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**BEFORE THE ARIZONA POWER PLANT  
AND TRANSMISSION LINE SITING COMMITTEE**

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IN THE MATTER OF THE APPLICATION OF  
WINCHESTER TRANSMISSION, LLC IN  
CONFORMANCE WITH THE  
REQUIREMENTS OF ARIZONA REVISED  
STATUTES, SECTIONS 40-360, ET. SEQ.,  
FOR A CERTIFICATE OF ENVIRONMENTAL  
COMPATIBILITY AUTHORIZING THE  
WINCHESTER TRANSMISSION PROJECT  
LOCATED IN COCHISE COUNTY, ARIZONA

DOCKET NO.:

Case No.

**NOTICE OF FILING  
APPLICATION FOR  
CERTIFICATE OF  
ENVIRONMENTAL  
COMPATIBILITY**

Winchester Transmission, LLC (“Applicant”) through undersigned counsel, provides notice of filing of the Application for a Certificate of Environmental Compatibility for the Winchester Transmission Project under § 40-360.03.

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on July 3, 2023, with:

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**COPIES** of the foregoing hand-delivered  
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By:           aha

**Application**  
**for a**  
**Certificate of Environmental Compatibility**  
**Winchester Transmission Project**

Prepared for:

**State of Arizona Power Plant and Transmission Line Siting Committee**

Submitted by:

**Winchester Transmission, LLC**

**July 2023**

**Case No: \_\_\_\_\_**





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# CHAPTER 1. INTRODUCTION

Pursuant to Arizona Revised Statutes (ARS) 40-360 et seq., Winchester Transmission, LLC (Applicant), is seeking a Certificate of Environmental Compatibility (CEC) granting authority to construct the Winchester Transmission Project (Transmission Project). The Transmission Project will be a generation-tie transmission line that connects the planned Winchester energy facilities (Solar Project) to the regional electric grid at the existing Winchester Substation that is operated by Tucson Electric Power (TEP). The Solar Project is a renewable energy development that includes a solar photovoltaic generating facility and battery energy storage system with an initial capacity of up to 160 megawatts with opportunities for expansion. The Transmission Project would be located primarily on Arizona State Trust lands with a small portion on privately owned land in unincorporated Cochise County, approximately 3.5 miles southwest of Willcox, Arizona.

The Transmission Project is a proposed, aboveground 345-kilovolt (kV) alternating current generation-tie transmission line. The existing TEP Winchester Substation would be the point of interconnection. The Applicant requests approval of a corridor within which the Transmission Project would be constructed (CEC Corridor). The CEC Corridor extends between the western portion of the Solar Project and the Winchester Substation. The distance between the eastern and western limits of the CEC Corridor is approximately 15.2 miles; the CEC Corridor is displayed on Figure 1.

There are no thermal electrical generating plants included as part of the Transmission Project.

Winchester Transmission, LLC is a wholly owned subsidiary of Torch Clean Energy. Torch Clean Energy is a privately held renewable energy company with extensive experience developing, permitting, designing, and building renewable energy and battery storage projects. To date, Torch has completed 18 projects that are currently operating or under construction representing over 800 MW of generating capacity and four utility-scale battery systems. Torch maintains a development portfolio of over 5 gigawatts of generating capacity.

The Transmission Project was included in the Applicant's Ten-Year Transmission System Plan filed with the Arizona Corporation Commission on January 31, 2023. Transmission Project construction could begin as early as the second quarter of 2024, and the construction timeline is estimated to take between 6 months and 1 year.

## 1.1 TRANSMISSION PROJECT OVERVIEW

As noted above, the Transmission Project would be constructed within the requested CEC Corridor, which extends between the Solar Project and the Winchester Substation. The distance between the eastern and western limits of the CEC Corridor is approximately 15.2 miles; the total area of the CEC Corridor is approximately 2,093 acres. Approximately 95% of the CEC Corridor consists of Arizona State Land Department (ASLD) land; the remaining 5% of the CEC Corridor is private property where the CEC Corridor overlaps with the Solar Project site. The entire CEC Corridor is in unincorporated Cochise County (see Figure 1). The ASLD land traversed by the Transmission Project is leased for cattle ranching.

The Transmission Project would likely use a combination of wooden two-pole H-frame and wooden three-pole tangent structures. Within the CEC Corridor, the Applicant would establish a 150-foot-wide permanent right-of-way (ROW) around the final route selected for the Transmission Project. In areas where wooden three-pole structures are used, the ROW would be increased to a width of 250 feet to accommodate for structural design. The three-pole tangent structures will be located between every 20-30 two-pole H frame structures, and may be located where turns or other transmission crossings are present.

The minimum span length between structures is estimated to be approximately 200 feet where the Transmission Project would cross other existing or planned transmission lines. Structure spans for most of the Transmission Project are anticipated to be between 600 and 800 feet. Transmission structures would be approximately 50 to 150 feet tall; most transmission structures are anticipated to be approximately 90 feet tall. The Applicant notes that it may refine minor design characteristics for the Transmission Project during the final engineering phase. Representative diagrams of the anticipated transmission towers are included in Exhibit G.

### 1.1.1 Proposed Route

The Transmission Project would originate at the Solar Project’s step-up substation (Project Substation).<sup>1</sup> The Project Substation would be located near the western edge of the Solar Project, within the CEC Corridor. The Applicant is considering two locations for the Project Substation. As such, the eastern portion of the CEC Corridor is approximately 4,000 feet (approximately 0.75 mile) wide (north to south) to accommodate route variants from the potential Project Substation locations. Most of the CEC Corridor is 1,000 feet (approximately 0.19 mile) wide (see Figure 1). The Transmission Project would interconnect to one of two possible bay positions in the Winchester Substation, depending on the final engineering from TEP. Table 1 includes the sections, townships, and ranges that intersect the CEC Corridor.

**Table 1. Section, Township, and Range Intersecting the CEC Corridor**

Section	Township	Range
22, 23, 24, 27, 28	14 South	21 East
19, 20, 21, 22, 23, 24	14 South	22 East
19, 20, 21, 22, 23, 24, 25, 26	14 South	23 East

### 1.1.2 Winchester Substation

The Transmission Project would interconnect the Solar Project to the regional electrical grid at the existing TEP Winchester Substation. TEP would install new equipment within the existing fence line of the Winchester Substation to facilitate the Transmission Project’s interconnection. TEP would perform the requisite Winchester substation upgrades in accordance with applicable electric utility standards. The Winchester Substation is located in Section 28, Township 14 South, Range 21 East.

## 1.2 PURPOSE AND NEED

The purpose of the Transmission Project is to allow for delivery of renewable energy into the transmission grid in the southwestern United States. Torch plans to execute Power Purchase Agreements for the Solar Project in Q3 2023, which would likely support load growth and peak demand requirements of Arizona-based utilities. Adding renewable energy projects meets several objectives at the local, state,

<sup>1</sup> The purpose of the Project Substation is to increase the voltage of electricity generated by the Solar Project to match the voltage at the point of interconnection (i.e., 345 kV). Electricity generated by the Solar Project or stored in the battery energy storage system would travel through lower-voltage (e.g., 34.5 kV) collector lines to the Project Substation where a power transformer would increase the voltage to 345 kV for delivery at the Winchester Substation. The Project Substation would be within the perimeter of the Solar Project. The Project Substation would be in Section 24 or 25, Township 14 South, Range 23 EastE, Township 14 South. The Project Substation is proposed on private property and would occupy approximately 3 acres. In accordance with Commission Decision No. 77761, the Applicant is not requesting authorization to construct the substation. If the Commission determines that authorization for substations is required, the Applicant asks that the Commission provide that authorization as part of this proceeding.

and federal levels, including the need for additional energy supplies to serve the region and the priority placed on meeting this need with clean, renewable energy.

## **1.3 PROPOSED INTERCONNECTION**

The Applicant will execute a Large Generator Interconnection Agreement (LGIA) with TEP. TEP, as the transmission owner operator, must approve the LGIA. As part of the interconnection agreement process, TEP has completed a Feasibility Study, System Impact Study, and a draft Facility Study. Feasibility Studies, System Impact Studies, and Facility Studies are done to assess the requirements of the proposed interconnection. The Feasibility Study was completed on October 29, 2019, the System Impact Study on June 9, 2020, and the draft Facility Study was issued on January 12, 2021. A final Facility Study is expected to be issued by July 2023, with the signing of an Interconnection Agreement happening soon thereafter.

## **1.4 ENVIRONMENTAL AND PUBLIC SITING PROCESS**

### **1.4.1 Environmental, Community, and Existing Infrastructure Considerations**

The siting process for the Transmission Project focused on evaluating potential transmission routes between the Project Substation, which must be located at the Solar Project, and the Winchester Substation. In considering different options, a priority was placed on minimizing environmental and community impacts. Often this can be achieved by selecting a direct route. Another consideration is land use. With the proposed route, the Transmission Project would predominately traverse ASLD land, that is used for grazing. Where the Transmission Project would cross ASLD land, it would be compatible with current grazing operations. The Transmission Project does not pass through any established neighborhoods. The proposed Transmission Project minimizes community and environmental impacts through use of a direct route in a remote area, is appropriate for the underlying land uses, and parallels existing transmission infrastructure.

### **1.4.2 Public Outreach Process**

The Applicant has coordinated with key stakeholders including the Arizona Game and Fish Department (AGFD), Fort Huachuca, ASLD lease holders, state agencies, local agencies, and the public, to provide information regarding the Transmission Project and opportunities for comment. Coordination with AGFD is described in Exhibit C. Refer to Exhibit J of this Application for further information on the Transmission Project's overall outreach efforts.

### **1.4.3 Summary of Environmental Compatibility**

After conducting an environmental assessment and minimizing or avoiding environmental impacts in the siting process, based on the factors outlined in ARS 40-360.06, the Applicant respectfully submits that the Transmission Project is environmentally compatible.

Additionally, as discussed in further sections, the Transmission Project would

- be compatible with existing land use and existing plans in the vicinity of the proposed route,
- not disturb any areas of unique biological wealth and not impact special-status species,
- minimize visual effects,



- not disturb any known archaeological or historical sites of significance,
- not affect any recreation opportunities in the area, and
- not be anticipated to result in significant impacts associated with noise or signal interference.

## **1.5 CONCLUSION**

This application includes the environmental analysis and documentation relevant to the Transmission Project as specified by the Arizona Administrative Code Rules R14-3-219 and R14-3-200, Exhibit 1. The Applicant is committed to avoiding, where possible, and minimizing environmental impacts and submits that the Transmission Project is environmentally compatible with its surroundings. The Applicant, therefore, respectfully requests that the Arizona Power Plant and Transmission Line Siting Committee grant, and the Arizona Corporation Commission approve, a CEC for the construction of the Transmission Project, which is necessary to interconnect the Solar Project to the regional electric grid at the existing Winchester Substation.

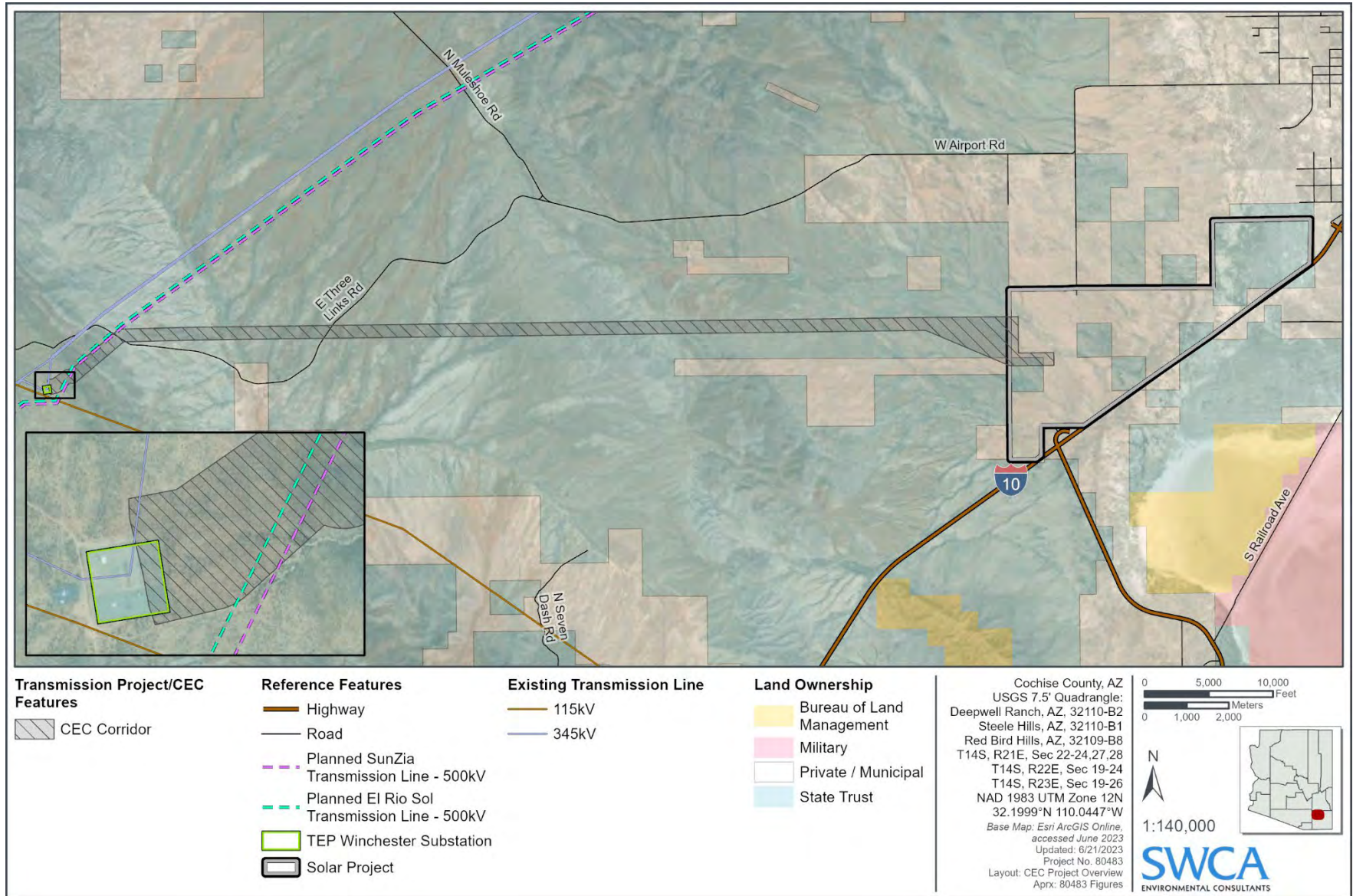


Figure 1. CEC Corridor and Solar Project overview.

**APPLICATION FOR  
CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY**

---

**1. Name and address of the Applicant**

Winchester Transmission, LLC  
929 Pearl Street, Suite 300  
Boulder, Colorado 80302

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

Scott Leach  
Chief Commercial Officer  
Torch Clean Energy, LLC  
Email: sleach@torchcleanenergy.com  
(720) 699-8466

**Date on which the applicant filed a Ten-Year Plan in compliance with ARS § 40-360.02, in which the facilities for which this application is made were described**

The Applicant filed a Ten-Year Plan in Docket E-99999A-21-0009 on January 31, 2023.

**3. Description of the proposed facility, including:**

**a. With respect to an electric generating plant:**

The Transmission Project does not include an electrical generating plant.

**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 constructing said transmission line**

**(1) Nominal voltage:**

The nominal voltage for the Transmission Project is 345-kV alternating current, single circuit.

**(2) Description of the proposed structures:**

The Transmission Project would likely use a combination of wooden two-pole H--frame and wooden three-pole tangent structures. The Transmission Project is anticipated to require the majority of transmission structures to be spaced between 600 and 800 feet apart; though the minimum span length between structures is estimated to be approximately 200 feet where the Transmission Project would cross other existing or planned transmission lines. Transmission structures would be approximately 50 to 150 feet tall. Most transmission structures are anticipated to be approximately 90 feet tall. Conceptual drawings of the typical structure types that may be used for the Transmission Project are included in Exhibit G.

**(3) Description of proposed switchyards and substations:**

The purpose of the Project Substation is to increase the voltage of electricity generated by the Solar Project to match the voltage at the point of interconnection.

Electricity generated by the Solar Project would travel through lower-voltage (e.g., 34.5-kV) collector lines to the Project Substation where a power transformer would increase the voltage to 345kV for delivery at the Winchester Substation. All collector lines from the Solar Project would terminate at the Project Substation. The Project Substation would occupy approximately three acres and would be located near the western edge of the Solar Project, within the CEC Corridor.

The Project Substation would include the following major equipment: 34.5-kV medium-voltage bus and associated switching apparatus; 345-kV bus and switching apparatus; 34.5- to 345-kV transformer; steel support structures with foundations; control building; security and perimeter fence; security and emergency lighting.

**(4) Purpose for constructing said transmission line:**

The purpose of the Transmission Project is to connect the Solar Project to the regional electric grid.

**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**

**(1) Description of geographical points between which the transmission line will run:**

The Transmission Project would originate at the Project Substation. The Project Substation would be located near the western edge of the Solar Project, within the CEC Corridor. The Applicant is considering two locations for the Project Substation. As such, the eastern portion of the CEC Corridor is approximately 4,000 feet (approximately 0.75 mile) wide (north to south) to accommodate route variants for the Transmission Project from each potential location for the Project Substation.

The northeast corner of the CEC Corridor is in Section 24, Township 14 South, Range 23 East, Cochise County, Arizona.

The southeast corner of the CEC Corridor is in Section 25, Township 14 South, Range 23 East, Cochise County, Arizona.

The western terminus of the Transmission Project would be the existing Winchester Substation, which is in Section 28, Township 14 South, Range 21 East, Cochise County, Arizona.

**(2) Straight-line distance between such points:**

The straight-line distance between the northeast corner of the CEC Corridor and the Winchester Substation is 14.3 miles.

The straight-line distance between the southeast corner of the CEC Corridor and the Winchester Substation is 14.8 miles.

**(3) Length of the transmission line for each alternative route:**

The Applicant is considering two locations for the Project Substation.

From the northern Project Substation location, located near the northeast corner of the CEC Corridor, the Transmission Project would extend approximately 14.6 miles to the Winchester Substation.

From the southern Project Substation location, located near the southeast corner of the CE Corridor, the Transmission Project would extend approximately 15.2 miles to the Winchester Substation.

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

**(1) Nominal width of right-of-way required:**

The Transmission Project permanent right-of-way would be up to 150 feet wide within the requested corridor. In areas where wooden three-pole structures are used, the ROW would be increased to a width of 250 feet to accommodate for structural design.

As previously noted, the width of the CEC Corridor varies from approximately 4,000 feet (approximately 0.75 mile) at its widest point along the western edge of the Solar Project to 1,000 feet (approximately 0.19 mile) wide along most of the Transmission Project. The location of the Transmission Project's right-of-way within the corridor would be determined according to site-specific design and environmental factors.

The requested CEC Corridor is shown on Figure 1 above.

**(2) Nominal length of spans:**

The minimum span length between structures is estimated to be approximately 200 feet where the Transmission Project would cross other existing or planned transmission lines. Structure spans for most of the Transmission Project are anticipated to be between 600 and 800 feet.

**(3) Maximum height of supporting structures:**

At specific locations, structures may be up to approximately 150 feet above ground.

