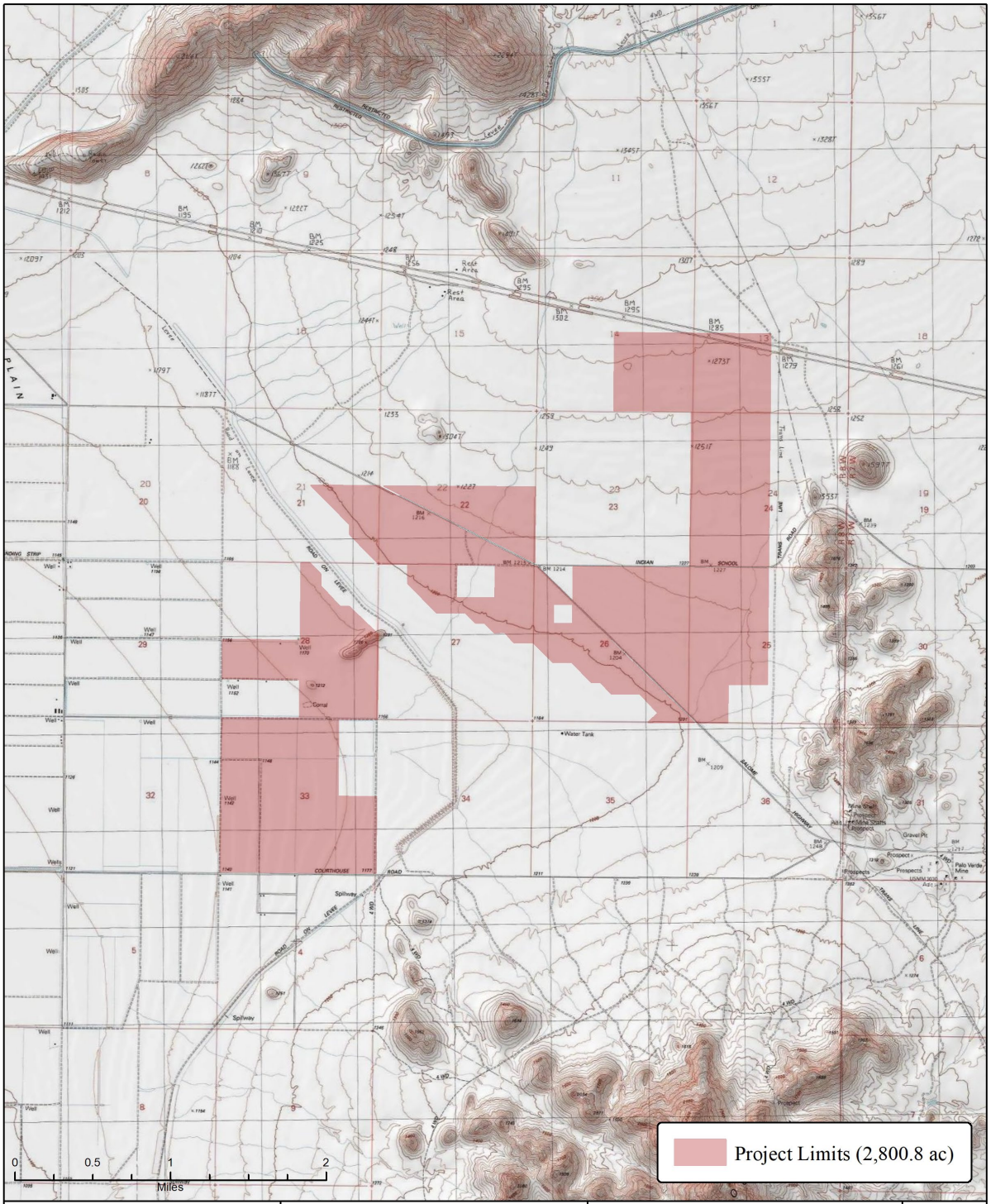
The project would include an energy storage system with a capacity up to 300 MW or 1,200 MWh. If provided, the storage system would consist of battery or flywheel enclosures, buried electrical conduit, and appurtenant equipment.

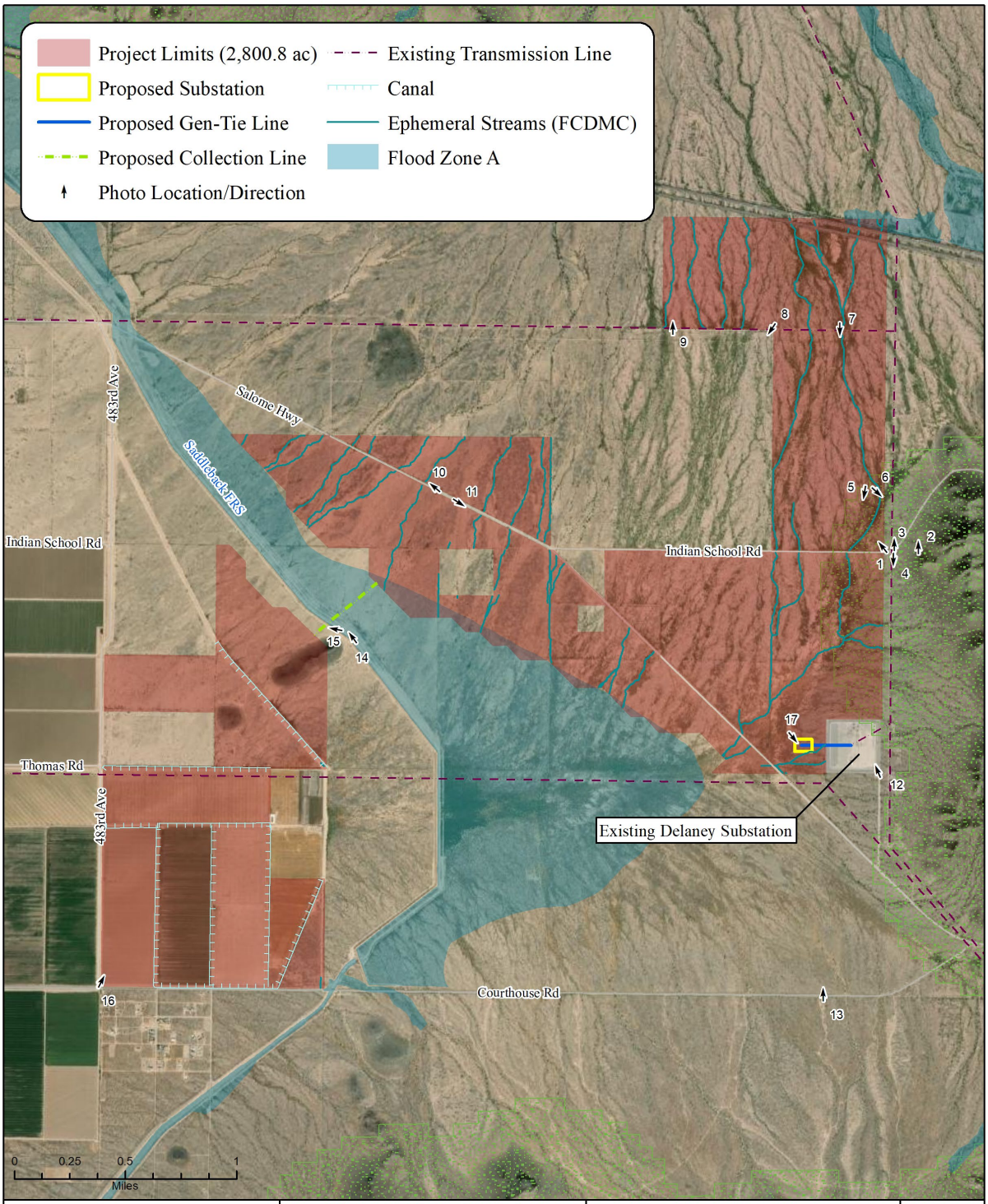
The on-site roadway system would include perimeter roads, access driveways, and internal roads. The perimeter roads, main access driveways, and emergency turnaround areas would be constructed to be

consistent with facility maintenance requirements and Maricopa County's Rural Metro Fire Department standards.

Construction noise is anticipated for the duration of the construction of the project. Construction activities are generally short term in nature and intermittent. At the completion of construction, the surrounding noise level is anticipated to return to pre-construction conditions. Construction noise will be temporary and controlled by appropriate means and methods. Construction of the project is expected to begin as early as summer 2020 and could occur in phases. Project construction is expected to take up to 24 months.


Project Location
Hummingbird Springs Wilderness
Big Horn Mountains Wilderness
S Vulture Mine Rd
N Wickenburg Rd
Avenue 75
W Salome Rd
10
La Paz
Maricopa
N Harquahala Valley Rd
S Harquahala Valley Rd
W Courthouse Rd
W Salome Hwy
Tonopah
W Indian School Rd
Papago Fwy
N 411th Ave
N 355th Ave
N 339th Ave
W Van Buren St
S Wintersburg Rd
S 355th Ave
S 339th Ave
W Salome Hwy
W Baseline Rd
W Dobbins Rd
W Elliot Rd
W Dobbins Rd
Arlington
W Agua Caliente Rd
S Old US-80
Agua Caliente Rd
0
2.5
5
10
Miles
Project Limits (2,800.8 ac)
Transcon environmental
Planners & Scientists
RE Papago Photovoltaic Solar Energy Generation and Storage Project
Maricopa County, Arizona
Figure 1. Project Vicinity Map
N
W
E
S


Project Limits (2,800.8 ac)
0
0.5
1
2
Miles
Transcon environmental
Planners & Scientists
RE Papago Photovoltaic Solar Energy Generation and Storage Project
Maricopa County, Arizona
Figure 2. USGS 7.5' Quad Map
(Burnt Mountain and Saddle Mountain, AZ)
N
W
E
S


Project Limits (2,800.8 ac)
Proposed Substation
Proposed Gen-Tie Line
Proposed Collection Line
Photo Location/Direction
Existing Transmission Line
Canal
Ephemeral Streams (FCDMC)
Flood Zone A
483rd Ave
Salome Hwy
Saddleback FRS
Indian School Rd
Thomas Rd
Courthouse Rd
Existing Delaney Substation
0
0.25
0.5
1
Miles
Transcon environmental
Planners & Scientists
RE Papago Photovoltaic Solar Energy Generation and Storage Project
Maricopa County, Arizona
Figure 3. Project Overview
N
W
E
S

AFFECTED ENVIRONMENT

The proposed project is located within the Sonoran Desert ecoregion of Arizona. Elevation within the project ranges from approximately 1,290 feet above mean sea level (amsl) in the northern and eastern portions of the project site to approximately 1,120 feet amsl in the southwestern portion of the site. Terrain throughout the project area and the immediate vicinity is generally flat with two hills in the western section and a small mountain adjacent to the eastern boundary of the site.

The project area contains a mix of undeveloped native desert and fallow, row-crop agricultural land. Existing disturbances include paved and unpaved county roads, unauthorized off-highway-vehicle roads, abandoned and functioning irrigation canals, and two overhead transmission lines. Existing disturbances in adjacent lands are similar to those within the project area with the addition of residential areas and active agricultural fields (**Figure 3**).

Vegetation and Soils

The project area is within the Lower Colorado River Subdivision of the Sonoran Desert scrub biotic community (Brown 1994). According to the ASLD and the Arizona Game and Fish Department (AGFD), the majority of the project area is within the Creosote-Bursage (Lower Colorado River Valley) vegetation community with the northwestern section of the project lying within the Mixed Paloverde-Cacti vegetation community (ASLD 2017).

Approximately 20 percent of the project area consists of recently fallow agricultural land, all of which was sown with row crops. All the agricultural land is located within the southwestern portion of the project area. Vegetation in this area is sparse, with the majority consisting of barren land and invasive species, including Russian thistle (*Salsola tragus*). The remaining 80 percent of the project area consists of native desert with the dominant species being creosote (*Larrea tridentata*), brittlebush (*Encelia farinosa*), and white bursage (*Ambrosia dumosa*). Larger native trees and other cacti species can be found where water collects in lower areas and along roads throughout the project area, including velvet mesquite (*Prosopis velutina*), ironwood (*Olneya tesota*), barrel cactus (*Ferocactus cylindraceus*), whipple cholla (*Cylindropuntia whipplei*), and saguaro (*Carnegiea gigantea*). See **Appendix A** for photographs depicting the vegetation within the project area.

The following soils occur within the project area: Antho gravelly sandy loam, 0 to 1 percent slopes; Antho-Carrizo complex, 0 to 3 percent; Gilman-Antho association; Gilman-Laveen association; Gunsight-Pinal complex, 1 to 10 percent slopes; Gunsight-Rillito complex, 0 to 1 percent slopes; Gunsight-Rillito complex, 0 to 10 percent slopes; Harqua-Gunsight complex, 0 to 5 percent slopes; Laveen sandy loam; Laveen loam, 0 to 1 percent slopes; Maripo sandy loam; Rillito loam, 0 to 1 percent slopes; Rillito-Harqua complex, 1 to 3 percent slopes; and Rock outcrop-Cherioni complex (NRCS 2020).

Aquatic Resources

A review of the project area based on a combination of aerial imagery, data collected by the FCDMC, and field review identified numerous ephemeral and braided streams that cross the project which convey sheetflow towards the Saddleback Flood Retarding Structure (FRS); from there, the water is then moved southwest along the FRS and into Centennial Wash, approximately 6 miles south of the project area. The southwestern portion of the project containing the agricultural fields has multiple canals conveying water from the Central Arizona Project to the fields within and adjacent to the project area (**Figure 3**). None of the ephemeral streams or canals contain riparian vegetation or habitat, and no wetlands are located within or near the project area.

The majority of the project is depicted within Zone X, which is outside the 100-year floodplain on the Federal Emergency Management Agency Flood Insurance Rate Map Panel Nos. 04013C1550M and 04013C2025L (FEMA 2020). A portion of the project area is located within the 100-year floodplain (**Figure 3**).

Information from the Arizona Department of Water Resources website was reviewed for water wells located within the vicinity of the project site. According to well registration records, groundwater exists at greater than 460 feet below ground surface (ADWR 2020); however, groundwater levels can fluctuate due to seasonal variations, groundwater withdrawal or injection, and other factors.

SPECIES ASSESSMENT

This BE addresses special-status species with the potential to occur in or near the proposed project area, including federally-listed species, Arizona state sensitive and conservation agreement species, and avian species protected under the MBTA and the Bald and Golden Eagle Protection Act (BGEPA). Prior to field reconnaissance, Transcon biologists conducted background research to determine any special-status species or federally-protected habitat that may occur in the proposed project area. These species were identified using the U.S. Fish and Wildlife Service (USFWS) Information for Planning and Conservation tool (IPaC) tool. The AGFD Online Environmental Review Tool Report (OERT) was also utilized to provide information on documented occurrences of special-status species near the project area. Search results from IPaC and the OERT sites are included in **Appendix B**.

Transcon biologists conducted multiple field visits between January 2019 and August 2020 to verify the desktop review results and to assess habitat for special-status species that may occur within the project area.

The results of this desktop review and habitat assessment are discussed below. Photographs of the project area are included in **Appendix A**.

Federally-Listed Species

Transcon obtained an official species list for the project area from the USFWS IPaC system on August 13, 2020 (**Appendix B**). The list included four Endangered Species Act (ESA)-listed Threatened, Endangered or Candidate species that should be evaluated for the project area: Sonoran pronghorn (*Antilocapra americana sonoriensis*), California least tern (*Sterna antillarum browni*), yellow-billed cuckoo (*Coccyzus americanus*), and Sonoran desert tortoise (*Gopherus morafkai*). A qualified biologist reviewed the list to determine species that may occur in the project vicinity. Additionally, field reconnaissance was conducted to determine habitat suitability multiple times between January 2019 and August 2020. Species included in the USFWS list but excluded from further evaluation are addressed in **Table 1**.

Sonoran Desert Tortoise

The Sonoran desert tortoise, an ESA-listed Candidate species, is found within the Sonoran desertscrub community and occurs primarily on rocky slopes and bajadas. Suitable habitat for the Sonoran desert tortoise is located within the project area. According to the U.S. Geological Society Gap Analysis Program, the unnamed mountain in the southeastern project area contains suitable habitat for the Sonoran desert tortoise; this was confirmed during field reconnaissance (**Figure 3**). Additionally, the majority of the undeveloped native land within the project area contains suitable dispersal habitat that connects the suitable mountainous habitat near the project area. A Sonoran desert tortoise was observed by a Transcon biologist crossing Indian School Road approximately 0.5 mile east of the project area.

Due to the presence of suitable habitat within the proposed project area and the confirmed presence of an individual tortoise near to the proposed project area, implementation of the proposed project could

potentially impact Sonoran desert tortoise species. To reduce the potential for project-related impacts to Sonoran desert tortoises, it is recommended that Recurrent Energy and the contractor adhere to the AGFD's "Guidelines for Handling Sonoran desert Tortoises Encountered on Development Projects" revised September 22, 2014. No other standard mitigation measures or survey protocols are in place at this time for the Sonoran desert tortoise as it was recently listed as a Candidate species.

There is no federally-designated Critical Habitat within the project vicinity.

TABLE 1
SPECIES EXCLUDED FROM FURTHER EVALUATION

Common Name *Scientific Name*	**Status***	**Habitat**	**Exclusion Justification**
Sonoran pronghorn (*Antilocapra americana sonoriensis)*	Endangered and 10(j) Nonessential Experimental Population	This species can be found in broad inter-mountain alluvial valleys in low-elevation Sonoran desertscrub with creosote-bursage and paloverde-mixed cacti associations at elevations between 400 and 1,600 feet. Within Arizona, they are found on the Cabeza Prieta National Wildlife Refuge, the Organ Pipe Cactus National Monument, the Luke Air Force Barry M. Goldwater Gunnery Range, and possibly the Tohono O'odham Indian Reservation.	The Sonoran pronghorn population, which is listed as endangered, occurs in Maricopa, Pima, and Yuma counties. The project area is not within the historic, present, or potential distribution range for this species according to the AGFD's HabiMap™ Arizona species distribution model. In 2013, a 10(j) Nonessential Experimental Population was established on Kofa National Wildlife Refuge (NWR) in Yuma County. This population has since expanded beyond the NWR in Yuma County and into Maricopa County. The boundaries of the 10(j) Nonessential Experimental Population areas include portions of Maricopa, La Paz, Pima, Pinal, Santa Cruz, and Yuma counties. Based on the 2016 Recovery Plan, these areas are not within proximity to the project area.
California least tern *(Sterna antillarum browni)*	Endangered	This species can be found in open, bare, or sparsely vegetated sand, sandbars, gravel pits, or exposed flats along shorelines of inland rivers, lakes, reservoirs, or drainage systems below 2,000 feet. They are rarely found within Arizona, with individuals found within large lakes, recharge basins, or wetland areas in Maricopa County.	Suitable habitat for this species is not present in the project area, and the project area is outside the historic, present, and potential distribution range for this species according to the AGFD's HabiMap™ Arizona species distribution model. No individuals were identified in the project vicinity in AGFD species occurrence data.

TABLE 1 SPECIES EXCLUDED FROM FURTHER EVALUATION			
Common Name *Scientific Name*	**Status***	**Habitat**	**Exclusion Justification**
Yellow-billed cuckoo *(Coccyzus americanus)*	Threatened	Suitable habitat is west of the Continental Divide and is limited to narrow, and often widely separated, riparian cottonwood-willow galleries; salt cedar is also used by cuckoos. Dense understory foliage appears to be an important factor in nest site selection. In addition to cottonwood-willow galleries, cuckoos in Arizona can be found in larger mesquite bosques. They are rarely observed as transients in xeric desert or urban settings and are generally found in southern and central Arizona and in extreme northeast portions of the state	Suitable habitat for this species is not present in the project area, and the project area is outside the historic, present, and potential distribution range for this species according to the AGFD's HabiMap™ Arizona species distribution model. No individuals were identified in the project vicinity in AGFD species occurrence data.

State of Arizona Special-Status Species

Transcon utilized the AGFD OERT to determine the potential occurrence of special-status species within 5 miles of the project area. Special-status species include those that are state protected and/or federally listed. The OERT listed one documented occurrence of special-status species within 5 miles of the project vicinity, the Sonoran desert tortoise. According the AGFD, the Sonoran desert tortoise is listed as a Tier 1A Species of Greatest Conservation Need by AGFD and has a Candidate Conservation Agreement by the USFWS. The OERT did not indicate that this species was listed as a Candidate species by the USFWS, likely because this listing occurred recently. Due to its listing as a Candidate species by the USFWS, a habitat suitability assessment was discussed in the "Federally-Listed Species" section above. No additional mitigation measures outside of what is discussed above are recommended at this time.

In addition to special-status species, the OERT indicates whether or not the project is within or near an Important Connectivity Zone, which is a zone indicated by AGFD as being an area of land used by wildlife to move between or within habitat blocks in order to complete activities necessary for survival and reproduction. One such zone, Big Horn/Burnt Mountains—Saddle Mountains, has been identified as intersecting the northeastern section of the project area. The project is not anticipated to significantly impact connectivity because much of the Important Connectivity Zone is outside of the project area and most of the species utilizing the Important Connectivity Zone prefer rockier and more mountainous habitat, which this project will have very little impact on. Additionally, AGFD has identified the potential for wildlife in the area to utilize the Saddle Mountain FRS as an alternative to the existing corridor, which is not within the project area (AGFD 2012).

Migratory Birds

Migratory birds are protected under the MBTA of 1918, as amended (16 U.S. Code 703-712). The MBTA states that it is unlawful to take, kill, or possess migratory birds, their eggs, parts, and/or nests that are listed under its protection unless authorized under a valid permit (50 Code of Federal Regulations [CFR] 21.11).

An examination of the USFWS IPaC site identified five migratory bird species of conservation concern that could potentially occur near the project area: Bendire's thrasher (*Toxostoma bendirei*), Costa's hummingbird (*Calypte costae*), Gila woodpecker (*Melanerpes uropygialis*), gilded flicker (*Colaptes chrysoides*), and Le Conte's thrasher (*Toxostoma lecontei*). None of these species or their nests were located during field reconnaissance. No other active or abandoned nests were observed in trees, shrubs, or power poles within the project area; however, at least two burrowing owl (*Athene cunicularia*) pairs and their burrows were observed in the western portion of the project area along the canals adjacent to the agricultural fields. A migratory nest survey was not conducted throughout the project area. In order to minimize impacts to migratory birds, burrowing owls, and other potential nesting migratory bird species, appropriate mitigation measures should be followed.

Bald Eagles and Golden Eagles

In addition to the MBTA, bald and golden eagles are protected under the BGEPA, which was originally passed in 1940 and amended in 1962. The BGEPA prohibits the take, possession, sale, purchase, barter, offer to sell, transport, export, or import of any bald or golden eagle, alive or dead, including any part, nest, or egg, unless allowed by permit (16 U.S. Code 668[a]; 50 CFR 22). The definition of take includes both direct take of individuals and take due to disturbance.

In Maricopa County, Sonoran Desert population bald eagle breeding territories have been documented in the vicinity of Apache, Canyon, and Saguaro Lakes; along the Verde River near Fort McDowell; below Horseshoe Reservoir; above and below Bartlett Reservoir; near Lake Pleasant; within the City of Mesa along the Salt River; near the confluence of the Gila and Salt Rivers; near Canyon Creek; near Buckhorn Mountain; and at various other points along the Salt and Verde Rivers including their confluence. They typically nest in tall trees and saguaros adjacent to water bodies and opportunistically feed on fish, injured waterfowl, various small mammals, and carrion. Bald eagles also actively hunt live prey, scavenge, and pirate food from other birds (AGFD 2011). Suitable nesting and foraging habit for bald eagles is not located within or in the vicinity of the project area.

Golden eagles are usually found in open country, prairies, arctic and alpine tundra, open wooded country, and barren areas, especially in hilly or mountainous regions. They nest on rock ledges, cliffs, or in large trees. Golden eagle pairs may have several alternate nests and may use the same nests for consecutive years or shift to alternate nests. In Arizona they are found in mountainous areas and are virtually vacant after breeding in some desert areas (AGFD 2002). No suitable nesting habitat is located within the project area; however, Saddle Mountain, located approximately 1 mile south of the project area, does provide suitable nesting cliffs. The project area does contain marginal foraging habitat for golden eagles.

It is not anticipated the bald or golden eagles would inhabit the project area. The implementation of the proposed project would not likely result in the take of individual bald or golden eagles or their nests due to the lack of suitable nesting habitat within or adjacent to the project area.

SUMMARY

Based on desktop and field reviews, it was determined that only the Sonoran desert tortoise may be impacted by the implementation of this project. As the Sonoran desert tortoise is currently only a Candidate species according to the USFWS, no protections are awarded to it by the ESA; however, it is still a state-protected species, and to reduce the potential for project-related impacts to Sonoran desert tortoises it is recommended that Recurrent Energy and the contractor adhere to the AGFD's "Guidelines for Handling Sonoran desert Tortoises Encountered on Development Projects" revised September 22, 2014.

This project may also result in a potential impact to migratory bird species and their nests. In order to avoid impacts to migratory bird species and their nests, appropriate mitigation measures will be implemented.

The implementation of this project is not expected to impact any additional federally- or state-protected species.

MITIGATION MEASURES

According the AGFD, there are specific mitigation measures that should be considered during the planning, design, and construction phases of a solar project (AGFD 2010). In order to reduce potential impacts to species and habitat within the project area, Transcon recommends the following mitigation measures:

Impacts to Species

- If vegetation clearing is to occur during the migratory bird breeding season (March 1–August 31), a preconstruction survey for migratory birds and nests would be conducted no more than 10 days prior to ground-disturbing activities
- If vegetation clearing is to occur during the migratory bird breeding season (March 1–August 31), the contractor shall avoid any active bird nests. During the non-breeding season (September 1–February 28), vegetation removal is not subject to this restriction
- Recurrent Energy or the contractor will employ a biologist to complete a preconstruction survey for burrowing owls 96 hours prior to construction in all suitable habitats that will be disturbed
- If any burrowing owls are located during construction, the contractor will stop work at that location and notify Recurrent Energy immediately. If owls must be relocated, Recurrent Energy or the contractor will employ a biologist holding a permit from the USFWS to relocate burrowing owls from the project area, as appropriate
- If any Sonoran desert tortoises are encountered during construction, the contractor shall adhere to the AGFD's "Guidelines for Handling Sonoran Desert Tortoises Encountered on Development Projects" revised September 22, 2014

Noxious and Invasive Species

- All surfaces and the undercarriages of vehicles and equipment will be thoroughly washed before moving to the project site to remove any noxious or non-native plant seeds. This will reduce the possibility of transporting noxious or non-native plants from one site to another
- To prevent the introduction of invasive species seeds, all earth-moving and hauling equipment will be washed at the contractor's storage facility prior to entering the construction site
- To prevent invasive species seeds from leaving the site, the contractor will inspect all construction equipment and remove all attached plant/vegetation and soil/mud debris prior to leaving the construction site. If possible, the vehicles will be thoroughly washed prior to leaving the construction site

REFERENCES

Arizona Department of Water Resources (ADWR). 2020. Accessed at https://gisweb2.azwater.gov/gwsi.

Arizona Game and Fish Department (AGFD). 2002. *Aquila chrysaetos*. Unpublished abstract compiled and edited by the Heritage Data Management System, Arizona Game and Fish Department, Phoenix, AZ. 5pp.

_____. 2010. Guidelines for Solar Development in Arizona. Arizona Game and Fish Department, Phoenix, AZ.

_____. 2011. *Haliaeetus leucocephalus*. Unpublished abstract compiled and edited by the Heritage Data Management System, Arizona Game and Fish Department, Phoenix, AZ. 8pp

_____. 2012. The Maricopa County Wildlife Connectivity Assessment: Report on Stakeholder Input.

Arizona State Land Department (ASLD). 2017. Forests and Forest Cover, Natural Vegetation. Accessed via https://land.az.gov/alris/metadata/gfveg.htm.

Brown, David E. 1994. Biotic Communities. Southwestern United States and Northwestern Mexico.

Federal Emergency Management Agency (FEMA) National Flood Hazard Layer. 2020. Accessed at http://fema.maps.arcgis.com.

Natural Resources Conservation Service (NRCS). 2020. USDA NRCS Web Soil Survey. https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm.

APPENDIX A

PROJECT PHOTOGRAPHS

Photo No. 1

View of project area from Indian School Road at the eastern project limits facing northwest

Photo No. 2

View of potential desert tortoise habitat near the eastern project limits facing North

Photo No. 3

View of project area from Indian School Road facing north along existing transmission line

Photo No. 4

View of project area from Indian School Road facing south along existing transmission line

Photo No. 5

View of a typical minor wash located in creosote flats facing southwest

Photo No. 6

View of mesquite and creosote bosque facing southeast

Photo No. 7

View of typical wash braids in northeastern project area facing south

Photo No. 8

View of adjacent state land in project area facing southwest

Photo No. 9

View of creosote flat habitat within northeast project area facing south

Photo No. 10

View along Salome highway in center of project area facing northwest

Photo No. 11

View along Salome highway in center of project area facing southeast

Photo No. 12

View of existing Delaney substation at the southeastern portion of project area facing northwest

Photo No. 13

View of project area and adjacent land overview at southern edge of project area facing north

Photo No. 14

View of project area and adjacent land overview near middle of project area facing northwest

Photo No. 15

View from FCDMC Saddleback Flood Retarding Structure facing west towards projects limits

Photo No. 16

View of adjacent agricultural fields at southwestern edge of project area facing northeast

Photo No. 17

View from the northwest corner of the proposed substation looking southeast

APPENDIX B

IPAC AND OERT SEARCH RESULTS

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Arizona Ecological Services Field Office
9828 North 31st Ave
#c3
Phoenix, AZ 85051-2517
Phone: (602) 242-0210 Fax: (602) 242-2513
http://www.fws.gov/southwest/es/arizona/
http://www.fws.gov/southwest/es/EndangeredSpecies_Main.html

In Reply Refer To: August 13, 2020
Consultation Code: 02EAAZ00-2020-SLI-0988
Event Code: 02EAAZ00-2020-E-02869
Project Name: RE Papago Solar Project

Subject: Updated 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 Fish and Wildlife Service (Service) is providing this list under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.). The list you have generated identifies threatened, endangered, proposed, and candidate species, and designated and proposed critical habitat, that may occur within one or more delineated United States Geological Survey 7.5 minute quadrangles with which your project polygon intersects. Each quadrangle covers, at minimum, 49 square miles. In some cases, a species does not currently occur within a quadrangle but occurs nearby and could be affected by a project. Please refer to the species information links found at:
http://www.fws.gov/southwest/es/arizona/Docs_Species.htm
http://www.fws.gov/southwest/es/arizona/Documents/MiscDocs/AZSpeciesReference.pdf .

The purpose of the Act is to provide a means whereby threatened and endangered species and the habitats 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 Federal trust resources and to consult with us if their projects may affect federally listed 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, we recommend preparing a biological evaluation similar to a Biological Assessment 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 the Federal action agency determines that listed species or critical habitat may be affected by a federally funded, permitted or authorized activity, the agency must consult with us pursuant to 50 CFR 402. Note that a "may affect" determination includes effects that may not be adverse and that may be beneficial, insignificant, or discountable. You should request consultation with us even if only one individual or habitat segment may be affected. The effects analysis should include the entire action area, which often extends well outside the project boundary or "footprint." For example, projects that involve streams and river systems should consider downstream effects. If the Federal action agency determines that the action may jeopardize a proposed species or adversely modify proposed critical habitat, the agency must enter into a section 7 conference. The agency may choose to confer with us on an action that may affect proposed species or critical habitat.
Candidate species are those for which there is sufficient information to support a proposal for listing. Although candidate species have no legal protection under the Act, we recommend considering them in the planning process in the event they become proposed or listed prior to project completion. More information on the regulations (50 CFR 402) and procedures for section 7 consultation, including the role of permit or license applicants, can be found in our Endangered Species Consultation Handbook at:
http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF.

We also advise you to consider species protected under the Migratory Bird Treaty Act (MBTA) (16 U.S.C. 703-712) and the Bald and Golden Eagle Protection Act (Eagle Act) (16 U.S.C. 668 et seq.). The MBTA prohibits the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, except when authorized by the Service. The Eagle Act prohibits anyone, without a permit, from taking (including disturbing) eagles, and their parts, nests, or eggs. Currently 1026 species of birds are protected by the MBTA, including species such as the western burrowing owl (Athene cunicularia hypugea). Protected western burrowing owls are often found in urban areas and may use their nest/burrows year-round; destruction of the burrow may result in the unpermitted take of the owl or their eggs.

If a bald eagle (or golden eagle) nest occurs in or near the proposed project area, you should evaluate your project to determine whether it is likely to disturb or harm eagles. The National Bald Eagle Management Guidelines provide recommendations to minimize potential project impacts to bald eagles:
https://www.fws.gov/migratorybirds/pdf/management/
nationalbaldeaglenanagementguidelines.pdf
https://www.fws.gov/birds/management/managed-species/eagle-management.php.

The Division of Migratory Birds (505/248-7882) administers and issues permits under the MBTA and Eagle Act, while our office can provide guidance and Technical Assistance. For more information regarding the MBTA, BGEPA, and permitting processes, please visit the following: https://www.fws.gov/birds/policies-and-regulations/incidental-take.php. Guidance for minimizing impacts to migratory birds for communication tower projects (e.g. cellular, digital television, radio, and emergency broadcast) can be found at:

https://www.fws.gov/birds/bird-enthusiasts/threats-to-birds/collisions/communication-towers.php.

Activities that involve streams (including intermittent streams) and/or wetlands are regulated by the U.S. Army Corps of Engineers (Corps). We recommend that you contact the Corps to determine their interest in proposed projects in these areas. For activities within a National Wildlife Refuge, we recommend that you contact refuge staff for specific information about refuge resources.
If your action is on tribal land or has implications for off-reservation tribal interests, we encourage you to contact the tribe(s) and the Bureau of Indian Affairs (BIA) to discuss potential tribal concerns, and to invite any affected tribe and the BIA to participate in the section 7 consultation. In keeping with our tribal trust responsibility, we will notify tribes that may be affected by proposed actions when section 7 consultation is initiated.

We also recommend you seek additional information and coordinate your project with the Arizona Game and Fish Department. Information on known species detections, special status species, and Arizona species of greatest conservation need, such as the western burrowing owl and the Sonoran desert tortoise (Gopherus morafkai) can be found by using their Online Environmental Review Tool, administered through the Heritage Data Management System and Project Evaluation Program https://www.azgfd.com/Wildlife/HeritageFund/.

For additional communications regarding this project, please refer to the consultation Tracking Number in the header of this letter. We appreciate your concern for threatened and endangered species. If we may be of further assistance, please contact our following offices for projects in these areas:

Northern Arizona: Flagstaff Office 928/556-2001
Central Arizona: Phoenix office 602/242-0210
Southern Arizona: Tucson Office 520/670-6144

Sincerely,
/s/ Jeff Humphrey Field Supervisor

Attachment

Attachment(s):

- Official Species List

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:

Arizona Ecological Services Field Office
9828 North 31st Ave
#c3
Phoenix, AZ 85051-2517
(602) 242-0210

Project Summary

Consultation Code: 02EAAZ00-2020-SLI-0988

Event Code: 02EAAZ00-2020-E-02869

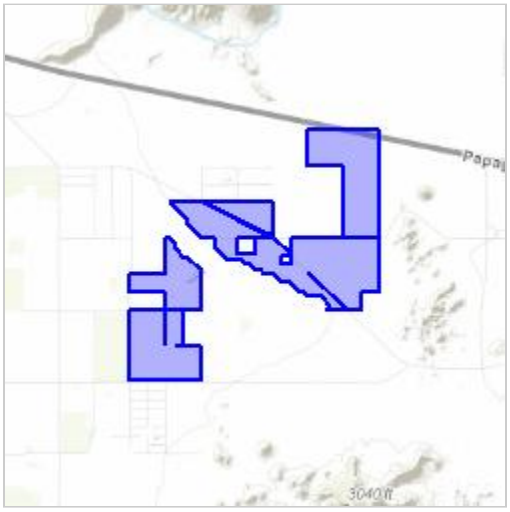
Project Name: RE Papago Solar Project

Project Type: POWER GENERATION

Project Description: The proposed Papago Solar Energy Project intends to construct, operate, maintain, and eventually decommission a 300-megawatt solar photovoltaic (PV) power and energy storage facility and associated infrastructure

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/33.49003801150006N113.04292887900084W



Counties: Maricopa, AZ

Endangered Species Act Species

There is a total of 4 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 Fisheries[1], 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.

Mammals

NAME	STATUS
Sonoran Pronghorn *Antilocapra americana sonoriensis* Population: U.S.A. (AZ), Mexico No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4750	Experimental Population, Non-Essential

Birds

NAME	STATUS
California Least Tern *Sterna antillarum browni* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8104	Endangered
Yellow-billed Cuckoo *Coccyzus americanus* Population: Western U.S. DPS There is **proposed** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3911	Threatened

Reptiles

NAME	STATUS
Sonoran Desert Tortoise *Gopherus morafkai*	Candidate

No critical habitat has been designated for this species.

Species profile: https://ecos.fws.gov/ecp/species/9289

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

Arizona Environmental Online Review Tool Report

Arizona Game and Fish Department Mission
To conserve Arizona's diverse wildlife resources and manage for safe, compatible outdoor recreation opportunities for current and future generations.

Project Name:

RE Papago Solar Project

Project Description:

The proposed Papago Solar Energy Project intends to construct, operate, maintain, and eventually decommission a300-megawatt solar photovoltaic (PV) power and energy storage facility and associated infrastructure

Project Type:

Energy Storage/Production/Transfer, Energy Production (generation), photovoltaic solar facility (new)

Contact Person:

Christopher Melisi

Organization:

Transcon

On Behalf Of:

CONSULTING

Project ID:

HGIS-11392

Please review the entire report for project type and/or species recommendations for the location information entered. Please retain a copy for future reference.

Disclaimer:

1. This Environmental Review is based on the project study area that was entered. The report must be updated if the project study area, location, or the type of project changes.
2. This is a preliminary environmental screening tool. It is not a substitute for the potential knowledge gained by having a biologist conduct a field survey of the project area. This review is also not intended to replace environmental consultation (including federal consultation under the Endangered Species Act), land use permitting, or the Departments review of site-specific projects.
3. The Departments Heritage Data Management System (HDMS) data is not intended to include potential distribution of special status species. Arizona is large and diverse with plants, animals, and environmental conditions that are ever changing. Consequently, many areas may contain species that biologists do not know about or species previously noted in a particular area may no longer occur there. HDMS data contains information about species occurrences that have actually been reported to the Department. Not all of Arizona has been surveyed for special status species, and surveys that have been conducted have varied greatly in scope and intensity. Such surveys may reveal previously undocumented population of species of special concern.
4. HabiMap Arizona data, specifically Species of Greatest Conservation Need (SGCN) under our State Wildlife Action Plan (SWAP) and Species of Economic and Recreational Importance (SERI), represent potential species distribution models for the State of Arizona which are subject to ongoing change, modification and refinement. The status of a wildlife resource can change quickly, and the availability of new data will necessitate a refined assessment.

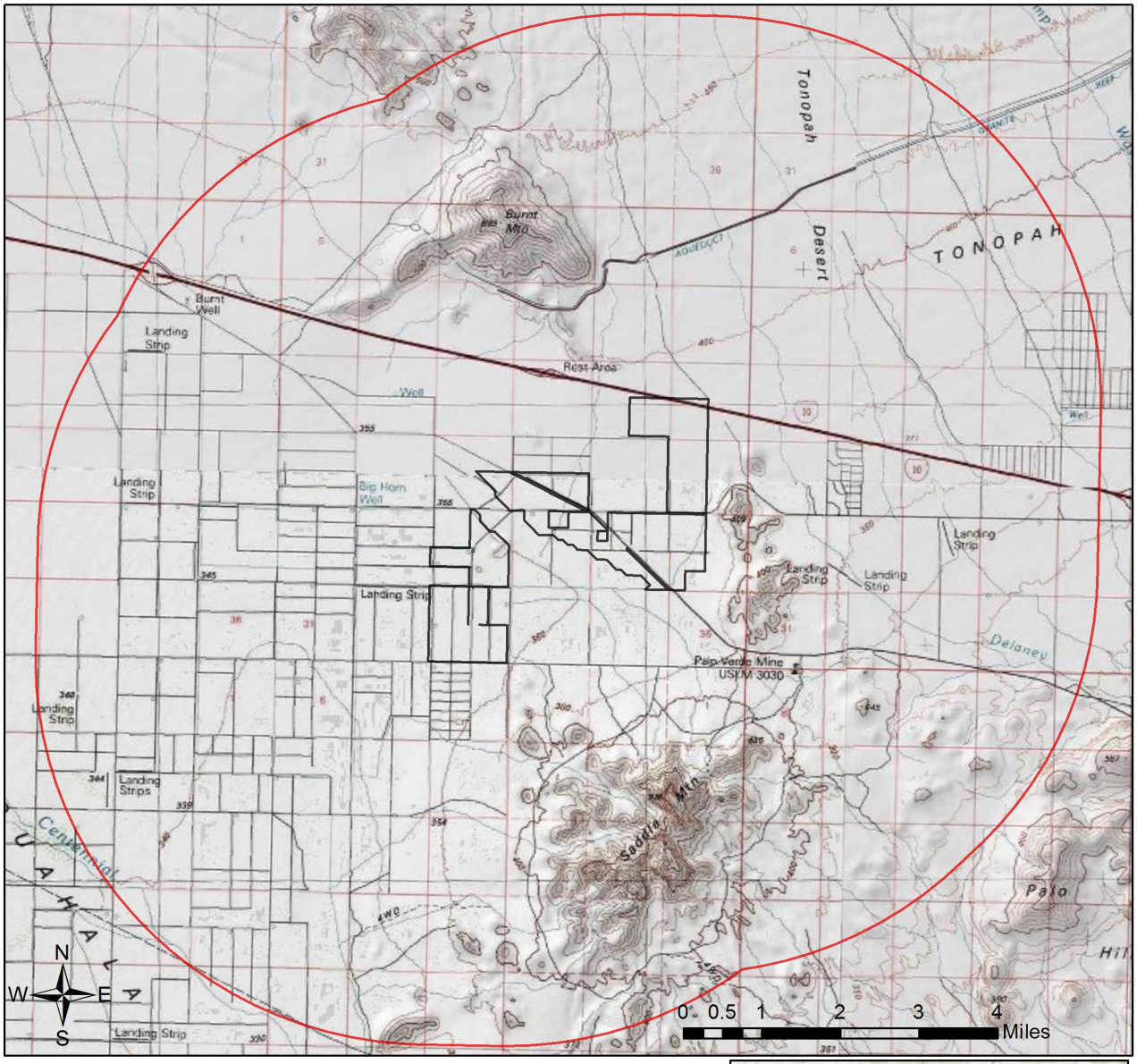
Locations Accuracy Disclaimer:
Project locations are assumed to be both precise and accurate for the purposes of environmental review. The creator/owner of the Project Review Report is solely responsible for the project location and thus the correctness of the Project Review Report content.

Recommendations Disclaimer:

1. The Department is interested in the conservation of all fish and wildlife resources, including those species listed in this report and those that may have not been documented within the project vicinity as well as other game and nongame wildlife.
2. Recommendations have been made by the Department, under authority of Arizona Revised Statutes Title 5 (Amusements and Sports), 17 (Game and Fish), and 28 (Transportation).
3. Potential impacts to fish and wildlife resources may be minimized or avoided by the recommendations generated from information submitted for your proposed project. These recommendations are preliminary in scope, designed to provide early considerations on all species of wildlife.
4. Making this information directly available does not substitute for the Department's review of project proposals, and should not decrease our opportunity to review and evaluate additional project information and/or new project proposals.
5. Further coordination with the Department requires the submittal of this Environmental Review Report with a cover letter and project plans or documentation that includes project narrative, acreage to be impacted, how construction or project activity(s) are to be accomplished, and project locality information (including site map). Once AGFD had received the information, please allow 30 days for completion of project reviews. Send requests to:
   Project Evaluation Program, Habitat Branch
   Arizona Game and Fish Department
   5000 West Carefree Highway
   Phoenix, Arizona 85086-5000
   Phone Number: (623) 236-7600
   Fax Number: (623) 236-7366
   Or
   PEP@azgfd.gov
6. Coordination may also be necessary under the National Environmental Policy Act (NEPA) and/or Endangered Species Act (ESA). Site specific recommendations may be proposed during further NEPA/ESA analysis or through coordination with affected agencies

RE Papago Solar Project

USA Topo Basemap With Locator Map



Project Boundary

Buffered Project Boundary

Project Size (acres): 2,785.44

Lat/Long (DD): 33.4898 / -113.0598

County(s): Maricopa

AGFD Region(s): Yuma

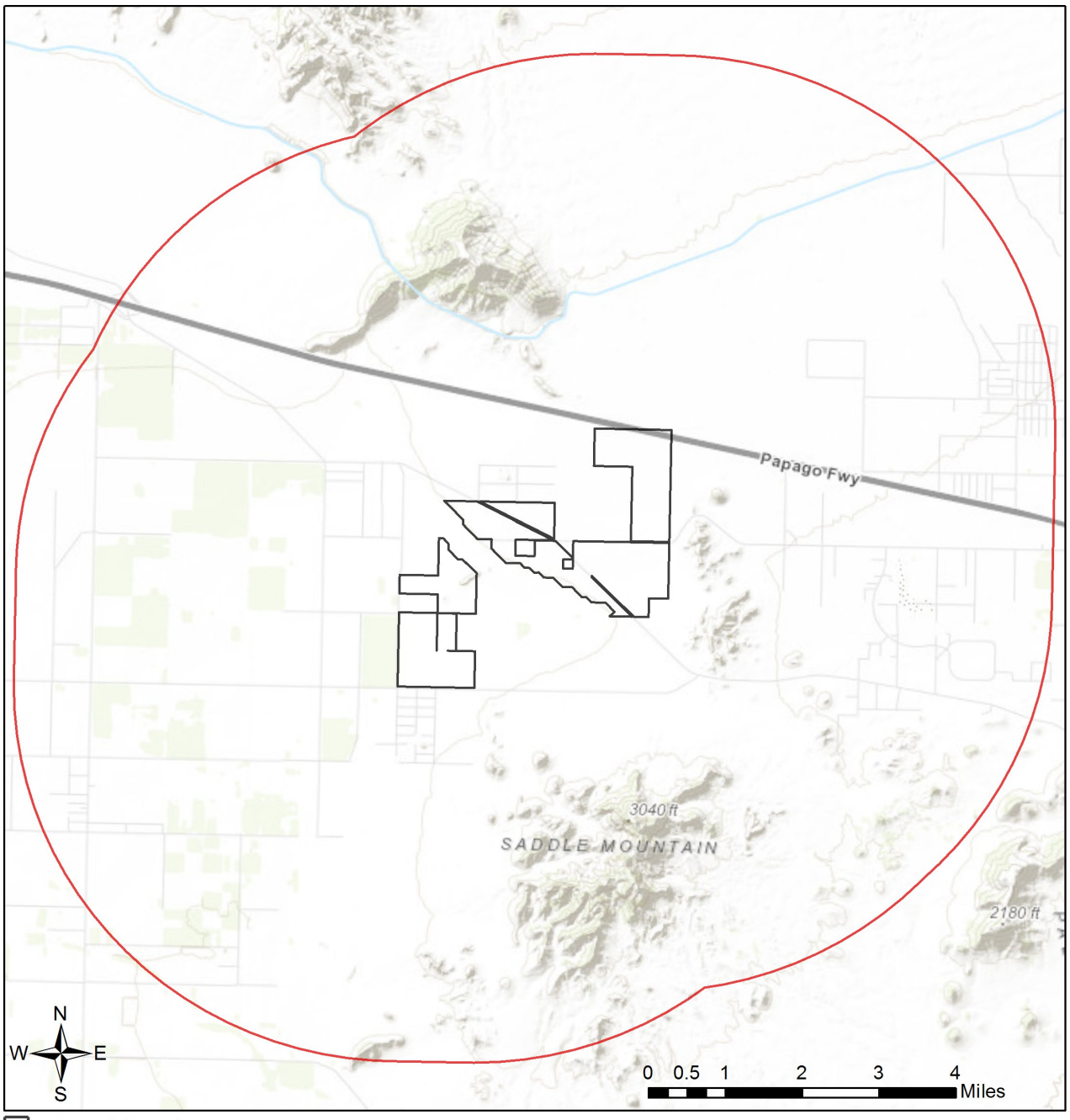
Township/Range(s): T2N, R8W

USGS Quad(s): BURNT MOUNTAIN; SADDLE MOUNTAIN

Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap

RE Papago Solar Project

Web Map As Submitted By User



Project Boundary

Buffered Project Boundary

Project Size (acres): 2,785.44

Lat/Long (DD): 33.4898 / -113.0598

County(s): Maricopa

AGFD Region(s): Yuma

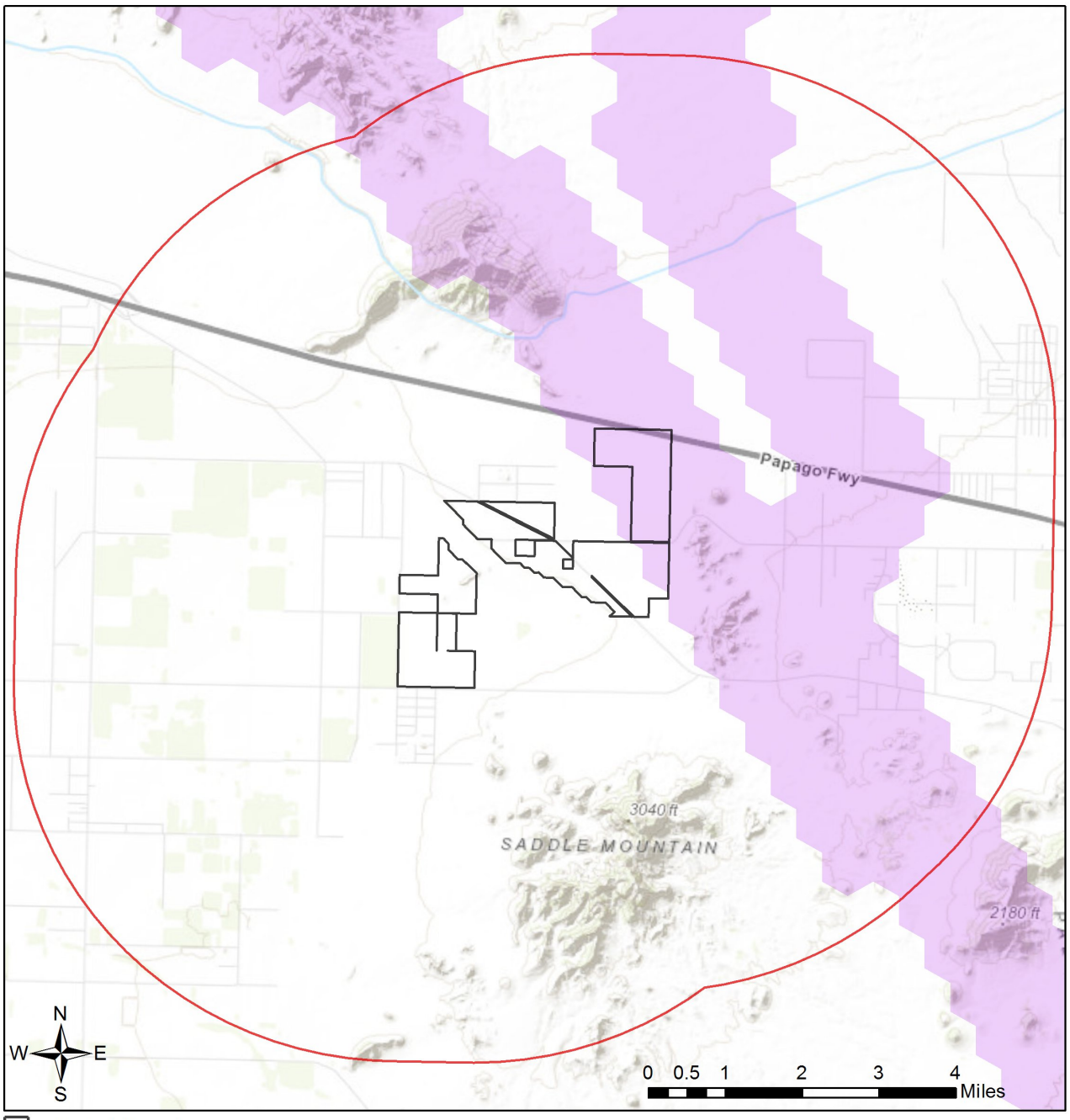
Township/Range(s): T2N, R8W

USGS Quad(s): BURNT MOUNTAIN; SADDLE MOUNTAIN

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

RE Papago Solar Project

Important Areas



- Project Boundary
- Buffered Project Boundary
- Wildlife Connectivity
- Important Connectivity Zones
- Pinal County Riparian
- Critical Habitat
- Important Bird Areas

Project Size (acres): 2,785.44

Lat/Long (DD): 33.4898 / -113.0598

County(s): Maricopa

AGFD Region(s): Yuma

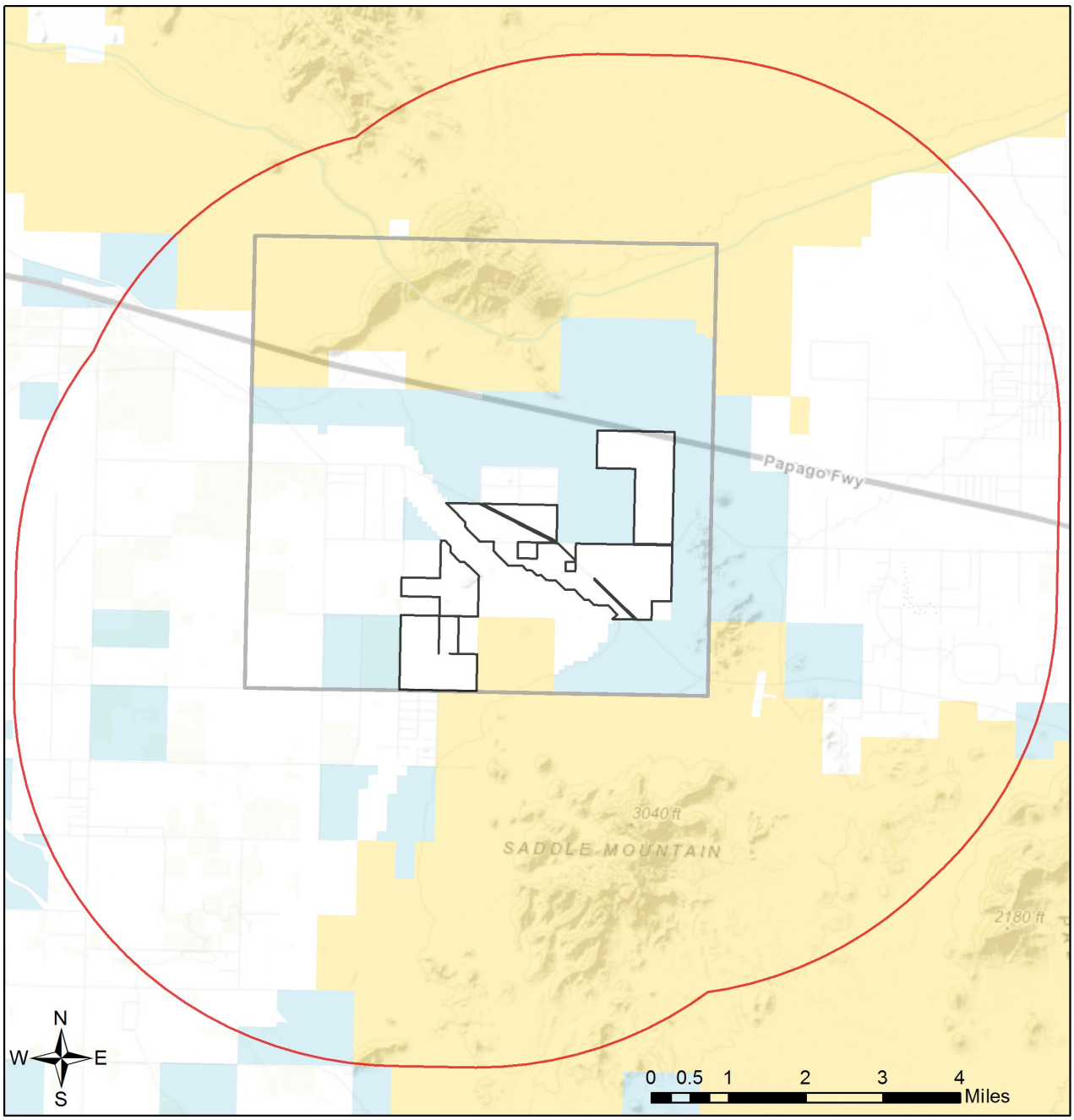
Township/Range(s): T2N, R8W

USGS Quad(s): BURNT MOUNTAIN; SADDLE MOUNTAIN

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

RE Papago Solar Project

Township/Ranges and Land Ownership



Project Boundary
Buffered Project Boundary
Township/Ranges

Land Ownership

AZ Game & Fish Dept.
BLM
BOR
Indian Res.
Military
Mixed/Other
National Park/Mon.
Private
State & Regional Parks
State Trust
US Forest Service
Wildlife Area/Refuge

Project Size (acres): 2,785.44
Lat/Long (DD): 33.4898 / -113.0598
County(s): Maricopa
AGFD Region(s): Yuma
Township/Range(s): T2N, R8W
USGS Quad(s): BURNT MOUNTAIN; SADDLE MOUNTAIN

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Special Status Species Documented within 5 Miles of Project Vicinity

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Gopherus morafkai	Sonoran Desert Tortoise	CCA	S	S		1A

Note: Status code definitions can be found at https://www.azgfd.com/wildlife/planning/wildlifeguidelines/statusdefinitions/
.

Special Areas Documented within the Project Vicinity

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Big Horn Mtns - Burnt Mtn - Saddle Mtns	Maricopa County Wildlife Movement Area - Landscape					
Important Connectivity Zone	Wildlife Connectivity					

Note: Status code definitions can be found at https://www.azgfd.com/wildlife/planning/wildlifeguidelines/statusdefinitions/
.

Species of Greatest Conservation Need Predicted within the Project Vicinity based on Predicted Range Models

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Aix sponsa	Wood Duck					1B
Ammospermophilus harrisii	Harris' Antelope Squirrel					1B
Anthus spragueii	Sprague's Pipit	SC				1A
Aquila chrysaetos	Golden Eagle	BGA		S		1B
Botaurus lentiginosus	American Bittern					1B
Buteo regalis	Ferruginous Hawk	SC		S		1B
Calypte costae	Costa's Hummingbird					1C
Chilomeniscus stramineus	Variable Sandsnake					1B
Colaptes chrysoides	Gilded Flicker			S		1B
Corynorhinus townsendii pallescens	Pale Townsend's Big-eared Bat	SC	S	S		1B
Euderma maculatum	Spotted Bat	SC	S	S		1B
Eumops perotis californicus	Greater Western Bonneted Bat	SC		S		1B
Gopherus morafkai	Sonoran Desert Tortoise	CCA	S	S		1A
Haliaeetus leucocephalus	Bald Eagle	SC, BGA	S	S		1A
Heloderma suspectum	Gila Monster					1A
Incilius alvarius	Sonoran Desert Toad					1B
Lasiurus xanthinus	Western Yellow Bat		S			1B
Macrotus californicus	California Leaf-nosed Bat	SC		S		1B
Melanerpes uropygialis	Gila Woodpecker					1B
Melospiza lincolnii	Lincoln's Sparrow					1B
Melozone aberti	Abert's Towhee		S			1B
Micrathene whitneyi	Elf Owl					1C
Myiarchus tyrannulus	Brown-crested Flycatcher					1C
Myotis velifer	Cave Myotis	SC		S		1B

Species of Greatest Conservation Need Predicted within the Project Vicinity based on Predicted Range Models

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Myotis yumanensis	Yuma Myotis	SC				1B
Nyctinomops femorosaccus	Pocketed Free-tailed Bat					1B
Oreoscoptes montanus	Sage Thrasher					1C
Oreothlypis luciae	Lucy's Warbler					1C
Passerculus sandwichensis	Savannah Sparrow					1B
Perognathus longimembris	Little Pocket Mouse	No Status				1B
Spizella breweri	Brewer's Sparrow					1C
Tadarida brasiliensis	Brazilian Free-tailed Bat					1B
Thomomys bottae subsimilis	Harquahala Southern Pocket Gopher	SC				1B
Toxostoma lecontei	LeConte's Thrasher			S		1B
Vireo bellii arizonae	Arizona Bell's Vireo					1B
Vulpes macrotis	Kit Fox	No Status				1B

Species of Economic and Recreation Importance Predicted within the Project Vicinity

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Callipepla gambelii	Gambel's Quail					
Odocoileus hemionus	Mule Deer					
Pecari tajacu	Javelina					
Puma concolor	Mountain Lion					
Zenaida asiatica	White-winged Dove					
Zenaida macroura	Mourning Dove					

Project Type: Energy Storage/Production/Transfer, Energy Production (generation), photovoltaic solar facility (new)

Project Type Recommendations:
During the planning stages of your project, please consider the local or regional needs of wildlife in regards to movement, connectivity, and access to habitat needs. Loss of this permeability prevents wildlife from accessing resources, finding mates, reduces gene flow, prevents wildlife from re-colonizing areas where local extirpations may have occurred, and ultimately prevents wildlife from contributing to ecosystem functions, such as pollination, seed dispersal, control of prey numbers, and resistance to invasive species. In many cases, streams and washes provide natural movement corridors for wildlife and should be maintained in their natural state. Uplands also support a large diversity of species, and should be contained within important wildlife movement corridors. In addition, maintaining biodiversity and ecosystem functions can be facilitated through improving designs of structures, fences, roadways, and culverts to promote passage for a variety of wildlife. Guidelines for many of these can be found at: https://www.azgfd.com/wildlife/planning/wildlifeguidelines/.

Consider impacts of outdoor lighting on wildlife and develop measures or alternatives that can be taken to increase human safety while minimizing potential impacts to wildlife. Conduct wildlife surveys to determine species within project area, and evaluate proposed activities based on species biology and natural history to determine if artificial lighting may disrupt behavior patterns or habitat use. Use only the minimum amount of light needed for safety. Narrow spectrum bulbs should be used as often as possible to lower the range of species affected by lighting. All lighting should be shielded, canted, or cut to ensure that light reaches only areas needing illumination.

Minimize potential introduction or spread of exotic invasive species. Invasive species can be plants, animals (exotic snails), and other organisms (e.g., microbes), which may cause alteration to ecological functions or compete with or prey upon native species and can cause social impacts (e.g., livestock forage reduction, increase wildfire risk). The terms noxious weed or invasive plants are often used interchangeably. Precautions should be taken to wash all equipment utilized in the project activities before leaving the site. Arizona has noxious weed regulations (Arizona Revised Statutes, Rules R3-4-244 and R3-4-245). See Arizona Department of Agriculture website for restricted plants, https://agriculture.az.gov/. Additionally, the U.S. Department of Agriculture has information regarding pest and invasive plant control methods including: pesticide, herbicide, biological control agents, and mechanical control, https://www.nrcs.usda.gov/wps/portal/nrcs/detailfull/national/water/quality/?cid=stelprdb1044769 The Department regulates the importation, purchasing, and transportation of wildlife and fish (Restricted Live Wildlife), please refer to the hunting regulations for further information https://www.azgfd.com/hunting/regulations.

Minimization and mitigation of impacts to wildlife and fish species due to changes in water quality, quantity, chemistry, temperature, and alteration to flow regimes (timing, magnitude, duration, and frequency of floods) should be evaluated. Minimize impacts to springs, in-stream flow, and consider irrigation improvements to decrease water use. If dredging is a project component, consider timing of the project in order to minimize impacts to spawning fish and other aquatic species (include spawning seasons), and to reduce spread of exotic invasive species. We recommend early direct coordination with Project Evaluation Program for projects that could impact water resources, wetlands, streams, springs, and/or riparian habitats.

The Department recommends that wildlife surveys are conducted to determine if noise-sensitive species occur within the project area. Avoidance or minimization measures could include conducting project activities outside of breeding seasons.

For any powerlines built, proper design and construction of the transmission line is necessary to prevent or minimize risk of electrocution of raptors, owls, vultures, and golden or bald eagles, which are protected under state and federal laws. Limit project activities during the breeding season for birds, generally March through late August, depending on species in the local area (raptors breed in early February through May). Conduct avian surveys to determine bird species that may be utilizing the area and develop a plan to avoid disturbance during the nesting season. For underground powerlines, trenches should be covered or back-filled as soon as possible. Incorporate escape ramps in ditches or fencing along the perimeter to deter small mammals and herptefauna (snakes, lizards, tortoise) from entering ditches. In addition, indirect affects to wildlife due to construction (timing of activity, clearing of rights-of-way, associated bridges and culverts, affects to wetlands, fences) should also be considered and mitigated.

Based on the project type entered, coordination with State Historic Preservation Office may be required (http://azstateparks.com/SHPO/index.html).

Based on the project type entered, coordination with U.S. Fish and Wildlife Service (Migratory Bird Treaty Act) may be required (http://www.fws.gov/southwest/es/arizona/).

Vegetation restoration projects (including treatments of invasive or exotic species) should have a completed site-evaluation plan (identifying environmental conditions necessary to re-establish native vegetation), a revegetation plan (species, density, method of establishment), a short and long-term monitoring plan, including adaptive management guidelines to address needs for replacement vegetation.

The Department requests further coordination to provide project/species specific recommendations, please contact Project Evaluation Program directly at PEP@azgfd.gov.