**(4) Minimum height of conductor above ground:**

The minimum height of the conductor above grade would be 30 feet. All clearances would be in accordance with applicable codes and regulations.

**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 such estimates.)**

The estimated cost for the Transmission Project is approximately \$19,400,000.

The estimated cost associated with access to the land required for the Transmission Project is approximately \$165,000 every 10 years.

**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 Transmission Project would originate at the Project Substation. The Project Substation would be located near the western edge of the Solar Project, within the CEC Corridor. The Applicant is considering two locations for the Project Substation.

The northern Project Substation location is near the northeast corner of the CEC Corridor, in Section 24, Township 14 South, Range 23 East.

The southern Project Substation location is near the southeast corner of the CEC Corridor in Section 25, Township 14 South, Range 23 East.

Starting at its southeast corner, the CEC Corridor is 1,000 feet wide and proceeds west for approximately 0.5 miles. The CEC Corridor width then extends to the north to a width of approximately 4,000 feet. The CEC Corridor proceeds west tapering along its southern boundary for approximately 1.3 miles to a width of 1,000 feet. The 1000-foot-wide CEC Corridor then proceeds directly west for approximately 11.9 miles. Approximately where the CEC Corridor crosses E Three Links Road, the CEC Corridor proceeds southwest for approximately 1.3 miles and terminates at the Winchester Substation. The Winchester Substation is located in Section 28, Township 14 South, Range 21 East. As the Transmission Project approaches the Winchester Substation, it would cross over the planned SunZia Southwest Transmission Project and the planned El Rio Sol Transmission Project. The CEC Corridor is displayed on Figure 1.

The Application does not include alternative route corridors. The CEC Corridor was selected to avoid major topographic features and to avoid private land to the extent feasible since there is very little private land in this area. In addition, the alignment on the west side was determined by working closing with Pattern who owns the SunZia Transmission Project, Southwest Power Group who owns El Rio Sol and Tucson Electrical Power. All three groups have high voltage lines in the area and required coordination to come to an agreement on the ideal location for the Transmission Project.

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

The total area of the CEC Corridor is approximately 2,093 acres. Approximately 95% of the CEC Corridor consists of ASLD land. Approximately 5% of the CEC Corridor consists of private property where the CEC Corridor overlaps with the Solar Project site.

**4. List the areas of jurisdiction [as defined in A.R.S. § 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 of such areas of jurisdiction.**

The Transmission Project would be entirely in unincorporated Cochise County, Arizona. The areas of jurisdiction affected by the Transmission Project are the ASLD and Cochise County.

The Transmission Project is subject to the requirements of Cochise County's planning and zoning regulations. According to Cochise County Zoning Ordinance, the entire Transmission Project is zoned as "RU (Rural) Density District 4" or RU-4 (Cochise County 2023). "Utility Installations" are a principally permitted use in the RU-4 zoning district. "Utility Installations" include "structures necessary for the distribution of franchise public or private utilities," including electricity. Therefore, the Transmission Project is a principally permitted use in the RU-4 zoning district. The Project Substation is also located in the RU-4 zoning district, where it is considered an accessory structure to the Solar Project. The Solar Project meets the County's definition of a "Solar Energy Power Plant." Solar Energy power plants require a special use authorization from Cochise County. The Solar Project received a special use authorization from the Cochise County

Board of Supervisors on May 10, 2023. On May 31, 2023, an amendment application was submitted to add additional parcels to the Solar Project. Neither the Transmission Project nor the Solar Project require an amendment to the Cochise County Comprehensive Plan (Cochise County 2015). Therefore, the Transmission Project is not contrary to the County's zoning regulations or master plans.

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

The Applicant has evaluated available secondary and field data related to biological resources, visual resources, cultural resources, recreational resources, land use, noise levels, and communications signals to assess the potential impacts that may result from the construction, operation, and maintenance of the Transmission Project. These evaluations are included in Exhibits B, C, D, E, F, H, and I to this application.

Winchester Transmission, LLC

By:

/s/

  
\_\_\_\_\_

Scott Leach  
Chief Commercial Officer  
Torch Clean Energy, LLC

I HEREBY CERTIFY that on this 3<sup>rd</sup> day of July 2023, I have delivered to the Arizona Corporation Commission twenty-five (25) copies of this Application for a Certificate of Environmental Compatibility.

## Literature Cited

Cochise County. 2015. Cochise County Comprehensive Plan Amended and Readopted 2015. Available at: <https://www.cochise.az.gov/DocumentCenter/View/203/Comprehensive-Plan-PDF>. Accessed May 2023.

———. 2023. Cochise County Zoning Regulations. Available at: <https://www.cochise.az.gov/DocumentCenter/View/137/Zoning-Regulations-PDF>. Accessed May 2023.



## **EXHIBIT A. LOCATION MAP AND LAND USE MAPS**

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In accordance with Arizona Corporation Commission Rules of Practice and Procedure R14-3-219, Exhibit 1, the applicant provides the following location maps and land use information:

*Where commercially available\*\*, 1) a topographic map, 1:250,000 scale, showing any proposed transmission line route longer than 50 miles and the adjacent area; and 2) a topographic map, a scale of 1:62,500, for routes shorter than 50 miles showing any proposed transmission line route and the adjacent area*

*Where commercially available, a topographic map, 1:62,500 scale, of each proposed transmission line route longer than 50 miles showing that portion of the route within two 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.*

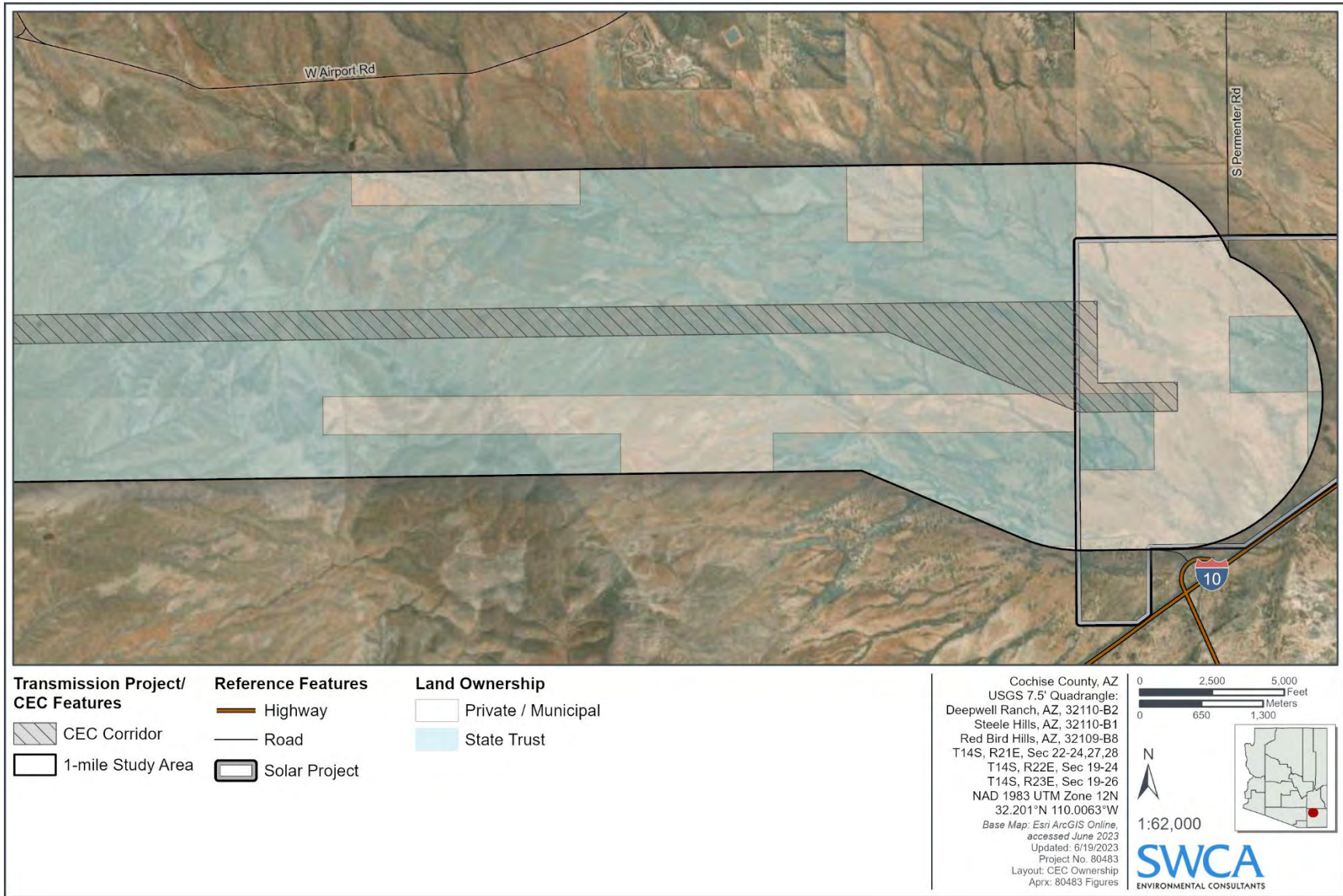
*\*\*If a topographic map is not commercially available, a map of similar scale, which reflects prominent or important physical features of the area in the vicinity of the proposed site or route, shall be substituted.*

## Land Use Overview

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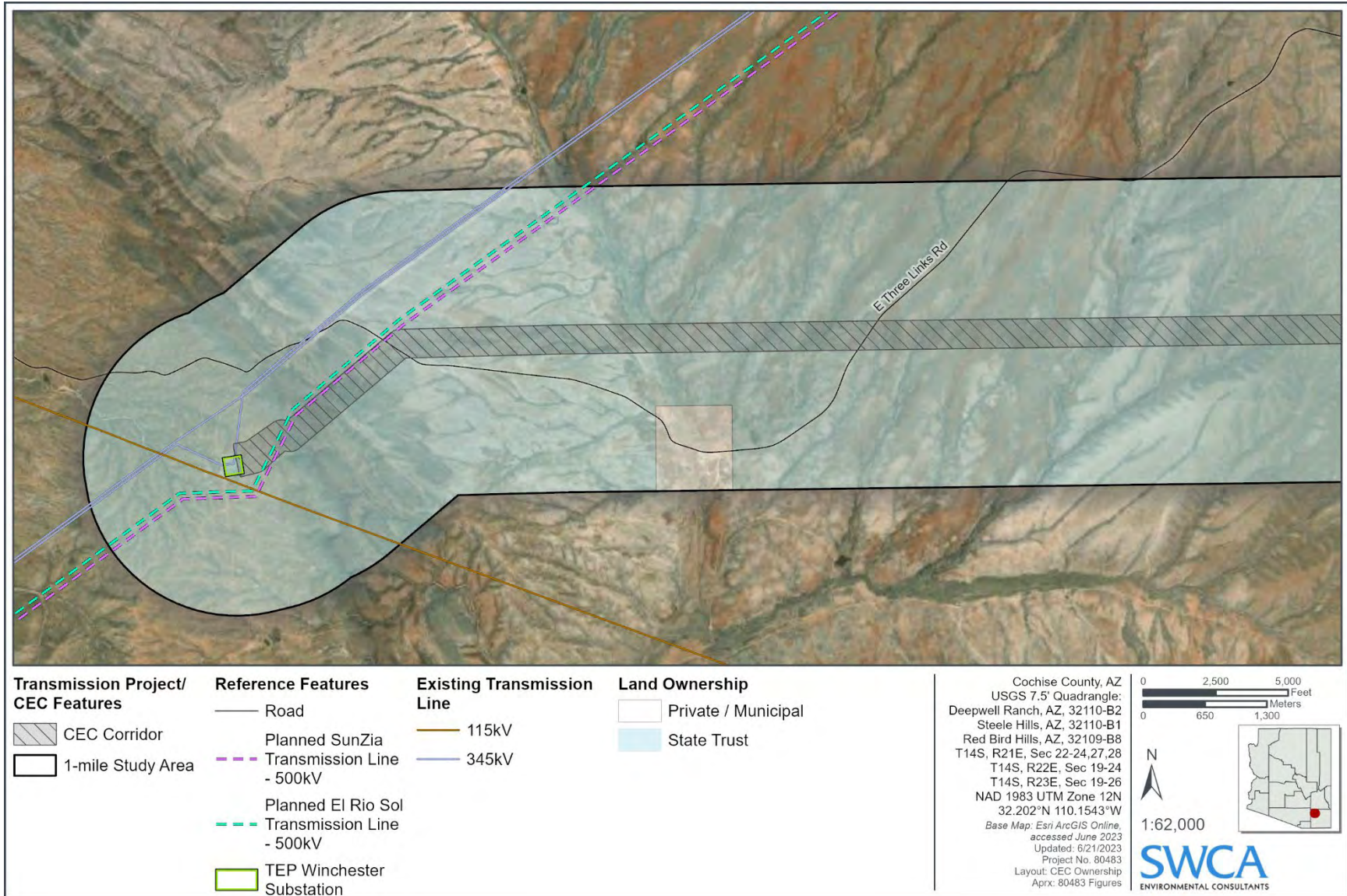
The following exhibits are required by the Arizona Corporation Commission's Rules of Practice and Procedure R14-3-219, Exhibit 1, to support the land use studies conducted for this application:

- Exhibit A-1 illustrates the land ownership and surface jurisdiction within a 1-mile study area (Study Area) around the Transmission Project.
- Exhibit A-2 illustrates the existing land use within the Study Area.
- Exhibit A-3 illustrates the planned land use for areas within the Study Area.



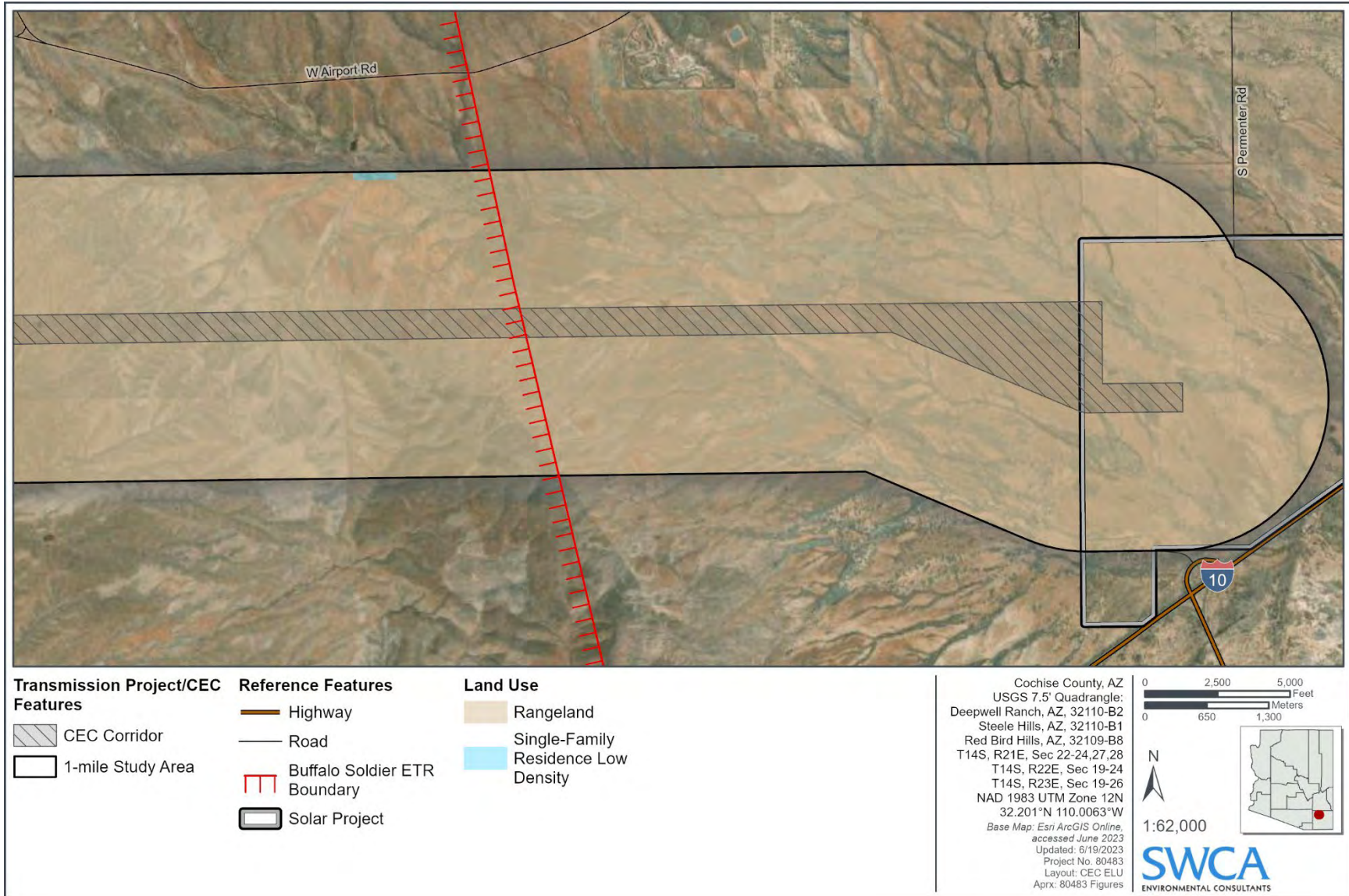
**Exhibit A-1a. Land ownership and surface jurisdiction.**





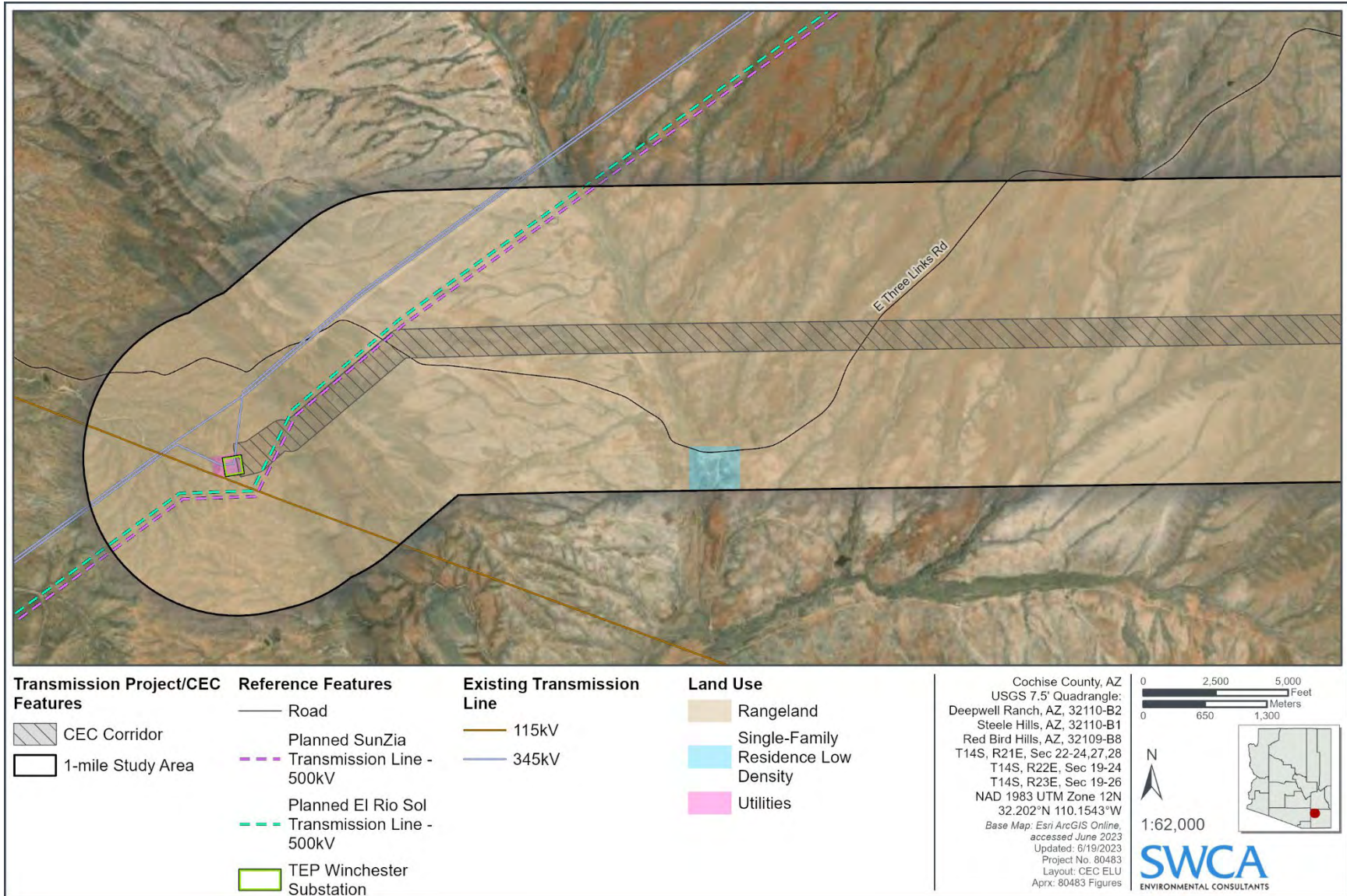
**Exhibit A-1b. Land ownership and surface jurisdiction.**