Project Location and/or Species Recommendations:
HDMS records indicate that one or more **Listed, Proposed, or Candidate** species or **Critical Habitat** (Designated or Proposed) have been documented in the vicinity of your project. The Endangered Species Act (ESA) gives the US Fish and Wildlife Service (USFWS) regulatory authority over all federally listed species. Please contact USFWS Ecological Services Offices at http://www.fws.gov/southwest/es/arizona/ or:

Phoenix Main Office
9828 North 31st Avenue #C3
Phoenix, AZ 85051-2517
Phone: 602-242-0210
Fax: 602-242-2513

Tucson Sub-Office
201 N. Bonita Suite 141
Tucson, AZ 85745
Phone: 520-670-6144
Fax: 520-670-6155

Flagstaff Sub-Office
SW Forest Science Complex
2500 S. Pine Knoll Dr.
Flagstaff, AZ 86001
Phone: 928-556-2157
Fax: 928-556-2121

HDMS records indicate that **Sonoran Desert Tortoise** have been documented within the vicinity of your project area. Please review the Tortoise Handling Guidelines found at: https://www.azgfd.com/wildlife/nongamemanagement/tortoise/

Analysis indicates that your project is located in the vicinity of an identified ***wildlife habitat connectivity feature***. The **County-level Stakeholder Assessments** contain five categories of data (Barrier/Development, Wildlife Crossing Area, Wildlife Movement Area- Diffuse, Wildlife movement Area- Landscape, Wildlife Movement Area- Riparian/Washes) that provide a context of select anthropogenic barriers, and potential connectivity. The reports provide recommendations for opportunities to preserve or enhance permeability. Project planning and implementation efforts should focus on maintaining and improving opportunities for wildlife permeability. For information pertaining to the linkage assessment and wildlife species that may be affected, please refer to: https://www.azgfd.com/wildlife/planning/habitatconnectivity/identifying-corridors/.
Please contact the Project Evaluation Program (pep@azgfd.gov) for specific project recommendations.

Analysis indicates that your project is located in the vicinity of an identified ***wildlife habitat connectivity feature***.
The **Statewide Wildlife Connectivity Assessment's Important Connectivity Zones** (ICZs) represent general areas throughout the landscape which contribute the most to permeability of the whole landscape. ICZs may be used to help identify, in part, areas where more discrete corridor modeling ought to occur. The reports provide recommendations for opportunities to preserve or enhance permeability. Project planning and implementation efforts should focus on maintaining and improving opportunities for wildlife permeability. For information pertaining to the linkage assessment and wildlife species that may be affected, please refer to: https://s3.amazonaws.com/azgfd-portal-wordpress/azgfd.wp/wp-content/uploads/0001/01/23120719/ALIWCA_Final_Report_Perkl_2013_lowres.pdf.
Please contact the Project Evaluation Program (pep@azgfd.gov) for specific project recommendations.

EXHIBIT D

BIOLOGICAL RESOURCES

EXHIBIT D—BIOLOGICAL RESOURCES

As stated in Arizona Administrative Code R14-3-219:

> *List the fish, wildlife, plant life, and associated forms of life in the vicinity of the proposed site or route and describe the effects, if any, the proposed facilities will have thereon.*

Existing Conditions

The Project site and surrounding area is rural and primarily undeveloped, with the exception of road and other utility infrastructure in the vicinity. An analysis of the fish, wildlife, and vegetation that have potential to occur or occur in the Project area are described below.

Fish

There are no fish or perennial waters within the Project area or surrounding vicinity. The nearest perennial water is the Gila River, which is located approximately 20 miles southwest of the Project area. There are no ephemeral streams or canals that contain riparian vegetation or habitat. No wetlands were observed within the proposed alignment during the field visit or from review of topographical maps of the region.

Wildlife

Wildlife typical of lower elevations of the Sonoran Desert occurs within the Project area. Common species include black-tailed jackrabbits (*Lepus californicus*), Costa's hummingbird, roadrunner (*Geococcyx californicus*), mourning dove (*Zenaida macroura*), and cactus wren (*Campylorhynchus brunneicapillus*). Common reptile species include the common side-blotched lizard (*Uta stansburiana*), tiger whiptail (*Aspidoscelis tigris*), desert horned lizard (*Phrynosoma platyrhinos*), desert iguana (*Dipsosaurus dorsalis*), gopher snake (*Pituophis catenifer*), and western diamondback rattlesnake (*Crotalus atrox*).

Vegetation

Vegetation in the Project area has been classified as native vegetation typical of that occurring within the Lower Colorado River Valley subdivision of the Sonoran Desert scrub biotic community. Native desert areas are characterized by scattered Sonoran Desert vegetation dominated by creosote (*Larrea tridentata*), brittlebush (*Encelia farinosa*), and white bursage (*Ambrosia dumosa*).

Potential Effects

There will be no impacts to fish or perennial waters from the Project.

Construction and operation of the proposed Project would impact areas of habitat suitable for regionally common wildlife species. The area of direct impact for construction would be up to 13 acres for the substation, approximately 2 acres for the construction staging area, and an area of 100 square feet for each gen-tie line structure. Although these areas are anticipated to be impacted, extensive vegetation suitable for regionally common wildlife species is found immediately adjacent to the proposed Project area. Some wildlife may be displaced by construction activities, but habitat is generally available in the immediate vicinity of the Project.

Project construction and operation would permanently impact native vegetation within the Project area. Vegetation would be removed to clear the entire up-to-13-acre substation area and an area of approximately 100 square feet around each proposed transmission tower for their construction. Impacted vegetation is not unique, protected, or considered to be suitable for special-status species.

EXHIBIT E

SCENIC AREAS, HISTORIC SITES AND STRUCTURES, AND ARCHAEOLOGICAL SITES

EXHIBIT E—SCENIC AREAS, HISTORIC SITES AND STRUCTURES, and ARCHAEOLOGICAL SITES

As stated in Arizona Administrative Code R14-3-219:

> *Describe any existing scenic areas, historic sites and structures or archaeological sites in the vicinity of the proposed facilities, and state the effects, if any, the proposed facilities will have thereon.*

Exhibit E-1 Photographs of Project Site
Exhibit E-2 Visual Contrast Rating Worksheets

Scenic Areas

This exhibit includes a review of scenic areas and an analysis of potential effects resulting from the implementation of the proposed Project. For this study, scenic areas are defined as areas specifically designated for their scenic qualities such as scenic highways/byways, scenic rivers, scenic sites, or national parks. In addition, general scenery is defined as the natural and/or built elements or the combination of the two that make up the visually perceived environment. Effects are defined as changes to general scenery that are not consistent with the existing condition and detract from a positive scenic experience.

Study Methods

The following methodology was used to evaluate impacts to general scenic resources:

1. Study Area. Select the study area based on area of likely visibility.
2. Applicable Regulations. Review federal, state, and local regulations and planning documents for applicable scenically driven regulations, mention of scenic areas, and mention of scenic sensitivity/concern.
3. Receptor Groups and Units. Identify visual receptor groups (i.e., a group of potential viewers with common viewing behavior in a similar setting) and quantify visual receptor units. A unit is a representative way to quantify the number of receptors without counting each individual receptor (e.g., average number of automobiles each day, also known as annual average daily traffic).
4. Key Observation Point (KOP) Selection. Identify preliminary representative KOPs.
5. Field Review. Carry out a field review to verify landscape character to provide a baseline for analysis, gather Global Positioning System (GPS) data, select final KOPs to most accurately represent typical views of the project, and take photographs from KOPs using camera settings and methods intended to accurately represent typical views. For this study, the camera was set to 5.5 feet high, and a 50-millimeter full-frame equivalent zoom lens was used, with ISO set to 100 and an f-stop 8 used.
6. Prepare Visual Simulation. Typically, a 3D model of the proposed modifications and some existing infrastructure is prepared using preliminary engineering data and GPS data gathered in the field to most accurately represent the project. Realistic-looking materials are applied to the model's surface and the model is rendered and exported as a 2D PNG file. The panorama photographs are stitched together to form a single 124-degree panorama. Proposed removal of existing lines and poles are photoshopped out of the panorama. The PNG is laid over the panorama and placed in the correct location. Slight adjustments to hue, temperature, intensity, and edges are made to match the existing environmental as much as possible.
7. Complete Contrast Analysis. One contrast sheet is completed for each KOP.
8. Impact Assessment. Describe the anticipated impacts to scenic areas and general scenery.

Results

Study Area

For this Project, the study area was defined as a 2-mile buffer around the proposed new structure. Beyond 2 miles, the Project is either not visible or is absorbed by the existing setting, making it difficult or impossible to observe substantial change. Most of the detailed analysis occurred within 0.25 mile of the Project.

Scenic Areas

There are no specifically designated scenic areas within a 5-mile radius of the Project including scenic highways, scenic rivers, scenic sites, or national parks. There is a freeway rest area approximately 3.25 miles to the northeast with limited to no views toward the Project, and there are trails with a mountaintop overlook in the Saddle Mountains approximately 2.7 miles to the south.

The Saddle Mountain Extensive Recreation Management Area (ERMA), which is located approximately 1 mile south of the proposed Project, is managed by the BLM for Visual Resource Management (VRM) classes II, III, and IV. No proposed facilities would occur on BLM land, so compliance with VRM classes do not need to be considered; however, VRM classification of II or III indicated that views from some locations on Saddle Mountain may be more sensitive.

The Big Horn Mountains Wilderness, which is located approximately 5 miles northwest of the proposed Project and north of Interstate 10, is also managed by the BLM. This is a 21,000 acre wilderness area that, according to the BLM, with the precipitous 1,800-foot-high Big Horn Peak and neighboring desert plain escarpments, gives the wilderness area exceptional scenic value, especially noticeable along Interstate 10. The BLM land just north of Interstate 10 is managed by the BLM for VRM class III objectives.

There were no designated scenic, visual, landmark, trail, or aesthetic areas identified within proximity of the Project from review of Maricopa County's Vision 2030 Comprehensive Plan.

Receptor Groups and Units

Table 2 identifies the major receptor groups, the receptor unit count, and the representative KOP(s) associated with each group.

TABLE 2
VISUAL RECEPTOR GROUPS

Receptor Groups	Units	Representative KOP Numbers
Residential[1]	0 (within a 2-mile radius of new pole)	N/A
Commercial/Community[2]	0 (within a 2-mile radius of new pole)	N/A
Local Motorists[3]	26—average daily traffic (W. Salome Hwy traveling south)	02
	45—average daily traffic (W. Salome Hwy traveling west)	03
	756—average daily traffic (W. Courthouse Road)	04
	52—average daily traffic (Indian School Road)	01

[1]The residential group includes the number of single and multi-family buildings visible in aerial imagery within 0.5 mile of the

TABLE 2 VISUAL RECEPTOR GROUPS		
Receptor Groups	**Units**	**Representative KOP Numbers**
Project centerline, regardless of actual Project visibility from those units [2]The commercial/community group includes the number of governmental, industrial, public, religious, and other buildings not considered residential visible in aerial imagery within 0.25 mile of the Project centerline, regardless of actual Project visibility from those units [3]Traffic counts are taken from the nearest and most representative location in proximity to the Project centerline, from which information was publicly available from the 2018 Maricopa County traffic counts site		

KOP Selection

Four KOPs were identified along roads in the vicinity of the Project. The KOP selection was based on a general attempt to represent views of the Project for a broad range of viewers. The precise location and number of KOPs were refined based on their general representation of views for the highest density of viewers with the highest sensitivity to visual change for the longest duration. For example, a residential viewer will typically be more sensitive to visual change and will be exposed to that change longer compared to an urban motorist who may not be sensitive to visual change and will be only be exposed to that change for a short duration. The locations of the KOPs are shown in **Figure 5**.

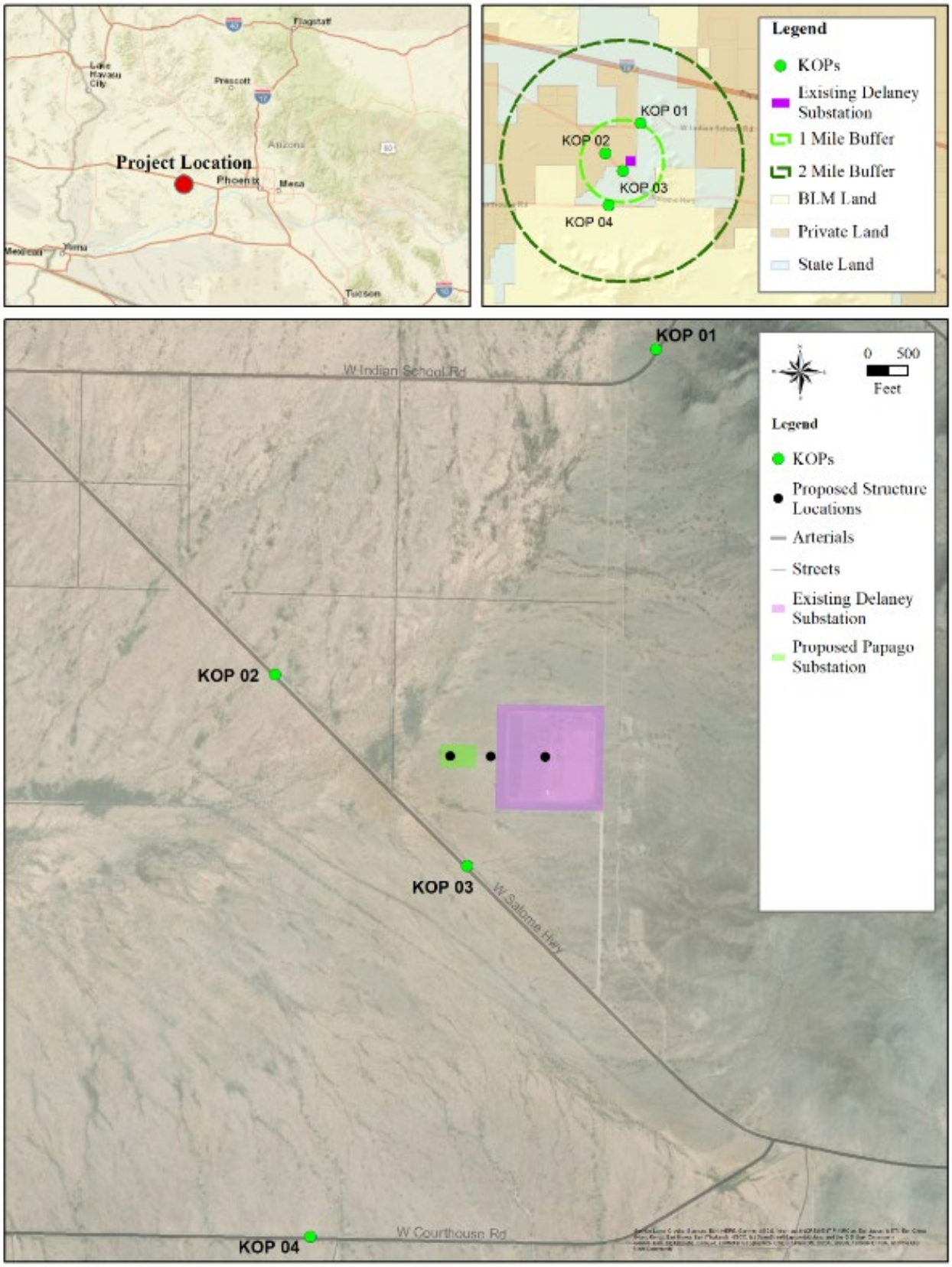


Figure 5. KOP location map

KOP 1

KOP 1 provides a view from Indian School Road traveling west and facing south towards the proposed Project site. This KOP is a little over 1 mile northeast of the Project. Existing land uses visible in the KOP are the existing utility infrastructure in the foreground, the existing utility infrastructure and Salome Highway in the middleground, and the very distant mountains in the background.

KOP 2

KOP 2 provides a view from Salome Highway traveling southeast and facing southeast towards the proposed Project site. This KOP is approximately 0.5 mile northwest of the Project. This location (along with KOP 3) is one of two selected for its close proximity to the proposed Project and its close visibility to the traveling public. Existing land uses visible are the existing Delaney Substation and nearby transmission lines in the foreground.

KOP 3

KOP 3 provides a view from Salome Highway traveling northwest and facing directly north towards the proposed Project site. This KOP is approximately 0.25 mile south of the Project. This location (along with KOP 2) is one of two selected for its close proximity to the proposed Project. Viewers from this KOP would have the closest visibility to the proposed Project. Existing land uses visible are the existing Delaney Substation and nearby transmission lines in the foreground.

KOP 4

KOP 4 provides a view from Courthouse Road traveling east and facing northeast towards the proposed Project site. This KOP is a little over 1 mile southwest of the Project. Existing land uses visible are the existing utility infrastructure in the middleground and the existing overhead transmission lines in the background.

Field Review

Field reviews were carried out on May 10, 2019 and June 5, 2020. The regional and local settings as observed in the field are described below, and final KOPs were selected for further analysis and data collection.

Regional Setting

The scenery generally consists of a relatively flat, natural-appearing Sonoran Desert; irrigated agricultural fields; and rural developed landscape surrounded by small mountain ranges, the most prominent mountain range being Saddle Mountain. Roads and powerlines are visible throughout the natural, agricultural, and rural areas.

Local Setting

The proposed Project footprint occurs partially in a relatively flat, natural-appearing area and partly in a fully developed existing substation. Photographs of the proposed Project site are included in **Exhibit E-1**.

Prepare Visual Simulations

A visual simulation was prepared for each selected KOP and includes photographs of the existing condition alongside a computer-generated simulation of the proposed condition (i.e., photograph of the existing condition with overlaid simulated transmission line structure and substation); the simulations along with additional summary information are included in **Exhibit G**.

Complete Contrast Analysis

To analyze contrast (i.e., potential change to the existing scenic character and/or quality of the area) from the proposed Project, the BLM Visual Resource Management System contrast rating worksheets were adapted and then applied to each KOP (BLM 1986). Using this method, contrast ratings were established for form, line, color, and texture (**Exhibit E-2**).

The BLM VRM System normally uses management classes to assess whether contrast ratings are appropriate for specific areas. Management classes are assigned to federal land as part of the resource management planning process. In the Project study area, no management classes exist; however, it is reasonable to derive an aesthetic management process based on the expressed policies and plans prepared by the county combined with how the area appears aesthetically or scenically. Areas with high scenic quality would have compatible aesthetic features, a distinctive sense of place, and contain high-value scenic constituents (e.g., landmarks, water, mountains, trees, etc.). Areas with low scenic quality would lack compatible aesthetic features, a distinctive sense of place, and would not contain high-value scenic constituents (e.g., heavily disturbed areas, areas of disjunctive development, etc.).

No specific aesthetic or scenic resources within the Project study area were identified in planning documents or state and federal regulations. Based on the lack of identified aesthetic or scenic resources combined with a general review of how the area appears aesthetically or scenically, moderate contrasts are appropriate. A moderate contrast would include introduction of features that may attract the attention of a casual observer but would not visually dominate and should generally repeat form, line, color, and/or texture elements of the characteristic landscape.

Impact Assessment

The visual simulations prepared for this Project (**Exhibit G**) were evaluated for visual contrast between the existing condition and the proposed condition (**Table 3**).

TABLE 3
SUMMARY OF CONTRAST WORKSHEETS (EXHIBIT E-2)

KOP	Contrast Level[1]			
	Form	Line	Color	Texture
KOP 1: 3-Pole, H-Frame, and Monopole	Weak	Weak	Weak	None
KOP 2: 3-Pole, H-Frame, and Monopole	Weak	Weak	Weak	None
KOP 3: H-Frame	Moderate	Moderate	Weak	None
KOP 3: 3-Pole and Monopole	Moderate	Moderate	Weak	None
KOP 4: 3-Pole, H-Frame, and Monopole	Weak	Weak	None	None

[1]Contrast Level:
Strong—The element contrast demands attention, will not be overlooked, and is dominant in the landscape
Moderate—The element contrast begins to attract attention and begins to dominate the characteristic landscape
Weak—The element contrast can be seen but does not attract attention
None—The element contrast is not visible or perceived

Applicant-Proposed Measures

Listed below are Applicant-Proposed Measures (APMs) designed to reduce impacts to the visual setting. It should be emphasized that the contrast values for the Project's proposed condition are moderate to none, and the aesthetic management practices for the area would accommodate moderate contrast values before approaching a substantial degradation or significant impact; therefore, the proposed Project would have less than significant impacts even before APMs are applied. Proposed APMs include the following:

- APM AE-1. Construction Activities. Construction activities will be kept as clean and inconspicuous as is practical
- APM AE-2. Non-reflective Finish on Permanent Equipment. A dull, non-reflective finish will be used on structures to reduce the potential for new sources of glare
- APM AE-3. Painted or colored surfaces will utilize natural hues that closely match the surroundings
- APM AE-4. Revegetation of temporarily disturbed surfaces

Potential Project Effects

An evaluation of the potential effects to visual resources involved comparing the expected visual change in the existing setting as observed at locations where viewers will likely see the substation and transmission line most frequently or for sustained periods. These viewers are anticipated to mostly be people traveling by vehicle along Salome Highway, Courthouse Road, and Indian School Road. Specifically, the evaluation examined the contrast the proposed Project would have on the existing visual elements. The results of the analysis revealed that the level of change to the characteristic landscape would be moderate to no contrast at close range and weak to no contrast farther away. Effects to visual resources from the development of the Project would overall result in minor changes to the views in the immediate vicinity. The proposed substation and gen-tie line would introduce new elements into the landscape but would not appreciably alter the existing form, line, color, and texture which characterize the immediate existing landscape. This is because of the amount of existing electric utility infrastructure that occurs in the area. There were slight differences between the contrast resulting from the proposed H-frame compared to the 3-pole compared to the monopole structure. The 3-pole structure and monopole structure seemed to mimic other structures around the Delaney Substation better than the H-frame structure. From a distance, it was difficult to distinguish the difference between the H-frame, monopole, and 3-pole options. There are no residences or residential areas that would have visibility of the proposed Project.

The proposed Project would have no impact to a weak impact on the scenic character or quality of the area and its surroundings. No other impacts are anticipated to a scenic vista, a specific aesthetic resource, or nighttime views in the area. Additional APMs would further reduce the potential impact from the Project.

Historic and Archaeological Sites

A Class I cultural resources overview was prepared for the Project. The Class I overview was designed to provide a basis for the Applicant to evaluate the proposed Project alignment and consult with agencies, as necessary, on the proposed strategies for fulfilling permitting requirements. This portion that follows presents the information contained in the Class I overview.

Culture History

Prehistoric peoples occupied southwestern Arizona and the Gila Bend area for thousands of years (**Figure 6**). Previous research has documented Archaic sites in the area (Marmaduke 1998). An extensive discussion of the current understanding of southwestern Arizona culture history can be found in a report entitled *Class III Cultural Resource Assessment of Approximately 3,185 Acres of Arizona State Trust and Private Land in the Vicinity of Indian School Road and 467th Avenue, West of Tonopah, Maricopa County, Arizona*

(Fangmeier and Tactikos 2012). Much of this culture history is derived from that report but focuses on those cultural periods that are represented within this Project's scope of work—the Formative (ca. A.D. 1 to 1100), the Classic (A.D. 1100 to 1500), the Protohistoric (A.D. 1450 to 1750), and the Historic (post-A.D. 1450) periods.

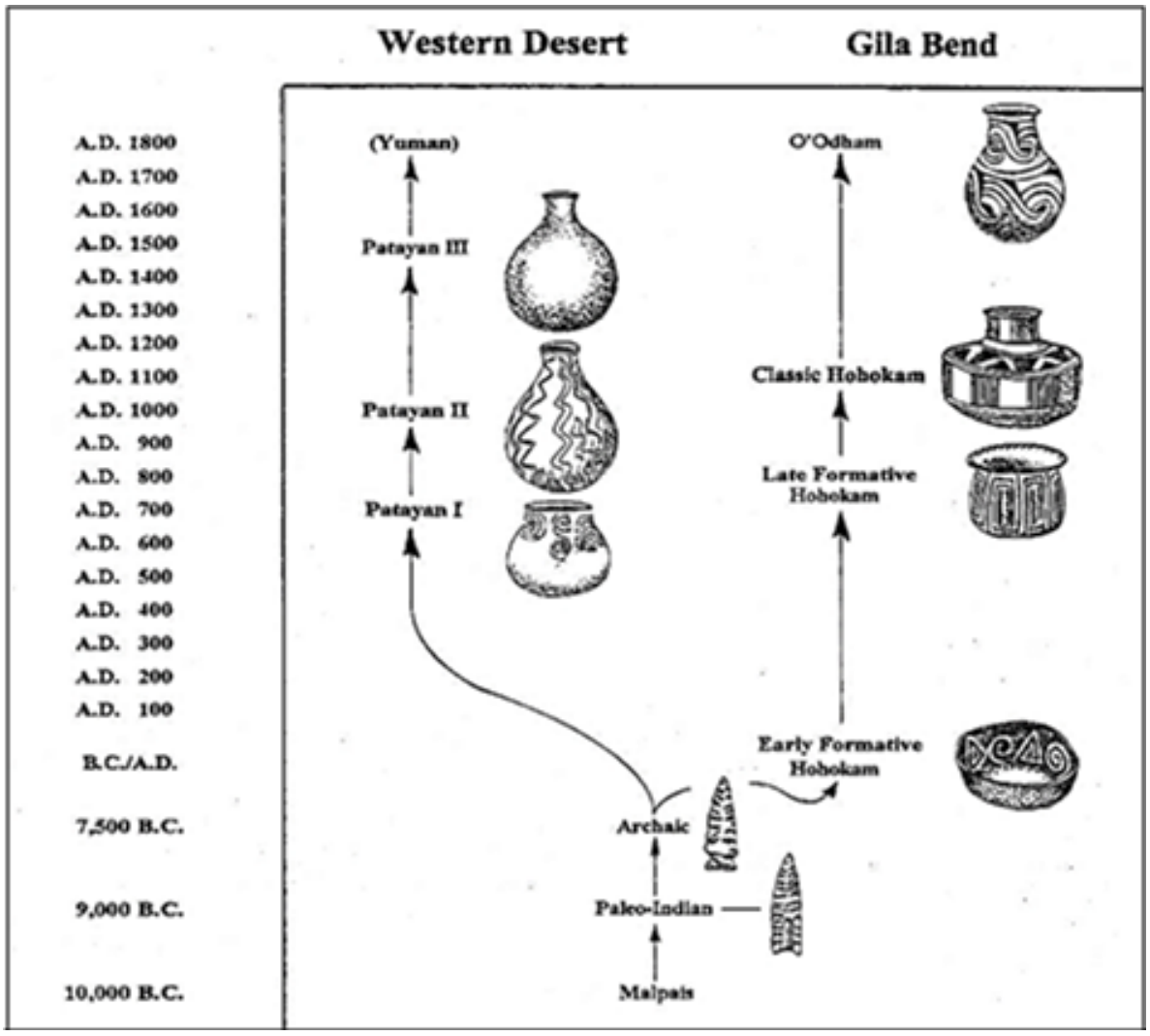


Figure 6. Western Desert and Gila Bend Hohokam chronologies

Formative Period

Following the Archaic, the Formative period emerged as populations adopted agriculture and developed pottery. Regional cultures continued to diverge, with the Patayan in the west and the Hohokam in the east. By A.D. 900, agriculture was well established among the Patayan. Riverine villages were supported by floodwater farming, fishing, gathering, and hunting. Trade with upland nonagricultural groups may have contributed to the economic security of riverine and upland groups (Stone 1991). Similar economic patterns apparently lasted into the Historic period.

The Patayan culture (also known as Yuman and Hakataya) has been divided into Patayan phases based primarily on associated Hohokam decorated pottery types (**Figure 7**). Patayan groups produced plain and

decorated Lower Colorado Buff Ware pottery (Waters 1982a, 1982b), and their sites are found in both riverine and nonriverine locations. Patayan groups are thought to have occupied the Lower Gila River east to Gila Bend by A.D. 900 to 1000 (Schoenwetter and Doerschlag 1971; Wasley and Johnson 1965). The Patayan pattern has not been well studied, certainly not to the extent of the dominant cultural pattern in the Gila Bend area—the Hohokam.

In the Early Formative period (A.D. 1 to 800), the Hohokam developed pottery and increased their use of agriculture. Innovations dating to the Late Formative period (A.D. 800 to 1100) had lasting effects on land use and village patterns. The development of agriculture resulted in population growth, large permanent villages, and ritual elaboration, culminating in an increased social complexity. A network of villages containing ceremonial ball courts and mounds developed, with active trade among them (Doyel 1981, 1991a; Wilcox and Sternberg 1983).

Near Gila Bend on the southwestern frontier of the Hohokam region, several important villages were established, including the Rock Ball Court, Citrus, and Gatlin sites (Wasley and Johnson 1965). Schroeder (1961) argued that the Painted Rock-Gila Bend area was occupied by the Early Formative period, with villages situated on the edges of the first and second terraces. Although sherds and site components have been found (Homburg et al. 1993), no sites dating to the earliest phases of the Formative period have been excavated in the area.

Classic Period

The Classic period (A.D. 1100 to 1500) was a time of change. Village organization and settlement patterns underwent radical restructuring, suggesting the development of new social relationships and alliances. The presence of Tanque Verde Red-on-brown at many of the Gila Bend sites suggests new alliances or increased trade with groups to the south and east. In the Phoenix area, increased reliance on intensive agriculture, specifically canal irrigation, had a profound influence on Hohokam culture. Subsistence diversification and reliance on non-irrigation agriculture was emphasized in other areas, such as the Papaguería. The pattern for the Gila Bend area remains unclear, but subsistence and settlement may have varied according to local conditions.

Protohistoric/Historic Periods

These two periods can be described as those encompassing the time between the collapse of Hohokam society (ca. A.D. 1450), Spanish exploration in the region (Protohistoric), and the period following Spanish and Euro-American settlement in the region (Historic); however, the chronological horizon between the Protohistoric and Historic is a rather gray area dependent upon the variable interaction of the key groups with each other. During the Protohistoric and Historic periods, the Project area was largely abandoned.

Protohistoric Period

The Protohistoric period (ca. A.D. 1450 to 1750) represents the transition from the Hohokam Classic period to the Spanish Mission period in Arizona and the southwest (Doelle 1981; Gilpin and Phillips 1998; Wilcox and Masse 1981). Many similarities link the prehistoric Hohokam and protohistoric O'odham cultures, including habitation structures, council houses, and public plazas; ball games; subsistence practices and domesticated crops; plain brown, polished red, and red-on-buff pottery; and inhumation and cremation burials (Doyel 1991b). Although it is known that Spanish explorers and missionaries as well as the Mexican government exerted early influences on the region and Euro-American settlers began to establish communities in the area in the mid-1800s, there is considerable overlap between phases as the interaction between these more recent arrivals and the Native Americans was variable through time (Adams and Duff 2016).

Historic Period

Spanish Colonial (ca. A.D. 1500 to 1820)

The Spanish claimed the entire southwest between A.D. 1540 and 1821. The earliest Spanish travels in the region include Marcos de Niza in 1539, Francisco Vazquez de Coronado in 1540, and Father Eusebio Kino in 1687 and 1696 (Di Peso 1953, 1956). The geographical details of de Niza's and Coronado's journeys are unclear, leaving Kino as the "first" well-documented Spaniard to travel in the region. Beginning in 1687, Kino established missions in northern Sonora, Mexico and in southern Arizona; however, Spanish settlements never expanded into the Phoenix Basin (Spicer 1997).

Mexican (A.D. 1821 to 1854)

The Mexican War for Independence ended in 1821 when Mexico—then including parts of Arizona and New Mexico—signed a treaty with Spain recognizing Mexican independence. The new Mexican government abolished the mission system and expelled all foreign missionaries from Mexico in 1827. The Apache are estimated to have killed approximately 5,000 people in Sonora and southern Arizona during this period, once again effectively halting extensive settlement by non-Native people (Spicer 1997).

In 1846, Texas seceded from Mexico, beginning the Mexican-American War. Although the Treaty of Guadalupe Hidalgo officially ended the war with transfers of land in Arizona and New Mexico to the U.S. in 1848 (Library of Congress 2017), southern Arizona was not acquired until 1854 with the Gadsden Purchase (Office of the Historian 2017).

Local Culture History

The Project area is situated near the community of Tonopah in Maricopa County, Arizona. A synopsis of its history is presented below.

Tonopah

Originally called Lone Peak, Tonopah was founded in 1929. The name "Tonopah" is derived from a Western Apache word that means "hot water under the bush," which refers to an extensive aquifer located under the Harquahala Valley that continuously supplies wells dug in the area (Wikimedia Foundation, Inc. 2018). Historic visitors to the Tonopah area carved their name in stone as early as 1811, and other historic petroglyphs from early settlers date to 1856 and 1862. Permanent settlement of the area began just prior to World War I as a direct result of homesteading. The first homestead in Tonopah was filed in 1916 by Elbert Winters, which was followed in 1920 by a number of homesteaders that were World War I veterans. Many of the veterans had been exposed to mustard gas while in Europe and suffered from respiratory problems or tuberculosis. The dry desert air in Tonopah helped to ease their health problems and allowed them to lead productive lives (Elsner 2018).

Around 1920, the Tonopah-Belmont mine north of the settlement began producing lead and silver ores. Approximately 50 miners were employed by the mine and lived in the area from 1924 to 1930. When a permanent settlement developed south of the mine, it too was called Tonopah. By 1930, homesteading had become quite popular and Tonopah saw a small population boom. The Tonopah post office opened on June 15, 1934 with John Beauchamp (a major landowner in the area) as postmaster. The Beauchamp homestead house still stands near the corner of Indian School Road and 411th Avenue. Homesteading was much more successful than farming; therefore, "dry farming" was implemented. This involved planting seeds or seedlings and waiting for rainfall to water them. If the weather was favorable and the crops grew, the homesteader took the produce to town (Phoenix, Buckeye, or Hassayampa) and sold it. These small operations were called "truck farms."