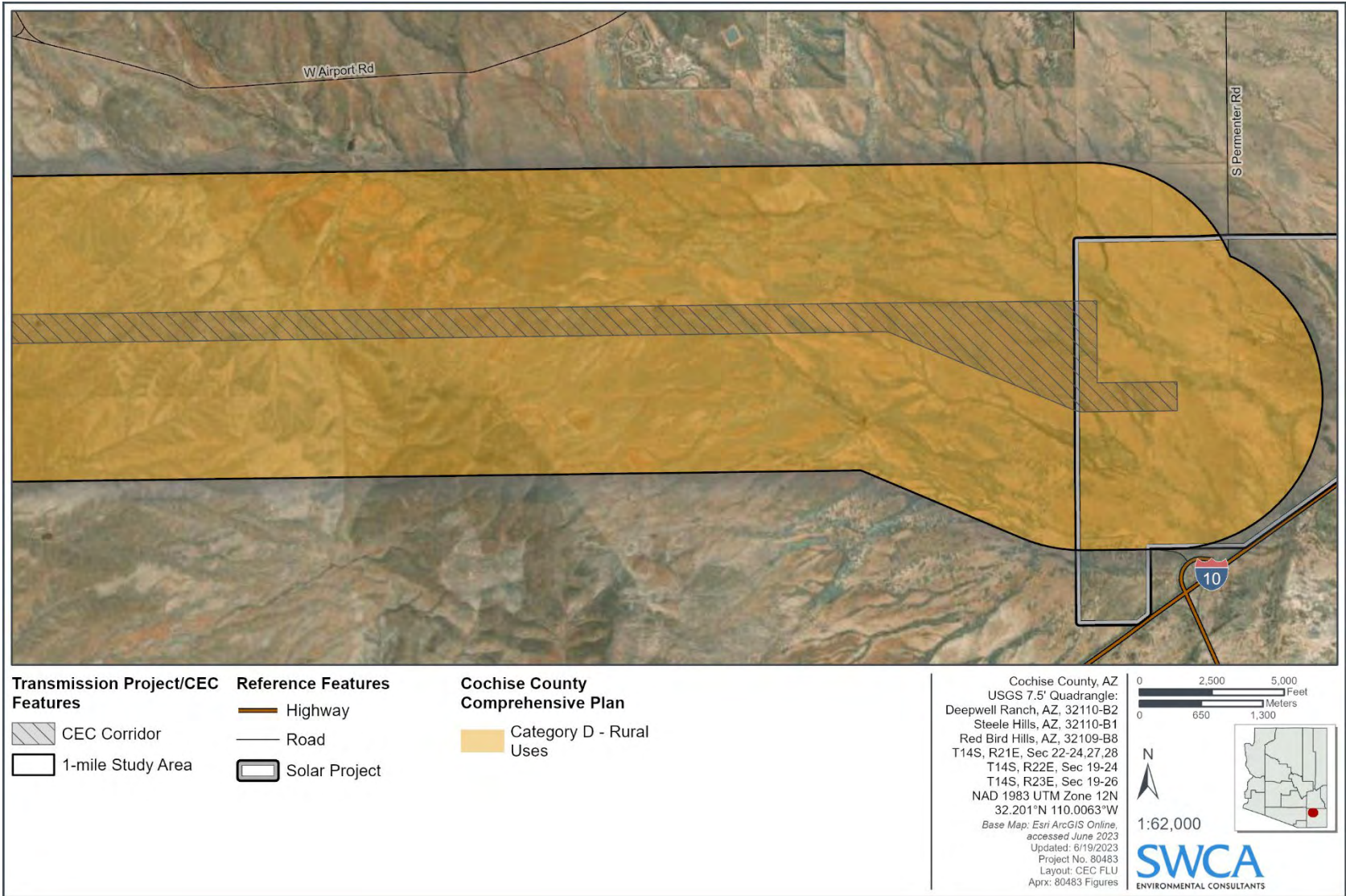


**Exhibit A-2a. Existing land use.**



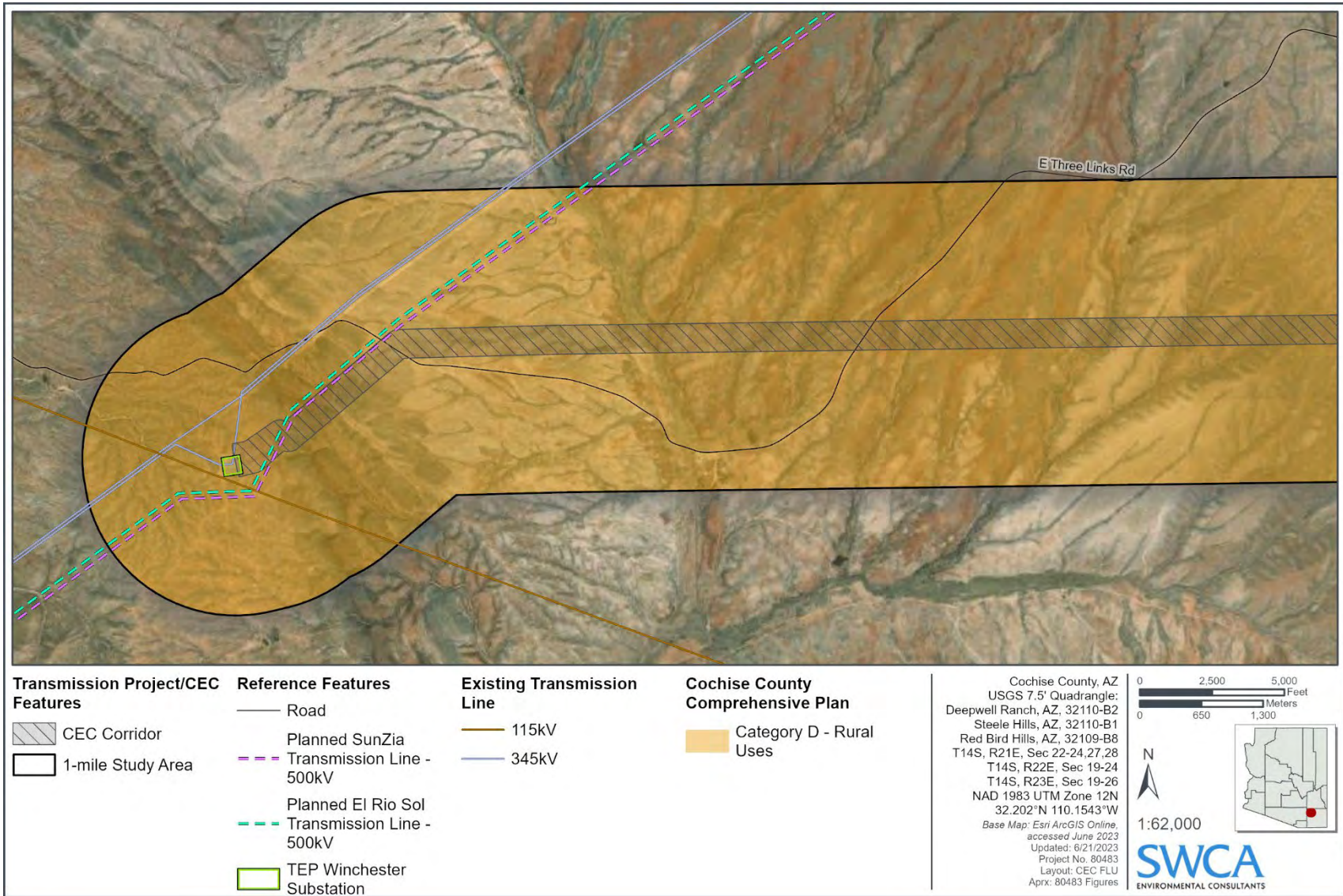


**Exhibit A-2b. Existing land use.**



**Exhibit A-3a. Planned land use.**





**Exhibit A-3b. Planned land use.**



# EXHIBIT B. ENVIRONMENTAL STUDIES

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As stated in the Arizona Corporation Commission Rules of Practice and Procedure R14-3-219, Exhibit 1:

*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 a part of this exhibit.*

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## Introduction

The Applicant retained SWCA to complete environmental analyses for the Transmission Project. Throughout the application, the term Project Area refers to the 1,000-foot-wide Certificate of Environmental Compatibility (CEC) corridor within which the Transmission Project would be constructed (CEC Corridor). SWCA completed evaluations of land use, biological, visual, cultural, and recreational resources generally within a 1-mile buffer around the Transmission Project (Study Area). The following sections include an inventory of the existing and planned land uses in the Study Area and an assessment of potential land use impacts resulting from the Transmission Project. The biological, visual, cultural, and recreational resource evaluations are discussed in detail in subsequent Exhibits C, D, E, and F.

## Land Use

### *Inventory*

SWCA completed a land-use inventory to identify and map existing and planned land uses within the 1-mile Study Area. Existing land uses in the Study Area were initially inventoried based on a desktop analysis and subsequently confirmed during a field visit to the Study Area in April 2023. The desktop analysis included a review of available aerial photographs and publicly available databases, including geographic information system (GIS) datasets from Cochise County (Cochise County 2020). Exhibit A-2 shows the existing land use in the Study Area. Planned land use in the Study Area was compiled from the Cochise County Comprehensive Plan Amended and Readopted in 2015 (Cochise County 2015). Exhibit A-3 shows the planned land uses in the Study Area, as compiled from the Comprehensive Plan.

Exhibit H includes information about the Applicant’s outreach efforts to identify “existing plans of the state, local government and private entities for other developments at or in the vicinity of the proposed site or route.”

### *Jurisdiction and Land Ownership*

The Transmission Project and Study Area are in unincorporated Cochise County. As previously noted, approximately 95% of the CEC Corridor (i.e., the Project Area) is on Arizona State Land Department (ASLD) land; the remaining 5% percent is on private property where the CEC Corridor overlaps with the

Solar Project site. The Applicant plans to execute a Right-of-Way agreement with the ASLD to establish a site control for the Transmission Project.

## **Existing Land Use**

Exhibit A-2 illustrates existing land uses within the Study Area. Existing land-use data were initially gathered through publicly available GIS data review, aerial image review, and on-site field verification. The Study Area is predominately used as rangeland for cattle grazing, with some rural residences. The entire Study Area is zoned as RU-4 (Rural) on the Cochise County zoning map (Cochise County 2020).

**Airport** – the Cochise County Airport is approximately 3.8 miles from the Transmission Project (outside of the Transmission Project’s 1-mile Study Area). In June 2023, the Applicant filed with the Federal Aviation Administration (FAA) a “Form 7460-1: Notice of Proposed Construction or Alteration” for the Transmission Project. The filing included information related to structure locations and heights. The Applicant will continue to coordinate with the FAA and will comply with all applicable requirements and directives that result from the FAA’s review.

**Military** – A portion of the Transmission Project is located within the Buffalo Soldier Electronic Testing Range (ETR), which is managed by Fort Huachuca in Sierra Vista, Arizona (Cochise County 2015: 47; see Exhibit A-2a). The Buffalo Soldier ETR is a 2,500-square-mile, electromagnetically quiet, high-altitude area used for conducting noise tests for electronic combat and cyber warfare equipment (U.S. Department of Defense 2022; U.S. Army 2023). The current infrastructure within the Electronic Proving Ground study area, such as power lines, cell phone towers, radio stations, and other “emitters,” have been measured and taken into account to form a “zero point” for testing purposes (Bureau of Land Management [BLM] 2013: 3-258).

In Q4 2022, Torch Clean Energy meet with Fort Huachuca official to introduce the Solar Project. In May and June 2023, the Applicant corresponded with Ms. Alanna Riggs (a liaison for Fort Huachuca’s Office of the Commanding General), regarding the Transmission Project and the ETR. Ms. Riggs indicated that information about the Transmission Project was shared with the “electromagnetic testing team” and that the electromagnetic testing team did not identify any “conflicting plans in the area of the Transmission Project.”

The Buffalo Soldier ETR also shares its boundaries with the Fort Huachuca Sentinel Landscape Restoration Partnership. This partnership, established in 2015, exists to facilitate cooperative projects that improve water quality and quantity, range and forest conditions, wildlife habitat, the status of rare species, and other vital features of the working and natural lands within the landscape and nearby ecologically connected areas (Sonoran Joint Venture 2020).

Outside of the Study Area (about 2.5 miles southeast of the Transmission Project) is the Willcox Dry Lake Bombing Range, also known as the Willcox Playa. Some of this area is still used today as a bombing range by the U.S. Air Force. However, some of the lands were released from the bombing range and managed by the U.S. Environmental Protection Agency and the Arizona Department of Environmental Quality as Formerly Used Defense Site lands (UXOInfo.com n.d.). MAX Power Mining Corporation, a Canadian company, recently announced that it acquired 3,754 acres of FUDS land within the Willcox Playa for lithium exploration in late April 2023 (Global Mining Review 2023).

**Rangeland** – Much of the Study Area consists of ASLD land that is leased as rangeland for cattle grazing. The ASLD parcel viewer indicates the Transmission Project would cross the following grazing allotments: Dos S Land and Cattle LLC (owned by Jeanne and Scott Stratton), Kenneth Martella, and Klump Ranches, LLC (managed by Matthew Klump).

**Residential** – At least two rural residential structures are located within the 1-mile Study Area. One is on the southside of E Three Links Road, approximately 0.75 mile from the Transmission Project, and the other is on the southside of Airport Road, approximately 1 mile from the Transmission Project. The Transmission Project would not cross or border any residential property.

**Utilities** – The western portion of the Study Area includes utility uses, including several existing, high voltage transmission lines (e.g., 115 kilovolts (kV), 230 kV, and 345 kV) that appear to connect to the Winchester Substation. The planned SunZia Southwest Transmission Project, a pair of 500-kV interstate transmission lines, also passes through the western portion of the Study Area. The Transmission Project would cross the SunZia Southwest Transmission Project between E Three Links Road and the Winchester Substation. In addition, Sulphur Springs Valley Electric Cooperative (SSVEC) has small local single phase distribution lines near the Transmission Project. While coordinating with SSVEC, the Transmission Project found one instance where it would cross an existing SSVEC line. The Applicant plans to continue coordination with SSVEC to finalize the planned crossing.

Outside of the 1-mile Study Area, the Applicant is aware of other renewable energy developments that interconnect to the Winchester Substation, including Red Horse I, II, and III which consists of wind turbines located 5 miles away and solar panels 3.4 miles away. Torch Clean Energy developed all three of these projects.

## ***Planned Land Use***

The Cochise County Comprehensive Plan is the County’s current planning guide for unincorporated areas of Cochise County, including the Project and Study Areas. The plan provides policies, text, graphics, and maps. Planned land use, as designated by the land-use map included in the Comprehensive Plan, is illustrated in Exhibit A-3.

The Cochise County Comprehensive Plan divides unincorporated Cochise County into four growth categories to show “each area’s existing or foreseeable infrastructure, character and capacity for growth” (Cochise County 2015:29). Category D Rural Areas is defined as “the outlying rural areas between cities and unincorporated communities and characterized by a low rate of growth; unimproved roads; low density, large lot rural residential development; agricultural production; and large tracts of undeveloped private and public lands... Category D Rural Areas include those areas presently identified as ‘Category D’ and all areas that do not meet the criteria for inclusion in either Category A, B or C” (Cochise County 2015:31). According to the Comprehensive Plan map, neither the Project Area nor the Study Area are located in Categories A, B, or C, and are therefore located in Category D (Cochise County 2020).

According to the Comprehensive Plan, non-residential development in Category D is geared toward providing services and uses that are not appropriate in more densely populated areas of the county, such as power plants (Cochise County 2015). The Transmission Project is a non-residential development in a rural area and does not require an amendment to the Cochise County Comprehensive Plan.

## ***Land Use Impact Assessment and Results***

Land use impacts may be defined as restrictions on land use that would result from the construction or operation of the Transmission Project, or incompatibility with existing or planned land uses. Typically, restrictions on land use would result from right-of-way or easement acquisition across a property. Overall, the Transmission Project is consistent with existing and planned land uses.

- The Applicant has coordinated with a community liaison at Fort Huachuca. Fort Huachuca has not raised any concern about the Transmission Project potentially interfering with ongoing operations at the Buffalo Soldier ETR and the liaison further stated that Fort Huachuca personnel

did not identify any “conflicting plans in the area of the Transmission Project.”. The Applicant will continue to coordinate with Fort Huachuca.

- The Transmission Project will have minimal effects on rural residences identified in the Study Area. The nearest of which is at least 0.75 mile from the Transmission Project; Torch plans to acquire this the parcel that contains residence as part of the Solar Project.
- The Transmission Project would traverse ASLD land that is primarily used for grazing. The Transmission Project is a compatible land use with the existing grazing operations. The necessary right-of-way for the Transmission Project will be executed with the underlying landowner, the ASLD.
- The Transmission Project is compatible with the existing electrical infrastructure located in the western portion of the Study Area. The Applicant will continue to coordinate with the SunZia and El Rio Sol representatives regarding the location where the Transmission Project crosses those planned lines. Additionally, the Applicant will continue to coordinate with TEP and SSVEC.
- The Transmission Project is consistent with the Cochise County Comprehensive Plan land use designation Category D Rural Areas; the Transmission Project does not require an amendment to the Comprehensive Plan.

## Other Environmental Studies

In addition to the land use inventory described above, and the environmental analysis contained in this CEC application, the Applicant has completed or plans to complete additional environmental studies in connection with the Transmission and Solar Projects. These studies include:

- **ASLD Native Plant Inventory.** The Applicant has contracted with SWCA to conduct native plant surveys per ASLD protocols. The native plant inventory involves estimating the number of native trees, shrubs, and cactus plants that would be removed from state lands as a result of the Transmission Project. This estimate will be used to calculate the fee needed to be paid to the ASLD to compensate for the loss of vegetation from state lands. The native plant inventory will support the Transmission Project’s ASLD right-of-way application. The Applicant anticipates that the native plant inventory will be complete in August 2023.
- **Preliminary jurisdictional determination (PJD) for Waters of the United States (WOTUS).** The Applicant has contracted with SWCA to characterize the surface water features within the Transmission and Solar Project areas and ascertain whether any features have the potential to be considered WOTUS. The PJD analysis involved a desktop review and field verification to recommend a determination of the jurisdictional status of each feature. As part of the PJD analysis, SWCA documented the extent of surface water features within the Transmission and Solar Project areas that may be subject to regulations under the current definition of WOTUS. The PJD analysis will support compliance with the Clean Water Act for the Transmission and Solar Projects. The Applicant anticipates that the PJD analysis will be completed by July 2023.
- **Cultural resources Class III inventory.** The Applicant is in the process of completing a full coverage Class III pedestrian survey for cultural resources for the Transmission Project and the Solar Project. The Applicant’s cultural consultant will submit a full report of the Class III inventory to the ASLD, ASM, and SHPO once completed. If any archeological resources are found and eligible for inclusion in the NRHP they will be avoided.

The Transmission Project does not involve a “federal action” that would require review under the National Environmental Policy Act of 1969 (NEPA). Therefore, no environmental reports have been

prepared for any federal agency and no federal agency has prepared an environmental statement pursuant to Section 102 of the National Environmental Policy Act for the Transmission project.

## Literature Cited

- ASLD. 2023. ASLD's Parcel Viewer. Available at: <https://land.az.gov/resources/aslds-parcel-viewer>. Accessed May 2023.
- Bureau of Land Management (BLM). 2013. Final Environmental Impact Statement and Proposed Resource Management Plan Amendments for the SunZia Southwest Transmission Project. Available at: <https://eplanning.blm.gov/eplanning-ui/project/2013584/570>.
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- UXOInfo.com. n.d. UXO Site selected: Willcox Air Force Range, AZ. Available at: [http://uxoinfo.com/blogcfc/client/includes/uxopages/sitedata1.cfm?uxoinfo\\_id=05AZ0018](http://uxoinfo.com/blogcfc/client/includes/uxopages/sitedata1.cfm?uxoinfo_id=05AZ0018). Accessed May 2023.

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# EXHIBIT C. AREAS OF BIOLOGICAL WEALTH

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*As stated in the Arizona Corporation Commission Rules of Practice and Procedure R14-3-219, Exhibit 1:*

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

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## Introduction

SWCA Environmental Consultants (SWCA) conducted a biotic resource review to identify areas of biological wealth and the rare and endangered species that may occur at or in the vicinity of the Transmission Project. Throughout Exhibit C, the term Project Area refers to the 1,000-foot-wide CEC corridor within which the Transmission Project would be constructed and the Study Area refers to the Project Area plus a 1-mile buffer. SWCA consulted data sources including:

- topographical and aerial maps and land use, land cover, and elevation data,
- the U.S. Fish and Wildlife Service (USFWS) species list for the proposed Transmission Project obtained from the USFWS online Information for Planning and Consultation (IPaC) system (Exhibit C-1), and
- species information obtained from the USFWS Environmental Conservation Online System, the USFWS Arizona Ecological Services document library, and the Arizona Game and Fish Department (AGFD) Online Environmental Review Tool (Exhibit C-2).

The AGFD Online Environmental Review Tool database query establishes a buffer beyond the Study Area to search for occurrence records and the presence of modeled habitat. The size of the buffer depends on the type of project being considered. For the Transmission Project, the buffer is 3 miles beyond the Project Area. This buffer fully encompasses the 1-mile radius Study Area.

In addition, an SWCA biologist with expertise in the biology of flora and fauna of the region completed field surveys for the Transmission Project.

All plant and wildlife species observed in the Project Area and Study Area during the March 20, 2023, site visit were recorded (see Exhibit D for a complete list). The site was assessed to determine whether habitat features for species protected under the federal, state, or local regulations were present in the Project Area and Study Area.

For the purposes of Exhibit C, the biological resources of the requested Certificate of Environmental Compatibility (CEC) Corridor (i.e., the Project Area) are considered together. The impacts to areas of biological wealth or special-status species would not be substantially differently impacted depending on the final route selected within the CEC Corridor. This is because of the general homogeneity of biotic and abiotic habitat types in the Study Area and the absence of areas of biological wealth occurring at the eastern and western ends of the Project Area.

## Laws and Policies

Applicable laws and policies regarding special-status species in Arizona include the following:

- The USFWS administers the Endangered Species Act of 1973 (ESA), as amended, which protects wildlife species listed as threatened or endangered from “take” (generally, directly, or indirectly harming or disturbing listed species). However, the ESA does not provide the same take protections for listed plant species, except on federal land. The ESA also allows for the designation of critical habitat for listed species, although designation of critical habitat is not required. Critical habitat is an administrative designation of a defined area with specific characteristics important to the survival and recovery of a listed species. Designation of critical habitat can affect federal actions, but not state or private actions without a federal nexus.
- The Migratory Bird Treaty Act (MBTA) provides for the protection of migratory birds and prohibits their unlawful take or possession. The act bans “taking” any native birds; “taking” can mean killing a wild bird or possessing parts of a wild bird, including feathers, nests, or eggs. Exceptions are allowed for hunting game birds and for research purposes, both of which require permits.
- The Bald and Golden Eagle Protection Act (BGEPA) prohibits any form of possession or taking of bald eagles (*Haliaeetus leucocephalus*) or golden eagles (*Aquila chrysaetos*). A 1962 amendment to the MBTA created a specific exemption for possession of an eagle or eagle parts (e.g., feathers) for religious purposes of Native American tribes. The amendment provided for not only the preservation of the golden eagle but also the preservation of Native American cultural practices.
- The AGFD manages and conserves wildlife in Arizona. Arizona does not have a counterpart to the federal ESA, but nearly all take of wildlife is regulated in some manner through the AGFD’s hunting and fishing license system. A list of rare species (wildlife species of concern [WSC]) was created in 1996 without creating any specific statutory protections for those species (AGFD 1996). However, hunting regulations are used to provide some protection. While WSC is no longer a valid category, AGFD continues to track these species due to an existing Memorandum of Understanding between the USFWS and AGFD. Generally, no hunting or capture of WSC is allowed, with some exceptions for managed recreational fisheries of native fish (AGFD 2017) and recreational capture of certain reptiles (AGFD 2015).
- Arizona prepared a Comprehensive Wildlife Conservation Strategy in 2006 (AGFD 2006), later renamed the Arizona Wildlife Conservation Strategy (AWCS) (2022–2032), through a state–federal partnership and grant program. The AWCS was updated in 2022 (AGFD 2022). The State Wildlife Action Plan (SWAP) identifies the Species of Greatest Conservation Need (SGCN) in several tiers. Tier 1 species are those that the AGFD has deemed vulnerable and fall into a categorization of either federally listed as endangered or threatened under the ESA; those that have been recently removed from the ESA and require post-delisting monitoring; those specifically covered under a signed agreement such as a Candidate Conservation Agreement, Candidate Conservation Agreement with Assurances, Conservation Strategy and Assessment, or Strategic Conservation Plan; or those for which the AGFD has determined the protection of a closed season is warranted. Tier 2 represents the remainder of the species meeting the AGFD’s vulnerability criteria, including species that are not listed but are regionally rare or declining, species with a U.S. range primarily in Arizona that are dependent on conservation efforts within the state, and other species with identified conservation issues that may warrant management action and do not meet the criteria for Tier 1 listing. Tier 3 species are those for which existing data were insufficient to score one or more vulnerability criteria due to substantial data gaps and unknown conservation status but for which conservation concern may be warranted. Species



identified as WSC in 1996 are included as SGCNs in the SWAP and are addressed as SGCNs in Table C-1 and the discussion in this exhibit.

- The AWCS also denotes conservation opportunity areas (COAs) as of December 2022 (AGFD 2022). The COAs were created to help implement the AWCS and should be considered voluntary guidance for specific areas where conservation efforts would be most effective, based on species and habitat expertise, as well as wildlife and spatial data. These COAs are representative of specific areas that show strong potential for substantial improvements for wildlife and associated habitats. COAs are divided into two categories—terrestrial and aquatic. Terrestrial COAs focus on geographic areas determined to have high conservation value and strong potential for successful conservation efforts. Aquatic COAs are strictly focused on conservation of aquatic resources, particularly native fish species (AGFD 2023a). COAs reflect the best areas for conservation and were determined without regard to jurisdiction or landownership. In addition, COAs will not be subject to any new regulations, nor do they have any regulatory effect (AGFD 2022).
- Native plants in Arizona are managed by the Arizona Department of Agriculture (ADA) under the Arizona Native Plant Law (ANPL; ARS 3-903; Arizona Administrative Code R3-3-208), which regulates the harvest, salvage, and transport of plants. Harvest or salvage of most plant species may be permitted or required, and fees may be assessed on state land. Plants listed in the Highly Safeguarded category may only be salvaged for scientific or conservation purposes. The ANPL identifies a lengthy list of plant species—largely cacti, agaves, yuccas, and desert trees—that are susceptible to removal for collection, landscaping, sale, or other commercial uses. The ANPL states that these plants shall not be taken, transported, or possessed from any land without permission and a permit from the ADA; it also requires notification before land clearing even if the plants will be destroyed.
- The ADA administers the state noxious weed law under Arizona Administrative Code R3-4-245. Arizona maintains a list of noxious weeds in three categories: Class A, Class B, and Class C (ADA 2023). Class A species are those that are not known to occur in Arizona, have a limited distribution, and are high priority for quarantine, control, or mitigation. Class B noxious weeds are species known to occur but are of limited distribution in Arizona and may be high-priority pests for quarantine, control, or mitigation if a significant threat to crop, commodity, or habitat exists. Class C noxious weeds are plant species that are widespread but may be recommended for active control based on risk assessment.

## Arizona Game and Fish Department Coordination

Cochise County Development Services and Torch Clean Energy contacted the Arizona Game and Fish Department (AGFD) to solicit feedback on the Solar and Transmission Projects as part of the Solar Project's Cochise County Special Use Permit. AGFD provided Cochise County with a comment letter (dated April 24, 2023) regarding the Solar and Transmission Projects (see Exhibit C-3). AGFD's comment letter contained recommendations for the design of the Solar Project intended to reduce impacts to wildlife and habitat. Notably, the AGFD comment letter stated that “the Department encourages the use of both bird diverters and near-ultraviolet light Avian Collision Avoidance Systems (ACAS) on any new power lines for this project.”

After receiving the letter, Torch and SWCA met with AGFD on April 26, 2023, to discuss the comment letter. On May 2, 2023, Torch sent a letter to AGFD responding to its recommendations and indicating the ways in which the Solar Project's design, BMPs, and mitigation measures incorporated would address AGFD's concerns and mitigate impacts to wildlife and habitat (see Exhibit C-4). Torch's April 26 reply letter stated that Torch would “explore the feasibility of incorporating bird diverters and ACAS into the

design of the Winchester generation-tie line.” AGFD acknowledged receipt of the letter in an email on May 4; AGFD’s email expressed appreciation for the Applicant’s coordination. The biological mitigation measures proposed for the Transmission Project (see Exhibits C and D) are in part based on this coordination with AGFD.

In June 2023, Torch commissioned EDM International, Inc. (EDM) to investigate the feasibility and potential effectiveness of implementing an ACAS system for the Transmission Project. Avian biologists at EDM are recognized experts on transmission line collisions and avoidance systems and have published numerous peer-reviewed studies on the topic. EDM’s report “Rapid Desktop Avian Collision Risk Assessment” is attached as Exhibit C-5. The EDM report states that “birds using the Wilcox Playa and roosting at the Wilcox [wildlife management area (WMA)] are likely to either stay in or near wetland areas associated with water if present, and to disperse to forage in agricultural areas primarily east and southeast of the WMA.” The report further states that “based on the lack of aquatic or agricultural habitats within or adjacent other CEC corridor [...] it does not appear that large numbers of birds are likely to use the area.” The EDM report concludes that “no ACAS unit(s) are warranted on the CEC corridor.” Torch plans to convey this information to AGFD as planning and design of the Transmission Project advances.

## **Inventory**

SWCA biologists with expertise in the biology of flora and fauna of the region surveyed the Study Area on March 20, 2023. All plants and wildlife observed were recorded during the survey efforts. A biologist conducting other studies in the Project Area in May 2023 also added to the list of flora and fauna.

In addition, the biologists documented existing conditions and noted any habitat features that may be important to special-status species or related to areas of biological wealth in the Project Area and Study Area.

On June 1, 2023, SWCA queried the USFWS IPaC database to generate an unofficial list of ESA-listed species that have the potential to occur in the Study Area (see Exhibits C-1a through C-1p) (USFWS 2023a). In addition, the AGFD Online Environmental Review Tool was queried on June 1, 2023, to generate a list of special-status species with records within 3 miles of the Project Area and a list of SGCNs with modeled suitable habitat intersecting the Project Area (see Exhibits C-2a through C-2k) (AGFD 2023b). Lastly, SWCA reviewed the AGFD’s Project Evaluation Program comment letter dated April 24, 2023, and incorporated relevant information and recommendations into this application (see Exhibits J-1 and J-2).

## **Summary of Occurrence**

The USFWS and AGFD identified endangered, threatened, candidate, and other special-status species that are known to occur or could occur in the region (i.e., within the Study Area for USFWS and within the Project Area plus a 3-mile buffer for AGFD). These special-status species and the likelihood of their being present in the vicinity of the proposed Transmission Project are addressed below in eight sections: 1) Areas of Biological Wealth, 2) Federally Listed Threatened and Endangered Species, 3) Bald and Golden Eagles 4) Other Special-Status Species, 5) Birds of Conservation Concern, 6) Species of Greatest Conservation Need, 7) State-Protected Native Plants, and 8) Noxious Weeds (AGFD 2023a; USFWS 2023a).

### ***Areas of Biological Wealth***

No designated or proposed critical habitat occurs within the Project Area or Study Area (USFWS 2023a).

An area of biological wealth occurs in the vicinity of the Project Area but outside of the Study Area—the Willcox Playa, a large dry lake that is seasonally flooded, is approximately 2.2 miles southeast of the Project Area. Willcox Playa is a site where birds congregate, in particular overwintering sandhill cranes (*Grus canadensis*) and provides stopover migratory habitat to many shorebird species (Audubon 2023). A barrier to wildlife movement (i.e., Interstate 10 (I-10)) also occurs in the vicinity of the Transmission Project, approximately 0.4 mile southeast of the Study Area. The Project Area and Study Area do not intersect with any wildlife linkages although they do intersect with an important connectivity zone (ICZ) (see Exhibit C-1). ICZs are general areas throughout the landscape that contribute the most to permeability of the whole landscape (Perkl 2013).

No Important Bird Areas (IBAs) or proposed or designated critical habitat occurs within the Project Area or Study Area. The closest IBA, Willcox Playa/Cochise Lakes IBA, is approximately 0.8 mile southeast of the Study Area and 1.8 miles southeast of the Project Area across I-10, encompassing the Willcox Playa and extending out beyond the Playa into the adjacent uplands (Audubon 2023).

### **Federally Listed Threatened and Endangered Species**

Five species listed as endangered, four species listed as threatened, one candidate species, and one experimental population, non-essential species were identified in the USFWS species list for the Study Area (USFWS 2023a). Even though they have projected ranges within the vicinity of the Project, none of these species is likely to occur because the Project and Study Area do not contain suitable habitat, are distant to known populations, or both (see Table C-1). The ESA-listed threatened and endangered species are: jaguar (*Panthera onca*), ocelot (*Leopardus pardalis*), Mexican spotted owl (*Strix occidentalis lucida*), yellow-billed cuckoo (*Coccyzus americanus*), Chiricahua leopard frog (*Rana chiricahuensis*), Gila chub (*Gila intermedia*), Arizona eryngo (*Eryngium sparganophyllum*), Huachuca water umbel (*Lilaeopsis schaffneriana* var. *recurva*), and Wright’s marsh thistle (*Cirsium wrightii*). The occurrences status for each of these species are addressed in Table C-1.

The northern Aplomado falcon (*Falco femoralis septentrionalis*) was noted and is an experimental population, non-essential species. All of Arizona, including the Project and Study Areas, are inside the 10(j) experimental population area; therefore, the northern Aplomado falcon would be treated as endangered in the Project Area and Study Area. The candidate species is the monarch butterfly (*Danaus plexippus*). The species’ federal status and potential for occurrence in the vicinity of the Transmission Project are presented in Table C-1.

### **BALD AND GOLDEN EAGLES**

The bald eagle and golden eagle are protected under both the MBTA and the BGEPA of 1940, as amended (16 United States Code 668–668d or 50 Code of Federal Regulations 22).

The bald eagle is protected under the MBTA and BGEPA and is a SGCN 1A species. Nests are generally placed in large deciduous or coniferous trees or cliffs, with a commanding view of the area, less than 1 mile from appropriate aquatic foraging conditions (e.g., perennial rivers or lakes containing fish) (Buehler 2000). The species communally roosts in the winter in large (15–60 meters [m] [approximately 50–197 feet] in height) deciduous or coniferous trees, which tend to be located near aquatic foraging sites (less than 50 m [164 feet]) but may be located more than 6 miles from aquatic foraging sites, particularly in areas sheltered from adverse weather conditions with unusually high prey or carcass availability (Buehler 2000; USFWS 2007a, 2013). Wintering/nonbreeding individuals and juveniles are typically associated with breeding habitats; however, they may range widely in search of food, shelter, and reduced human presence (Buehler 2000).

The Project Area and Study Area are within the nonbreeding range of the species, and the Project and Study Areas may provide limited foraging items for this species in the form of large mammal carrion and

waterfowl. The Project Area and Study Area do not contain characteristic nesting or roosting habitats. The nearest documented nesting areas are over 80 miles away; northeast along the Gila River near Coolidge, Arizona (Southwestern Bald Eagle Management Committee 2023).

Golden eagles are protected under the MBTA and BGEPA and they are an SGCN 1B species. They require large, open hunting grounds adjacent to mountainous canyonland and rimrock terrain of open desert, grassland, and forested areas (Katzner et al. 2020; Marzluff et al. 1997). The presence of sizeable shrub (e.g., sagebrush [*Artemisia* spp.], rabbitbrush [*Chrysothamnus* spp.]) patches is an essential component of golden eagle home ranges (Marzluff et al. 1997). Nests are placed in rugged terrain (e.g., cliffs), less often in tall trees and on human-made structures (e.g., transmission towers) (Katzner et al. 2020). Wintering/nonbreeding individuals and juveniles are typically associated with breeding habitats; however, they may range widely in search of food (Katzner et al. 2020). The nearest known breeding area for the golden eagle in Cochise County is mapped in the Winchester Mountains, approximately 5 miles north of the evaluation area (McCarty et al. 2023). Although the Project Area and Study Area do not contain suitable nesting habitat for golden eagle, individuals may forage or move through the areas.

The status and potential for the bald eagle and golden eagle to be present in the vicinity of the Transmission Project are presented in Table C-1.