The area had some of the hottest underground mineral waters in the southwest, with temperatures of anywhere between 116 and 122-plus degrees. These waters were not springs, but wells, and the hot water had to be pumped to the surface. Nonetheless, enterprising settlers decided they could market Tonopah as a resort destination. The Lamoreaux family built a small resort just north of Indian School Road (where the current Interstate 10 alignment is located) and touted their mineral well for its healing and soothing powers. The Saguaro Health Resort located on 411th Avenue just south of the Tonopah post office also used the hot mineral waters. The modest hotel, first called the Saguaro Sanitarium, was officially dedicated on June 17, 1934. George W.P. Hunt, the first governor of Arizona, attended the groundbreaking ceremony (Elsner 2018).

The area continued to grow throughout the 1940s and 1950s. Improvements in irrigation and farming technology made running a successful farming operation in the area possible. In 1951, Otis "Mitch" Mitchell harvested the first cotton crop in the Tonopah Desert, irrigating his fields with hot mineral waters pumped from his well. Farmers expanded their livelihood to raising cattle and other livestock. The addition of gas stations, restaurants, and other services soon followed.

The Ruth Fisher School was constructed in 1964, and, in the early 1970s, Interstate 10 was constructed across western Arizona through Tonopah to Phoenix. The freeway was extended past Tonopah as far east as Phoenix's western fringes (at Cotton Lane) in 1974 (Wikipedia 2018).

With construction of the interstate moving gradually, the government decided to pave and maintain the Salome Highway as a route for the myriad of travelers and truckers. When Interstate 10 reached Tonopah in mid-June 1973, travelers exited the freeway at 411th Avenue and headed toward the Salome Highway. Thousands of semi-trucks, autos, and other vehicles rumbled through "downtown" Tonopah. The once-sleepy desert community became a boomtown. Tonopah area residents did not have to wait long for another large project to start. Construction of the 9.3 billion dollar Palo Verde Nuclear Generating Station began in 1976 and took 11 years to complete. At the height of the plant's construction in 1980 and 1981, 8,500 people were employed (Elsner 2018).

In 2009, "Tonopah United for Our Future" filed paperwork with the county, proposing the incorporation of the area into a town. The proposal ran into difficulties when the neighboring town of Buckeye voted to oppose the proposal, as state law forbade the incorporation of a new city or town within a specified distance of existing municipalities without their approval; the proposed boundaries for Tonopah would abut the corporate boundaries of Buckeye. Ultimately the measure was defeated on March 10, 2009. Today the area is sparsely populated. Much of the land remains agricultural, with areas of large lot residential development. The desert and agricultural properties define the open, rural feeling of the area (Elsner 2018).

Previous Research/Records Search

Previous archaeological research project files and previously recorded site records were requested from the Archaeological Records Office (ARO) of the Arizona State Museum (ASM) to determine if any previously recorded cultural resources occurred within 1 mile of the Project. In addition to the records search requested from ARO, Transcon also reviewed previous survey reports, ASM's AZSite database, the BLM General Land Office (GLO) plat maps, and the National Register of Historic Places (NRHP) website.

The records search results indicated that 10 previous research projects were carried out within a 1-mile radius of the area of potential effects (APE). No previous investigations have examined the Project APE (i.e., no previous investigations intersect the Project area). (**Table 4**; **Figures 7** and **8**). Previous investigations in the vicinity of the Project are used to identify the types of sites which might be present in the Project area. The 1915 GLO plat depicts a road linking Phoenix and Harrisburg, now known as the Salome Highway, trending northwest-southeast across the APE and an unnamed road alignment to Phoenix,

generally trending north-south (**Figures 7** and **8**).

TABLE 4 PREVIOUS SURVEYS WITHIN A 1-MILE RADIUS OF THE APE[1]			
Agency Number[2]	**Project Name**	**Author/Sponsor**	**Year**
1981-177.ASM	SCE/Palo Verde to Devers Trans Line	S. Carrico	1980
1987-0250.ASM	Devers-Palo Verde Survey	Swartz and Dongoske	1981
1999-542.ASM	Harquahala Generating Project	Rogge et al.	2000
2003-1366.ASM	Palo Verde to Devers Line 2 Project	Dobschuetz et al.	2007
2003-1501.ASM	Palo Verde Subalternative DPV 2 Transmission Project	Luhnow and Dickinson	2007
2010-33.ASM	Pioneer Tonopah 2	A.L. Christenson	2010
2010-99.ASM	EMT Tower Upgrade, Tower 14/1		2010
BLM-020-10-98	Unknown	AZSITE No. 6627	n.d.
BLM-020-10-202	White Tanks West	Stone	1988
BLM-020-10-230	Palen Pipeline	C. Blanchard	1992
10-98 BLM	Unknown	AZSITE No. 4630	

[1]Or within a 1-mile radius of the linear portion of the APE
[2]Projects in **boldface** type intersect the current Project APE

The records search also revealed that 23 archaeological sites were previously recorded within a 1-mile radius of the APE (or within 0.5 mile of the linear portion of the APE). Six of those sites intersect the current Project APE. They include a historic transmission line, two historic trash scatters, an unnamed historic road alignment, and two named historic road alignments. AZ S:8:29(ASM) is the historic Buckeye-Salome Road, and AZ T:9:83(ASM) is the historic Indian School Road. The two named historic alignments were initially recommended Eligible for listing on the NRHP; however, they were determined by the State Historic Preservation Office (SHPO) to be Ineligible noncontributors. (**Table 5**; **Figures 7** and **8**).

TABLE 5 PREVIOUSLY RECORDED SITES WITHIN A 1-MILE RADIUS OF THE APE[1]				
Site Number[2]	**Site Name/Cultural Affiliation**	**Eligibility**	**Recorder**	**Year**
AZ S:12:31(ASM)	Two possible hearths with lithic and sherd scatter (Patayan)	Recommended Eligible	Carole McClellen, David A. Phillips Jr., and Mike Belshaw	1980
AZ S:12:32(ASM)	Historic mining pits and cairns with trash scatter	Determined Not Eligible SHPO-2004-0498	Luhnow and Dickinson	2007
AZ S:12:36(ASM)	Historic mine and trash scatter	Determined Eligible SHPO-2012-0658	Glennda Gene Luhnow and Joseph Harkins Dickinson	2007

TABLE 5 PREVIOUSLY RECORDED SITES WITHIN A 1-MILE RADIUS OF THE APE[1]				
Site Number[2]	**Site Name/Cultural Affiliation**	**Eligibility**	**Recorder**	**Year**
AZ T:9:83(ASM)	Indian School Road/late historic/Euro-American	Determined Ineligible Noncontributor SHPO-2012-1029	Donnermeyer et al.	2001
[1]Or within a 1-mile radius of the linear portion of the APE [2]Sites in **boldface** type intersect the current Project APE				

Summary and Recommendations

The literature review (records search) was performed by cultural resource specialist Thomas Kroll in June 2020. The Project area for the proposed gen-tie line has been previously surveyed for the Ten West Link project. This investigation was still under review by the BLM at the time of the records search. No other investigations were noted in the APE of the current Project. The majority of the Project APE has been previously surveyed, and those surveys appear to have met current professional standards pursuant to SHPO Guidance Point No. 5 (SHPO Survey Report Standards 2016).

The investigation identified 11 previous archaeological research projects and 4 previously recorded sites within the review area. None of the projects or sites intersect the current Project APE.

No historic properties were identified within the current Project APE. The proposed action will not impact or have an adverse effect on historic properties and will not introduce visual elements that diminish or alter the setting or landscape of any historic property; therefore, Transcon recommends a finding of *No Historic Properties Affected*.

The Applicant, Transcon, and any subcontractors who might be used on the current or future undertakings are reminded that any human remains and associated funerary objects discovered on private land will be handled in compliance with state law (ARS § 41-865) regarding the discovery and disturbance of human remains (Arizona State Legislature 2018). In addition, the Federal Communications Commission (FCC), SHPO, and any affected Tribes will be notified of any new discoveries that may constitute an eligible archaeological site, pursuant to the 2004 Nationwide Programmatic Agreement between the SHPOs and the FCC, Section IX, Paragraphs A through D.

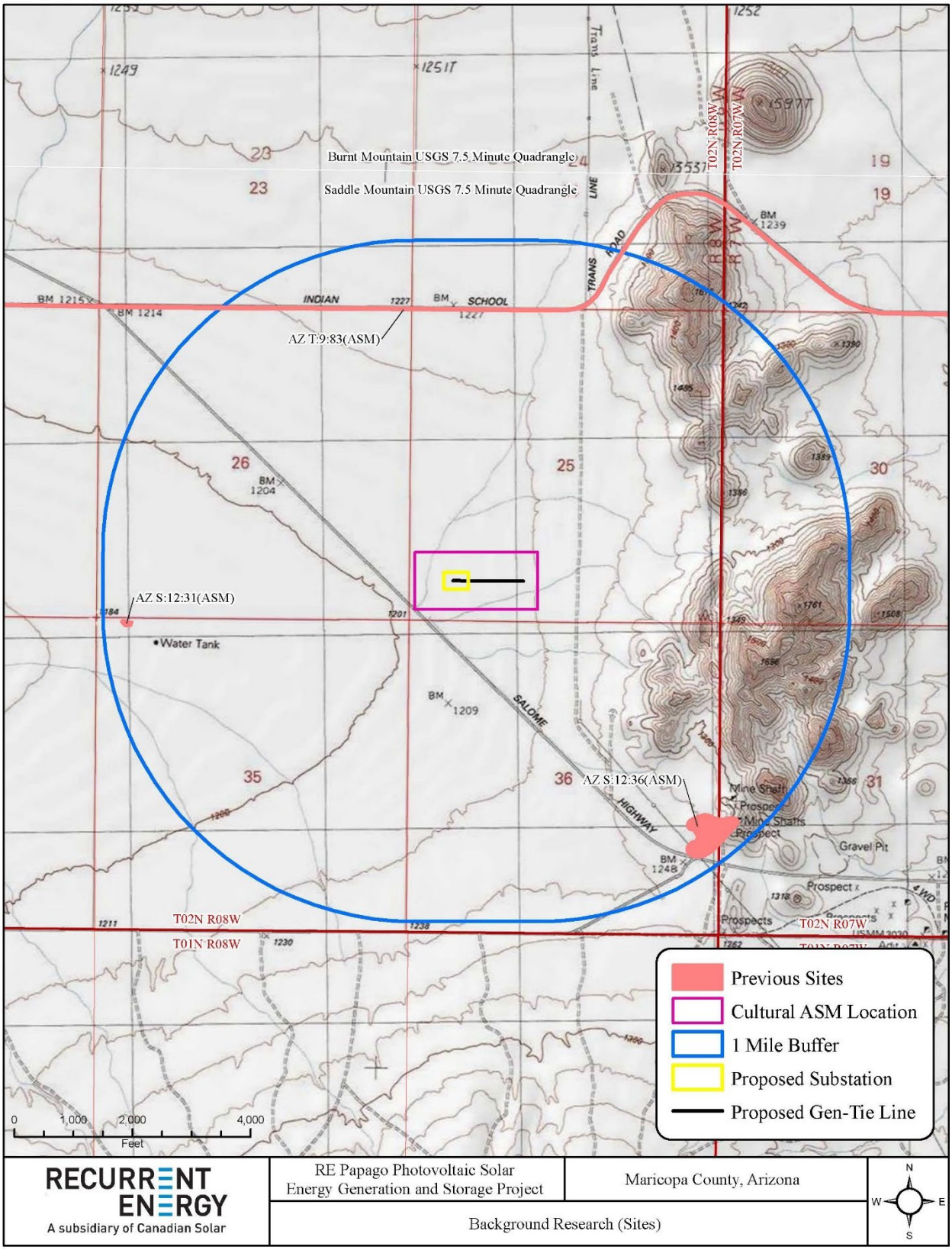


Figure 7. Background research sites map

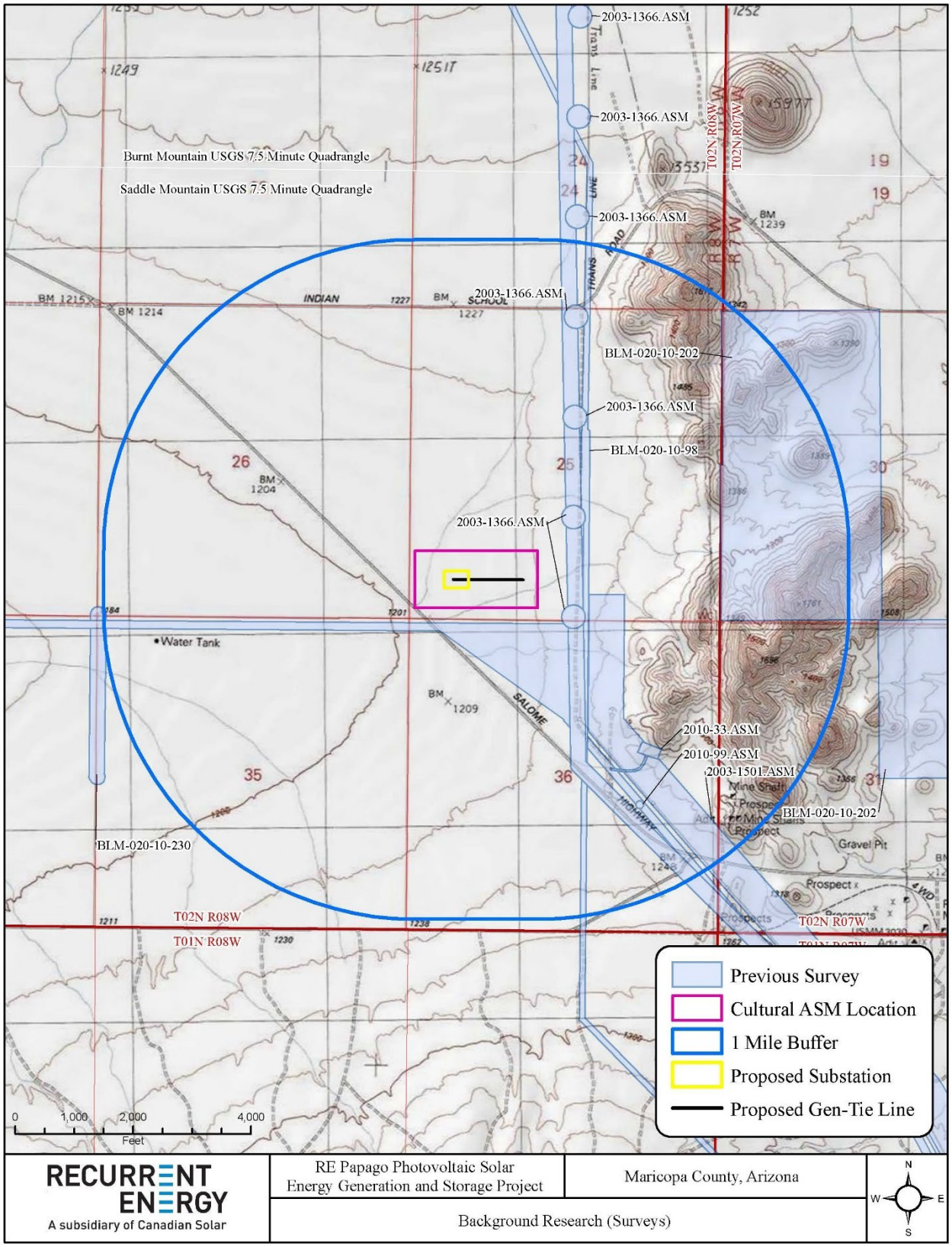


Figure 8. Background research surveys map

References

Adams, E. Charles, and Andrew I. Duff (editors). 2016. *The Protohistoric Pueblo World, A.D. 1275–1600.* University of Arizona Press, Tucson.

Arizona State Legislature. 2018. 41-865. Disturbing human remains or funerary objects; rules; violation; classification; definitions. http://www.azleg.gov/ars/41/00865.htm. Accessed August 29, 2018.

Bureau of Land Management (BLM). 1986. *Manual H-8410-1—Visual Resource Inventory*. Rel. 8-28. Washington, D.C.

Di Peso, C.C. 1953. *The Sobaipuri Indians of the upper San Pedro river valley, southeastern Arizona*. University of Arizona Press, Tucson.

_____. 1956. *The Upper Pima of San Cayetano del Tumacacori: An Archaeohistorical Reconstruction of the Ootam of Pimeria Alta.* Amerind Foundation.

Doelle, William H. 1981. The Gila Pima in the Late-Seventeenth Century. In *The Protohistoric Period in the North American Southwest, A.D. 1450–1700.*, pp. 57–70. Anthropological Research Papers No. 24. Arizona State University, Tempe.

Doyel, David E. 1981. *Late Hohokam Prehistory in Southern Arizona.* Gila Press, Scottsdale, Arizona.

_____. 1991a. Hohokam Cultural Exchange and Interaction. In *Cultural Complexity in the Arid Southwest.*, edited by Patricia L. Crown and W. James Judge, pp. 3–16. School of American Research Press, Santa Fe.

_____. 1991b. Hohokam Cultural Evolution in the Phoenix Basin. In *Exploring the Hohokam: Prehistoric Desert Peoples of the American Southwest.*, edited by George J. Gumerman, pp. 231–278. University of New Mexico Press, Albuquerque.

Elsner, Jodey Lynne. 2018. *History of Tonopah Area*. www.aztvcc.com/history/. Accessed November 9, 2018.

Fangmeier, Kristin L. and Joanne C. Tactikos. 2012. *Class III Cultural Resource Assessment of Approximately 3,185 Acres of Arizona State Trust and Private Land in the Vicinity of Indian School Road and 467th Avenue, West of Tonopah, Maricopa County, Arizona.* Archaeological Consulting Services, Inc., Tempe, Arizona.

Gilpin, Dennis A. and David A. Phillips Jr. 1998. *The Prehistoric to Historic Transition Period in Arizona, ca. A.D. 1519–1692.* State Historic Preservation Office, Arizona State Parks Board, Phoenix, Arizona.

Homburg, Jeffrey A.; Jeffrey H. Altschul; and Rein Vanderpot (editors). 1993. *Intermontane Settlement Trends in the Eastern Papaguería: Cultural Resources Sample Survey in the Northeastern Barry M. Goldwater Range, Maricopa County, Arizona.* Technical Series No. 37. Statistical Research, Inc., Tucson, Arizona.

Library of Congress. 2017. Treaty of Guadalupe Hidalgo. *Primary Documents in American History*. https://www.loc.gov/rr/program/bib/ourdocs/guadalupe.html. Accessed August 30, 2018.

Marmaduke, William S. 1998. *Archaeological Investigations. US Highway 93—Santa Maria River to Wikieup: Construction Staging Locations in the Kaiser Spring and Signal Road Design Sections*. Northland Research, Inc., Tempe, Arizona.

Office of the Historian. 2017. Gadsden Purchase, 1853–1854. *MILESTONES: 1830–1860*. https://history.state.gov/milestones/1830-1860/gadsden-purchase. Accessed August 30, 2018.

Schoenwetter, James and L.A. Doerschlag. 1971. Surficial Pollen Records from Central Arizona, I: Sonoran Desert Scrub. *Journal of the Arizona Academy of Science* 6:216–221.

Schroeder, Albert H. 1961. *The Archaeological Excavations at Willow Beach, Arizona, 1950.* University of Utah, Salt Lake City.

Spicer, Edward H. 1997. *Cycles of Conquest: The Impact of Spain, Mexico, and the United States on the Indians of the Southwest, 1533-1960.* University of Arizona Press, Tucson.

State Historic Preservation Office (SHPO) Survey Report Standards. 2016. SHPO Guidance Point No. 5.

Stone, Connie L. 1991. *The Linear Oasis: Managing Cultural Resources along the Lower Colorado River.* Bureau of Land Management, Arizona State Office, Phoenix, Arizona.

Wasley, William W. and Alfred E. Johnson. 1965. *Salvage Archaeology in Painted Rocks Reservoir, Western Arizona.* University of Arizona, Tucson.

Waters, Michael R. 1982a. The Lowland Patayan Ceramic Tradition. In *Hohokam and Patayan: Prehistory of Southwestern Arizona*, edited by Randall H. McGuire and Michael B. Schiffer, pp. 275–297. Academic Press, New York.

_____. 1982b. The Lowland Patayan Ceramic Typology. In *Hohokam and Patayan: Prehistory of Southwestern Arizona*, edited by Randall H. McGuire and Michael B. Schiffer, pp. 537–570. Academic Press, New York.

Wikimedia Foundation, Inc. 2018. Tonopah, Arizona. *Tonopah, Arizona*. http://en.wikipedia.org/wiki/Tonopah,_Arizona. Accessed December 7, 2018.

Wikipedia. 2018. *Interstate 10 in Arizona, West of Phoenix*. https://en.wikipedia.org/wiki/Interstate_10_in_Arizona. Accessed November 9, 2018.

Wilcox, David R. and W. Bruce Masse (editors). 1981. *The Protohistoric Period in the North American Southwest, A.D. 1450–1700.* Anthropological Research Papers No. 24. Arizona State University, Tempe.

Wilcox, David R. and Charles Sternberg. 1983. *Hohokam Ballcourts and Their Interpretation.* Archaeological Series No. 160. Arizona State Museum, University of Arizona, Tucson.

EXHIBIT E-1
PHOTOGRAPHS OF PROJECT SITE

Photo 1. Photograph faces east toward the Delaney Substation

Photo 2. Photograph faces southeast. Delaney Substation is in the left of the photograph

Photo 3. Photo faces southwest

Photo 4. Photograph faces northwest

Photo 5. Photograph faces northeast. Delaney Substation is in the right of the photograph

EXHIBIT E-2

VISUAL CONTRAST RATING WORKSHEETS

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAEMENTT

VISUAL CONTRAST RATING WORKSHEET

Date: 9/15/2020
District: NA
Resource Area: NA
Activity (program): NA

SECTION A. PROJECT INFORMATION

1. Project Name: Papago Solar Intertie Project
2. Key Observation Point: KOP 01 3-Pole, Monopole, and H-Frame
3. VRM Class: NA
4. Location: Township 0201; Range 0804; Section 24
5. Location Sketch: Qcc Qg k sj_rgm l N_l cj K_nq

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Flat in foreground with irregular amorphous hills/mountains	Short indistinct to rounded to vase shaped	Geometric, blocky, tall narrow, rigid
LINE	Horizontal, irregular, wavy	Irregular	Vertical, horizontal, angular, irregular
COLOR	Tan, cream, dark brown	Light yellow, a range of greens, blues	Silver, brown, blue gray
TEXTURE	Random rough to smooth	Medium clumped in places and fine uniform in places	Random, regular

SECTION C. PROPOSED ACTIVITIY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Qame	Qame	Same with additional tall narrow, blocky, and geometric
LINE	Qame	Qame	Same with additional vertical and angular lines
COLOR	Qame	Qame	Qame with additional blue gray
TEXTURE	Qame	Qame	Qame

SECTION D. CONTRAST RATING

SHORT TERM LONG TERM x

DEGREE OF CONTRAST		FEATURES: LAND/WATER BODY (1)				VEGETATION (2)				STRUCTURES (3)			
		Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None
ELEMENTS	Form				x				x			x	
	Line				x				x			x	
	Color				x				x			x	
	Texture				x				x				x

2. Does project design meet visual resource management objectives? Yes No (Explain on reverse side)

3. Additional mitigating measures recommended? Yes No (Explain on reverse side)

Evaluators' Names: Osmer Beck
Dates: 09/15/2020

SECTION D. CONTINUATION

2. Does project design meet visual resource management objectives? Yes No

NA

3. Additional mitigating measures recommended? [Yes] No

Apply general design criteria; non-reflective surface on structures, non-specular conductors, limited disturbance, revegetation of temporary disturbed surfaces, use of natural hues for painted or colored surfaces that match the surroundings.

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAEMENTT

VISUAL CONTRAST RATING WORKSHEET

Date: 9/15/2020
District: NA
Resource Area: NA
Activity (program): NA

SECTION A. PROJECT INFORMATION

1. Project Name: Papago Solar Intertie Project
2. Key Observation Point: KOP 02 3-Pole, Monopole, and H-Frame
3. VRM Class: NA
4. Location: Township 0201 Range 0804 Section 26
5. Location Sketch: Qcc Qg k sj_rgm l N_l cj K_nq

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Flat in foreground with irregular amorphous hills/mountains	Short indistinct to rounded to vase shaped	Geometric, blocky, tall narrow, rigid
LINE	Horizontal, irregular, wavy	Irregular	Vertical, horizontal, angular, irregular
COLOR	Tan, cream, dark brown	Light yellow, a range of greens, blues	Silver, brown, blue gray
TEXTURE	Random rough to smooth	Medium clumped in places and fine uniform in places	Random, regular

SECTION C. PROPOSED ACTIVITIY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Qame	Qame	Same with additional tall narrow, blocky, and geometric
LINE	Qame	Qame	Same with additional vertical and angular lines
COLOR	Qame	Qame	Qame with additional blue gray
TEXTURE	Qame	Qame	Qame

SECTION D. CONTRAST RATING

SHORT TERM LONG TERM x

DEGREE OF CONTRAST		FEATURES: LAND/WATER BODY (1)				VEGETATION (2)				STRUCTURES (3)			
		Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None
ELEMENTS	Form				x				x			x	
	Line				x				x			x	
	Color				x				x			x	
	Texture				x				x				x

2. Does project design meet visual resource management objectives? Yes No (Explain on reverse side)

3. Additional mitigating measures recommended? Yes No (Explain on reverse side)

Evaluators' Names: Osmer Beck
Dates: 09/15/2020

SECTION D. CONTINUATION

2. Does project design meet visual resource management objectives? Yes No

NA

3. Additional mitigating measures recommended? [Yes] No

Apply general design criteria; non-reflective surface on structures, non-specular conductors, limited disturbance, revegetation of temporary disturbed surfaces, use of natural hues for painted or colored surfaces that match the surroundings.

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAEMENTT

VISUAL CONTRAST RATING WORKSHEET

Date: 9/15/2020
District: NA
Resource Area: NA
Activity (program): NA

SECTION A. PROJECT INFORMATION

1. Project Name: Papago Solar Intertie Project
2. Key Observation Point: KOP 03 H-Frame
3. VRM Class: NA
4. Location: Township 0201, Range 0804, Section 36
5. Location Sketch: Qcc Qg k sj_rgm l N_l cj K_nq

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Flat in foreground with irregular amorphous hills/mountains	Short indistinct to rounded to vase shaped	Geometric, blocky, tall narrow, rigid
LINE	Horizontal, irregular, wavy	Irregular	Vertical, horizontal, angular, irregular
COLOR	Tan, cream, dark brown	Light yellow, a range of greens, blues	Silver, brown, blue gray
TEXTURE	Random rough to smooth	Medium clumped in places and fine uniform in places	Random, regular

SECTION C. PROPOSED ACTIVITIY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Qame	Qame	Same with additional tall narrow, blocky, and geometric
LINE	Qame	Qame	Same with additional vertical and angular lines
COLOR	Qame	Qame	Qame with additional blue gray
TEXTURE	Qame	Qame	Qame

SECTION D. CONTRAST RATING

SHORT TERM LONG TERM x

DEGREE OF CONTRAST		FEATURES: LAND/WATER BODY (1)				VEGETATION (2)				STRUCTURES (3)			
		Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None
ELEMENTS	Form				x				x		x		
	Line				x				x		x		
	Color				x				x			x	
	Texture				x				x				x

2. Does project design meet visual resource management objectives? Yes No (Explain on reverse side)

3. Additional mitigating measures recommended? Yes No (Explain on reverse side)

Evaluators' Names: Osmer Beck
Dates: 09/15/2020

SECTION D. CONTINUATION

2. Does project design meet visual resource management objectives? Yes No

NA

3. Additional mitigating measures recommended? [Yes] No

Apply general design criteria; non-reflective surface on structures, non-specular conductors, limited disturbance, revegetation of temporary disturbed surfaces, use of natural hues for painted or colored surfaces that match the surroundings.

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAEMENTT

VISUAL CONTRAST RATING WORKSHEET

Date: 9/15/2020
District: NA
Resource Area: NA
Activity (program): NA

SECTION A. PROJECT INFORMATION

1. Project Name: Papago Solar Intertie Project
2. Key Observation Point: KOP 03 3-Pole and Monopole
3. VRM Class: NA
4. Location: Township 0201; Range 0804; Section 36
5. Location Sketch: Qcc Qg k sj_rgm l N_l cj K_nq

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Flat in foreground with irregular amorphous hills/mountains	Short indistinct to rounded to vase shaped	Geometric, blocky, tall narrow, rigid
LINE	Horizontal, irregular, wavy	Irregular	Vertical, horizontal, angular, irregular
COLOR	Tan, cream, dark brown	Light yellow, a range of greens, blues	Silver, brown, blue gray
TEXTURE	Random rough to smooth	Medium clumped in places and fine uniform in places	Random, regular

SECTION C. PROPOSED ACTIVITIY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Qame	Qame	Same with additional tall narrow, blocky, and geometric
LINE	Qame	Qame	Same with additional vertical and angular lines
COLOR	Qame	Qame	Qame with additional blue gray
TEXTURE	Qame	Qame	Qame

SECTION D. CONTRAST RATING

SHORT TERM **LONG TERM** X

DEGREE OF CONTRAST		FEATURES: LAND/WATER BODY (1)				VEGETATION (2)				STRUCTURES (3)			
		Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None
ELEMENTS	Form				X				X		X		
	Line				X				X		X		
	Color				X				X			X	
	Texture				X				X				X

2. Does project design meet visual resource management objectives? Yes No (Explain on reverse side)

3. Additional mitigating measures recommended? Yes No (Explain on reverse side)

Evaluators' Names: Osmer Beck
Dates: 09/15/2020

SECTION D. CONTINUATION

2. Does project design meet visual resource management objectives? Yes No

NA

3. Additional mitigating measures recommended? [Yes] No

Apply general design criteria; non-reflective surface on structures, non-specular conductors, limited disturbance, revegetation of temporary disturbed surfaces, use of natural hues for painted or colored surfaces that match the surroundings.

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAEMENTT

VISUAL CONTRAST RATING WORKSHEET

Date: 9/15/2020
District: NA
Resource Area: NA
Activity (program): NA

SECTION A. PROJECT INFORMATION

1. Project Name: Papago Solar Intertie Project
2. Key Observation Point: KOP 04 3-Pole, Monopole, and H-Frame
3. VRM Class: NA
4. Location: Township 0201; Range 0804; Section 35
5. Location Sketch: Qcc Qg k sj_rgm l N_l cj K_nq

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Flat in foreground with irregular amorphous hills/mountains	Short indistinct to rounded to vase shaped	Geometric, blocky, tall narrow, rigid
LINE	Horizontal, irregular, wavy	Irregular	Vertical, horizontal, angular, irregular
COLOR	Tan, cream, dark brown	Light yellow, a range of greens, blues	Silver, brown, blue gray
TEXTURE	Random rough to smooth	Medium clumped in places and fine uniform in places	Random, regular

SECTION C. PROPOSED ACTIVITIY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Qame	Qame	Same with additional tall narrow, blocky, and geometric
LINE	Qame	Qame	Same with additional vertical and angular lines
COLOR	Qame	Qame	Qame
TEXTURE	Qame	Qame	Qame

SECTION D. CONTRAST RATING

SHORT TERM **LONG TERM** X

DEGREE OF CONTRAST		FEATURES: LAND/WATER BODY (1)				VEGETATION (2)				STRUCTURES (3)			
		Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None
ELEMENTS	Form				X				X			X	
	Line				X				X			X	
	Color				X				X				X
	Texture				X				X				X

2. Does project design meet visual resource management objectives? Yes No (Explain on reverse side)

3. Additional mitigating measures recommended? Yes No (Explain on reverse side)

Evaluators' Names: Osmer Beck
Dates: 09/15/2020

SECTION D. CONTINUATION

2. Does project design meet visual resource management objectives? Yes No

NA

3. Additional mitigating measures recommended? [Yes] No

Apply general design criteria; non-reflective surface on structures, non-specular conductors, limited disturbance, revegetation of temporary disturbed surfaces, use of natural hues for painted or colored surfaces that match the surroundings.

EXHIBIT F

RECREATIONAL PURPOSES AND ASPECTS

EXHIBIT F—RECREATIONAL PURPOSES AND ASPECTS

As stated in Arizona Administrative Code R14-3-219:

> *State the extent, if any, the proposed site or route will be available to the public for recreational purposes, consistent with safety considerations and regulations, and attach any plans the applicant may have concerning the development of the recreational aspects of the proposed site or route.*

Existing Conditions

The Project is located in an unincorporated area of western Maricopa County. The Applicant does not plan to make the lands covered by the Project available for recreational use. Currently, there are no existing or planned designated recreational facilities within the proposed Project area or within the areas directly neighboring the Project.

Recreation information for the regional area was obtained from Maricopa County, the ASLD, and the BLM. Maricopa County has not designated any area in the surrounding vicinity for recreational use. The ASLD has not designated the adjacent neighboring parcels for recreation use, and these parcels are currently leased for grazing purposes. The BLM has designated Saddle Mountain as an ERMA. Information about the Saddle Mountain ERMA is provided below.

Saddle Mountain ERMA

The Saddle Mountain ERMA is approximately 1 mile south and outside of the Project area. According to the BLM Lower Sonoran Record of Decision and Approved Resource Management Plan of September 2012, the Saddle Mountain ERMA is a 47,500-acre area to be designated as an ACEC. Management actions through the Land Use Plan will be to balance recreational visitor demands with other resources in the area for which the area is designated as an ACEC, including cultural, wildlife, and scenic qualities. According to the Land Use Plan, residents and regional visitors seek a primarily non-motorized trail experience to explore, discover, and view outstanding scenic landscapes, unique geologic features, and cultural and wildlife resources of the area. Camping occurs in the area, and the Land Use Plan states vehicle-based camping will be limited to existing or designated sites or as determined by subsequent activity-level planning. The travel system emphasizes primitive access to non-motorized trail opportunities and non-motorized trails to be developed or converted from motorized roads to meet demand for hiking, equestrian, and mountain biking. The area is closed to such recreation as motorized competitive speed events, rock-crawling, and rock-hopping and is also closed to mineral material exploration.