**Table C-1. Evaluation of Federally Listed and BGEPA Species within the Study Area**

Common Name (Scientific Name)	Status*	Range or Habitat Requirements	Occurrence Status
<b>Mammals</b>			
Jaguar ( <i>Panthera onca</i> )	E	Jaguars were once prominent in south Arizona and were found in Sonoran desertscrub up through subalpine conifer forest at elevations between 1,600 and 9,000 feet amsl. Based on 25 historical (from 1902 to 2001), reliable, and spatially accurate jaguar sighting records in Arizona, most jaguars were observed in scrub grasslands (56%) and Madrean evergreen forests (20%), all were within 6.2 miles of a water source, and most occurred in moderately rugged to extremely rugged terrain (Hatten et al 2005).	<p>Unlikely to occur. While the Project and Study Areas are within the range of this species, jaguars are unlikely to occur because this extremely rare species is unlikely to disperse into or across the Study Area and suitable habitat does not occur in the Study Area for a resident individual.</p> <p>The Project and Study Areas are close to I-10 and show signs of human disturbance (e.g., cattle ranching, off-highway vehicle use) and well-maintained dirt roads designed to be used by passenger vehicles. I-10 is a known barrier to wildlife movement, and all jaguars that occurred in the United States in recent years (before the 1960s) have occurred south of I-10 (Wildlife Conservation Society 2023).</p> <p>Jaguars have been observed in the Dos Cabezas Mountains approximately 17 miles east of the Project Area. Barriers to dispersal for jaguars between the Dos Cabezas Mountains and the Project Area include I-10, the Willcox Playa, and Willcox, Arizona’s residential and agricultural development. The closest jaguar designated critical habitat (Whetstone Unit) is approximately 20 miles southwest of the Study Area and is separated from the Study Area by I-10, roads, and residences.</p>

Common Name (Scientific Name)	Status*	Range or Habitat Requirements	Occurrence Status
Ocelot ( <i>Leopardus pardalis</i> )	E	In Arizona, typically observed in dense, brushy thickets at elevations below 8,000 feet amsl and often found in riparian bottomlands. Dense cover near the ground is an important habitat component, and ocelots completely avoid open country. In Arizona, there are seven recent confirmed sightings: one from Gila County (2010), five from Cochise County (2009, 2011, and 2012), and one from Pima County (2014), along with unconfirmed sightings in the Huachuca, Chiricahua, and Peloncillo Mountains.	Unlikely to occur. Ocelots are extremely rare; there are only a few ocelots currently known to occur in southern Arizona. The nearest known occurrence of this species is in the Whetstone Mountains, which is more than 25 miles southwest of the Project Area. All of the known occurrences of this species in Arizona, with the exception of the individual observed near Globe (Gila County), have occurred south of I10, which is a known barrier to wildlife movement, making this species less likely to disperse across the Project Area from mountainous areas in the southern portion of the state where it might occur.
<b>Birds</b>			
Bald eagle ( <i>Haliaeetus leucocephalus</i> )	BGEPA MBTA	Occurs in aquatic habitats with open water or Southwest arid regions with available food and roost sites. Nonbreeding eagles range throughout Arizona except for the south-central portion of the state; breeding eagles occur in limited, fragmented locations of central, eastcentral, and west-central portions of the state.	May occur. The Project Area and Study Area do not contain preferred breeding or roosting habitats but are within the nonbreeding range, and eagles may move through the areas.
Golden eagle ( <i>Aquila chrysaetos</i> )	BGEPA MBTA	Found in mountainous canyon land, rimrock terrain of open desert, grassland, and forested areas. Year-round range includes all of Arizona.	May occur. Although suitable nesting habitat is not present in the Project Area or Study Area, eagles may forage or move through the areas.
Mexican spotted owl ( <i>Strix occidentalis lucida</i> )	T MBTA	Found in mature montane forests and woodlands and steep, shady, wooded canyons. Can also be found in mixed conifer and pine-oak vegetation types. It generally nests in older forests of mixed conifers or ponderosa pine ( <i>Pinus ponderosa</i> )–Gambel oak ( <i>Quercus gambelii</i> ). Nests in live trees on natural platforms (e.g., dwarf mistletoe [ <i>Arceuthobium</i> spp.] brooms), snags, and canyon walls at elevations between 4,100 and 9,000 feet amsl.	Unlikely to occur. The Project Area does not contain suitable habitat for this species.
Northern aplomado falcon ( <i>Falco femoralis septentrionalis</i> )	EXPN MBTA	The species has somewhat variable habitat preferences, with historic habitats in Arizona, including semi-desert grassland or riparian associations with scattered trees and shrubs at elevations from 3,300 to 4,900 feet amsl. They do not build their own nest but occupy old stick nests left by raptors; those of Chihuahuan ravens ( <i>Corvus cryptoleucus</i> ) are used extensively. Nests are typically in mesquite, yucca, or low bushes up to 5 m (approximately 16 feet) in height.	Unlikely to occur. Though the boundary of the 10(j) reintroduction area includes all of New Mexico and Arizona, birds have only been released in New Mexico. This species has not been recorded in Arizona since 1977 and is considered extirpated from the state (AGFD 2023b). Habitat in the Project Area has been degraded over many years by livestock grazing, which resulted in reduction of grassland habitat and its natural fire regime and promoted the incursion of mesquite and other shrubs.
Yellow-billed cuckoo ( <i>Coccyzus americanus</i> )	T MBTA	Typically found in riparian woodland vegetation (cottonwood, willow, or saltcedar) at elevations below 6,600 feet amsl. Dense understory foliage appears to be an important factor in nest site selection. The highest concentrations in Arizona are along the Agua Fria, San Pedro, upper Santa Cruz, and Verde River drainages and Cienega and Sonoita Creeks.	Unlikely to occur. Suitable habitat for this species is not present in the Project Area. There are no occurrence records for this species within 5 miles of the Project Area (AGFD 2023a).
<b>Amphibians</b>			

Common Name (Scientific Name)	Status*	Range or Habitat Requirements	Occurrence Status
Chiricahua leopard frog ( <i>Rana chiricahuensis</i> )	T	Permanent or semi-permanent springs, livestock tanks, and streams in the upper portions of watersheds at elevations between 3,000 and 9,000 feet amsl. Often do not coexist with nonnative species (e.g., bullfrogs, nonnative fishes, crayfish). In Arizona, may occur in east-central and southeastern portions of the state.	Unlikely to occur. Although this species is documented within 5 miles of the Project Area and there are numerous ephemeral drainages and livestock tanks, there are no recent records (1995 to present) from the Pinaleño Mountains or Sulphur Springs Valley (USFWS 2007b). The species is now absent from all but one of the southeast Arizona valley bottom ciénega complexes.  Critical habitat for the species, as well as the nearest known population, is approximately 18 miles south of the Project Area in the Dragoon Mountains. As these known populations are further from the Project Area than the known dispersal distance for this species and no populations have been recently recorded within the vicinity, it is unlikely that this species would be present within the Project Area or used as a dispersal corridor.
<b>Fishes</b>			
Gila chub ( <i>Gila intermedia</i> )	E	Found in pools in smaller streams, ciénegas, and artificial ponds ranging in elevation from 2,000 to 5,500 feet amsl. Highly secretive, adults prefer deeper, quieter waters in pools and eddies below riffles or runs, often remaining in cover from terrestrial vegetation, boulder, and fallen logs.	Unlikely to occur. There are no suitable permanent water sources suitable for this species in or adjacent to the Project Area.
<b>Insects</b>			
Monarch butterfly ( <i>Danaus plexippus</i> )	C	Habitat is complex. Generally, breeding areas are virtually all patches of milkweed ( <i>Asclepias</i> sp.). The species occurs throughout Arizona during the summer and migrates to winter in Mexico and California, though small numbers do overwinter in the low deserts of southwestern Arizona.	May occur. Milkweed plants were also observed during field surveys. Additionally, other flowering plants that adult monarch butterflies may use for forage did occur.
<b>Flowering Plants</b>			
Arizona eryngo ( <i>Eryngium sparganophyllum</i> )	E	This perennial forb occurs in spring-fed ciénega wetlands, in moist to saturated organic alkali soils (USFWS 2022). Plants thrive in full sun in areas without non-native plant species or excessive woody vegetation. In Arizona, this plant is present in three disjunct populations in Pima and Cochise Counties at elevations from 2,707 to 4,000 feet amsl: Agua Caliente Ranch, where it is extirpated but reintroduced; La Cebadilla Ciénega, near Tanque Verde Wash east of Tucson; and in Lewis Springs Ciénega within the San Pedro Riparian National Conservation Area.	Unlikely to occur. There is no suitable ciénega habitat within the Project Area. The Project and Study Areas are distant from the known occurrences of this species.
Huachuca water umbel ( <i>Lilaeopsis schaffneriana</i> var. <i>recurva</i> )	E	Semi-aquatic to aquatic perennial found in shallow water or saturated soil of ciénegas or marshy wetlands at elevations between 4,000 and 6,500 feet amsl. Known from the Huachuca Mountains, Canelo Hills, headwaters of the Santa Cruz River to Black Draw, and the San Pedro River.	Unlikely to occur. There is no suitable ciénega or marshland habitat within the Study Area.

Common Name (Scientific Name)	Status*	Range or Habitat Requirements	Occurrence Status
Wright's marsh thistle ( <i>Cirsium wrightii</i> )	T	A wetland obligate species occurring at alkaline spring seeps and ciénegas from 3,800 to 6,000 feet amsl. Known in Arizona only from the San Bernardino National Wildlife Refuge.	Unlikely to occur. There is no suitable habitat for this species in the Project Area, and the only historically known Arizona population (San Bernardino Ciénega) (USFWS 2017), which is approximately 70 miles southeast of the Project Area, has been extirpated (USFWS 2023c).

Sources: AGFD (2023a); USFWS (2023.b). Notes regarding documentation within 5 miles of the evaluation area are from AGFD (2023a).

Note: This table lists the species named in the USFWS official species list (USFWS 2023a) and the Arizona Online Environmental Review Tool (AGFD 2023a). amsl = above mean sea level; BGEPA = Bald and Golden Eagle Protection Act; C = candidate; E = endangered; EXPN = experimental non-essential population; MBTA = Migratory Bird Treaty Act; T = threatened.

## Other Special-Status Species

Other special-status species include the following:

- Birds of Conservation Concern (BCC), which are bird species beyond those designated as federally threatened or endangered, that represent the USFWS's highest conservation priorities. The relevant BCC for this analysis are those identified by the USFWS (2021) as occurring in Bird Conservation Region (BCR) 34.
- SGCN in Arizona, which are species identified by the AGFD as warranting heightened attention because of low and declining populations. SGCN are prioritized into tiers. Tier 1 species are those that the AGFD has deemed vulnerable and are federally listed as either endangered or threatened under the ESA; those that have been recently removed from the ESA and require post-delisting monitoring; those specifically covered under a signed agreement such as a Candidate Conservation Agreement, Candidate Conservation Agreement with Assurances, Conservation Strategy and Assessment, or Strategic Conservation Plan; or those for which the AGFD has determined the protection of a closed season is warranted. Tier 2 represents the remainder of the species meeting the AGFD's vulnerability criteria, including species that are not listed but are regionally rare or declining, species with a U.S. range primarily in Arizona that are dependent on conservation efforts within the state, and other species with identified conservation issues that may warrant management action and do not meet the criteria for Tier 1 listing. Tier 3 species are those for which existing data were insufficient to score one or more vulnerability criteria due to substantial data gaps and unknown conservation status, but where conservation concern may be warranted.

The species in these categories (other than those also designated as federally threatened or endangered, candidate, experimental non-essential population [EXPN], or BGEPA, which are addressed above) have occurrence records or predicted habitat modeled within 3 miles of the Project Area (AGFD 2023a). These species are discussed and listed below in Table C-2, where they are evaluated for potential occurrence based on the results of Project Area surveys, familiarity with the vicinity, and freely available information sources including the following:

- AGFD's Heritage Data Management System (AGFD 2023b)
- Online field guide *Reptiles and Amphibians of Arizona* (Brennan 2012)
- *Arizona Breeding Bird Atlas* (Corman and Wise-Gervais 2005)
- Online field guide *All About Birds* (Cornell Lab of Ornithology 2023)
- eBird (2023)

- Google Earth (2023)
- USFWS Environmental Conservation Online System website (USFWS 2023b)

**Table C-2. Other Special-Status Species with Potential to Occur in the Vicinity of the Study Area**

Common Name (Scientific Name)	Habitat and Notes	Status		Occurrence Status	
		Federal*	State†	Project Area	Study Area
<b>Plants</b>					
Needle-spined pineapple cactus ( <i>Echinomastus erectocentrus</i> var. <i>erectocentrus</i> )	Desert grasslands on gravelly hills and bajadas.	–	SR	May occur. Suitable habitat is present within the Project Area.	May occur. Suitable habitat is present within the Study Area.
<b>Amphibians</b>					
Lowland leopard frog ( <i>Lithobates yavapaiensis</i> )	Found in rocky streams, in canyon habitats surrounded by coniferous forests or in ponds and stream pools. Usually found in areas with desertscrub biotic communities. Greatest threats to species continuation include habitat alteration, fragmentation, and introduction of nonnative competitor fish, crayfish, and frogs. Species dispersal has been shown to remain within a few kilometers of aquatic breeding sites.	–	SGCN (1)	Unlikely to occur. Suitable habitat is not present within the Project Area.	Unlikely to occur. Suitable habitat is not present within the Study Area.
Sonoran Desert toad ( <i>Incilius alvarius</i> )	Found in Sonoran desertscrub, semi-desert grasslands, oak, and occasionally pine-oak woodland habitats up to about 5,800 feet amsl. Associated with major rivers and edges of agriculture; though often tied to permanent water, can be found miles from water during summer monsoon season, in some areas.	–	SGCN (2)	May occur. Suitable habitat (i.e., cattle tank) is present within the Project Area. However, breeding is unlikely as no permanent ponds or streams occur within the Project Area.	May occur. Suitable habitat (i.e., cattle tank) occurs within the Study Area. However, breeding is unlikely as no permanent ponds or streams occur within the Study Area.
<b>Birds</b>					
American kestrel ( <i>Falco sparverius</i> )	Found in open and semi-open habitats, frequently found in prairies, deserts, wooded streams, burned forest, and agricultural areas. Known to nest in natural holes in tress, abandoned woodpecker cavities, cavities in buildings or cliffs, and similar sites.	MBTA	SGCN (2)	May occur. The Project Area contains suitable habitat for foraging or breeding.	May occur. The Study Area contains suitable habitat for foraging or breeding.
American peregrine falcon ( <i>Falco peregrinus anatum</i> )	Breeds in open areas with cliffs; occurs year-round in Arizona within landscapes with cliffs and rivers; nearly any open habitat; mudflats, lake edges, and mountain chains.	MBTA	SGCN (1)	May occur. The Project Area contains suitable habitat for foraging.	May occur. The Study Area contains suitable habitat for foraging.
Arizona Botteri's sparrow ( <i>Peucaea botterii arizonae</i> )	Breeds in semi-desert grassland in southeastern Arizona.	MBTA	SGCN (2)	Unlikely to occur. The Project Area is distant from known populations of this species in southern Cochise County.	Unlikely to occur. The Study Area is distant from known populations of this species in southern Cochise County.



Common Name (Scientific Name)	Habitat and Notes	Status		Occurrence Status	
		Federal*	State†	Project Area	Study Area
Arizona grasshopper sparrow ( <i>Ammodramus savannarum ammolegus</i> )	Large expanses of intermediate height grass, including a low, woody shrub component.	MBTA	SGCN (2)	Unlikely to occur. The Project Area is distant from known populations of this species in southern Cochise County.	Unlikely to occur. The Study Area is distant from known populations of this species in southern Cochise County.
Arizona woodpecker ( <i>Picoides arizonae</i> )	Madrean woodland: oak or pine-oak woodland and associated sycamore-walnut riparian woodland. Year-round range in Arizona includes the southeast corner of the state.	MBTA BCC†	SGCN (2)	Unlikely to occur. No suitable habitat is present within the Project Area.	Unlikely to occur. No suitable habitat is present within the Study Area.
Bendire's thrasher ( <i>Toxostoma bendirei</i> )	Found in desert habitats with a mix of relatively large shrubs/cacti and open ground or open woodland with scattered shrubs and trees. Not typically found in riparian woodland areas, the species avoids continuous shrublands and grasslands. Commonly found in areas with desertscrub biotic communities. Nesting is known to occur in low trees, shrubs, and cacti including mesquite ( <i>Prosopis</i> spp.), cholla ( <i>Cylindropuntia</i> spp.), yucca ( <i>Yucca</i> sp.), paloverde ( <i>Parkinsonia</i> sp.), and saltbush ( <i>Atriplex</i> sp.).	MBTA BCC	SGCN (2)	May occur. The Project Area contains suitable habitat for foraging and nesting.	May occur. The Study Area contains suitable habitat for foraging and nesting.
Black-chinned sparrow ( <i>Spizella atrogularis</i> )	Occurs on rocky, rugged hillsides, nests in shrubs. Winters in Mexico.	MBTA BCC	–	May occur. The Project Area contains suitable habitat for foraging and nesting.	May occur. The Study Area contains suitable habitat for foraging and nesting.
Black-throated gray warbler ( <i>Setophaga nigrescens</i> )	Open coniferous or mixed coniferous-deciduous woodland with brushy undergrowth, pinyon-juniper and pine-oak associations, and oak scrub. Breeding range includes northern and eastern Arizona; migration range includes central and southwestern portions of the state.	MBTA BCC	SGCN (2)	May occur. The Project Area contains suitable habitat for foraging and nesting.	May occur. The Study Area contains suitable habitat for foraging and nesting.
Brewer's sparrow** ( <i>Spizella breweri</i> )	Wintering habitat in the desert southwest and Mexico. Breeds in sagebrush ecosystems.	MBTA	SGCN (2)	Known to occur. This species was observed during the March 2023 field visit. Suitable wintering habitat is present within the Project Area.	May occur. Suitable wintering habitat is present within the Project Area.
Broad-billed hummingbird ( <i>Cyananthus latirostris</i> )	Riparian zones of arid canyons, particularly in zones with sycamore and mesquites, but wanders to higher elevations. Breeding range includes southeastern Arizona.	MBTA BCC†	SGCN (2)	May occur. The Project Area contains suitable habitat for foraging and nesting.	May occur. The Study Area contains suitable habitat for foraging and nesting.
Bullock's oriole ( <i>Ictarus bullockii</i> )	Breed in open woodland and riparian areas in areas where trees are large and well-spaced. Use similar open woodlands during migration and for winter.	MBTA	SGCN (2)	Unlikely to occur. No suitable habitat is present within the Project Area.	Unlikely to occur. No suitable habitat is present within the Study Area.

Common Name (Scientific Name)	Habitat and Notes	Status		Occurrence Status	
		Federal*	State†	Project Area	Study Area
Cactus wren ( <i>Campylorhynchus brunneicapillus</i> )	Non-migratory species often found in arid desert habitat with biotic communities including cholla, mesquite, and sage scrub. Nesting is known to occur in thorny trees and shrubs, though they have been observed nesting in buildings in the past.	MBTA BCC‡	SGCN (2)	May occur. The Project Area contains suitable habitat for foraging and nesting.	May occur. The Study Area contains suitable habitat for foraging and nesting.
Cassin's finch ( <i>Haemorhous cassinii</i> )	Breed in conifer forests and winter at lower elevations.	MBTA BCC‡	SGCN (2)	Unlikely to occur. No suitable habitat is present within the Project Area and no known populations are near the Project Area.	Unlikely to occur. No suitable habitat is present within the Study Area and no known populations are near the Study Area.
Chestnut-collared longspur ( <i>Calcarius ornatus</i> )	Found in the Great Plains in native prairie habitat consisting of mixed-grass and shortgrass uplands. Has also been observed in riparian areas in more arid habitats.	MBTA BCC-nb	SGCN (2)	May occur. The Project Area contains suitable habitat for foraging.	May occur. The Study Area contains suitable habitat for foraging.
Chihuahuan raven ( <i>Corvus cryptoleucus</i> )	Nest in grasslands and deserts with yucca and scattered small trees.	MBTA BCC‡	SGCN (2)	May occur. The Project Area contains suitable habitat for foraging and nesting.	May occur. The Study Area contains suitable habitat for foraging and nesting.
Common black-hawk ( <i>Buteogallus anthracinus</i> )	Riparian obligate breeder, preferring mature/well-developed riparian forest. Winters from southern Arizona south to South America. Typically occurs in coastal lowlands and grasslands near sources of water.	MBTA	SGCN (2)	May occur. The Project Area contains suitable habitat for foraging or migrating.	May occur. The Study Area contains suitable habitat for foraging or migrating.
Common nighthawk ( <i>Chordeiles minor</i> )	Open and semi open areas; coniferous forests to grasslands to towns and cities, prefers sandy soil.	MBTA	SGCN (2)	May occur. The Project Area contains suitable habitat for foraging or migrating.	May occur. The Study Area contains suitable habitat for foraging or migrating.
Costa's hummingbird ( <i>Calypte costae</i> )	Found in Sonoran and Mojave desertscrub near washes of native desert vegetation or rocky slopes of saguaros and creosote bush lowlands.	MBTA BCC‡	SGCN (2)	May occur. Suitable habitat is present within the Project Area.	May occur. Suitable habitat is present within the Project Area.
Elf owl ( <i>Micrathene whitneyi</i> )	Known to occupy diverse habitats. In the Sonoran Desert, they are known to use desert ironwood ( <i>Olneya tesota</i> ), ocotillo ( <i>Fouquieria splendens</i> ), paloverde, and saguaro. Nesting most often occurs in saguaro and other columnar cacti, Fremont cottonwood ( <i>Populus fremontii</i> ), honey mesquite ( <i>Prosopis glandulosa</i> ), and Goodding's willow ( <i>Salix gooddingii</i> ).	MBTA	SGCN (3)	May occur. The Project Area contains suitable habitat for foraging.	May occur. The Study Area contains suitable habitat for foraging.
Ferruginous hawk ( <i>Buteo regalis</i> )	Grasslands, shrub-steppe, pinyon-juniper, sparse riparian forests, and canyon areas with cliffs and rock outcrops. Year-round range includes roughly the north half of Arizona; wintering range includes roughly the south half of the state.	MBTA BCC‡	SGCN (2)	May occur. Winter foraging habitat is present in the Project Area.	May occur. Winter foraging habitat is present within the Study Area.

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Flammulated owl ( <i>Psiloscops flammeolus</i> )	Occurs in mixed conifer forests.	MBTA BCC	SGCN (2)	Unlikely to occur. No suitable habitat is present within the Project Area.	Unlikely to occur. No suitable habitat is present within the Study Area.
Gila woodpecker ( <i>Melanerpes uropygialis</i> )	Arid regions, particularly saguaro desert, riparian woodland, and residential areas. Year-round range includes the south half of the state.	MBTA BCC‡	SGCN (2)	May occur. Suitable habitat is present within the Project Area.	May occur. This species was observed within the Study Area during surveys.
Gilded flicker ( <i>Colaptes chrysoides</i> )	Found in Sonoran desertscrub with saguaros present, or riparian woodlands with mature trees.	MBTA BCC	SGCN (2)	Unlikely to occur. No suitable habitat is present within the Project Area.	Unlikely to occur. No suitable habitat is present within the Study Area.
Gray flycatcher ( <i>Empidonax wrightii</i> )	Commonly found in pinyon-( <i>Pinus</i> ) juniper ( <i>Juniperus</i> ) woodlands, less frequently observed in open ponderosa pine ( <i>Pinus ponderosa</i> ) or pine-oak ( <i>Quercus</i> ) woodland. In Arizona, wintering birds often found use mesquite bosques and riparian areas.	MBTA	SGCN (2)	Unlikely to occur. The Project Area is distant from known populations of this species.	Unlikely to occur. The Study Area is distant from known populations of this species.
Gray vireo ( <i>Vireo vicinior</i> )	Nest in pinyon pine-juniper down through mesquite scrub, oak scrub, and chaparral. Winters in Mexico.	MBTA	SGCN (2)	Unlikely to occur. The Project Area is distant from known populations of this species and does not contain suitable habitat.	Unlikely to occur. The Study Area is distant from known populations of this species and does not contain suitable habitat.
Harris's hawk ( <i>Parabuteo unicinctus</i> )	Found in savannas, open woodlands, and semi-desert habitats. Frequently observed near water sources, both natural and human-made. Often uses saguaro for nesting sites.	MBTA BCC‡	SGCN (2)	May occur. The Project Area contains suitable habitat for foraging.	May occur. The Study Area contains suitable habitat for foraging.
Inca dove ( <i>Columbina inca</i> )	Occurs in farmlands, parks, and residential areas.	MBTA	SGCN (2)	Unlikely to occur. No suitable habitat is present within the Project Area.	Unlikely to occur. No suitable habitat is present within the Study Area.
Juniper titmouse ( <i>Baeolophus ridgway</i> )	Found in dry, open pinyon-juniper woodlands.	MBTA	SGCN (3)	Unlikely to occur. No suitable habitat is present within the Project Area.	Unlikely to occur. No suitable habitat is present within the Study Area.
Lincoln's sparrow ( <i>Melospiza lincolni</i> )	Winters in central Arizona; prefers dense, brushy areas, often near water.	MBTA	SGCN (2)	May occur. The Project Area contains suitable habitat for foraging.	May occur. The Study Area contains suitable habitat for foraging.
Loggerhead shrike** ( <i>Lanius ludovicianus</i> )	Found in open areas with scattered trees and shrubs. Frequently observed in savannas and desertscrub biotic communities.	MBTA	SGCN (2)	Known to occur. This species was observed during the March 2023 field visit. The Project Area contains suitable habitat for foraging and nesting.	May occur. The Study Area contains suitable habitat for foraging and nesting.

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Long-eared owl ( <i>Asio otus</i> )	Found in deciduous forests and riparian areas near permanent water ways.	MBTA BCC	SGCN (2)	Unlikely to occur. No suitable habitat is present within the Project Area, and Project Area is distant to known populations of this species.	Unlikely to occur. No suitable habitat is present within the Study Area and Study Area is distant to known populations of this species.
McCown's longspur ( <i>Rhynchophanes mccownii</i> )	Breeds in the Great Plains and winters in short-open habitats, agricultural areas, and dry lake beds.	MBTA BCC‡	SGCN (2)	Unlikely to occur. Project Area is outside the range of this species.	Unlikely to occur. Study area is outside the range of this species.
Mississippi kite ( <i>Ictinia mississippiensis</i> )	Breeds in riparian deciduous forests that border desert uplands. Occurs in pecan orchards in central Arizona.	MBTA	SGCN (2)	Unlikely to occur. No suitable habitat is present within the Project Area.	Unlikely to occur. No suitable habitat is present within the Study Area.
Montezuma quail ( <i>Cyrtonyx montezumae</i> )	Occurs in pine-oak forests in steep mountains year-round.	–	SGCN (3)	Unlikely to occur. Project Area is outside the range of this species.	Unlikely to occur. Study Area is outside the range of this species.
Mountain plover ( <i>Charadrius montanus</i> )	Non-breeding visitor to Arizona, in winter prefers dry plains and agricultural fields.	MBTA BCC-nb‡	SGCN (2)	Unlikely to occur. The Project Area is distant from known populations of this species.	Unlikely to occur. The Study Area is distant from known populations of this species.
Mountain pygmy-owl ( <i>Glaucidium gnoma gnoma</i> )	Occurs in a variety of forest habitats from deciduous bottomlands to high-elevation continuous forests. Year-round in Arizona, except for southwestern portion of the state.	MBTA	SGCN (2)	Unlikely to occur. No suitable habitat is present within the Project Area, and Project Area is distant to known populations of this species.	Unlikely to occur. No suitable habitat is present within the Study Area and Study Area is distant to known populations of this species.
Northern beardless tyrannulet ( <i>Camptostoma imberbe</i> )	Occurs in woodlands and thickets near streams.	MBTA	SGCN (2)	Unlikely to occur. No suitable habitat is present within the Project Area.	Unlikely to occur. No suitable habitat is present within the Study Area.
Northern goshawk ( <i>Accipiter gentilis</i> )	Nests in mature, old-growth forests with closed canopy. Often hunts in more open wooded habitats.	MBTA	SGCN (2)	Unlikely to occur. No suitable habitat is present within the Project Area.	Unlikely to occur. No suitable habitat is present within the Study Area.
Phainopepla ( <i>Phainopepla nitens</i> )	Desert washes with trees, widespread in the desert.	MBTA BCC	–	May occur. The Project Area contains suitable habitat for foraging and nesting.	May occur. The Study Area contains suitable habitat for foraging and nesting.
Prairie falcon ( <i>Falco mexicanus</i> )	Found in open areas, predominantly in mountainous areas, steppes, plains, or prairies. Non-breeding wintering individuals have been known to forage in agricultural fields.	MBTA BCC‡	SGCN (2)	Unlikely to occur. No suitable habitat is present within the Project Area.	Unlikely to occur. No suitable habitat is present within the Study Area.
Pyrrhuloxia ( <i>Cardinalis sinuatus</i> )	Occur in upland deserts, riparian woodlands, fields, and residential areas.	MBTA BCC	SGCN (2)	May occur. The Project Area contains suitable habitat for foraging and nesting.	May occur. The Study Area contains suitable habitat for foraging and nesting.

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Rufous-winged sparrow ( <i>Peucaea carpalis</i> )	Prefers Sonoran desertscrub, characterized by scattered spiny trees and shrubs.	MBTA BCC	SGCN (2)	Unlikely to occur. No suitable habitat is present within the Project Area.	Unlikely to occur. No suitable habitat is present within the Study Area.
Sagebrush sparrow ( <i>Artemisiospiza nevadensis</i> )	Found in shrubby, open flats, and sagebrush plains. Winters in southern Arizona in dry shrublands or grasslands.	MBTA	SGCN (3)	May occur. The Project Area contains suitable habitat for wintering.	May occur. The Study Area contains suitable habitat for wintering.
Savannah sparrow ( <i>Passerculus sandwichensis</i> )	Non-breeding winter visitor to Arizona. Uses fields, pastures, and golf courses.	MBTA BCC‡	SGCN (2)	Unlikely to occur. No suitable habitat is present within the Project Area.	Unlikely to occur. No suitable habitat is present within the Study Area.
Scaled quail ( <i>Callipepla squamata</i> )	Prefers arid, undisturbed grasslands and shrublands.	–	SGCN (2)	May occur. The Project Area contains suitable habitat for foraging and nesting.	May occur. The Study Area contains suitable habitat for foraging and nesting.
Sprague's pipit ( <i>Anthus spragueii</i> )	Winters in southeastern Arizona. Found in pastures and weedy fields or grasslands with dense herbaceous cover.	MBTA BCC-nb	SGCN (2)	May occur. The Project Area contains suitable habitat for wintering.	May occur. The Study Area contains suitable habitat for wintering.
Swainson's hawk ( <i>Buteo swainsoni</i> )	Found in grassy plains in southeastern Arizona. Nests in trees.	MBTA	SGCN (2)	May occur. The Project Area contains suitable habitat for foraging and nesting.	May occur. The Study Area contains suitable habitat for foraging and nesting.
Swainson's thrush ( <i>Catharus ustulatus</i> )	Breeds in coniferous forests, winters in mature forests. Arizona is in this species' migratory range. Migratory habitat is forests, woodland, swamps, and parks.	MBTA	SGCN (2)	Unlikely to occur. No suitable habitat is present within the Project Area.	Unlikely to occur. No suitable habitat is present within the Study Area.
Townsend's solitaire ( <i>Myadestes townsendi</i> )	Occurs in pine, fir, and spruce forests. Migrate to lower elevations in the winter, down to juniper forests or desert washes and shrublands.	MBTA	SGCN (2)	May occur. The Project Area contains suitable habitat for wintering.	May occur. The Study Area contains suitable habitat for wintering.
Verdin ( <i>Auriparus flaviceps</i> )	Found in arid, desert habitats, frequently observed in mesquite and creosote bush vegetation. Known to nest in shrubs, small trees, and cacti.	MBTA BCC‡	SGCN (2)	May occur. The Project Area contains suitable habitat for wintering.	May occur. The Study Area contains suitable habitat for wintering.
Vesper sparrow ( <i>Pooecetes gramineus</i> )	Found in open areas with short, sparse grass and scattered shrubs. Uncommon wintering occurrence in central and southern Arizona.	MBTA	SGCN (2)	May occur. The Project Area contains suitable habitat for nonbreeding individuals to occur.	May occur. The Study Area contains suitable habitat for nonbreeding individuals to occur.
Western burrowing owl ( <i>Athene cucularia hypugaea</i> )	Found in open areas with low brush cover, including grasslands, agricultural margins, and desertscrub. Year-round resident or migratory.	MBTA BCC‡	SGCN (2)	May occur. Some portions of the Project Area contain suitable habitat.	May occur. Some portions of the Study Area contain suitable habitat.

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Western grasshopper sparrow ( <i>Ammodramus savannarum perpallidus</i> )	Moderately open grasslands with patchy bare ground; grasslands may contain shrub cover. Non-breeding range includes the southern extreme of Arizona; year-round range includes the southeastern extreme of the state.	MBTA	SGCN (2)	May occur. Project Area is on the edge of the species' year-round and non-breeding range and contains suitable habitats.	May occur. Study Area is on the edge of the species' year-round and non-breeding range and contains suitable habitats.
Western screech-owl ( <i>Megascops kennicottii</i> )	Commonly found in broadleaf and riparian woodland, particularly within deciduous forests that border canyons and other drainages.	MBTA	SGCN (2)	Unlikely to occur. The Project Area does not provide suitable habitat for species occurrence.	Unlikely to occur. The Study Area does not provide suitable habitat for species occurrence.
<b>Reptiles</b>					
Desert mud turtle ( <i>Kinosternon sonoriense sonoriense</i> )	Inhabits rivers, streams, or aquatic impoundments in desertscrub, semi-desert grasslands, or oak/pine-oak woodlands.	–	SGCN (2)	May occur. The Project Area contains suitable habitat.	May occur. The Study Area contains suitable habitat.
Green ratsnake ( <i>Senticolis triaspis</i> )	Woodlands and chaparral in canyons and near streams.	–	SGCN (2)	Unlikely to occur. The Project Area does not provide suitable habitat.	Unlikely to occur. The Study Area does not provide suitable habitat.
Hooded nightsnake ( <i>Hypsiglena</i> sp. nov)	Desertscrub and semi-desert grassland bajadas, rocky slopes, and valley bottoms. Found in southeastern Arizona.	–	SGCN (2)	May occur. The Project Area contains suitable habitat.	May occur. The Study Area contains suitable habitat.
Madrean alligator lizard ( <i>Elgaria kingii</i> )	Pine-oak woodlands to juniper-grassland to chaparral, to taluscanyon floors.	–	SGCN (2)	Unlikely to occur. The Project Area does not provide suitable habitat.	Unlikely to occur. The Study Area does not provide suitable habitat.
Ornate box turtle, desert box turtle ( <i>Terrapene ornata</i> ), ( <i>T. o. luteola</i> )	Grasslands and desertscrub from 2,000–7,100 feet. In Arizona, found in the southeastern corner of the state.	–	SGCN (1)	May occur. The Project Area contains suitable habitat.	May occur. The Study Area contains suitable habitat.
Regal horned lizard ( <i>Phrynosoma solare</i> )	Found in rocky and gravelly habitats throughout arid and semi-arid plains, hills, canyons, and mountain slopes. Commonly associated with sloping terrain and scattered desert vegetation including creosote bush, mesquite, and saguaro.	–	SGCN (2)	May occur. The Project Area contains suitable habitat for species occurrence.	May occur. The Study Area contains suitable habitat for species occurrence.
Sonoran coral snake ( <i>Micruroides euryxanthus</i> )	Common in rocky terrain with drainages, vegetated washes, and canyons.	–	SGCN (2)	May occur. The Project Area contains suitable habitat for species occurrence.	May occur. The Study Area contains suitable habitat for species occurrence.
Sonoran desert tortoise ( <i>Gopherus morafkai</i> )	Occurs on primarily rocky and often steep hillsides and bajadas of Mohave and Sonoran desertscrub, typically at elevations below 7,800 feet amsl. May occur, but is less likely to occur, in desert grassland, juniper woodland, and interior chaparral habitats and even pine communities.	–	SGCN (1)	May occur. The Project Area contains suitable habitat. The Project Area is on the eastern edge of this species' range.	May occur. The Study Area contains suitable habitat. The Study Area is on the eastern edge of this species' range.
Sonoran spotted whiptail ( <i>Aspidoscelis sonorae</i> )	Occurs in oak woodland and oak grasslands, as well as desertscrub and thornscrub.	–	SGCN (2)	May occur. The Project Area contains suitable habitat for species occurrence.	May occur. The Study Area contains suitable habitat for species occurrence.

Common Name ( <i>Scientific Name</i> )	Habitat and Notes	Status		Occurrence Status	
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Sonoran whipsnake ( <i>Coluber bilineatus</i> )	Desertscrub, semi-desert grasslands, and montane forests from 1,000–7,000 feet. Range in Arizona extends from central to southeastern portions of the state.	–	SGCN (2)	May occur. The Project Area contains suitable habitat for species occurrence.	May occur. The Study Area contains suitable habitat for species occurrence.