Potential Effects

There are no existing or planned recreational facilities within the immediate Project area. The closest recreation area is the BLM Saddle Mountain ERMA, which is approximately 1 mile away. The Project facilities will not directly impact the Saddle Mountain ERMA. Indirectly, the Project facilities may be visible from some locations of Saddle Mountain, but given the proposed location near an existing substation and other similar utility infrastructure, these impacts are expected to be minor. No recreational impacts are anticipated to result from the Project.

EXHIBIT G

DEPICTION OF FACIITIES AND VISUAL SIMULATIONS

EXHIBIT G—DEPICTION OF FACILITIES AND VISUAL SIMULATIONS

As stated in Arizona Administrative Code R14-3-219:

> *Attach any artist's or architect's conception of the proposed plant or transmission line structures and switchyards, which the Applicant believes may be informative to the Committee.*

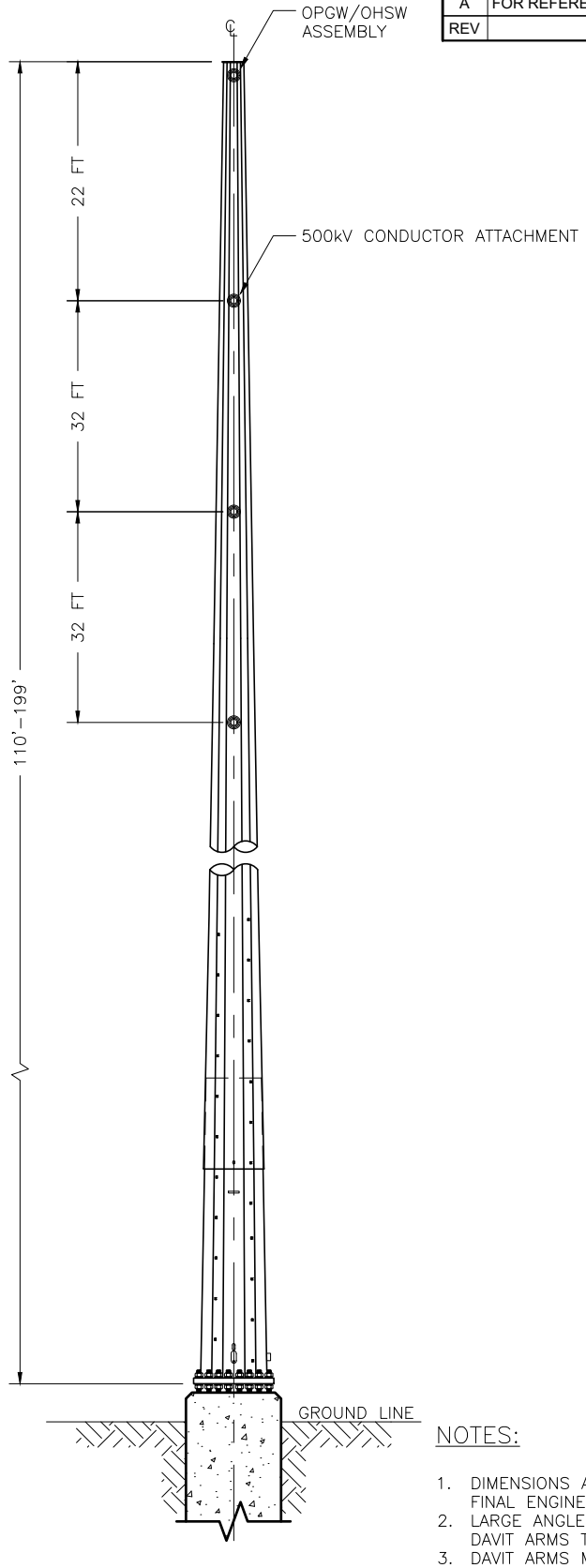
This exhibit includes figures illustrating the possible structure types that may be used for the transmission line as well as the substation general arrangement plan. Also included in this exhibit are four visual simulations prepared for the proposed Project.

EXHIBIT G-1 500kV Transmission Line Structure Detail
EXHIBIT G-2 Substation General Arrangement Plan
EXHIBIT G-3 Substation General Arrangement Plan With Elevation
EXHIBIT G-4 Key Observation Point 1
EXHIBIT G-5 Key Observation Point 2
EXHIBIT G-6 Key Observation Point 3
EXHIBIT G-7 Key Observation Point 4

EXHIBIT G-1

500-KV TRANSMISSION LINE STRUCTURE DETAIL

REV	REVISIONS	DATE	DRN	DSGN	CKD	APPD
A	FOR REFERENCE	12/04/20	JIO	CPD	MLS	CPD



NOTES:

1. DIMENSIONS ARE APPROXIMATE AND ARE SUBJECT TO CHANGE IN FINAL ENGINEERING
2. LARGE ANGLE STRUCTURE SHOWN. SMALLER ANGLES MAY REQUIRE DAVIT ARMS TO SUPPORT JUMPER
3. DAVIT ARMS MAY BE USED IN LIEU OF ATTACHING DIRECTLY TO THE POLE

S1-500-01.dwg

REFERENCE DRAWINGS

DSGN	CPD	12/04/20	
DRN	JIO	12/04/20	
CKD	MLS	12/04/20	
SCALE:	NTS		

FOR 8.5x11 DWG ONLY

RECURRENT ENERGY
A subsidiary of Canadian Solar

POWER ENGINEERS

RECURRENT ENERGY

PAPAGO PROJECT

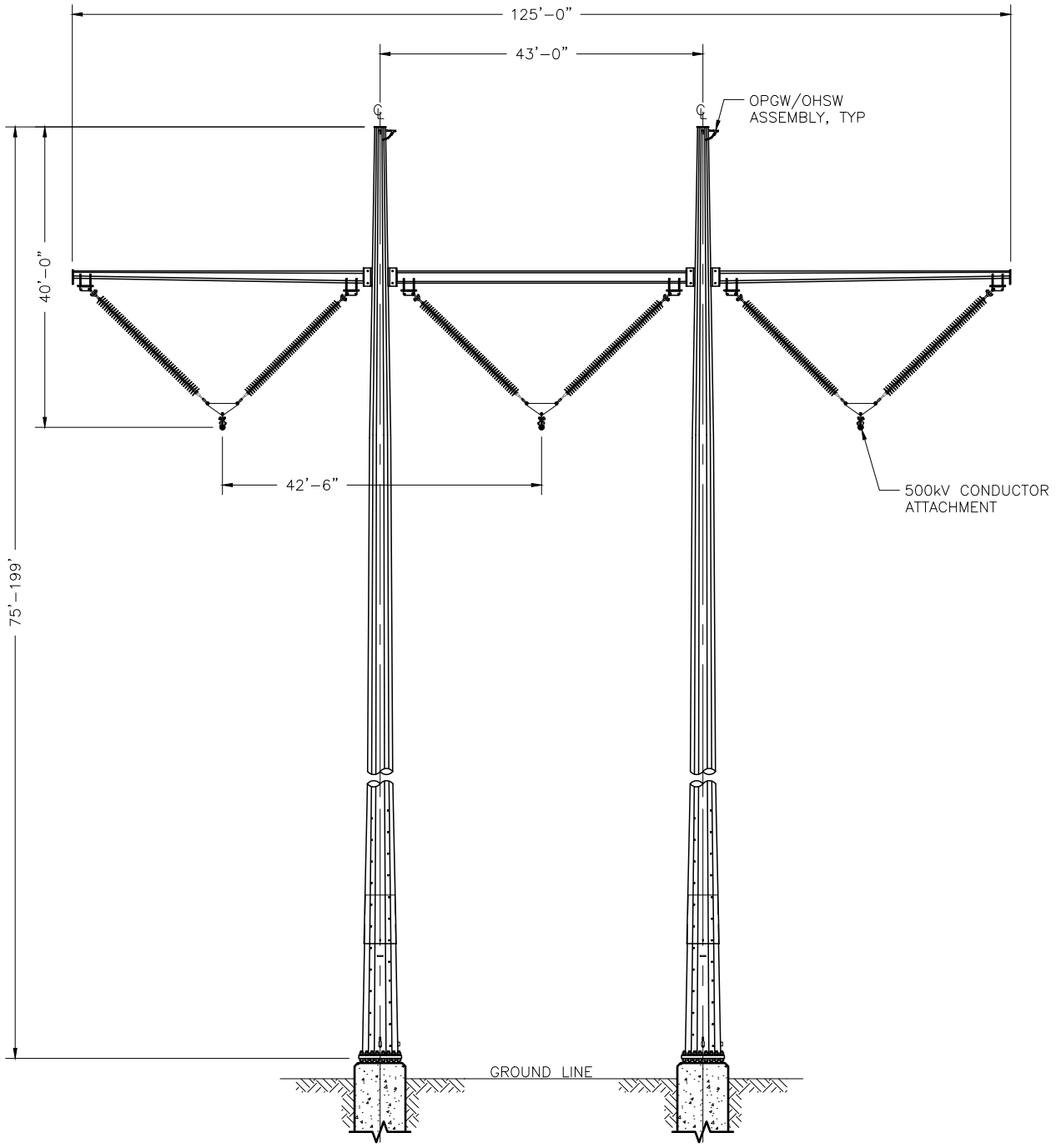
500kV DEADED STEEL MONOPOLE

JOB NUMBER 161239

REV A

DRAWING NUMBER S1-500-01

REV	REVISIONS	DATE	DRN	DSGN	CKD	APPD
A	FOR REFERENCE	12/04/20	JIO	CPD	MLS	CPD



NOTES:

1. X–BRACES MAY BE USED
2. I–STRINGS MAY BE USED IN LIEU OF V–STRINGS WHICH WOULD MODIFY GEOMETRY
3. DIMENSIONS ARE APPROXIMATE AND SUBJECT TO CHANGE IN FINAL ENGINEERING

DSGN	CPD	12/04/20	RECURRENT ENERGY A subsidiary of Canadian Solar	RECURRENT ENERGY
DRN	JIO	12/04/20		PAPAGO PROJECT
CKD	MLS	12/04/20	POWER ENGINEERS	500kV DEADED STEEL MONOPOLE
SCALE:	NTS			
FOR 8.5x11 DWG ONLY				

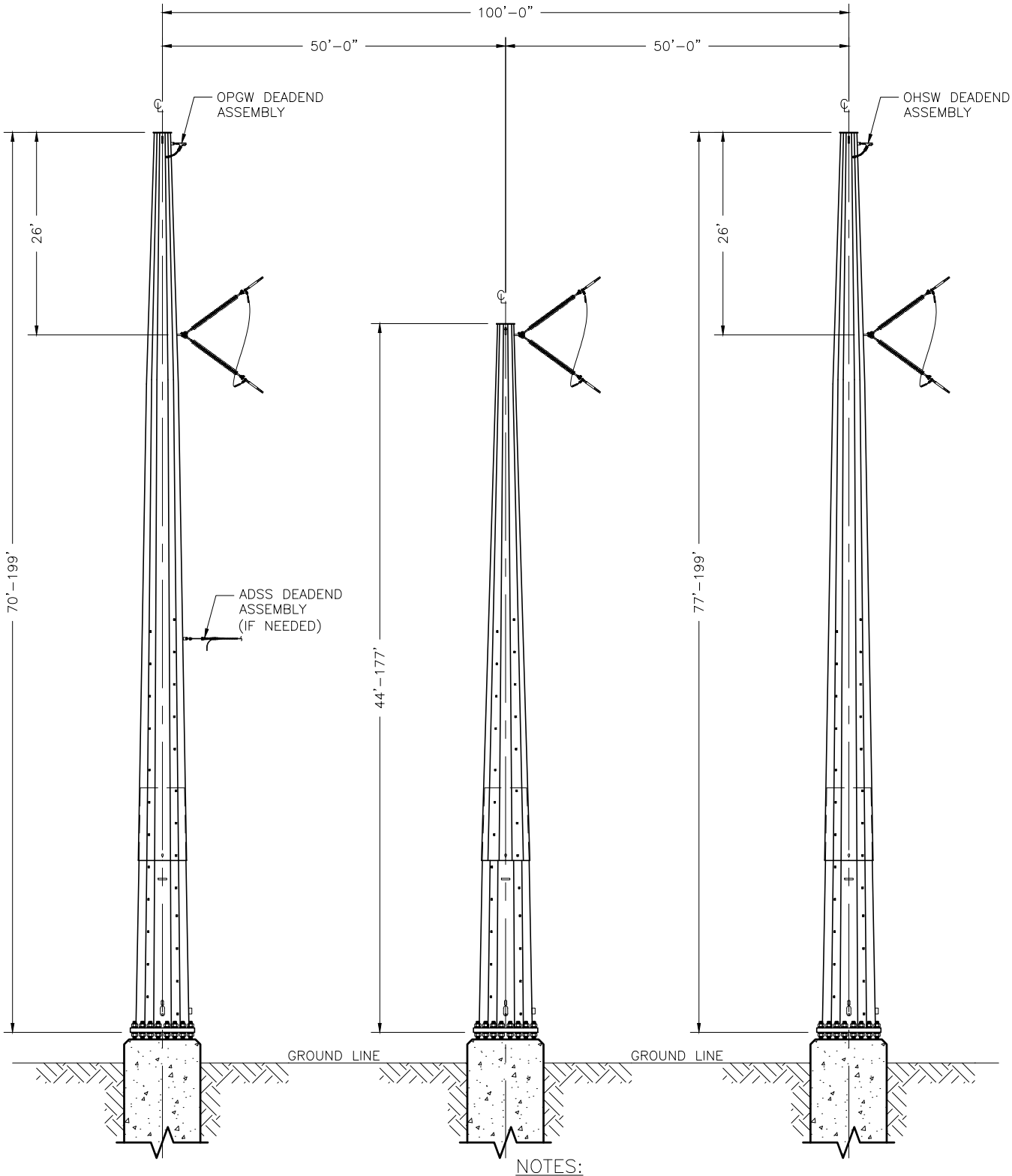
REFERENCE DRAWINGS

JOB NUMBER	REV
161239	A

DRAWING NUMBER
S1-500-02

S1-500-02.dwg

REV	REVISIONS	DATE	DRN	DSGN	CKD	APPD
A	FOR REFERENCE	12/04/20	JIO	CPD	MLS	CPD



NOTES:

1. DIMENSIONS ARE APPROXIMATE AND ARE SUBJECT TO CHANGE IN FINAL ENGINEERING
2. LARGE ANGLE STRUCTURE SHOWN. SMALLER ANGLES MAY REQUIRE DAVIT ARMS TO SUPPORT JUMPER

DSGN	CPD	12/04/20	RECURRENT ENERGY A subsidiary of Canadian Solar	RECURRENT ENERGY
DRN	JIO	12/04/20		PAPAGO PROJECT
CKD	MLS	12/04/20	POWER ENGINEERS	500kV DEADED STEEL MONOPOLE
SCALE:	NTS			
FOR 8.5x11 DWG ONLY				

REFERENCE DRAWINGS

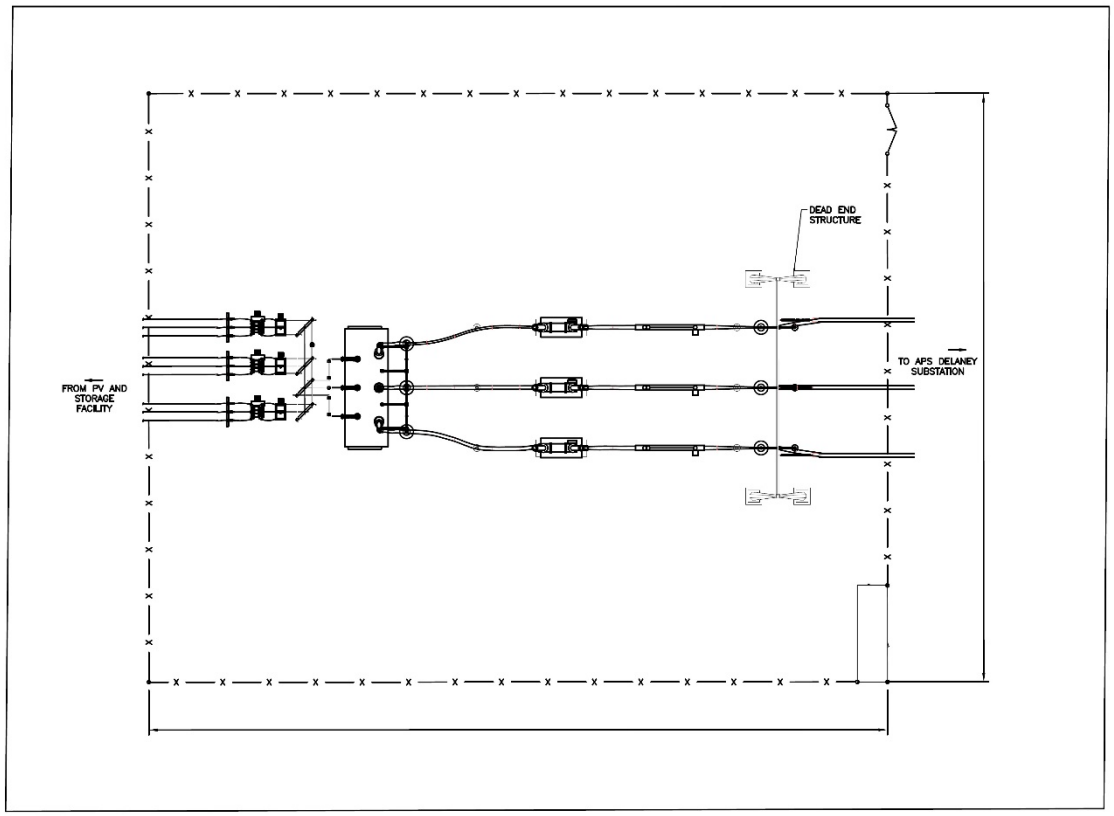
JOB NUMBER	REV
161239	A

DRAWING NUMBER
S1-500-03

S1-500-03.dwg

EXHIBIT G-2

SUBSTATION GENERAL ARRANGEMENT PLAN



1 PAPAGO 500 kV SUBSTATION PLAN
SCALE: NTS

2020-11-11

EXHIBIT G-3

SUBSTATION GENERAL ARRANGEMENT PLAN WITH ELEVATION

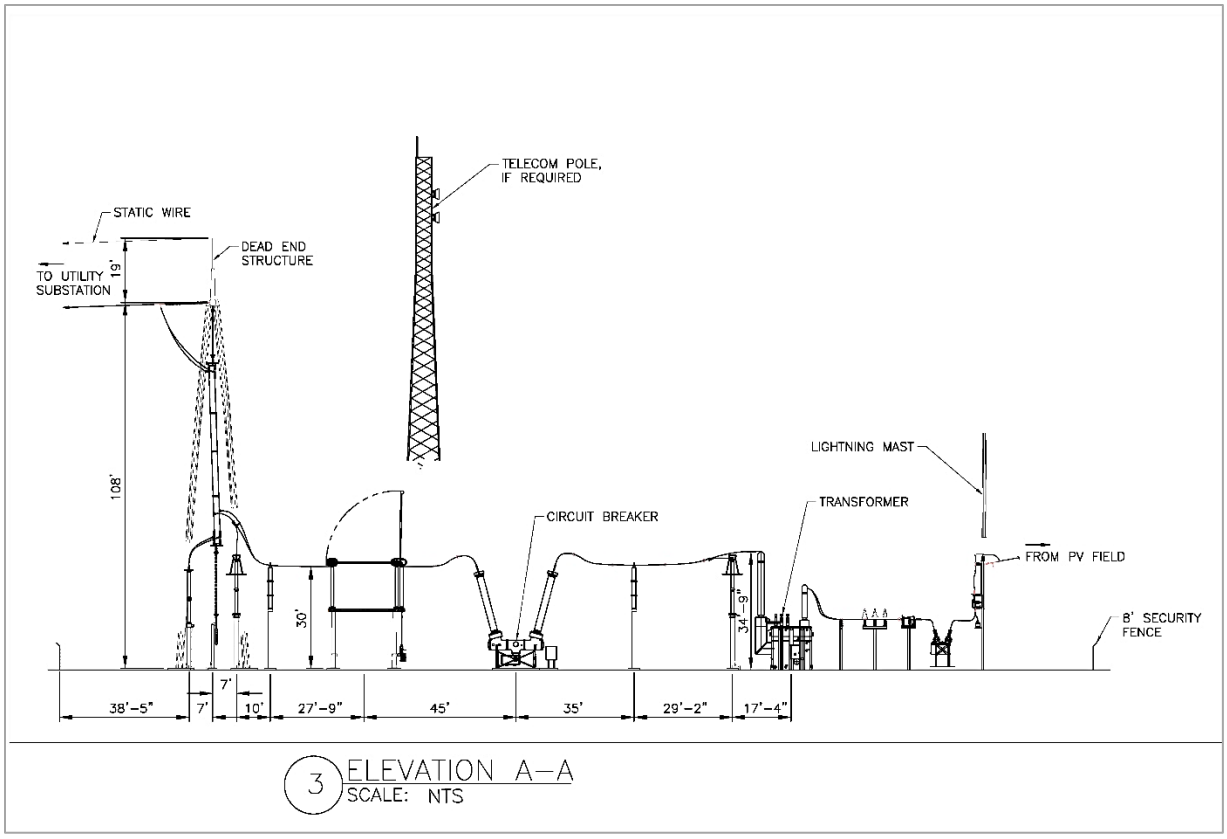

TELECOM POLE,
IF REQUIRED
STATIC WIRE
DEAD END
STRUCTURE
TO UTILITY
SUBSTATION
19'
108'
30'
LIGHTNING MAST
TRANSFORMER
CIRCUIT BREAKER
FROM PV FIELD
34'-9"
8' SECURITY
FENCE
7'
7'
10'
38'-5"
27'-9"
45'
35'
29'-2"
17'-4"
3 ELEVATION A-A
SCALE: NTS

EXHIBIT G-4
KEY OBSERVATION POINT 1

RE PAPAGO SOLAR

Gen-tie Project

KOP 01

Camera

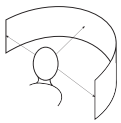
- Camera: Canon t7i Rebel
- Sensor: APS-C, 22.3 mm x 14.9 mm
- Lens: Canon 18-55 mm
- Focal length: 31 mm
- 35 mm equivalent focal length: 51 mm
- Camera height: 5.5 ft
- F-stop: 8
- ISO: 100

KOP

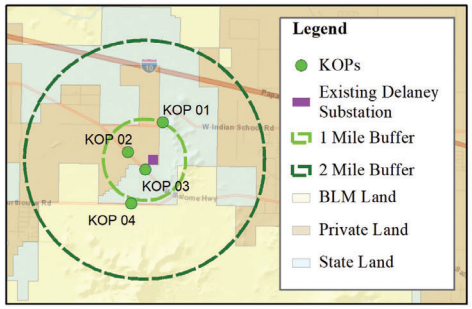
- Representative of view for: Westbound travelers on Indian School Road
- Location: Indian School Road approximately 1.6 miles east of the junction with W Salome Highway
- UTM Coordinates (NAD83 Zone 12 N): 311381 E, 3707992 N
- View Point Elevation at Eye Level: 1,251 ft
- Looking: Southwest
- Project visibility from KOP: The substation and new pole would be visible

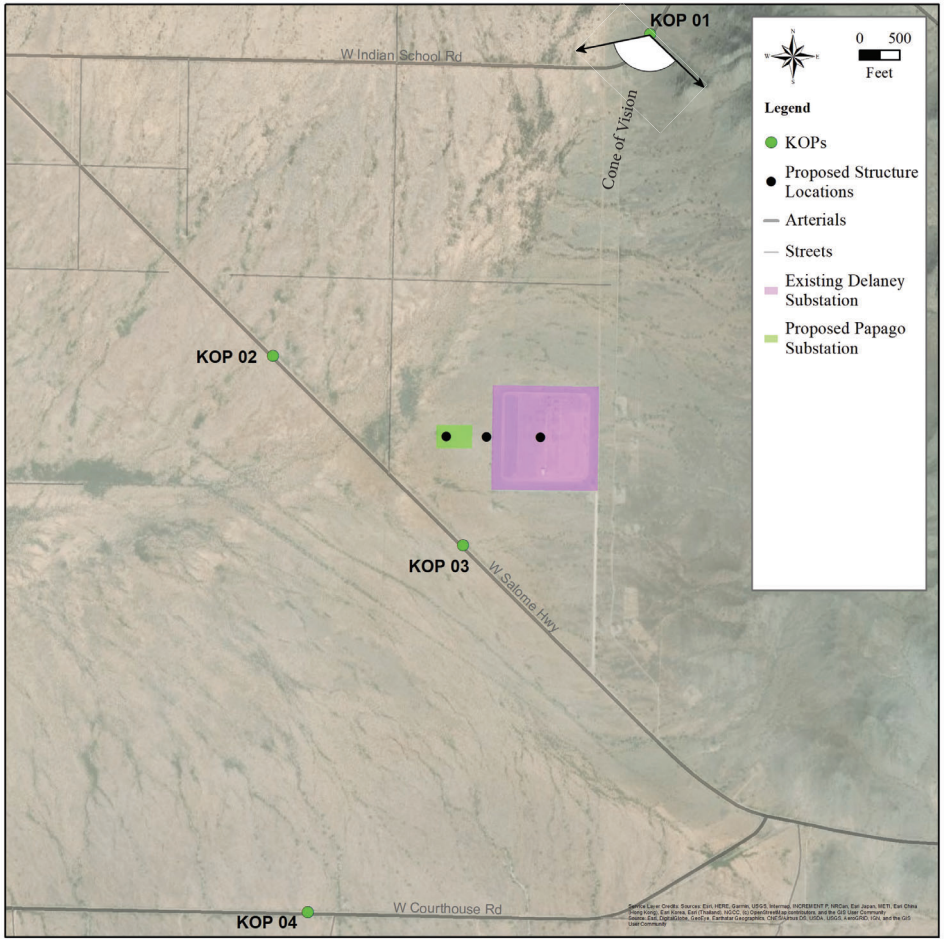
Simulation Notes

- Photo taken 5/8/2019 3:27 PM
- The base image is multiple stitched images intended to represent an approximately 124 degree horizontal field of view.
- This view is approximately 1 mile north of the proposed project
- Arrows are pointing to the substation and transmission structure. Conductors are difficult to see.
- The simulation is based on the best information available. Preliminary and subject to change based on final engineering and other factors.
- The simulation should be held approximately 23 inches from face when printed on 11x17 paper. If viewed digitally, measure the width of the image in inches and divide by 0.7 to determine viewing distance.



Recommended Viewing Configuration






Current Condition
Simulated Condition H-Frame Structure
Substation
Structure


Current Condition
Simulated Condition 3-Pole Structure
Substation
Structure

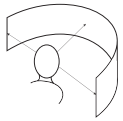

Current Condition
Simulated Condition Monopole Structure
Substation
Structure

EXHIBIT G-5
KEY OBSERVATION POINT 2

RE PAPAGO SOLAR

Gen-tie Project

KOP 02



Recommended Viewing Configuration

Camera

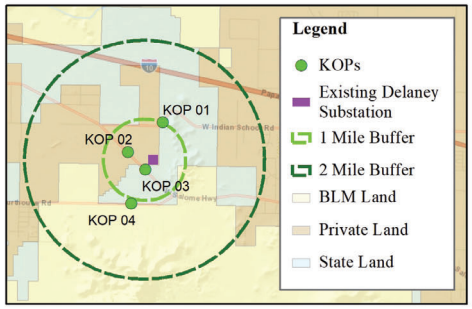
- Camera: Canon t3i Rebel
- Sensor: APS-C, 22.3 mm x 14.9 mm
- Lens: Canon 18-55 mm
- Focal length: 32 mm
- 35 mm equivalent focal length: 48 mm
- Camera height: 5.5 ft
- F-stop: 8
- ISO: 100

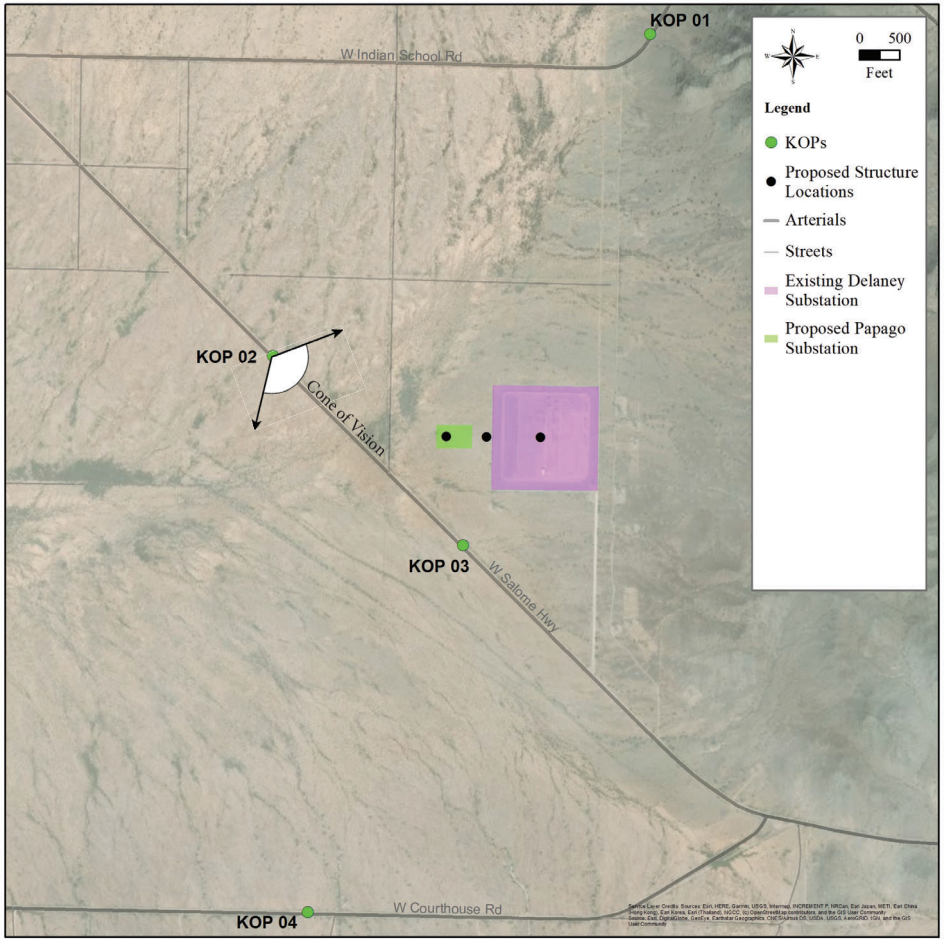
KOP

- Representative of view for: Viewers in automobiles southbound on W Salome Highway
- Location: On W Salome Highway approximately 5,300 feet southeast of the junction with Indian School Road
- UTM Coordinates (NAD83 Zone 12 N): 309956 E, 3706778 N
- View Point Elevation at Eye Level: 1205 ft
- Looking: Southeast
- Project visibility from KOP: The substation and new transmission structure would be visible

Simulation Notes

- Photo taken 6/5/2020 11:03 AM
- The base image is multiple stitched images intended to represent an approximately 124 degree horizontal field of view.
- This view is approximately 2,780 feet northwest of the nearest transmission structure portrayed in the simulation.
- Arrows are pointing to the substation and transmission structure.
- The simulation is based on the best information available. Preliminary and subject to change based on final engineering and other factors.
- The simulation should be held approximately 23 inches from face when printed on 11x17 paper. If viewed digitally, measure the width of the image in inches and divide by 0.7 to determine viewing distance.





Current Condition

Simulated Condition H-Frame Structure

Current Condition

Simulated Condition 3-Pole Structure

Current Condition

Simulated Condition Monopole Structure

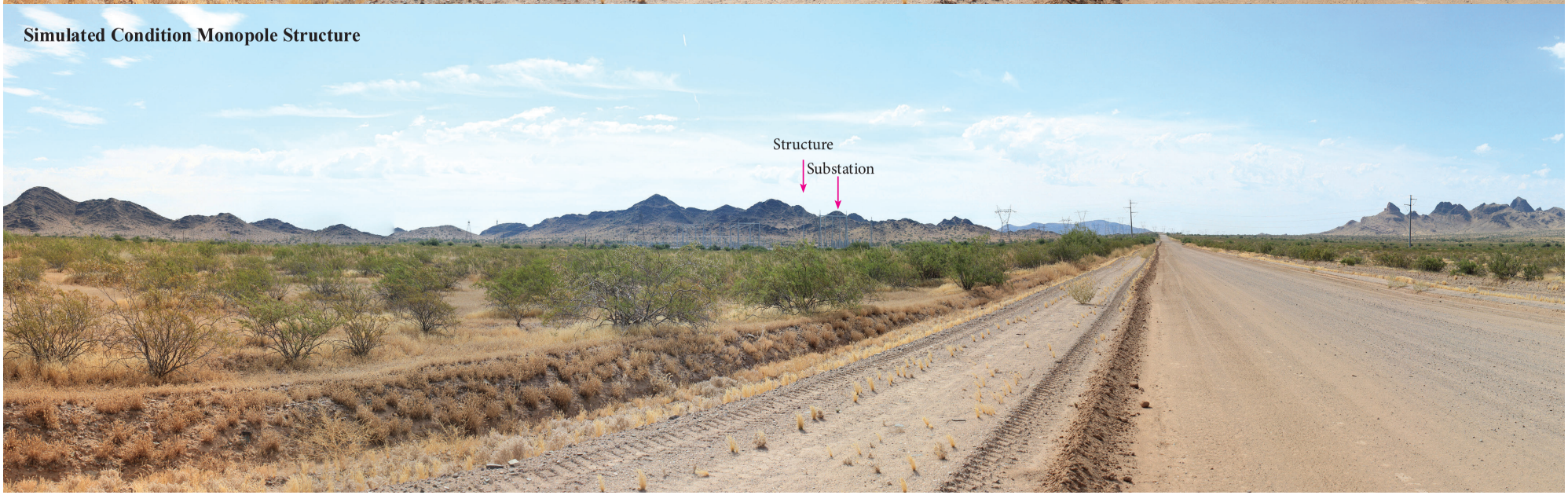


EXHIBIT G-6
KEY OBSERVATION POINT 3

RE PAPAGO SOLAR

Gen-tie Project

KOP 03

Camera

- Camera: Canon t3i Rebel
- Sensor: APS-C, 22.3 mm x 14.9 mm
- Lens: Canon 18-55 mm
- Focal length: 34 mm
- 35 mm equivalent focal length: 51 mm
- Camera height: 5.5 ft
- F-stop: 8
- ISO: 100

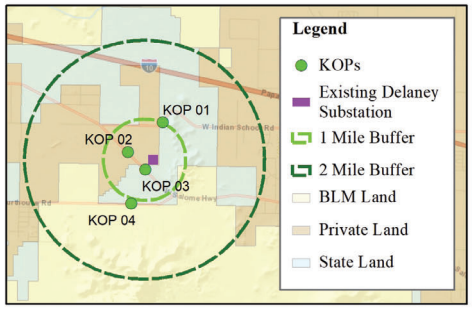
KOP

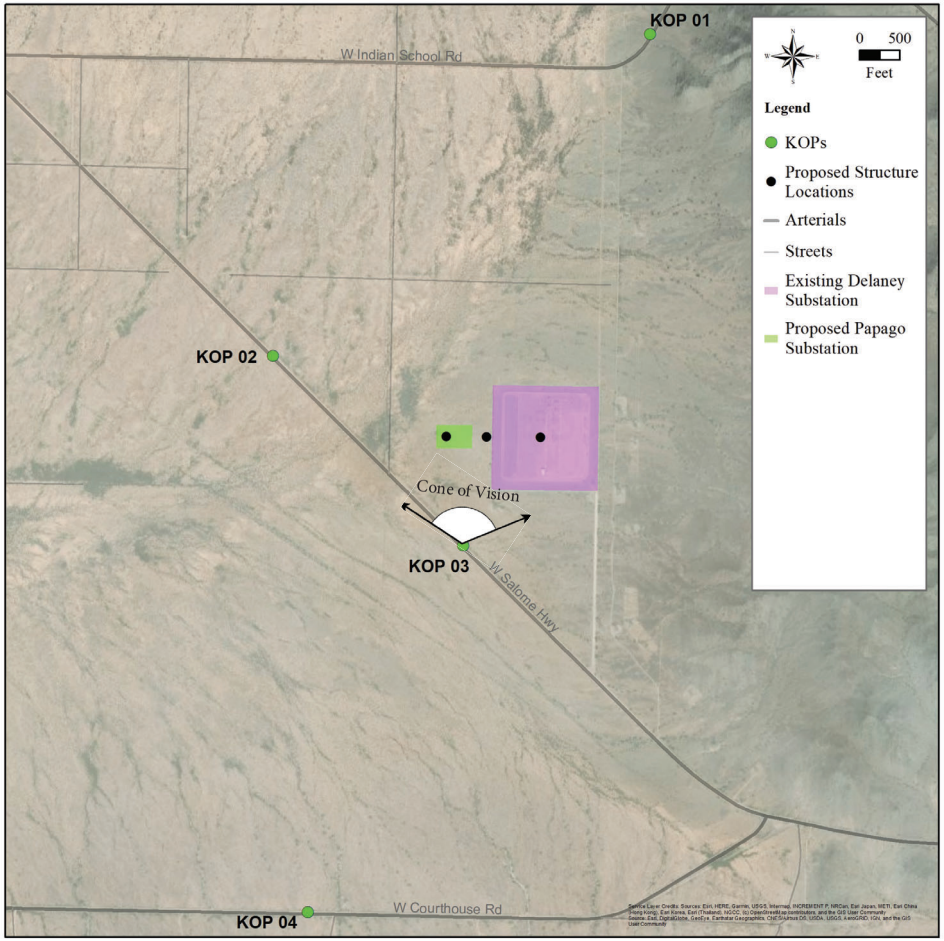
- Representative of view for: Viewers in automobiles northbound on W Salome Highway
- Location: On W Salome Highway approximatley 1 mile Northwest of the junction with W Courthouse Road
- UTM Coordinates (NAD83 Zone 12 N): 310675 E, 3706060 N
- View Point Elevation at Eye Level: 1,206 ft
- Looking: North
- Project visibility from KOP: The substation, new transmission structure, and conductors would be visible

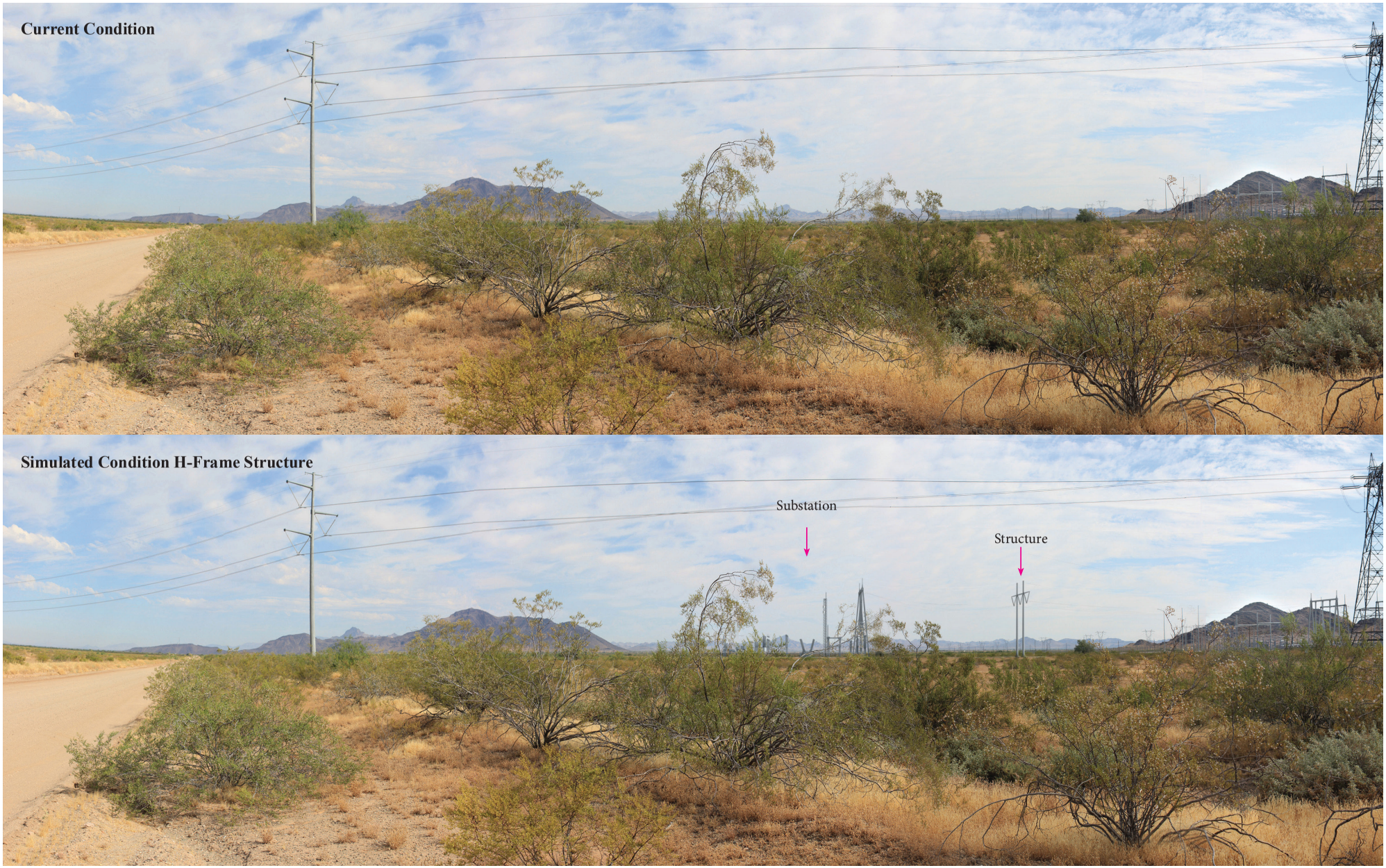
Simulation Notes

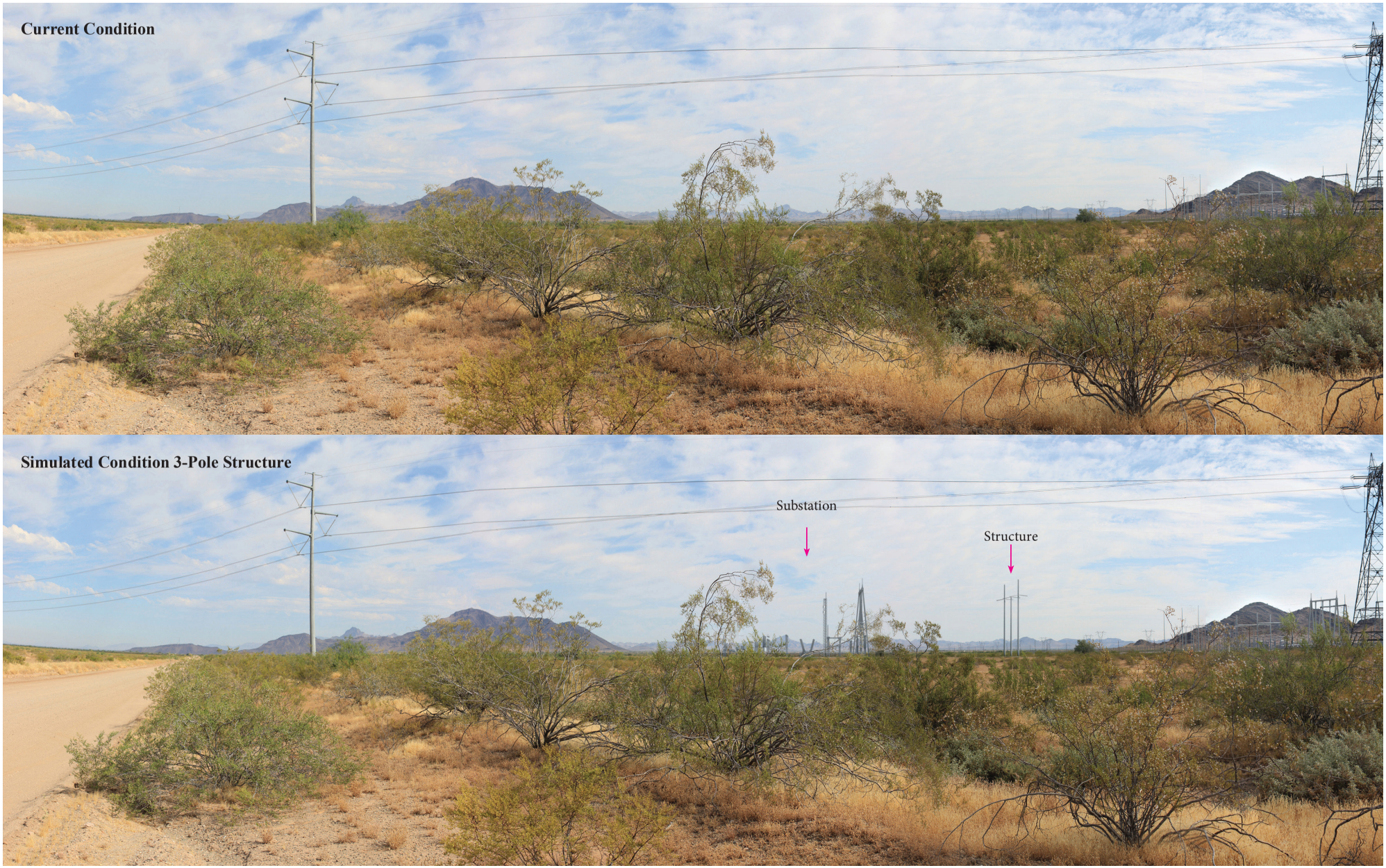
- Photo taken 6/5/2020 10:05 AM
- The base image is multiple stitched images intended to represent an approximately 124 degree horizontal field of view.
- This view is approximately1,450 feet south of the transmission structure portrayed in the simulation.
- Arrows are pointing to the substation and transmission structure.
- The simulation is based on the best information available. Preliminary and subject to change based on final engineering and other factors.
- The simulation should be held approximately 23 inches from face when printed on 11x17 paper. If viewed digitally, measure the width of the image in inches and divide by 0.7 to determine viewing distance.

Recommended Viewing Configuration






Current Condition
Simulated Condition H-Frame Structure
Substation
Structure


Current Condition
Simulated Condition 3-Pole Structure
Substation
Structure

Current Condition

Simulated Condition Monopole Structure

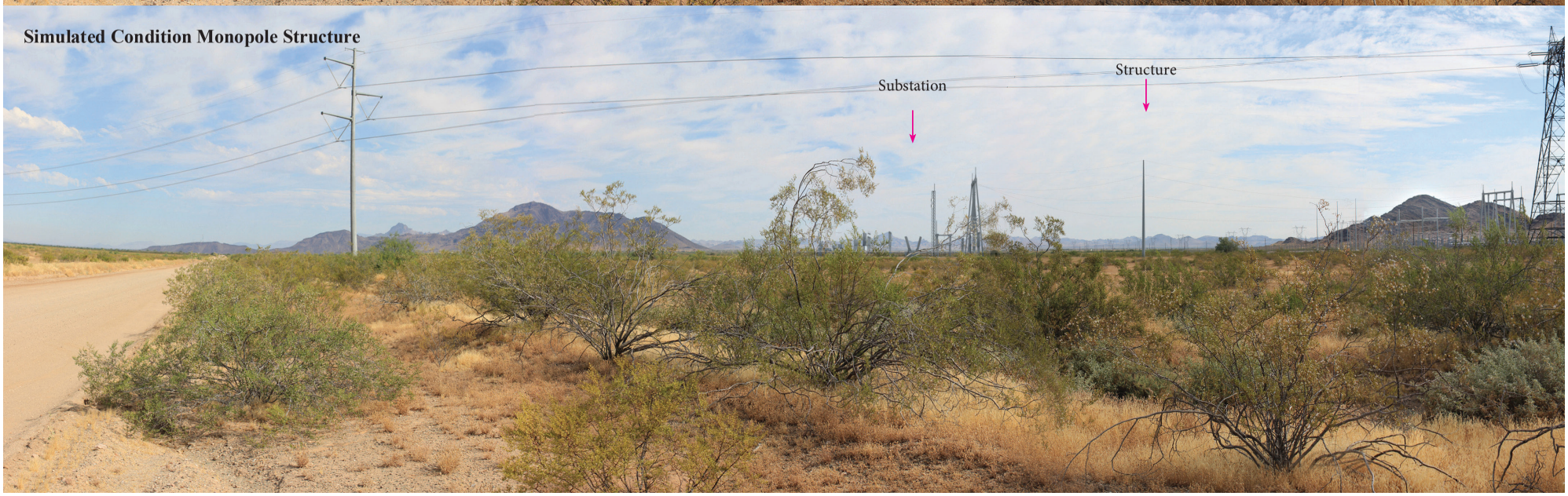


EXHIBIT G-7
KEY OBSERVATION POINT 4

RE PAPAGO SOLAR

Gen-tie Project

KOP 04

Camera

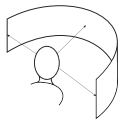
- Camera: Canon t3i Rebel
- Sensor: APS-C, 22.3 mm x 14.9 mm
- Lens: Canon 18-55 mm
- Focal length: 35 mm
- 35 mm equivalent focal length: 52 mm
- Camera height: 5.5 ft
- F-stop: 8
- ISO: 100

KOP

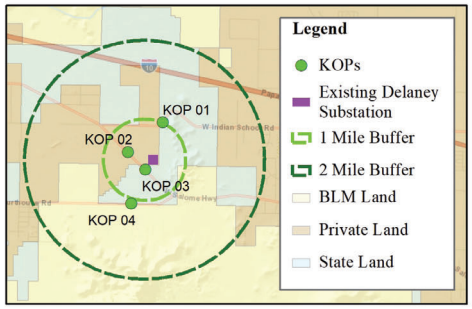
- Representative of view for: Viewers in automobiles and other recreation viewers traveling eastbound along W Courthouse Road
- Location: This is located along W Courthouse Road approximately 1.1 miles west of the junction with W Salome Highway, UTM Coordinates (NAD83 Zone 12 N): 310088 E, 3704675 N
- View Point Elevation at Eye Level: 1,236 ft
- Looking: North
- Project visibility from KOP: The substation and new pole would be visible

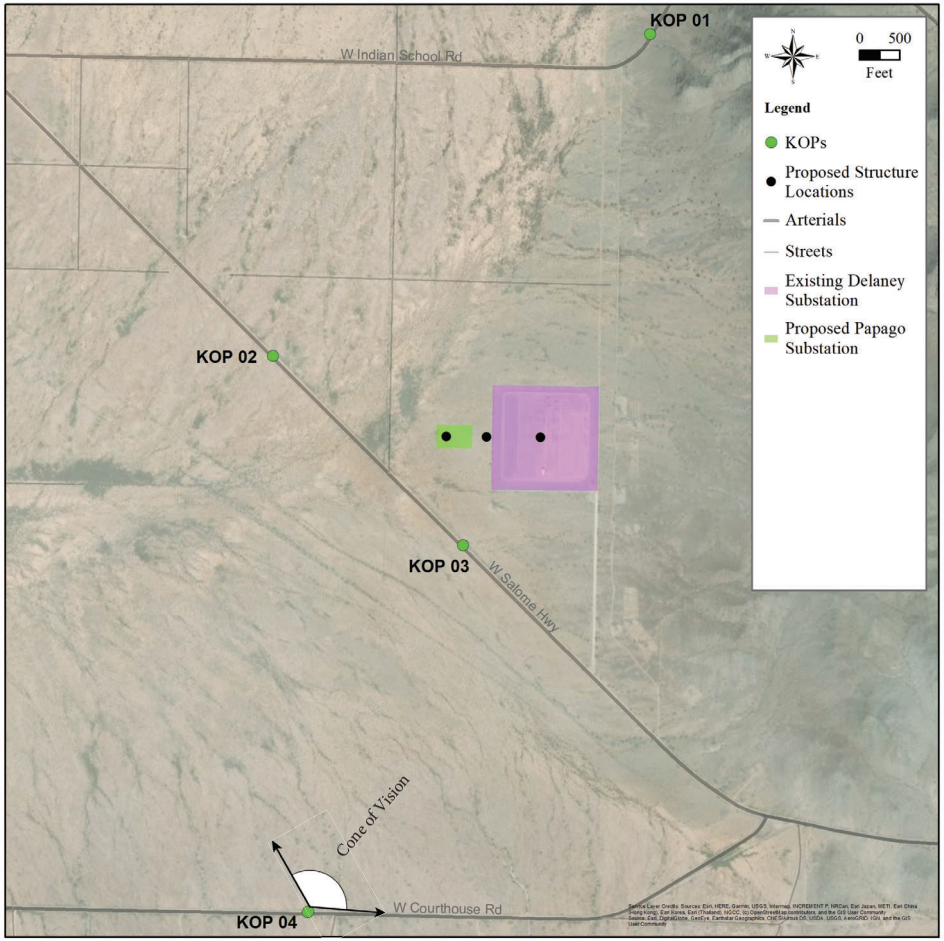
Simulation Notes

- Photo taken 6/5/2020, 9:35 AM
- The base image is multiple stitched images intended to represent an approximately 124 degree horizontal field of view.
- This view is approximately 1.2 miles south of the proposed project
- Arrows are pointing to structures visible in this simulation.
- The simulation is based on the best information available. Preliminary and subject to change based on final engineering and other factors.
- The simulation should be held approximately 23 inches from face when printed on 11x17 paper. If viewed digitally, measure the width of the image in inches and divide by 0.7 to determine viewing distance.



Recommended Viewing Configuration





Current Condition

Simulated Condition H-Frame Structure

Current Condition

Simulated Condition 3-Pole Structure

Current Condition

Simulated Condition Monopole Structure

EXHIBIT H

EXISTING PLANS FOR THE PROJECT AREA

EXHIBIT H—EXISTING PLANS FOR THE PROJECT AREA

As stated in Arizona Administrative Code R14-3-219:

> *To the extent Applicant is able to determine, state the existing plans of the state, local government, and private entities for other developments at or in the vicinity of the proposed site or route.*

Federal, State, and Local Government Plans

The Project is located on private land under the jurisdiction of Maricopa County. Information regarding the plans of nearby federal and state lands were reviewed as well as information regarding the local government (Maricopa County) plans.

The BLM manages the nearby federal land outside of the Project area. As described in **Exhibit F**, the Saddle Mountain area is managed as an ERMA for specific recreation purposes.

The ASLD information on their public website states that Arizona State Trust lands are managed to obtain their highest and best use and to maximize their financial return to the State Trust beneficiaries. This means that individual parcels may remain undeveloped; sold for development; leased for commercial, agricultural, grazing, or mineral uses; or be open for approved activities under a recreational or special-use permit. The neighboring ASLD lands that are closest to the Project vicinity were reviewed and are identified as being under a current grazing lease. The immediate adjacent neighboring parcels are not identified as currently available for sale and are not identified in the current ASLD auction schedule.

Maricopa County's plans for the lands in the vicinity of the Project are described in **Exhibit A** and more specifically shown on **Exhibits A-3**, **A-3a**, and **A-4**. The proposed Project is consistent with Maricopa County plans. The Project area was approved under Major and General CPAs in December 2019 and January 2020, respectively, and is currently under application for a Zone Change with Industrial Overlay permit (anticipated in early 2021).

Private Entity Plans

Residential Development

There are no planned residential developments within the vicinity of the Project.

Utilities

There is existing and proposed utility infrastructure in the immediate and surrounding vicinity of the proposed Project, including the Delaney Substation (existing); the Harquahala Gas Generating Facility gen-tie line (existing); the Devers to Palo Verde, Palo Verde to Delaney, and Delaney to Sun Valley transmission lines (existing); and the Ten West Link project (proposed).

Potential Effects

The Project would have no effects on government plans or private development in the Project vicinity. There would be no effects to existing or proposed uses of federal or state land. There would be no effects to proposed residential or utility development. The Applicant is working directly with DCRT for the Ten West Link project regarding the engineering for both projects' proposed connections to the Delaney Substation.

EXHIBIT I

NOISE AND COMMUNICATION INTERFERENCE

EXHIBIT I—NOISE AND COMMUNICATION INTERFERENCE

As stated in Arizona Administrative Code R14-3-219:

> *Describe the anticipated noise emission levels and any interference with communication signals which will emanate from the proposed facilities.*

This section discusses potential noise, radio and television interference, and electric and magnetic fields associated with the Project. Corona discharge from electrical transmission lines generates audible noise as well as radio and television interference. Currently, voltage associated with electric transmission lines transmits energy and produces magnetic and electric fields.

Corona

Corona is a luminous discharge that emanates from an energized conductor due to ionization of the surrounding air and is caused by a voltage gradient which exceeds the breakdown strength of air. Corona is a function of the voltage gradient at the conductor surface. This voltage gradient is controlled by engineering design and is a function of voltage, phase spacing, conductor diameter, conductor bundle, height of conductors above ground, line geometry, and meteorological conditions. In particular, irregularities on the surface of the conductor such as nicks, scratches, contamination, insects, and water droplets increase the amount of corona discharge. Consequently, corona discharge increases during periods of rain and foul weather. This corona activity contributes to a small increase in power loss and is the source of transmission line audible noise and radio and television interference. Successful operation of 500-kV transmission lines with similar gradients indicates that the gen-tie line would only create modest corona effects.

Audible Noise

Transmission Line

Audible noise associated with transmission lines is a result of corona discharge and is a function of line voltage. The amount of audible noise is directly related to the level of corona activity which in turn is affected by the conductor's physical condition and contamination and meteorological conditions, most notably rain. Transmission line audible noise is characterized by crackling, frying, sputtering, and low-frequency tones (humming sounds). Audible noise from transmission lines primarily occurs during foul weather conditions. Audible noise increases during dust storms or rain events, although it is generally masked by the background noise of rain and wind. In dry or fair weather conditions, the conductors operate below the corona-inception level, and noise is typically inaudible or only slightly audible at the edge of the transmission line right-of-way.

For a 500-kV transmission line on a steel pole in the vertical conductor configuration, the calculated audible noise values at the edge of the right-of-way are as follows:

Fair Weather Range—6.4 to 35.9 A-weighted decibels (dB[A])
Wet Conductors 50-Rain—46.1 dB(A)
Heavy Rain L5-Rain—55.9 dB(A)

The transmission line noise will be minimal at the edge of the right-of-way during fair weather. Considering the relatively few hours of audible noise-producing weather that occurs in the Project area, the location of the proposed Project alignment in a non-residential land use area, and the calculated audible noise levels during foul weather, no serious audible noise problems are expected even during foul weather.

Existing ambient noise near the Project includes noise from transportation along public roads, aircraft noise, and noise from agricultural activities. There are no residences in the nearby vicinity where construction noise would be audible. Noise from construction activities would be audible to travelers along Salome Highway, Indian School Road, and Courthouse Road; however, this construction noise is not considered to be a major impact as travel along Salome Highway would be brief when passing near the construction area and construction itself would be temporary and would primarily occur during daytime hours when tolerance to noise is generally higher.

Construction work would follow the Maricopa County Hours of Construction Ordinance for non-residential areas. This states all construction work in Commercial and Industrial zones not within 500 feet of Rural or Residential zones as per the Maricopa County Zoning Ordinance or within any zone but not within 1,500 feet of an occupied residence shall not begin prior to 5:00 AM and must stop by 10:00 PM.

Substation

The major sources of audible noise associated with a substation are the transformers. The predominant noise from a transformer is a hum, comprised of sound within the frequency range of the human ear, 75 hertz (Hz) to 1200 Hz. The transformer sound level is specified at the time of purchase, and the specified sound level is controlled by the design and manufacturing of the transformer. The specifications for a transformer require a design in compliance with the sound level limits specified by industry standards, governing regulations, or local ordinances. Disconnect switches and circuit breaker operations create momentary but very infrequent noise.

Knowledge of the sound level limits before the equipment is purchased ensures that the noise measured at the substation boundary will conform to any ordinance applicable to residential, commercial, or industrial areas adjacent to the substation. Electrical apparatus designs and, in rare instances, the applications of sound abatement apparatus inside the substation are used to meet the noise level requirements.

Based on the Applicant's experience with designing similar substations, no serious problems with audible noise are anticipated from the construction and operation of the proposed substation.

Radio Interference

High-voltage transmission line radio frequency noise is not expected to be noticeable outside the immediate vicinity of the transmission lines. Radio interference is most likely to affect the amplitude modulation (AM) broadcast band; frequency modulation (FM) radio is rarely affected by transmission lines. Only AM receivers located immediately adjacent to the transmission line have the potential to be affected by radio interference, and the effect may only be significant during rainy weather.

The radiated noise field intensity diminishes with increasing frequency. At frequencies above 30 megahertz (MHz), the radiated noise field intensity is so low that it is difficult to detect; therefore, FM radio reception and cellular telephone communication are above the frequency range where radio interference has been experienced with previous projects, and no objectionable interference is expected from the Project. At the frequency range of FM radio or above, any rare instance of interference would generally be due to microsparks, which can be identified and corrected.

The Applicant is ready to address radio interference resulting from construction and operation of the proposed transmission line with corrective measures, such as smoothing nicks on the conductor surface or tightening hardware, which can be implemented to eliminate radio interference complaints. In addition to any transmission repairs, relevant corrective actions may include adjusting or modifying receivers;

adjusting, repairing, replacing, or adding antennas; antenna signal amplifiers; filters or lead-in cables; or other corrective actions. Based on the design parameters and physical configuration of the proposed facilities for the Project, no objectionable noise or interference with radio signals is anticipated.

Television Interference

Television signals are broadcast at frequencies from 54 MHz to approximately 700 MHz, with the FM radio band falling between channels 6 and 7, so television interference (TVI) is not expected; historically, the number of cases of TVI have been small and limited. Similar to radio interference, TVI results from microsparks, which can be identified and corrected; however, based on the design parameters and physical configuration of the proposed facilities, no objectionable noise interference with television communication signals is anticipated.

Electric and Magnetic Field Effects

Electric and magnetic fields (EMF) are produced by power lines; these fields will induce voltages and currents on nearby conductive objects. EMF exist around overhead and underground power lines, house wiring, computers, power tools, appliances, and anything that carries or uses electricity.

The gen-tie line will be a source of EMF along the transmission line right-of-way. The strength of the electric field is a function of the line voltage. The magnetic field is directly proportional to the conductor load current and is affected by the line geometry, direction of power flow, circuit phasing, and distance from the conductors. These fields decrease with distance from the line.

With regard to electric fields, the Applicant will meet the provisions of the National Electric Safety Code (NESC). The transmission line will be designed to limit the steady-state current on conductive objects due to the electric field to five milliamperes or below. The NESC limit applies to the largest anticipated truck or vehicle under the line, short-circuited to ground.

Magnetic field profiles will vary depending on the structure design (single or double circuit and conductor arrangement), the amount of power being transmitted, and the height of the conductors above ground. The magnetic field profiles for all structure and design options being considered would not present a safety issue meriting consideration in the selection of structure design type. The fields associated with the Project's transmission lines are anticipated to be comparable to other already-existing transmission lines of this voltage in the state.

There have been extensive studies regarding the health effects of EMF, and the weight of scientific evidence does not support the conclusion that these fields are a human health hazard. Two major reports reflecting these findings are the U.S. National Academy of Sciences report in 1996 (NAS 1996) and the National Institute of Environmental Health Sciences report in 1999 (NIEHS 1999).

References

National Academy of Sciences (NAS). 1996. Possible Health Effects of Exposure to Residential Electric and Magnetic Fields. National Research Council.

National Institute of Environmental Health Sciences (NIEHS). 1999. Health Effects from Exposure to Power-Line Frequency Electric and Magnetic Fields.

EXHIBIT J

SPECIAL FACTORS

EXHIBIT J—SPECIAL FACTORS

As stated in Arizona Administrative Code R14-3-219:

> *Describe any special factors not previously covered herein, which Applicant believes to be relevant to an informed decision on its application.*

Exhibit J-1 Public Notification Signs
Exhibit J-2 Public Outreach Letters and Mailing List
Exhibit J-3 *West Valley View* Newspaper Advertisement
Exhibit J-4 Open House Materials
Exhibit J-5 Public Responses

Public Notification Process

There was a thorough public outreach program conducted for the Solar Facility that was begun in the summer of 2019. This included public contact that the Applicant initiated to inform the public of the proposal as well as that conducted as part of the public notification process required by Maricopa County for the Major and General CPAs and for the application for a Zone Change with Industrial Unit Plan of Development overlay.

In September 2020, the public was notified of the Applicant's intent to file an application for a CEC for the substation and gen-tie line on private land just west of the Delaney Substation. The public received written notification along with a map of the proposed Project substation and transmission line and was provided with an opportunity to provide written comments or ask any questions.

In April 2021, the public was again notified of the current status of the Applicant's intent to file an application for a CEC. The public again received written notification along with a map of the proposed Project substation and transmission line and was provided with an opportunity to provide written comments or ask any questions.

Means of Contact

Multiple means of contact were used to inform the public of the Solar Facility Project, including notification to affected stakeholders via posted signs, mail, and a public open house and opportunities for personal communication via email, phone conversations, and door-to-door outreach. Further written outreach occurred to notify the public of the portion specific to the CEC application. **Table 6** provides a chronological summary of the means of contact, dates and times, and applicable locations of all contact with affected stakeholders.