Common Name (Scientific Name)	Habitat and Notes	Status		Occurrence Status	
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<b>Mammals</b>					
Allen's lappet-browed bat ( <i>Idionycteris phyllotis A</i> )	Ponderosa pine and juniper, typically netted along streams. Roost in caves and abandoned mineshafts.	–	SGCN (2)	Unlikely to occur. The Project Area does not contain suitable habitat and is distant from known populations of this species.	Unlikely to occur. The Study Area does not contain suitable habitat and is distant from known populations of this species.
American pronghorn ( <i>Antilocapra americana americana</i> )	Grasslands, sagebrush plains, deserts, and foothills. In Arizona, scattered populations throughout the state. Subspecies range includes narrow band from east- central through north-central and northwestern portions of the state. Small, fragmented range in the southeastern portion of the state.	–	SGCN (2)	May occur. The Project Area contains suitable habitat for species occurrence.	May occur. The Study Area contains suitable habitat for species occurrence.
Arizona cotton rat ( <i>Sigmodon arizonae cienegae</i> )	Occurs in riparian areas, croplands, grasslands, and desert.	–	SGCN (2)	Unlikely to occur. The Project Area does not contain suitable habitat and is distant from known populations of this species.	Unlikely to occur. The Study Area does not contain suitable habitat and is distant from known populations of this species.
Arizona gray squirrel ( <i>Sciurus arizonensis</i> )	Broad-leaf forested canyons and drainages.	–	SGCN (2)	Unlikely to occur. The Project Area does not provide suitable habitat.	Unlikely to occur. The Study Area does not provide suitable habitat.
Bailey's pocket mouse ( <i>Chaetodipus baileyi</i> )	Low desert, sparsely vegetated flats to rocky slopes with shrubs and grasses.	–	SGCN (2)	May occur. The Project Area contains suitable habitat for species occurrence.	May occur. The Study Area contains suitable habitat for species occurrence.
Big free-tailed bat ( <i>Nyctinomops macrotis</i> )	Occurs in rocky, rugged areas, roosts in rock crevices, cliffs, buildings, and occasionally tree holes.	–	SGCN (2)	May occur. The Project Area contains suitable habitat for species occurrence.	May occur. The Study Area contains suitable habitat for species occurrence.
Black-tailed prairie dog ( <i>Cynomys ludovicianus</i> )	Dry, flat, open plains, and desert grasslands, including areas overgrazed by cattle. Extirpated from southeastern Arizona. Reintroduction efforts began at the Las Cienegas National Conservation Area in 2008.	–	SGCN (1)	Unlikely to occur. The Project Area is distant to the known population of this species.	Unlikely to occur. The Study Area is distant to the known population of this species.
Brazilian (=Mexican) free-tailed bat ( <i>Tadarida brasiliensis</i> )	A migratory species that may spend the entire year in southern Arizona. Roosts in caves, tunnels, bridges, and buildings. Forages widely, often over farmlands.	–	SGCN (2)	May occur. The Project Area contains suitable habitat for species occurrence.	May occur. The Study Area contains suitable habitat for species occurrence.
Cave myotis ( <i>Myotis velifer</i> )	Occurs in desertscrub containing creosote bush, paloverde, and cacti. Migratory. Roosts in caves, mines, and bridges. Forages in desertscrub, often near water.	–	SGCN (2)	May occur. The Project Area contains suitable habitat for species occurrence.	May occur. The Study Area contains suitable habitat for species occurrence.
Cockrum's desert shrew ( <i>Notiosorex cockrumi</i> )	Occurs in Cienega Creek Natural Preserve and Leslie Canyon National Wildlife Refuge.	–	SGCN (2)	Unlikely to occur. The Project Area is distant to the known population of this species.	Unlikely to occur. The Study Area is distant to the known population of this species.



Common Name (Scientific Name)	Habitat and Notes	Status		Occurrence Status	
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Fringed myotis ( <i>Myotis thysanodes</i> )	Ranges from deserts to grasslands to woodlands. Roosts in caves, mine tunnels, snags, and in buildings.	–	SGCN (2)	May occur. The Project Area contains suitable habitat for species occurrence.	May occur. The Study Area contains suitable habitat for species occurrence.
Greater western mastiff bat ( <i>Eumops perotis californicus</i> )	Occurs in lower and upper Sonoran desertscrub near cliffs. Prefers rugged, rocky canyons with abundant crevices at elevations from 240–8,475 feet amsl. Prefers crowding into tight crevices at least 1 foot deep by at least 2 inches wide. Colonies prefer deeper crevices, to 10 or more feet. Prefers to forage over large open bodies of water.	–	SGCN (2)	Unlikely to occur. No suitable habitat for roosting or foraging occurs within the Project Area.	Unlikely to occur. No suitable habitat for roosting or foraging occurs within the Study Area.
Harris's antelope squirrel ( <i>Ammospermophilus harrisi</i> )	Burrowing species found in low dry, sparsely vegetated desert.	–	SGCN (2)	May occur. Habitat is present in the Project Area.	May occur. Habitat is present in the Study Area.
Hoary bat ( <i>Lasiurus cinereus</i> )	Prefers deciduous and coniferous forests. Roosts among foliage or tree holes.	–	SGCN (2)	Unlikely to occur. No suitable habitat for roosting or foraging occurs within the Project Area.	Unlikely to occur. No suitable habitat for roosting or foraging occurs within the Study Area.
Lesser long-nosed bat ( <i>Leptonycteris yerbabuena</i> )	Sonoran Desertscrub, grasslands, and forests with saguaros and agaves ( <i>Agave</i> sp.). Roosts in caves, abandoned mines, and unoccupied buildings near foraging resources.	–	SGCN (1)	May occur in the Project Area. Suitable roosts may occur and agaves occurred in the Project Area.	May occur in the Study Area. Suitable roosts may occur and agaves occurred in the Study Area.
Mexican long-tongued bat ( <i>Choeronycteris mexicana</i> )	Mesic canyons with mixed oak-conifer forests. Roosts in burrows or caves.	–	SGCN (2)	Unlikely to occur. No suitable habitat for roosting or foraging occurs within the Project Area.	Unlikely to occur. No suitable habitat for roosting or foraging occurs within the Study Area.
Pale Townsend's big-eared bat ( <i>Corynorhinus townsendii pallascens</i> )	Found throughout Arizona in a variety of vegetation communities and prefers to use roost sites, such as caves, mines, or abandoned buildings, with open ceilings instead of cracks or crevices. They typically forage no more than 5 miles from the roost site.	–	SGCN (1)	May occur. The Project Area contains suitable habitat for species occurrence.	May occur. The Study Area contains suitable habitat for species occurrence.
Pocketed free-tailed bat ( <i>Nyctinomops femorosaccus</i> )	Found in desertscrub. Roosts in rock crevices and caves and in buildings at times.	–	SGCN (2)	May occur. The Project Area contains suitable habitat for species occurrence.	May occur. The Study Area contains suitable habitat for species occurrence.
Southwestern myotis ( <i>Myotis auricolus</i> )	Occurs in ponderosa pine habitat primarily.	–	SGCN (2)	Unlikely to occur. No suitable habitat occurs within the Project Area.	Unlikely to occur. No suitable habitat occurs within the Study Area.
Western red bat ( <i>Lasiurus blossevillii</i> )	Riparian and wooded areas. Roosts in trees, particularly cottonwoods. May roost in saguaro cavities.	–	SGCN (2)	Unlikely to occur. No suitable habitat for roosting or foraging occurs within the Project Area.	Unlikely to occur. No suitable habitat for roosting or foraging occurs within the Study Area.

Common Name (Scientific Name)	Habitat and Notes	Status		Occurrence Status	
		Federal*	State†	Project Area	Study Area
Western yellow bat ( <i>Lasiurus xanthinus</i> )	Found in arid habitats along riparian corridors. Known to roost in palm trees (Family Arecaceae), cottonwood, and yucca. Forages over open water.	–	SGCN (2)	Unlikely to occur. No suitable habitat for roosting or foraging occurs within the Project Area.	Unlikely to occur. No suitable habitat for roosting or foraging occurs within the Study Area.
Yuma myotis ( <i>Myotis yumanensis</i> )	Found in a variety of habitats including riparian, desertscrub, moist woodlands, and forests. Prefer cliffs and rocky walls near water. Known to roost in caves, mines, cliff crevices, and buildings. Foraging occurs along forested edges of streams, ponds, and lakes.	–	SGCN (2)	May occur. The Project Area contains suitable habitat for species occurrence.	May occur. The Study Area contains suitable habitat for species occurrence.

Source: Range or habitat information is from AGFD (2023a, 2023b); Brennan (2012); Corman and Wise-Gervais (2005); Cornell Lab of Ornithology (2023); eBird (2023); and USFWS (2023a, 2023b).

Note: Notes regarding documented occurrence, other than observations made during SWCA’s Project-specific surveys, are from AGFD (2023a, 2023b).

amsl = above mean sea level

\* Federal Status Definitions

BCC = Bird of Conservation Concern.

BCC-nb = Bird of Conservation Concern with nonbreeding status.

MBTA = Migratory Bird Treaty Act

† State Status Definitions

SGCN = Species of Greatest Conservation Need; species identified by AGFD (2022) as having conservation priority.

SGCN (1) = Tier 1 species are those that the AGFD has deemed vulnerable and are federally listed as either endangered or threatened under the ESA; those that have been recently removed from the ESA and require post-delisting monitoring; those specifically covered under a signed agreement such as a Candidate Conservation Agreement, Candidate Conservation Agreement with Assurances, Conservation Strategy and Assessment, or Strategic Conservation Plan; or those for which the AGFD has determined the protection of a closed season is warranted.

SGCN (2) = Tier 2 species are those categorized as “vulnerable” but not fitting the Tier 1 criteria for highest priority.

SGCN (3) = Tier 3 species are those for which existing data were insufficient to score one or more vulnerability criteria.

SR = Salvage Restricted Plant under Arizona Native Plant Law

‡ BCC = Bird of Conservation Concern for regions other than BCR 34. Included in table because they are also Arizona SGCN.

\*\*Species that were observed in the Project Area during the 2023 field surveys.

## BIRDS OF CONSERVATION CONCERN

The Project Area and Study Area are within BCR 34 (USFWS 2021), for which 30 BCC species are listed. A query of the AGFD Online Environmental Review Tool found modeled habitat for seven of these species in the Project Area (AGFD 2023a) (see Exhibit C-2). Of the 30 BCC species for BCR 34, seven have the potential to occur in the Project Area and Study Area: Bendire’s thrasher (*Toxostoma bendirei*), black-chinned sparrow (*Spizella atrogularis*), black-throated gray warbler (*Setophaga nigrescens*), chestnut-collared longspur (*Calcarius ornatus*), phainopepla (*Phainopepla nitens*), pyrrhuloxius (*Cardinalis sinuatus*), and Sprague’s pipit (*Anthus spragueii*) (see Table C-2). Chestnut-collared longspur and Sprague’s pipit would only potentially occur within the Project Area and Study Area as a nonbreeding species during winter months (see Table C-2). Birds that are BCC for regions other than BCR 34 but that are classified as SGCN in Arizona are considered in the following section.

## SPECIES OF GREATEST CONSERVATION NEED

Forty-six species categorized as SGCN Tier 1 or 2 (excluding those federally listed or eagle species that have already been addressed in the previous section) have the potential to occur within the proposed Study Area (see Table C-2). Of these 46 species, 44 may occur in the Project Area and Study Area and two are known to occur in the Project Area and may occur in the Study Area. Of the 46 species that may

occur or are known to occur within the Project Area and Study Area, one is an amphibian, 26 are birds (including some of those that are listed as BCC, above), eight are reptiles, and 11 are mammals (see Table C-2).

The amphibian species that may occur is the Sonoran desert toad (*Incilius alvarius*).

The bird species that may occur include:

- American Kestrel (*Falco sparverius*)
- American peregrine falcon (*Falco peregrinus anatum*)
- Bendire's thrasher
- Black-thoated gray warbler
- Broad-billed hummingbird (*Cynanthus latirostris*)
- Cactus wren (*Campylorhynchus brunneicapillus*)
- Chestnut-collared longspur
- Chihuahuan raven (*Corvus cryptoleucus*)
- Common black-hawk (*Buteogallus anthracinus*)
- Common nighthawk (*Chordeiles minor*)
- Costa's hummingbird (*Calypte costae*)
- Ferruginous hawk (*Buteo regalis*)
- Gila woodpecker (*Melanerpes uropygialis*)
- Harris's hawk (*Parabuteo unicinctus*)
- Lincoln's sparrow (*Melospiza lincolni*)
- Pyrrhuloxia
- Scaled quail (*Callipepla squamata*)
- Sprague's pipit
- Swainson's hawk (*Buteo swainsoni*)
- Townsend's solitaire (*Myadestes townsendi*)
- Verdin (*Auriparus flaviceps*)
- Vesper sparrow (*Pooecetes gramineus*)
- Western burrowing owl (*Athene cunicularia hypugaea*)

- Western grasshopper sparrow (*Ammodramus savannarum perpallidus*)

Birds known to occur in the Project Area and that may occur in the Study Area include

- Brewer's sparrow (*Spizella breweri*)
- Loggerhead shrike (*Lanius ludovicianus*)

The reptiles that have the potential to occur include: desert mud turtle (*Kinosternon sonoriense sonoriense*), hooded nightsnake (*Hypsiglena* sp. nov.), ornate box turtle (*Terrapene ornata*), regal horned lizard (*Phrynosoma solare*), Sonoran coralsnake (*Micruroides euryxanthus*), Sonoran desert tortoise (*Gopherus morafkai*), Sonoran spotted whiptail (*Aspidoscelis sonorae*), and Sonoran whipsnake (*Coluber bilineatus*).

The mammals that may occur include: American pronghorn (*Antilocapra americana americana*), Bailey's pocket mouse (*Chaetodipus baileyi*), big free-tailed bat (*Nyctinomops macrotis*), Brazilian free-tailed bat (*Tadarida brasiliensis*), cave myotis (*Myotis velifer*), fringed myotis (*Myotis thysanodes*), Harris' antelope squirrel (*Ammospermophilus harrisi*), lesser long-nosed bat (*Leptonycteris yerbabuenae*), pale Townsend's big-eared bat (*Corynorhinus townsendii pallescens*), pocketed free-tailed bat (*Nyctinomops femorosaccus*), and Yuma myotis (*Myotis yumanensis*).

No SGCN fish species are likely to be present within 5 miles of the proposed Project Area.

Two species listed as SGCN Tier 3 may occur in the Project or Study Area: the elf owl (*Micrathene whitneyi*) and the sagebrush sparrow (*Artemisiospiza nevadensis*).

## STATE-PROTECTED NATIVE PLANTS

The ANPL provides a list of plant species—largely cacti, agaves, yuccas, and desert trees—that are susceptible to removal for collection, landscaping, sale, or other commercial uses. The ANPL states that these plants shall not be taken, transported, or possessed from any land without permission and a permit from the ADA; it also requires notification prior to land clearing even if the plants will be destroyed. Sixteen plant species covered under the ANPL were observed in the Study Area during surveys: banana yucca (*Yucca baccata*), cactus apple (*Opuntia engelmannii*), candy barrelcactus (*Ferocactus wislizeni*), Christmas cactus (*Cylindropuntia leptocaulis*), dollarjoint pricklypear (*Opuntia chlorotica*), honey mesquite (*Prosopis velutina*), ocotillo (*Fouquieria splendens*), Palmer's century plant (*Agave palmeri*), pinkflower hedgehog cactus (*Echinocereus fendleri*), purple pricklypear (*Opuntia macrocentra*), sacahuista (*Nolina microcarpa*), soaptree yucca (*Yucca elata*), spinystar (*Escobaria vivipara*), twistspine pricklypear (*Opuntia macrorhiza*), velvet mesquite (*Prosopis velutina*), and walkingstick cactus (*Cylindropuntia spinosior*). There are records of one species, needle-spined pineapple cactus (*Echinomastus erectocentrus* var. *erectocentrus*), protected under the ANPL as a Salvage Restricted species, within 3 miles of the Project Area.

## NOXIOUS WEEDS

As stated earlier in the **Laws and Policies** section, Arizona maintains a list of noxious weeds in three categories: Class A, Class B, and Class C (ADA 2023). No noxious weeds were observed in the Project Area during the field visit. No noxious weeds are known to occur in the Project Area or Study Area (iMapInvasives 2023). Measures will be taken to avoid spreading noxious weeds into the Study Area.

## Summary of Potential Effects

### ***Areas of Biological Wealth***

No IBAs or proposed or designated critical habitat occurs within the Study Area. The Project will not impact or reduce the habitat value within the Willcox Playa/Cochise Lakes IBA that occurs outside the Study Area, across I-10. The Transmission Project will not impact the Willcox Playa or reduce its value to sandhill cranes, shorebirds, or other wildlife.

The Project and Study Areas intersect with an ICZ. The Transmission Project is linear and would impact portions of the ICZ, reducing its value as intact habitat for wildlife permeability on the landscape. However, the overall loss of habitat in these areas would be extremely small compared to the total biological wealth habitat mapped in the vicinity of the Transmission Project and because the entire Project Area would not be cleared. Impacts would be greater in the short-term because active construction would discourage wildlife use; however, once construction is complete, wildlife would be expected to be able to make use of the ICZ for movement across the landscape.

### ***Federally Listed Threatened and Endangered Species***

The Project Area and Study Area are outside the known range of the species, or no suitable habitat occurs for the following species, that are listed under the ESA and therefore would be unlikely to occur: jaguar, ocelot, Mexican spotted owl, yellow-billed cuckoo, Chiricahua leopard frog, Gila chub, Arizona eryngo, Huachuca water umbel, and Wright's marsh thistle. Therefore, the Transmission Project would be unlikely to impact these species.

Monarch butterfly, a candidate species, may occur. Milkweed (*Asclepias* sp.) was observed in the Study Area. Monarch butterflies may use other plants in the Study Area for foraging and for reproduction (USFWS 2020). However, because of the large amount of habitat in the Study Area and immediate vicinity, potential Transmission Project impacts to the monarch butterfly would be limited to impacts to individuals and would not be expected to impact the species at a population level. A small portion of suitable dispersal, foraging, and breeding habitat would be lost, relative to the total amount of habitat in the vicinity. Individuals may experience injury, mortality, change of behavior, or loss of forage as a result of the Transmission Project. Individuals would be expected to largely shift activity to nearby suitable habitat.

### ***Bald and Golden Eagles***

No suitable bald eagle nesting or foraging habitat (e.g., flowing rivers or lakes containing fish) and no tall trees or cliffs suitable for eagle perching are located within the Project Area or Study Area. The completed Transmission Project, however, may create perches for both bald and golden eagles within the Project Area. The Transmission Project is within the nonbreeding range of the bald eagle, and this species may move through the Project Area and Study Area (see Table C-1). The Project Area does not appear to contain nesting sites for golden eagles (i.e., cliffs) (Google Earth 2023), but individuals may fly over the Project Area and Study Area while foraging (see Table C-2). These species were not documented by SWCA during related surveys in the Study Area during March and May 2023. Minor beneficial impacts, in the form of increased perching areas, would be expected for bald or golden eagles as a result of this Transmission Project.

## **Other Special-Status Species**

The following sections refer to species with special status that are not federally listed or candidates for federal listing.

### **SPECIAL-STATUS MAMMAL SPECIES**

The Project Area may support suitable roosting habitat for many bat species, including big free-tailed bat, Brazilian free-tailed bat, cave myotis, fringed myotis, lesser long-nosed bat, pale Townsend's big-eared bat, pocketed free-tailed bat, and Yuma myotis, as boulders, mine shafts, small caves, snags and abandoned structures have the potential to occur in the Project and Study Areas, though none were observed during field visits. No palm trees or large riparian trees occur in the Project Area. No bat roosts would be expected to be removed or destroyed as a result of the Transmission Project. Bats using trees or buildings as day roosts within the Study Area have the potential to be negatively impacted by noise impacts, leading to behavior changes or loss of fitness for individuals. Impacts would be minor as no trees used for day roosts are present within at least 600 feet of the Project Area where construction noise would be most prominent. Trees used for day roosts may be present outside the Study Area.

Bat species can collide with human-made structures during long-distance migration. Migrating bats often fly high above ground level and do not actively echolocate. However, during normal foraging activity, bats actively use echolocation and are typically able to detect and avoid features such as overhead transmission lines (Arnett et al. 2015). No information suggests that transmission lines in a setting such as the Study Area would pose a risk to bats.