TABLE 6
SUMMARY OF PUBLIC OUTREACH

Means of Contact	Date Initiated	Summary
Public Notification Signs (**Exhibit J-1**)	June 25, 2019	Three signs were installed in the Solar Facility Project area notifying the public of the Major CPA application and public hearings. Other information on the signs included the date for the public meeting, the Project-dedicated email address, and the hotline phone number for interested parties to voice their concerns and find more information about the Solar Facility Project.
Public Participation	June 28, 2019	The Applicant mailed 97 letters to inform affected stakeholders of

TABLE 6 SUMMARY OF PUBLIC OUTREACH		
Means of Contact	**Date Initiated**	**Summary**
Process Notification Letters (Major CPA) (**Exhibit J-2**)		the Major CPA. Letters were sent to stakeholders within 300 feet of the Solar Facility Project site parcels. In addition, letters were sent to landowners in the nearest residential community outside of the 300-foot buffer because they may be affected and have interest in the Solar Facility Project. The letter contained information describing the Solar Facility Project and invited comments, suggestions, questions, or concerns. Responses were made available in a variety of formats including email, traditional letter, or in person at the public open house meeting.
In-Person Follow Up to Initial Letters	July 2–3, 2019	Applicant representatives followed up in person on the letters of June 28, 2019 by canvassing the residential areas in the Project vicinity. They were in contact with seven residents during this visit to the area.
Public Notification of Open House and Public Comment Period (**Exhibit J-2**)	August 7, 2019	The Applicant mailed 97 letters notifying stakeholders of the public open house meeting and notifying them of the public comment period for the Solar Facility Project. The letters contained the date, time, and place of the public open house meeting and when the public comment period was open (August 7 to September 6, 2019).
West Valley View Newspaper Advertisement (**Exhibit J-3**)	August 7, 2019 August 14, 2019	Information about the public open house meeting and the public comment period, in addition to a brief Project description, was published in a newspaper advertisement in the *West Valley View* newspaper.
Public Open House Meeting (**Exhibit J-4**)	August 21, 2019 5:00–8:00 PM	A public open house meeting was hosted by the Applicant at the Harquahala Valley Fire District Administration Building in Tonopah, Arizona. Information was presented buffet-style on display boards stationed throughout the room. Displays included a description of the Solar Facility, illustrations of how solar energy and battery storage work, and the Applicant's company profile. A supplemental interactive map using Google Earth and a large-scale, hard-copy Project area map were provided to allow participants an opportunity to view the Solar Facility Project area relative to the surrounding area. Transcon and the Applicant's representatives were present to address questions and comments from attendees. Official pre-addressed comment cards that could be submitted at the meeting or by mail were provided.
Public Participation Process Notification Letters (General CPA) (**Exhibit J-2**)	November 1, 2019	The Applicant mailed 97 letters to inform affected stakeholders of the General GCPA. Letters were sent to the same stakeholders as those notified for the Major CPA notifications. The letters contained information describing the Solar Facility Project and invited comments, suggestions, questions, or concerns. Responses were made available in a variety of formats including email and traditional letter.
Public Notification Signs (**Exhibit J-1**)	November 22, 2019	The Applicant posted signs notifying the public of the application for a zoning change and public hearings.
Public Participation Process Notification Letters (**Exhibit J-2**)	November 22, 2019	The Applicant mailed letters to inform affected stakeholders of the application for a Zone Change with Industrial Overlay. Letters were sent to stakeholders within 300 feet of the Solar Facility Project boundaries as well as landowners in the nearest residential community outside of the 300-foot buffer because they may be affected and have interest in the Solar Facility Project. The letters

TABLE 6 SUMMARY OF PUBLIC OUTREACH		
Means of Contact	**Date Initiated**	**Summary**
		contained information describing the Solar Facility Project and invited comments, suggestions, questions, or concerns. Responses were made available in a variety of formats including email or traditional letter.
Public Website	April 29, 2020	The Applicant made a website available for the public to learn more about the Solar Facility Project. The website included an email and phone number for contacting the Applicant.
Public Notification Signs	August 11, 2020	The Applicant posted 27 additional signs notifying the public of the application for a zoning change and public hearings.
Public Notification Letters for Proposal to file CEC Application (**Exhibit J-2**)	April 23, 2021	The Applicant mailed letters notifying the public of their proposal to file an application for a CEC for the substation and gen-tie line. The letters included a map showing the Project location. The letters provided the opportunity for public responses and questions via written mail or e-mail. The letters also provided the public an update on the status of Zone Change with Industrial Overlay Application for the Project.
Maricopa County Supervisor Notification of CEC and Zone Change Applications	April 30, 2021	The Applicant notified Maricopa County District 4 Supervisor Clint Hickman and District 5 Supervisor Steve Gallardo of the upcoming CEC and filed Zone Change applications for the Project.

Public Process Participants

There were 19 people that participated in the public participation process. The following is a general summary of those participants and where they are located:

- Five people attended and signed in at the public open house meeting, after which one official comment card was received via mail
- Six people contacted the available hotline number and/or email address
- During door-to-door canvassing and outreach, the Applicant representatives spoke directly with seven residents
- One additional letter was received regarding the Major Comprehensive Plan Amendment after submittal of the Zone Change Application to the County and prior to the Board of Supervisors approval of the Major Comprehensive Plan Amendment in December 2019

The majority of the participants were residents and landowners located in the area directly surrounding or encompassed by the Solar Facility Project. Exceptions to this included one participant who attended the public open house meeting and is from Eagletail Ranch, west of the Project, and a letter received from another solar developer in the area whose company is based out of New Jersey. No participants in the public process own land adjacent to the Project area under this CEC application.

Public Process Results

Throughout the entire public participation process, the majority of participants expressed support for the Solar Facility Project. One email was sent to Maricopa County in outright opposition to the Solar Facility Project, although the concerns of this individual have since been resolved by the Applicant. Other concerns voiced during the door-to-door canvassing outreach but not formally submitted included concerns

expressed about impacts related to visual resources, construction traffic, dust and construction noise, and an increase in population. These concerns were expressed with regard to the entire Solar Facility Project. There were no concerns expressed regarding the Project substation or gen-tie line.

Federal and State Agency Contact

The BLM and the ASLD were included in all mailing lists for the public process notification letters. There were no responses received from the BLM or the ASLD regarding the Project or the substation and gen-tie line.

EXHIBIT J-1
PUBLIC NOTIFICATION SIGNS

MARICOPA COUNTY NOTICE OF MAJOR COMPREHENSIVE PLAN AMENDMENT and PUBLIC HEARINGS

PLANNING & ZONING COMMISSION: 9:30 am on November 7, 2019
BOARD OF SUPERVISORS: 9:00 am on December 11, 2019
(BOS date subject to change-contact the Planning & Zoning Division for verification)

LOCATION OF HEARINGS:
205 W. Jefferson Street Phoenix, Arizona (BOS Auditorium)

REQUEST:
Comprehensive Plan Amendment from Rural Density
(0-1 d.u.ac.) to Utilities

PROPOSAL:
Utility-Scale Photovoltaic Solar Energy Generation
and Storage Project

GENERAL LOCATION:
Western Maricopa County, south of Interstate 10 approximately 5.5 miles west of Tonopah, Arizona.

Size: 2,277 acres

Case #: CPA2019004

Owner or Authorized Agent:
RE Papago LLC - Marina Solomon, Development Manager
(623) 321-2801 / Papago_Solar@recurrentenergy.com
Planning & Zoning Division:
(602) 506-3301
Pdplanner@mail.maricopa.gov

Posting Date: June 28, 2019

MARICOPA COUNTY NOTICE OF
ZONING REQUEST
and
PUBLIC HEARINGS

PLANNING & ZONING COMMISSION: 9:30 am on (TBD) _____
BOARD OF SUPERVISORS: 9:30 am on (TBD)_____
(BOS date subject to change-contact the Planning & Zoning Division for verification)

LOCATION OF HEARINGS:
205 W. Jefferson Street Phoenix, Arizona (BOS Auditorium)

REQUEST:
Zone Change from Rural-43 (1ac./d. u.) to IND-2 IUPD
(Light Industrial with Industrial Unit Plan of Development Overlay)

PROPOSAL:
Utility-Scale Photovoltaic Solar Energy Generation and Storage Project

GENERAL LOCATION:
Western Maricopa County, south of Interstate 10 approximately 5.5 miles west of Tonopah, Arizona.

SIZE APPROX: 2,791.2 acres

CASE #: Z2019121

OWNER OR AUTHORIZED AGENT:
RE Papago LLC - Marina Solomon, Development Manager
(623) 321-2801 / Papago_Solar@recurrentenergy.com

PLANNING & ZONING DIVISION (602) 506-3301 / Pdplanner@mail.maricopa.gov

Posting Date: August 5, 2020

EXHIBIT J-2

PUBLIC OUTREACH LETTERS AND MAILING LIST

RECURRENT ENERGY
A subsidiary of Canadian Solar

3000 Oak Road, Ste. 300
Walnut Creek, CA 94597

P + 1 415.675.1500

www.recurrentenergy.com

COVER LETTER SENT TO LANDOWNERS WITHIN THE PROJECT

June 28, 2019

Name
Address
City, State ZIP

RE: RE Papago LLC 300 MW Solar Photovoltaic Power and Energy Storage Facility Project
Public Participation Process Notification Letter

Dear Name,

We want to let you know that Recurrent Energy is taking an important step to make our 300-megawatt RE Papago LLC solar photovoltaic and storage project a reality – we are applying for Maricopa County permits to construct our project on land including your parcel. Our first step in this process was to submit an application for a Comprehensive Plan Amendment (CPA), on May 29, 2019. The CPA application will be reviewed by the Maricopa County Planning and Zoning Commission at a public hearing which we anticipate will take place November 7, 2019, after which the CPA will be reviewed by the Maricopa County Board of Supervisors at a hearing in December 2019. We also plan to submit an application for a zoning change in the next few months.

For the CPA application, the County requires us to notify all landowners within a 300-foot radius of our total project site area by mailing a Notification Letter of the proposed change to the Comprehensive Plan. Enclosed please find a copy of this notice.

We want to make sure you have a chance to ask any questions you have about our project or plans, so please feel free to contact either of us over email or by phone. We appreciate you partnering with us and your support of the project while we work to obtain the necessary permits from the County.

Best Regards,

Marina Solomon
Development Manager
Marina.Solomon@RecurrentEnergy.com
(415) 501-9512

Zach Erbe
Senior Manager, Sites
Zach.Erbe@RecurrentEnergy.com
(415) 967-3437

RECURRENT ENERGY
A subsidiary of Canadian Solar

3000 Oak Road, Ste. 300
Walnut Creek, CA 94597

COVER LETTER SENT TO LANDOWNERS 300' OUTSIDE OF THE PROJECT

June 28, 2019

Name
Address
City, State Zip

RE: RE Papago LLC 300 MW Solar Photovoltaic Power and Energy Storage Facility Project
Public Participation Process Notification Letter

Dear Name,

I am the project development lead and main point of contact for a 300 megawatt utility scale photovoltaic solar and storage project Recurrent Energy is proposing north of W Courthouse Road near your property. You will find enclosed a public notice for the project with further details.

We look forward to answering any questions you may have about this project as it progresses through the Maricopa County permitting process.

Please feel free to email or call me at the contact information provided below. I will be in the area next Tuesday, July 2nd if you would like to meet in person.

Best Regards,

Marina Solomon

Marina Solomon

Phone: (623) 321-2801
Email: Marina.Solomon@RecurrentEnergy.com
Company Website: www.recurrentenergy.com

Planning & Development Department

PUBLIC PARTICIPATION PROCESS NOTIFICATION L ETTER

REQUEST: Comprehensive Plan Amendment

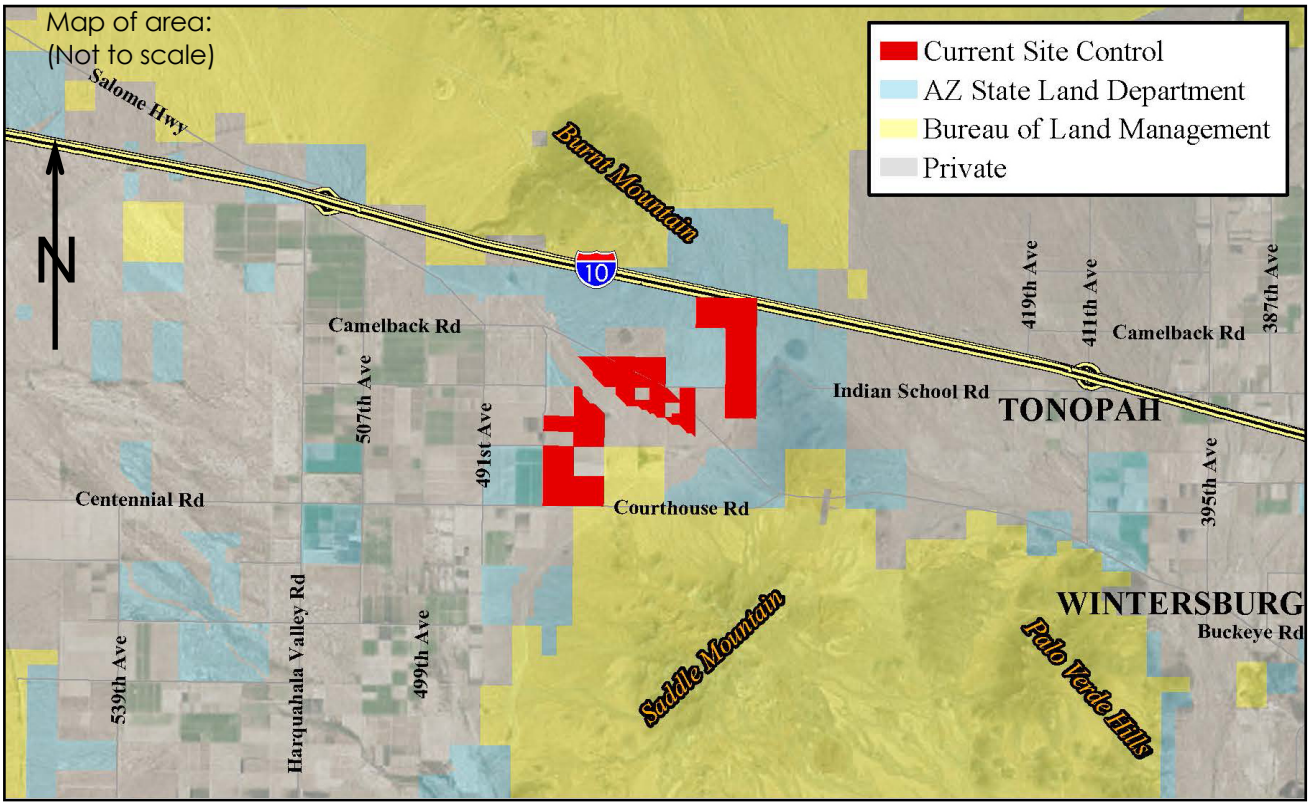
PURPOSE: Utility-Scale Photovoltaic Solar Energy Generation and Storage Project

LOCATION: Western Maricopa County, south of Interstate 10 (I-10) approximately 5.5 miles west of the community of Tonopah, Arizona

SIZE: 2,277 acres

OWNER/AUTHORIZED AGENT: RE Papago LLC / 3000 Oak Road, Walnut Creek, CA 94597

CONTACT PERSON: Marina Solomon, Development Manager / (623) 321-2801
Papago_Solar@recurrentenergy.com



An application has been filed with the Maricopa County Department of Planning and Development regarding the request above.This notice is being sent to you because property listed in your name is located within 300 feet of the site noted above. This notice is being sent to you to inform you of this application and to provide you with an opportunity to relay any questions, issues or concerns regarding this application to the contact person listed in the top box of this page.

THIS IS NOT A NOTICE OF A PUBLIC HEARING WITH THE PLANNING AND ZONING COMMISSION OR COUNTY BOARD OF SUPERVISORS. HOWEVER, YOU MAY RECEIVE SUCH A NOTICE AT A FUTURE DATE IF THE APPLICATION IS SCHEDULED FOR HEARING.

RECURRENT ENERGY
A subsidiary of Canadian Solar

3000 Oak Road, Ste. 300
Walnut Creek, CA 94597

P + 1 415.675.1500

www.recurrentenergy.com

August 7, 2019

Name
Address
City, State Zip

Subject: **RE Papago LLC 300 MW Solar Photovoltaic Power and Energy Storage Facility Project Public Meeting Notification Letter**

Dear Name:

RE Papago LLC, a wholly owned subsidiary of Recurrent Energy, is planning to construct a photovoltaic (PV) solar energy generation and storage facility in unincorporated Maricopa County. The proposed project consists of a 300-megawatt (MW) PV solar energy generation and 1,200 MW-hours of energy storage located on approximately 2,300 acres located roughly 5.5 miles west of the community of Tonopah, Arizona, just south of Interstate 10. The project would provide solar-generated electricity to utility customers by interconnecting to the nearby regional electrical grid at Arizona Public Service's existing Delaney Substation.

This letter is to notify you of the project, request comments, and invite you to a public informational meeting to be held on August 21st, 2019 from 5:00 to 8:00 pm at:

Harquahala Fire District Administration Building
51501 West Tonto Street
Tonopah, Arizona 85354

The public meeting will be open-house style, with informative poster boards on display and project representatives available to answer questions about the project. The goal of the meeting is for the project permitting and development team to better understand issues to be aware of during the permitting process. Written comments about the project may be submitted during the public meeting or sent to the address below. All comments must be postmarked by September 6, 2019. Please send or email comments to:

RE Papago LLC
c/o Brian Parker, Transcon Environmental
1745 South Alma School Road, Suite 220
Mesa, Arizona 85210
bparker@transcon.com

Sincerely,

Marina Solomon

Marina Solomon
Development Manager
Recurrent Energy
Papago_Solar@RecurrentEnergy.com
623-321-2801

RECURRENT ENERGY
A subsidiary of Canadian Solar

3000 Oak Road, Ste. 300
Walnut Creek, CA 94597

P + 1 415.675.1500

www.recurrentenergy.com

November 1, 2019

Subject: RE Papago Solar Photovoltaic Power and Energy Storage Project
Notification of Public Participation Process: General Comprehensive Plan Amendment Application

Dear Neighbor,

As you may already be aware, Recurrent Energy submitted an application for a Major Comprehensive Plan Amendment (CPA) for the RE Papago Solar Photovoltaic Power and Energy Storage Project on May 29, 2019. The proposed project consists of a 300 megawatt (MW) PV solar energy generation and 1,200 MW-hours of energy storage located on approximately 2,300 acres located roughly 5.5 miles west of the community of Tonopah, Arizona, just south of Interstate 10 (I-10). The project would provide solar-generated electricity to utility customers by interconnecting to the nearby regional electrical grid at Arizona Public Service's existing Delaney Substation.

We have also submitted an application to the County for a General CPA for the project, in order to add parcels to the overall site, increasing the size of our project footprint. For the General CPA application, as for the Major CPA application, the County requires us to notify all landowners within a 300-foot radius of our total project site area by mailing a Notification Letter of the proposed change to the Comprehensive Plan. Enclosed please find a copy of this notice. You will see on the notice a map which shows the parcels we are proposing to add to the project site footprint.

Please feel free to contact me over email or by phone should you have any questions.

Sincerely,

Marina Solomon

Marina Solomon
Development Manager
Recurrent Energy
Papago@RecurrentEnergy.com
(623) 321-2801

Planning & Development Department

PUBLIC PARTICIPATION PROCESS NOTIFICATION L ETTER

REQUEST: Comprehensive Plan Amendment

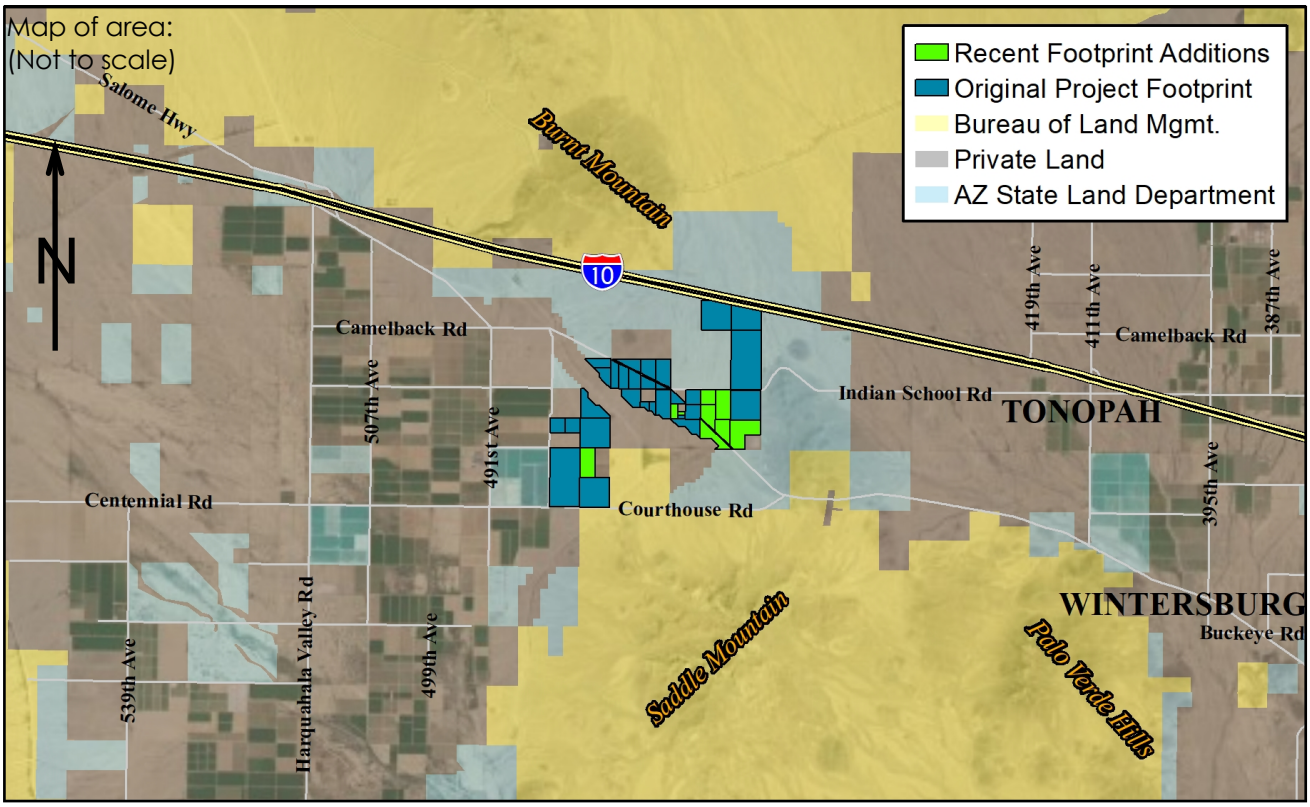
PURPOSE: RE Papago Photovoltaic Solar Energy Generation and Storage Project

LOCATION: Western Maricopa County, south of Interstate 10 (I-10) approximately 5.5 miles west of the community of Tonopah, Arizona

SIZE: 514 acres

OWNER/AUTHORIZED AGENT: RE Papago LLC / 3000 Oak Road, Walnut Creek, CA 94597

CONTACT PERSON: Marina Solomon, Development Manager / (623) 321-2801
Papago_Solar@recurrentenergy.com



An application has been filed with the Maricopa County Department of Planning and Development regarding the request above.This notice is being sent to you because property listed in your name is located within 300 feet of the site noted above. This notice is being sent to you to inform you of this application and to provide you with an opportunity to relay any questions, issues or concerns regarding this application to the contact person listed in the top box of this page.

THIS IS NOT A NOTICE OF A PUBLIC HEARING WITH THE PLANNING AND ZONING COMMISSION OR COUNTY BOARD OF SUPERVISORS. HOWEVER, YOU MAY RECEIVE SUCH A NOTICE AT A FUTURE DATE IF THE APPLICATION IS SCHEDULED FOR HEARING.

RECURRENT ENERGY
A subsidiary of Canadian Solar

3000 Oak Road, Ste. 300
Walnut Creek, CA 94597

P + 1 415.675.1500

www.recurrentenergy.com

November 22, 2019

Subject: RE Papago Photovoltaic Solar Power and Energy Storage Project
Notification of Public Participation Process: Zone Change with Industrial Overlay Application

Dear Neighbor,

As you may already be aware, Recurrent Energy submitted an application to Maricopa County for a Major Comprehensive Plan Amendment (CPA) for the RE Papago Photovoltaic Solar Power and Energy Storage Project on May 29, 2019 and an application for a General CPA on October 3, 2019 in order to add parcels to the overall site and increase the size of our project footprint. The proposed project consists of a 300 megawatt (MW) PV solar energy generation and 1,200 MW-hours of energy storage located on approximately 2,800 acres located roughly 5.5 miles west of the community of Tonopah, Arizona, just south of Interstate 10 (I-10). The project would provide solar-generated electricity to utility customers by interconnecting to the nearby regional electrical grid at Arizona Public Service's existing Delaney Substation.

We recently commenced the next stage of our permitting process, submitting an application to the County on October 31 for a Zone Change with Industrial Overlay for the project. For the Zone Change with Industrial Overlay application, as for the Major CPA and General CPA applications, the County requires us to notify all landowners within a 300-foot radius of our total project site area by mailing a Notification Letter regarding the proposal to change the zoning designation of the included parcels from RURAL-43 to IND-2 Industrial Unit Plan of Development (IUPD). Enclosed please find a copy of this notice.

Please feel free to contact me over email or by phone should you have any questions.

Sincerely,

Marina Solomon

Marina Solomon
Development Manager
Recurrent Energy
Papago@RecurrentEnergy.com
(623) 321-2801

Planning & Development Department

PUBLIC PARTICIPATION PROCESS NOTIFICATION L ETTER

REQUEST: Zone Change from Rural-43 (1 ac. d.u.) to IND-2 IUPD (Light Industrial with Industrial Plan of Development Overlay)

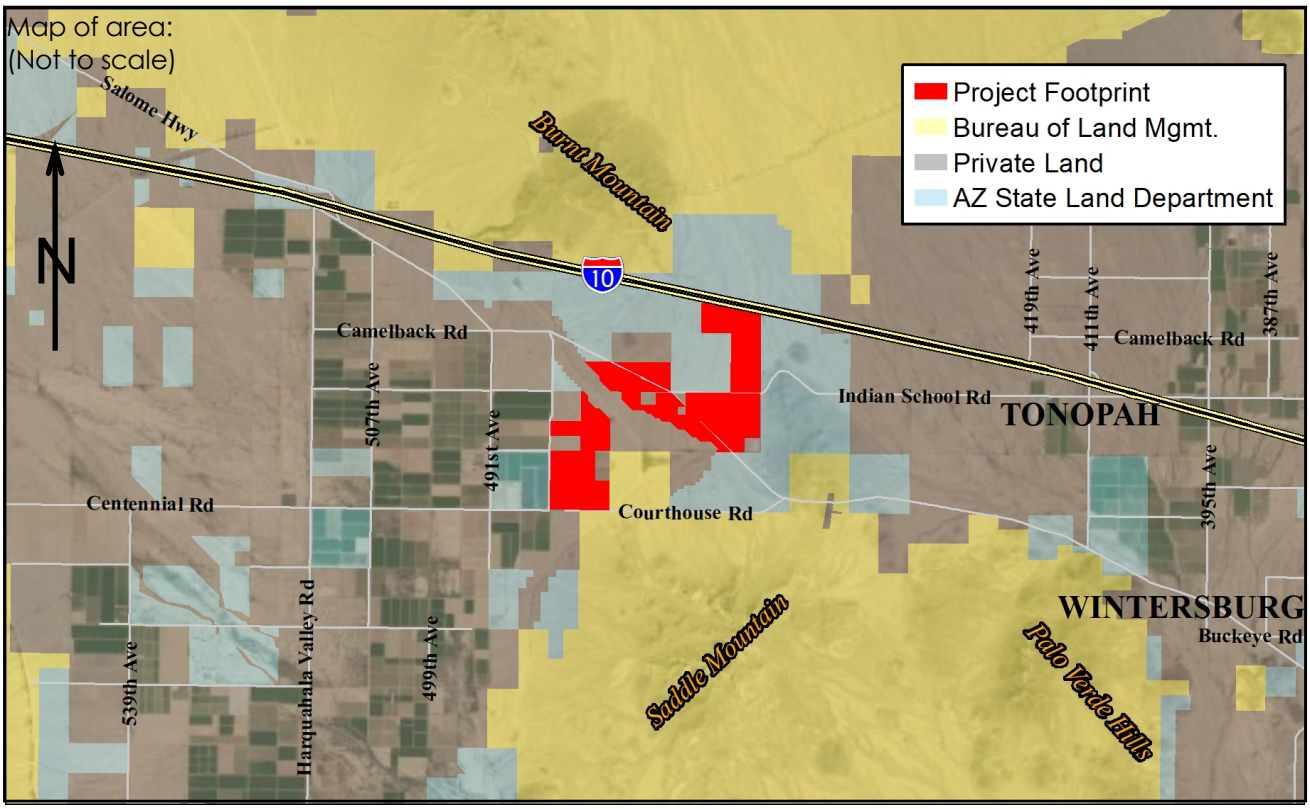
PURPOSE: RE Papago Photovoltaic Solar Power and Energy Storage Facility

LOCATION: Western Maricopa County, south of Interstate 10 (I-10) approximately 5.5 miles west of the community of Tonopah, Arizona

SIZE: 2,791.2 acres

OWNER/AUTHORIZED AGENT: RE Papago LLC / 3000 Oak Road, Walnut Creek, CA 94597

CONTACT PERSON: Marina Solomon, Development Manager / (623) 321-2801
Papago_Solar@recurrentenergy.com



An application has been filed or will be filed shortly with the Maricopa County Department of Planning and Development regarding the request above. As required by the Maricopa County Zoning Ordinance, this notice is being sent to you because property listed in your name is located within 300 feet of the site noted above. This notice is being sent to you to inform you of this application and to provide you with an opportunity to relay any questions, issues or concerns regarding this application to the contact person listed in the top box of this page.

THIS IS NOT A NOTICE OF A PUBLIC HEARING WITH THE PLANNING AND ZONING COMMISSION OR COUNTY BOARD OF SUPERVISORS. HOWEVER, YOU MAY RECEIVE SUCH A NOTICE AT A FUTURE DATE IF THE APPLICATION IS SCHEDULED FOR HEARING.

RECURRENT ENERGY
A subsidiary of Canadian Solar

3000 Oak Road, Ste. 300
Walnut Creek, CA 94597

April 23, 2021

Subject: RE Papago LLC 300 MW Solar Photovoltaic Power and Energy Storage Facility Project Update

Dear Neighbor:

It's been some time since we have sent out an update about our 300-megawatt RE Papago LLC solar photovoltaic energy generation and storage project, and we wanted to share the latest with you. In short, since the last public information letters we sent out (in August and November 2019), there have been no changes to the proposed project, including the project area. We can also report we are making great progress with government approvals.

We have received approval from Maricopa County for a Major Comprehensive Plan Amendment (CPA) and General CPA for the project, and we have also filed application materials with the County for a Zone Change (with Industrial Unit Plan of Development overlay). We plan to submit further details the County has requested regarding the Zone Change application this month.

Additionally, we are filing an application for a Certificate of Environmental Compatibility (CEC) next month with the Arizona Corporation Commission (ACC) for the project's proposed substation and a short 500kV gen-tie transmission line that would connect to the Delaney Substation. The substation would be within an area of up to approximately 7 acres, and the 500kV gen-tie transmission line would be up to 0.3 mile in length, with up to four poles. The substation and transmission line would be located on private land included in the permitted project footprint, in the southeast part of the project area as shown on the map on the reverse side of this letter.

As always, we want to make sure you have a chance to ask any questions you have about our project or plans, so please feel free to contact me over email or by phone. You can also send more formal, written comments or questions about the project, which we will share with the County, to the mailing or email address below. And if you have not yet visited our project website, we invite you to do so: https://recurrentenergy.com/papago/.

RE Papago LLC, c/o Brian Parker
Transcon Environmental
1745 South Alma School Road, Suite 220
Mesa, Arizona 85210
bparker@transcon.com

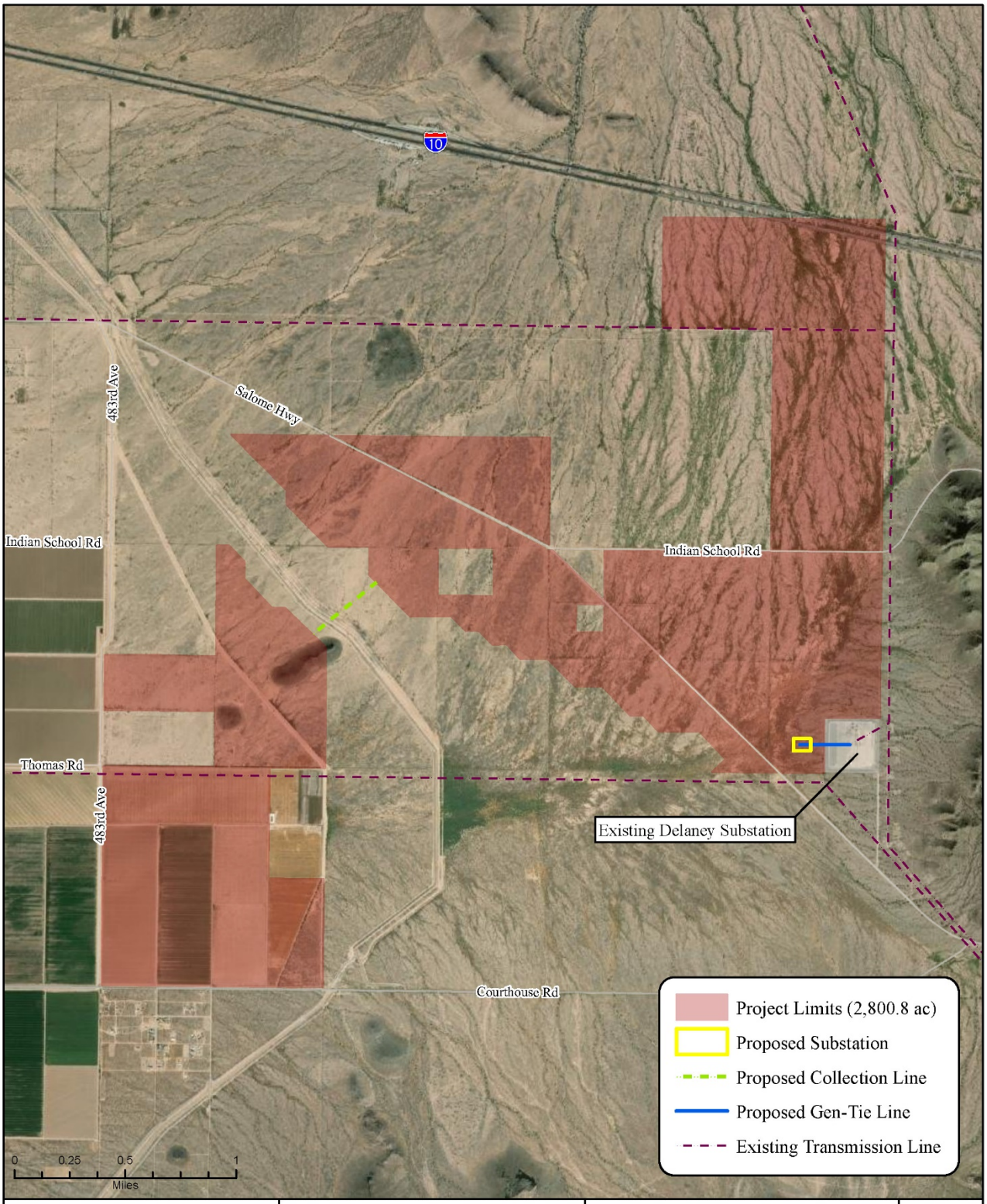
Sincerely,

Marina Solomon

Marina Solomon, Development Manager
Recurrent Energy
Papago@RecurrentEnergy.com
(623) 321-2801

RECURRENT ENERGY
A subsidiary of Canadian Solar

3000 Oak Road, Ste. 300
Walnut Creek, CA 94597



RECURRENT ENERGY A subsidiary of Canadian Solar	Papago Solar Project	Maricopa County, Arizona	N W E S
	Project Overview		

LANDOWNER PARCELS					
Parcel	**Owner**	**Address**	**City**	**State**	**ZIP**
506-31-011F	Parmesh Bhalla	6546 W. Chester Rd.	Glendale	AZ	85310
506-31-059	Brian Scott Glenn	6207 E. Lone Mountain Rd.	Cave Creek	AZ	85331
506-31-014E	IV JFP, LLC	80 E. Columbus Ave.	Phoenix	AZ	85012
506-31-003H	JR Investments 6, LLC	5112 W. Arrowhead Lakes	Glendale	AZ	85308
506-31-061	KGC Land Investments, LLC	139 Eisenhower Ln. N.	Lombard	IL	60148
506-31-012A	The CGM Trust	1608 South 12th Ave.	Safford	AZ	85546
506-31-012A	Gertrude O. Brinkerhoff Trust	1608 South 12th Ave.	Safford	AZ	85546
506-31-003D	Megabit Book Agency, LLC	1902 E. Vista Dr.	Phoenix	AZ	85022
506-31-003F	Mimi 2302, LLC	2302 E. Gardenia Dr.	Phoenix	AZ	85020
506-31-058B	The Northern Trust Company Trustee of the Rohde Family Dynasty Trust	2398 East Camelback Rd.	Phoenix	AZ	85016
506-31-003G	Francis P. Surdakowski Linda M. Surdakowski	14619 N. 14th Dr.	Phoenix	AZ	85023
506-30-013A	Tonopah I-10 451/Indian School 565, LLC	3001 W. Indian School Rd., Ste. 140	Phoenix	AZ	85017
506-30-009C and 506-30-009D	Tonopah Salome, LLC	10 W. Main St., #200	Mesa	AZ	85201
506-31-003B	VGS10SALOME/467AVE160, LLC	2008 N. 94th Ave.	Phoenix	AZ	85037
506-31-011G	Raul and Marcela Sotelo	5237 N. 106th Ave.	Glendale	AZ	85307
506-30-010	L Mill Iron Ranch, LLC	8135 S. 1500 W.	Willard	UT	84340
506-31-007G	Lynn F. Nelles & Nancy J. Foerster	1858 Eton Dr.	Hoffman Estates	IL	60192
506-30-012D and 506-30-012E	411th Avenue LLP	P.O. Box 172	Torquay SK S0C 2LO	Canada	
506-31-060G and 506-31-003C	NNSB Investments 4, LLC	5303 W. Angela Dr.	Glendale	AZ	85308
506-30-022A	W Harquahala, LLC	1121 W. Warner Rd. #109	Tempe	AZ	85384
506-30-023	Melanie Accomazzo, LLC	3202 S. Kimberlee Wy.	Chandler	AZ	85386
506-31-006A	E&R Limited Partnership	1635 N. 25th Ave.	Melrose Park	IL	60160
506-58-132L	Selina Land Investments	1823 E. Windrose Drive	Phoenix	AZ	85022
506-31-006C	Demuro Harquahala	1111 NE Flanders Street, Suite 206	Portland	OR	97232

LANDOWNER PARCELS					
Parcel	**Owner**	**Address**	**City**	**State**	**ZIP**
506-31-060A	Kopec Family Properties LLC	4155 North Lomond	Mesa	AZ	85215
506-31-060F	Land4Less.us LLC	18521 E. Queen Creek Road, Suite #105-502	Queen Creek	AZ	85742
506-31-010B, 506-31-010C, 506-31-010D, 506-31-010E, 506-31-010F	Capital Power	155 Federal Street, Suite 1200	Boston	MA	02110
506-30-022B	Hickman's Egg Ranch, Inc.	6515 Jackrabbit Trail	Buckeye	AZ	85326

NEIGHBORING PARCELS					
Parcel	**Owner**	**Address**	**City**	**State**	**ZIP**
50630026A	Accomazzo Marital Deduction Tr Lse # 01-1610	3825 S 99th Ave	Tolleson	AZ	85353
50631006D	Arizona Public Service Company	PO Box 53999 Ms 9565	Phoenix	AZ	85072
50658132F	Banner Dixie	Po Box 5605	Peoria	AZ	85385
50631058A	Raymond L Baumbach	15430 W Merrell St	Goodyear	AZ	85395
50630011	Paul W and Dorothy S Brinkman	23400 Via Ventura V20	Cupertino	CA	95014
50631038	Alvin L Roberts Sr	12332 W Desert Mirage Cir	El Mirage	AZ	85335
50631035	Terrence L Clark	4713 N Placita De Concha	Tucson	AZ	85745-9683
50629001	CV Harquahala LLC	3549 153rd Ave Se	Casselton	ND	58012
50631011R, 50631011S	Sharon Dahl	Po Box 34	Magrath	AB	T0K1J0
50631036	Ross J Ficarra Jr	5005 W Joann Circle	Glendale	AZ	85308

NEIGHBORING PARCELS					
Parcel	**Owner**	**Address**	**City**	**State**	**ZIP**
50630009B, 50630013B, 50631007F, 50631008B, 50631011A, 50631012B, 50631013, 50631014C	Flood Control District Of Maricopa County	2801W Durango St	Phoenix	AZ	85009
50631011L	Arturo Garcia and Ana Bertha Rodriguez	10235 E Crescent	Mesa	AZ	85208
50631060D	Martin Garnica and Yolanda Lopez	6306 W Hughes Dr	Phoenix	AZ	85043-7576
50658132B, 50658132C	Leodegario Mgener and Salvacion L	6986 Highview Dr	Solon	OH	44139
50630021A	Grandilla(Arizona)Inc/Foot Creek Corp Of Az	8711 E Pinnacle Peak Rd Ste 141	Scottsdale	AZ	85255
50631043E	Robert J and Dawn Hathaway	47312 W Campbell Ave	Tonopah	AZ	85354
50631014D	Hawk Holdings LLC	7564 E Camino Salida Del Sol	Scottsdale	AZ	85266
50631011H, 50631011J, 50631011K, 50631011M, 50631011N, 50631011P	Juan and Artemisa Hernandez	6750 W Windsor	Phoenix	AZ	85035
50631011T	James M and Stephanie J Hogle	547 S 37th St	Mesa	AZ	85206
50630012C	Horan Real Estate Enterprises LLC	Po Box 72505	Phoenix	AZ	85050
50631040	Marvin Lewis and Mary Juanita Horine	4345 E Aztec Rd	Rimrock	AZ	86335-6107
50658132E	Peter Houghton	1525 E Cheryl Dr Unit 1155	Phoenix	AZ	85020
50658021A	Bonnie L Jensen	4414 E Lynne Ln	Phoenix	AZ	85040
50658132L	Kataria 1dw 483 Courthouse 21 LLC	1823 E Windrose Dr	Phoenix	AZ	85022
50630012B	Kumar Vinita	5067 E Lonesome Trl	Cave Creek	AZ	85331
50658126	Eraclio Martinez	Po Box 449	Tonopah	AZ	85354
50631060C	Carlos Jr and Virginia S Mendoza	13327 W Stella Ln	Litchfield Park	AZ	85340
50630024A	Mojave Red River LLC	8711 E Pinnacle Peak Rd Ste 141	Scottsdale	AZ	85255

NEIGHBORING PARCELS					
Parcel	**Owner**	**Address**	**City**	**State**	**ZIP**
50631014F, 50658132H	New Century Inc	3283 N 162nd Dr	Goodyear	AZ	85395
50658132J	Laureen M and Meduna Marcie E O'neill	3703 First Ave East	Williston	ND	58801
50631058C	Domarina Oshaana	15028 W Elko Dr	Surprise	AZ	85374
50631011D	Perpetual Horizon LLC	1039 S Maple St	Mesa	AZ	85206
50631034	Tim S Pruitt	18649 N 23rd Ave	Phoenix	AZ	85027
50630022B	Queen Creek Ten Inc	P O Box 8173	Cave Creek	AZ	85327
50631041B	Steven G Rasmussen	7749 W Windsor Blvd	Peoria	AZ	85381
50631042A, 50631042B	A J and Irene Santistevan and Genaro Maestas	4425 Ponce De Leon Blvd 4th Floor	Coral Gables	FL	33146
50631037	Brian Tondryk	1411 S Roselle Rd	Schaumburg	IL	60193
50631044A	Geoffrey B Truxal	6755 Pine Cone Rd	Granite Bay	CA	95746
50658132D, 50658132G, 50658132K	Verma 1dw 483 Courthouse 9 LLC	2375 E Camelback Rd Ste 600	Phoenix	AZ	85016
50631039	Vishnu Investments LLC	2375 E Camelback Rd Ste 600	Phoenix	AZ	85016
50631043A	Vanrick Washington	3325 W Encanto Blvd	Phoenix	AZ	85009
50631041A	Washington-Pell Trust	1112 W Le Marche Ave	Phoenix	AZ	85023-4428
50631014G	Westridge Auto Plaza Inc	3855 W Ray Rd 3	Chandler	AZ	85226
50631044B	Tina M Williams	1540 S 177th Ave	Goodyear	AZ	85338
50658127, 50658128, 50658129, 50658130, 50658131	Yandell LLC	11366 S Indian Wells Dr	Goodyear	AZ	85338
N/A	BLM Phoenix District Office	21605 N 7th Ave	Phoenix	AZ	85027
N/A	ASLD	1616 W Adams St	Phoenix	AZ	85007

ADDITIONAL LANDOWNERS NOTIFIED					
Parcel	**Owner**	**Address**	**City**	**State**	**ZIP**
506-58-125A	Martinez Eraclio/Ramos Maria	48238 W Willetta St, PO Box 449	Tonopah	AZ	85354
506-58-114D	Alvarez Jose /Elena	1256 N 481st Ave	Tonopah	AZ	85354
506-58-123D	Rybka David	48140 W Willetta St	Tonopah	AZ	85354
506-58-006	Sandoval Gerardo	47938 W Willetta St	Tonopah	AZ	85354
506-58-117B	Cereceda Ramon /Reyna Juan	48238 W Belleview St	Tonopah	AZ	85354
506-58-114B	Rediger Melvin	1268 N 481st Ave	Tonopah	AZ	85354
506-58-114E	Rediger Jason	1254 N 481st Ave	Tonopah	AZ	85354
506-58-009B	Randel David /Joy	48043 W Willetta St	Tonopah	AZ	85354
506-58-009A	Jimenez Ruben /Maria	48031 W Willetta St	Tonopah	AZ	85354
506-58-005P	Galvin Miguel	48226 W Belleview St	Tonopah	AZ	85354
506-58-005N	McKimmy Jonathan /Kristina	47938 W Belleview St	Tonopah	AZ	85354
506-58-013A	Dalley Christopher/Kimmel	47914 W Belleview St	Tonopah	AZ	85354
506-58-267	Donathan Dale/Segrist Betty	48114 W Portland St	Tonopah	AZ	85354
506-58-017B	Deshazo Virginia	48043 W Belleview St	Tonopah	AZ	85354
506-58-025B	Barraza Virgen Beltran	48038 W Portland St	Tonopah	AZ	85354
506-58-017A	Felix Claudia	48011 W Belleview St	Tonopah	AZ	85354
506-58-137B	Davis James /Carol	48014 W Portland St	Tonopah	AZ	85354
506-58-005S	Lisboa Ramon/Ninfa	47937 W Belleview St	Tonopah	AZ	85354
506-58-020A	Rose Margo/Kenneth	47913 W Belleview St	Tonopah	AZ	85354
506-58-142	Pieper Charles	47937 W Portland St	Tonopah	AZ	85354

EXHIBIT J-3

WEST VALLEY VIEW NEWSPAPER ADVERTISEMENT

RE PAPAGO SOLAR PROJECT

Public Meeting Announcement

RE Papago LLC, a wholly owned subsidiary of Recurrent Energy, is planning to construct a photovoltaic (PV) solar energy generation and storage facility in unincorporated Maricopa County. The proposed project consists of a 300-megawatt (MW) PV solar energy generation and 1,200 MW-hours of energy storage located on approximately 2,300 acres located roughly 5.5 miles west of the community of Tonopah, Arizona, just south of Interstate 10 (I-10). The project would provide solar-generated electricity to utility customers by interconnecting to the nearby regional electrical grid at Arizona Public Service's existing Delaney Substation.

In accordance with the requirements of the Maricopa County Major Comprehensive Plan Amendment process, a public meeting will be held. The public meeting will be open-house style, with informative poster boards on display and project representatives available to answer questions about the project. The goal of the meeting is for the project permitting and development team to better understand issues to be aware of during the permitting process. Written comments about the project may be submitted during the public meeting.

COME TO THE PUBLIC MEETING:

Wed. 8/21/2019 5:00-8:00 pm
Harquahala Fire District Administration Building
51501 West Tonto Street
Tonopah, Arizona 85354

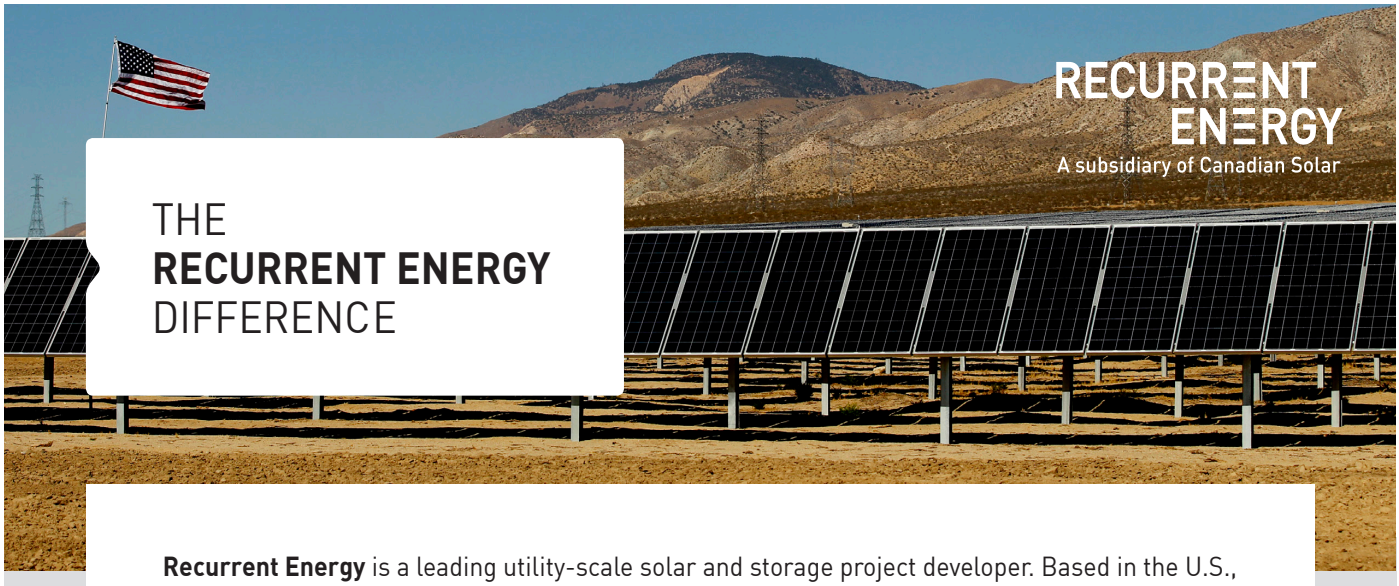
EXHIBIT J-4
OPEN HOUSE MATERIALS

PAPAGO SOLAR PHOTOVOLTAIC AND ENERGY STORAGE PROJECT

WELCOME

PAPAGO SOLAR PHOTOVOLTAIC AND ENERGY STORAGE PROJECT

PUBLIC MEETING THIS WAY



RECURRENT ENERGY
A subsidiary of Canadian Solar

THE **RECURRENT ENERGY** DIFFERENCE

Recurrent Energy is a leading utility-scale solar and storage project developer. Based in the U.S., we are a wholly owned subsidiary of Canadian Solar Inc. and function as Canadian Solar's U.S. project development arm. Visit **recurrentenergy.com/portfolio** for project examples.

- **5 GW project portfolio**
- **4 GW executed power contracts**
- **2.3 GW operating projects**
- **>$9B capital secured**

In The Community

Recurrent Energy recognizes that our projects have a long-term presence in the regions where they are sited. Learn how we work with local communities:
recurrentenergy.com/in-the-community

Contact Us

P + 1 623.321.2801

Papago@RecurrentEnergy.com

RECURRENT ENERGY
A subsidiary of Canadian Solar

ABOUT THE **PAPAGO** SOLAR PROJECT

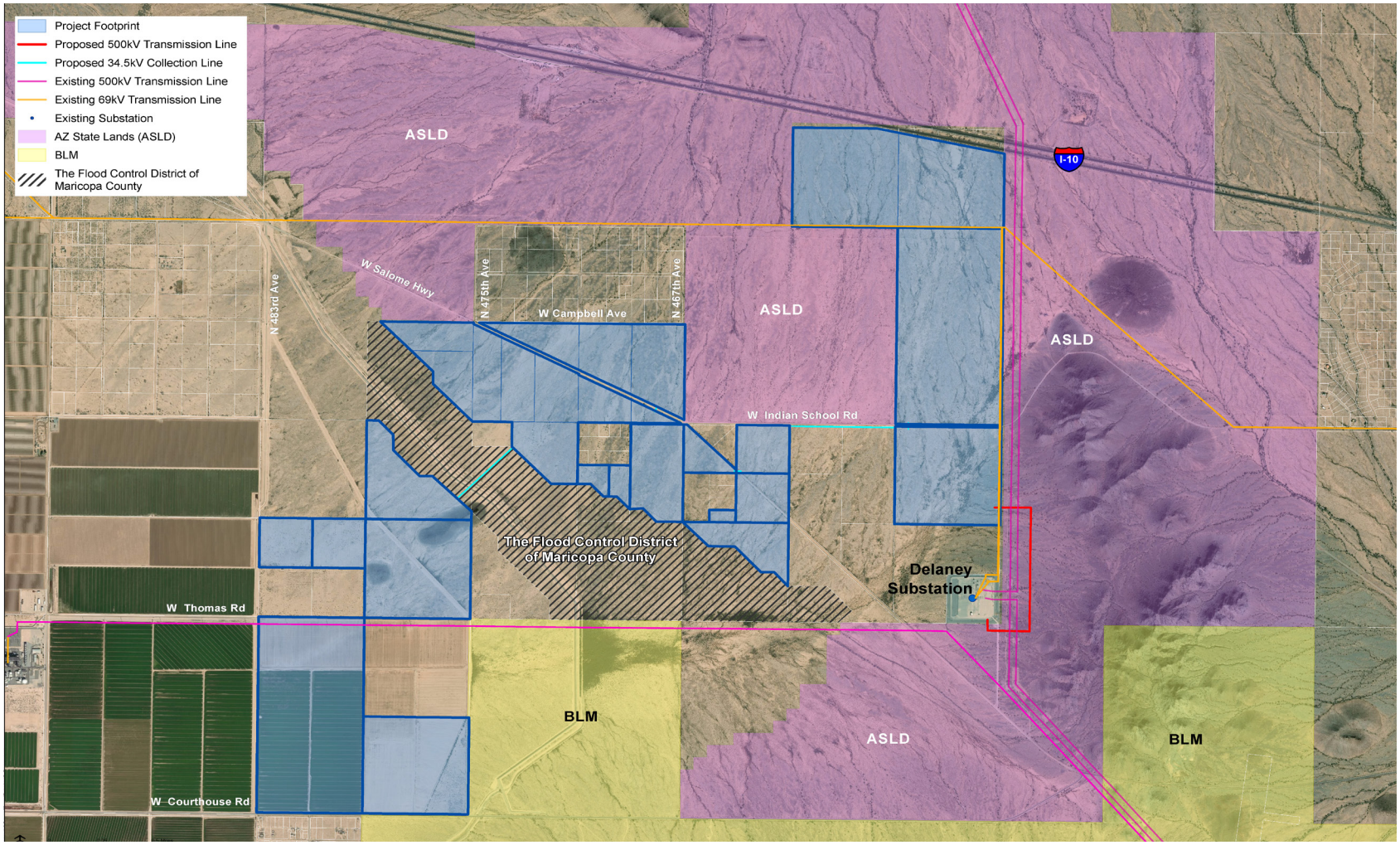
Capacity	300 MWac
Acreage	2,800 acres
Point of Interconnection	Delaney Substation
Customer	TBD

Homes Powered	57,000
Operation Date	2021/2022
Est. Peak Construction Jobs	450
Estimated Taxes*	$25.3 million to county / $10 million to state

**Over 40-year project life*

PROJECT AREA

PAPAGO SOLAR PHOTOVOLTAIC AND ENERGY STORAGE PROJECT



2016
DEVELOPMENT BEGAN

AUGUST 2019
PUBLIC MEETING

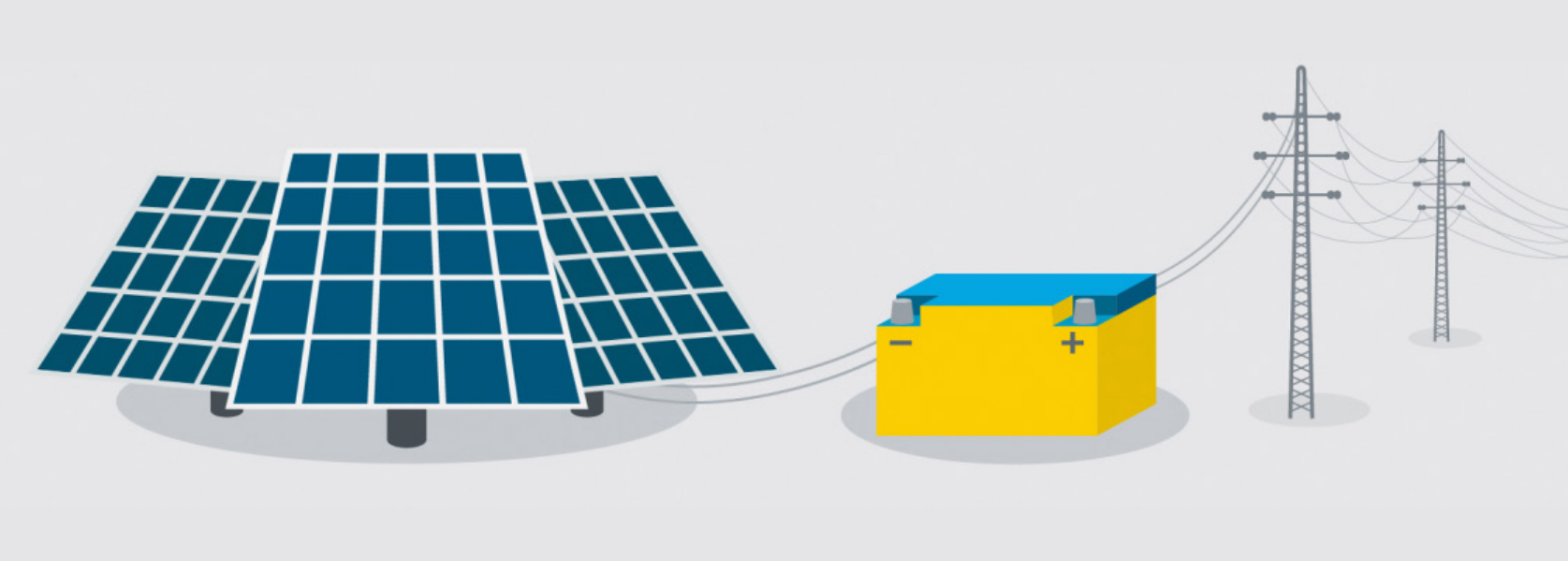
EARLY 2020
PERMIT ANTICIPATED

AUTUMN 2020
CONSTRUCTION STARTS

2021 / 2022
OPERATIONS BEGIN

SOLAR TECHNOLOGY PAPAGO SOLAR PHOTOVOLTAIC AND ENERGY STORAGE PROJECT

A SOLAR-PLUS-STORAGE-SYSTEM



A solar PV panel consists of several layers. The top layer of glass provides weather protection for the PV cell. A special coating is applied to the glass to reduce reflected light from the panel, thereby reducing glare. Within the PV cell is an aluminum wire grid that conducts electricity. Electricity is generated when sunlight passes through openings in the grid and reaches the bottom layers of the panel, which are made of silicon. The electricity is transmitted from panels to either the battery storage system or the electrical system. Once in the electrical system, the electricity is distributed to homes, businesses, and other users.

CONSTRUCTION PAPAGO SOLAR PHOTOVOLTAIC AND ENERGY STORAGE PROJECT

PLEASE ASK US HOW TO BE INFORMED OF JOB OPENINGS ON THE PROJECT

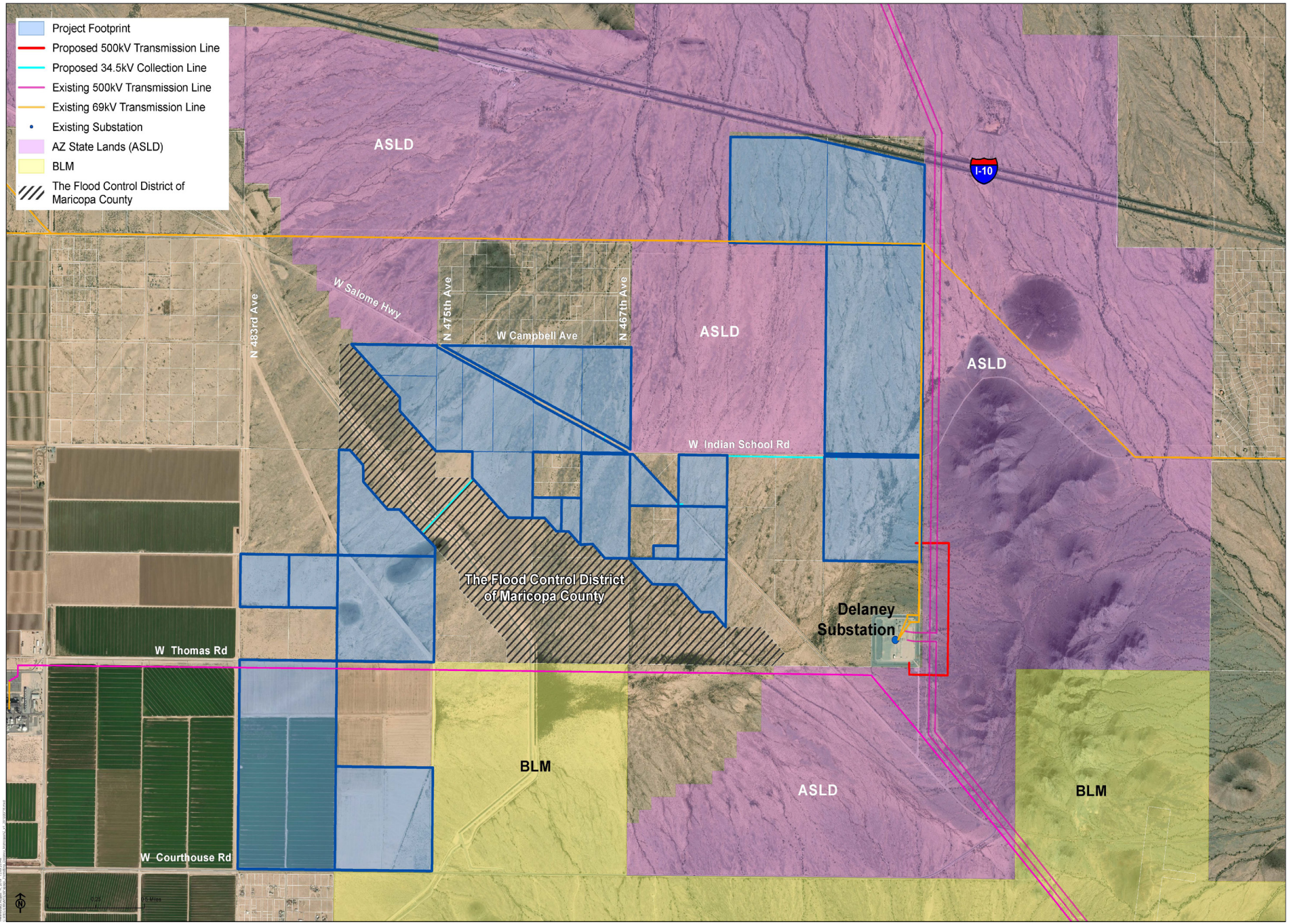

Project Footprint
Proposed 500kV Transmission Line
Proposed 34.5kV Collection Line
Existing 500kV Transmission Line
Existing 69kV Transmission Line
Existing Substation
AZ State Lands (ASLD)
BLM
The Flood Control District of Maricopa County
ASLD
I-10
W Salome Hwy
N 483rd Ave
N 475th Ave
W Campbell Ave
N 467th Ave
ASLD
ASLD
W Indian School Rd
The Flood Control District of Maricopa County
Delaney Substation
W Thomas Rd
BLM
ASLD
BLM
W Courthouse Rd

EXHIBIT J-5
PUBLIC RESPONSE

Papago Solar Project - Comment Summary Table						
Comment #	**Commentor**	**Representing**	**Method Received**	**Date Received**	**Comment/Summary**	**Comment Analysis/Response**
1	Elisa Bigbey	Public	Comment form	8/30/2019	"Very good presentation. I would have liked leaflets/brochures to pass around to people that couldn't make it. I missed getting information on how, when, and where to apply for jobs. My fault. I believe this Papago Project will be very good for this community."	No leaflets were available. RE is available via phone or email to address any comments or concerns from people unable to attend the meeting.
2	David and Joy Randall	Public	In person	7/2/2019	Concerns: View impacts – take a lot of sunset pictures every night, always having to crop out the gas plant Already too crowded Dust and noise during construction	
3	Shay Kinney	Public	Vumber™	7/3/2019	Upon callback expressed concerns regarding solar panels across from her house on W Courthouse, APN 506-58-132H (which is a vacant parcel). Asked if RE was interested in purchasing the 15 acre parcel "for the right price."	RE left a voicemail stating that they did not intend on purchasing the parcel. No response since the voicemail.
4	Robert (Bob) Jastrab	Public	Vumber™	7/29/2019	Left a message hoping to talk about the land	RE left a voicemail. No response since the voicemail.
5	Misty Bonney	Public	Vumber™	8/19/2019	Concerned about what the project means for her property. Spoke with Farhad briefly as well.	Sold her parcel to RE and signed an LOI on September 10, 2019
6	Jason Dejnozka	Public	Vumber™	8/21/2019	Asked for information from the Public Meeting	Sent him PDF copies of our meeting boards
7	Juan Hernandez	Public	Vumber™	12/5/19	Owner bought land adjacent and surrounded by the project. Wanted to develop it for his house and wondered if he could still build a house there	Recurrent Energy told him that development of the project would not affect his landowner rights and he could still build a house on his land if he wanted.
8	Matt Thompson	Public	Vumber™	8/23/2019	Asked for information from the Public Meeting	Sent him PDF copies of our meeting boards
9	Steve G. Bilheimer	Public Service Electric & Gas Company (PSEG; private)	Letter to Maricopa County Planning and Development	12/4/2019	Requesting that Recurrent Energy allow PSEG Solar Source, or its assignee, to obtain a right-of-way for an overhead 500-kV transmission line of 160 feet in width across land surrounding the Delaney Substation in support of an adjacent solar project in Harquahala Valley.	No reposonse was required by the County.