Transmission Project construction activities could cause death or injury to terrestrial small mammal species including Bailey's pocket mouse and Harris' antelope squirrel, particularly individuals that may be sheltering in underground burrows instead of fleeing. Large mammals including the American pronghorn are unlikely to experience direct impacts such as death or injury because they are able to flee construction activities. Transmission Project construction could cause behavior changes, as individuals would be expected to flee from an increase of noise, vibration, and human presence within the Transmission Project vicinity. These behavior changes could increase depredation, decrease foraging success, reduce reproductive success, and result in loss of fitness for that individual from increased metabolic output. Noise, vibration, and human presence would be temporary during construction and would cease with completion of construction. Additional transmission structures constructed for the Transmission Project would increase potential perching locations for predators of the small mammals, i.e., birds such as loggerhead shrikes (*Lanius ludovicianus*), American kestrel (*Falco sparverius*), and burrowing owls (*Athene cunicularia*), all of which may or are known to occur in the Study Area. Increased perching locations for avian predators of small mammals may cause an increase of depredation, or an increased avoidance of the area. However, these impacts would be minor and not likely to impact any species on a population level.

The loss and degradation of mammal habitat from short- and long-term Transmission Project activities would be minor as abundant habitat for small mammals occurs in the vicinity of the Project and Study Areas. The Project Area is linear and relatively long, but the Transmission Project would not result in total clearance of the entire Project Area and construction activities would be of relatively short duration. Thus, minor habitat fragmentation would occur for special-status mammals, with a decreased connectivity between habitat patches. Construction of the Transmission Project would result in an increase of fugitive dust. The fugitive dust during construction could change mammal behavior (e.g., reducing the amount of foraging). The likelihood and severity of impacts from construction would decrease with increasing distance from the Project Area.

## **SPECIAL-STATUS BIRD SPECIES**

Golden eagles may forage in the Project and Study Areas, but no nesting habitat is present. Due to the relatively small area of foraging habitat potentially impacted compared with an individual golden eagle's home range and the abundance of similar foraging habitat outside of the Project Area, no significant impacts to golden eagles resulting from the Transmission Project would be expected. Bald eagles may occur within the Study Area during the nonbreeding season. Thus, no impacts to bald eagles resulting from the Transmission Project would be expected.

Seven bird species (see Table C-2) occur in the vicinity of the Transmission Project only for wintering or migration and therefore have no potential for nesting impacts.

Potential impacts to special-status bird species could include changes in behavior due to Transmission Project-related noise, vibration, and the presence of workers and equipment; loss of breeding and foraging habitat; and impacts to nesting species. Potential impacts to nesting birds and their eggs covered under the MBTA, including burrow nests of the western burrowing owl, would be avoided and/or minimized either by limiting ground-clearing/vegetation removal activities to outside the breeding season (generally March to September with raptors breeding generally January to June) or through surveys to identify active nests and placement of buffers around those active nests until the young fledge or the nest fails.

Transmission lines can pose a collision risk to birds, including raptors (Avian Power Line Interaction Committee [APLIC] 2012). However, many factors influence whether birds are likely to collide with a specific transmission line. To minimize that risk, the Applicant will design the Transmission Project to incorporate reasonable measures to minimize electrocution of and impacts to avian species. Such measures will be accomplished through incorporation of APLIC guidelines set forth in *Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 2006* (APLIC 2006) and *Reducing Avian Collisions with Power Lines: The State of the Art in 2012* (APLIC 2012).

Transmission and distribution lines can also cause bird electrocution, although the risk is highest with lower-voltage lines. Electrocution occurs when a bird simultaneously contacts energized and grounded electrical components. High-voltage lines require spacing between those components that cannot be spanned even by very large birds; therefore, that electrocution risk is precluded almost entirely (APLIC 2012).

As described above, the Applicant engaged EDM to investigate whether implementing an ACAS system for the Transmission Project would be feasible and effective. The EDM states that “based on the lack of aquatic or agricultural habitats within or adjacent other CEC corridor [...] it does not appear that large numbers of birds are likely to use the area.” The EDM report concludes that “no ACAS unit(s) are warranted on the CEC corridor.”

Additional transmission structures for the Transmission Project would increase potential perching and nesting locations for birds and raptors. Such locations may be a minor benefit for birds but could potentially increase predation.

## **SPECIAL-STATUS REPTILE SPECIES**

Eight reptile species (see Table C-2) have the potential to occur in the Project and Study Areas. Potential Transmission Project-related impacts on special-status reptile species would include changes in behavior due to the presence of workers and equipment, including moving away from sources of noise and vibration; the potential for individuals being crushed or buried during ground-disturbing activities; and the loss of habitat. The western portion of the Project and Study Areas are at the eastern edge of the range of the Sonoran desert tortoise.

The additional transmission structures that would be installed for the Transmission Project would also increase potential perching locations for predators of reptiles. Predators could use the additional poles as perches for hunting, potentially leading to increased predation of reptile species.

## **SPECIAL-STATUS AMPHIBIAN SPECIES**

One special-status amphibian species may occur within the Study Area: Sonoran desert toad. This species is unlikely to breed in the Project or Study Areas due to lack of permanent water. Impacts to adult individuals would be the same as impacts listed for small mammals. Potential impacts from the fragmentation of amphibian habitat from Transmission Project activities would be the same as those described for terrestrial reptiles.

## **SPECIAL-STATUS FISH SPECIES**

There are currently no special-status fish species known or expected to occur within the Study Area. The Transmission Project would have no impact on special-status fish species because no habitat for special-status fish species is present in the Project Area. Transmission Project activities would not impact perennial water outside of the Study Area.

## ***State-Protected Native Plants***

Plant species protected under the ANPL occur in the Project Area and could be removed during the Transmission Project's vegetation-clearing activities. No Highly Safeguarded plant species, or any other rare plant species, are likely to be present in the Project or Study Areas. The Transmission Project involves work in an area largely undisturbed by development containing native desert vegetation. Therefore, the loss of vegetation within the Project Area may result in moderate impacts to protected native plants.

## ***Noxious Weeds***

Measures will be taken to avoid introducing or spreading noxious weeds in the Project Area; therefore the Transmission Project would be unlikely to contribute to an increase of noxious weeds, in extent or abundance, in the vicinity of the Transmission Project.

## **Mitigation Measures**

The following mitigation measures were in part developed based on coordination with AGFD. The following mitigation measures would reduce the potential for impacts to special-status species as a result of the Transmission Project:

- Transmission lines pose a risk of collisions and electrocution for birds, particularly raptors. To minimize that risk, the Applicant will design the Transmission Project's interconnection facilities to incorporate reasonable measures to minimize electrocution of and impacts to avian species following the guidelines outlined in *Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 2006* (APLIC 2006) and *Reducing Avian Collisions with Power Lines: The State of the Art in 2012* (APLIC 2012).
- If vegetation-disturbing activities are planned during the migratory bird nesting season (March–September or January–June for raptors), measures to avoid any active bird nests within the Project Area, such as preconstruction surveys for migratory bird nests by a qualified biologist,



should be taken to maintain compliance with the MBTA since suitable nesting habitat for migratory bird species is present in the Project Area.

- If western burrowing owls are identified in the Project Area, measures to avoid any active burrows should be taken. Because some burrowing owls are year-round residents, surveys for this species should be conducted prior to initiation of ground disturbance and vegetation removal activities.
- If a Sonoran desert tortoise is encountered within the Project Area, the AGFD's *Guidelines for Handling Sonoran Desert Tortoises Encountered on Development Projects* (AGFD 2014) should be followed.
- If native plants listed under the ANPL will be removed, the ADA Notice of Intent to Clear Land should be submitted prior to ground clearing. The submittal time frame depends on the acreage of the area to be cleared, as noted on the form.
- To minimize the introduction and spread of invasive species and noxious weeds, standard best management practices will be used during construction. These best management practices can include measures such as washing equipment prior to and following mobilization to the Project Area.
- The Applicant plans to continue working with AGFD to determine appropriate recommendations from the AGFD's *Guidelines for Solar Development in Arizona* (AGFD 2009) to implement for the Transmission Project.

## Conclusion

The proposed Transmission Project is not likely to significantly affect any rare, endangered, or special-status species. No ESA-listed species are present in the Project Area or Study Area, and none would be affected by the proposed Transmission Project. One candidate species, the monarch butterfly, may occur, and only minor impacts to individuals would be expected to occur.

The Transmission Project has the potential to have minor impacts on non-ESA-listed special-status amphibian, bird, reptile, and mammal species. The linear Transmission Project, because it does not coincide with an existing transmission line and is relatively long, would increase fragmentation and reduce wildlife permeability within the Transmission Project vicinity. However, because construction would occur over a relatively short period of time, and the Transmission Project will not clear the entire Project Area, these wildlife connectivity impacts would be minor.

The Transmission Project would not impact the Willcox Playa, an area of biological wealth occurring outside of the Study Area, and would not impact the associated Willcox Playa/Cochise Lakes IBA. The Transmission Project would have a minor, short-term impact on the ICZ that occurs within the Project Area by increasing fragmentation and reducing the ability of wildlife to move across the Project Area. These impacts would be minor because the entire Project Area would not be cleared and because once construction is complete, wildlife would be expected to make use of the ICZ area for movement even with cleared areas.

The risk that electrical infrastructure poses to birds would be addressed by following standard guidelines as design features for the Transmission Project, and preconstruction surveys for migratory bird nests would aid in compliance with the MBTA.

Impacts to special-status species or areas of biological wealth would be unlikely to substantially differ regardless of the final route selected within the CEC Corridor. The ICZ does not occur on either end of

the Project Area, habitats among alternatives are generally homogenous, and no alternative is likely to substantially impact any given special-status species more than any other.

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**IPaC** **U.S. Fish & Wildlife Service**

## IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

### Location

Cochise County, Arizona



### Local office

Arizona Ecological Services Field Office

📞 (602) 242-0210  
 📠 (602) 242-2513

9828 North 31st Ave

<https://ipac.ecosphere.fws.gov/location/UW/F1AMB4ZNA/YXAOFM5TEOOR2A4/resources> 1/14

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#c3  
 Phoenix, AZ 85051-2517



<https://ipac.ecosphere.fws.gov/location/UW/F1AMB4ZNA/YXAOFM5TEOOR2A4/resources> 2/14

Exhibit C-1a. USFWS IPaC report.

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## Endangered species

**This resource list is for informational purposes only and does not constitute an analysis of project level impacts.**

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act requires Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species<sup>1</sup> and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries<sup>2</sup>).

Species and critical habitats under the sole responsibility of NOAA Fisheries are not shown on this list. Please contact [NOAA Fisheries](#) for [species under their jurisdiction](#).

1. Species listed under the [Endangered Species Act](#) are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information. IPaC only shows species that are regulated by USFWS (see [FAQ](#)).

<https://ipac.ecosphere.fws.gov/location/UJWFIABW4ZNAFYXAOFM57E0OR2A4/resources> 3/14

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2. [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.

The following species are potentially affected by activities in this location:

### Mammals

NAME	STATUS
<b>Jaguar</b> <i>Panthera onca</i> Wherever found There is <b>final critical habitat</b> for this species. Your location does not overlap the critical habitat. <a href="https://ecos.fws.gov/ecp/species/3944">https://ecos.fws.gov/ecp/species/3944</a>	<b>Endangered</b>
<b>Ocelot</b> <i>Leopardus (=Felis) pardalis</i> Wherever found No critical habitat has been designated for this species. <a href="https://ecos.fws.gov/ecp/species/4474">https://ecos.fws.gov/ecp/species/4474</a>	<b>Endangered</b>

### Birds

NAME	STATUS
<b>Mexican Spotted Owl</b> <i>Strix occidentalis lucida</i> Wherever found There is <b>final critical habitat</b> for this species. Your location does not overlap the critical habitat. <a href="https://ecos.fws.gov/ecp/species/8196">https://ecos.fws.gov/ecp/species/8196</a>	<b>Threatened</b>
<b>Northern Aplomado Falcon</b> <i>Falco femoralis septentrionalis</i> No critical habitat has been designated for this species. <a href="https://ecos.fws.gov/ecp/species/1923">https://ecos.fws.gov/ecp/species/1923</a>	<b>EXPN</b>
<b>Yellow-billed Cuckoo</b> <i>Coccyzus americanus</i> There is <b>final critical habitat</b> for this species. Your location does not overlap the critical habitat. <a href="https://ecos.fws.gov/ecp/species/3911">https://ecos.fws.gov/ecp/species/3911</a>	<b>Threatened</b>

### Amphibians

NAME	STATUS
------	--------

<https://ipac.ecosphere.fws.gov/location/UJWFIABW4ZNAFYXAOFM57E0OR2A4/resources> 4/14

Exhibit C-1b. USFWS IPaC report.

6/1/23, 12:52 PM IPaC: Explore Location resources

**Chiricahua Leopard Frog** *Rana chiricahuensis* **Threatened**  
 Wherever found  
 There is **final** critical habitat for this species. Your location does not overlap the critical habitat.  
<https://ecos.fws.gov/ecp/species/1516>

**Fishes**

NAME	STATUS
<b>Gila Chub</b> <i>Gila intermedia</i> Wherever found There is <b>final</b> critical habitat for this species. Your location does not overlap the critical habitat. <a href="https://ecos.fws.gov/ecp/species/51">https://ecos.fws.gov/ecp/species/51</a>	<b>Endangered</b>

**Insects**

NAME	STATUS
<b>Monarch Butterfly</b> <i>Danaus plexippus</i> Wherever found No critical habitat has been designated for this species. <a href="https://ecos.fws.gov/ecp/species/9743">https://ecos.fws.gov/ecp/species/9743</a>	<b>Candidate</b>

**Flowering Plants**

NAME	STATUS
<b>Arizona Eryngo</b> <i>Eryngium sparganophyllum</i> There is <b>final</b> critical habitat for this species. <a href="https://ecos.fws.gov/ecp/species/10705">https://ecos.fws.gov/ecp/species/10705</a>	<b>Endangered</b>
<b>Huachuca Water-umbel</b> <i>Lilaeopsis schaffneriana</i> var. recurva Wherever found There is <b>final</b> critical habitat for this species. Your location does not overlap the critical habitat. <a href="https://ecos.fws.gov/ecp/species/1201">https://ecos.fws.gov/ecp/species/1201</a>	<b>Endangered</b>
<b>Wright's Marsh Thistle</b> <i>Cirsium wrightii</i> There is <b>final</b> critical habitat for this species. <a href="https://ecos.fws.gov/ecp/species/8963">https://ecos.fws.gov/ecp/species/8963</a>	<b>Threatened</b>

<https://ipac.ecosphere.fws.gov/location/UJWFIAWB4ZNAIYXAOFM57EOOR2A4/resources> 5/14

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## Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

You are still required to determine if your project(s) may have effects on all above listed species.

## Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act<sup>1</sup> and the Bald and Golden Eagle Protection Act<sup>2</sup>.

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern <https://www.fws.gov/program/migratory-birds/species>
- Measures for avoiding and minimizing impacts to birds <https://www.fws.gov/library/collections/avoiding-and-minimizing-incidenta-take-migratory-birds>
- Nationwide conservation measures for birds <https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern](#) (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ [below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the [F-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird

<https://ipac.ecosphere.fws.gov/location/UJWFIAWB4ZNAIYXAOFM57EOOR2A4/resources> 6/14

Exhibit C-1c. USFWS IPaC report.



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species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
<b>Bald Eagle</b> <i>Haliaeetus leucocephalus</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds Oct 15 to Jul 31
<b>Bendire's Thrasher</b> <i>Toxostoma bendirei</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <a href="https://ecos.fws.gov/ecp/species/9435">https://ecos.fws.gov/ecp/species/9435</a>	Breeds Mar 15 to Jul 31
<b>Black-throated Gray Warbler</b> <i>Dendroica nigrescens</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds May 1 to Jul 20
<b>Golden Eagle</b> <i>Aquila chrysaetos</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. <a href="https://ecos.fws.gov/ecp/species/1680">https://ecos.fws.gov/ecp/species/1680</a>	Breeds Jan 1 to Aug 31
<b>Long-eared Owl</b> <i>asio otus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <a href="https://ecos.fws.gov/ecp/species/3631">https://ecos.fws.gov/ecp/species/3631</a>	Breeds Mar 1 to Jul 15
<b>Olive-sided Flycatcher</b> <i>Contopus cooperi</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <a href="https://ecos.fws.gov/ecp/species/3914">https://ecos.fws.gov/ecp/species/3914</a>	Breeds May 20 to Aug 31

<https://ipac.ecosphere.fws.gov/location/UJWFIABW4ZNAFYXACFM57E0OR2A4/resources> 7/14

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**Rufous-winged Sparrow** *Aimophila carpalis* Breeds Jun 15 to Sep 30  
 This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

**Virginia's Warbler** *Vermivora virginiae* Breeds May 1 to Jul 31  
 This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.  
<https://ecos.fws.gov/ecp/species/9441>

### Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

**Probability of Presence (■)**

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

**Breeding Season (■)**

<https://ipac.ecosphere.fws.gov/location/UJWFIABW4ZNAFYXACFM57E0OR2A4/resources> 8/14

Exhibit C-1d. USFWS IPaC report.

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Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

**Survey Effort (!)**  
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

**No Data (-)**  
A week is marked as having no data if there were no survey events for that week.

**Survey Timeframe**  
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

probability of presence | breeding season | survey effort | no data

SPECIES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Bald Eagle Non-BCC Vulnerable												
Bendire's Thrasher BCC Rangewide (CON)												
Black-throated Gray Warbler BCC - BCR												
Golden Eagle Non-BCC Vulnerable												
Long-eared Owl BCC Rangewide (CON)												
Olive-sided Flycatcher BCC Rangewide (CON)												

https://ipac.ecosphere.fws.gov/location/UJWFIAWB4ZNAYXAOFM57E0OR2A4/resources 9/14

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**Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.**

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

**What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?**

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [Rapid Avian Information Locator \(RAIL\) Tool](#).

**What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?**

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

https://ipac.ecosphere.fws.gov/location/UJWFIAWB4ZNAYXAOFM57E0OR2A4/resources 10/14

Exhibit C-1e. USFWS IPaC report.



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**How do I know if a bird is breeding, wintering or migrating in my area?**

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the [RAIL Tool](#) and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

**What are the levels of concern for migratory birds?**

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

**Details about birds that are potentially affected by offshore projects**

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

**What if I have eagles on my list?**

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

**Proper Interpretation and Use of Your Migratory Bird Report**

<https://ipac.ecosphere.fws.gov/location/UJWFIABW4ZNYXAOFM57E0OR2A4/resources> 11/14

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The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

**Facilities**

**National Wildlife Refuge lands**

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

**Fish hatcheries**

There are no fish hatcheries at this location.

<https://ipac.ecosphere.fws.gov/location/UJWFIABW4ZNYXAOFM57E0OR2A4/resources> 12/14

Exhibit C-1g. USFWS IPaC report.



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## Wetlands in the National Wetlands Inventory (NWI)

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Wetland information is not available at this time

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the [NWI map](#) to view wetlands at this location.

**Data limitations**

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

**Data exclusions**

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercled worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

**Data precautions**

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local

<https://ipac.ecosphere.fws.gov/location/UJWFIAWB4ZNAFYXAOFM57EOQR2A4/resources> 13/14

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**government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.**

**NOT FOR CONSULTATION**

<https://ipac.ecosphere.fws.gov/location/UJWFIAWB4ZNAFYXAOFM57EOQR2A4/resources> 14/14

Exhibit C-1h. USFWS IPaC report.

## 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:**  
Winchester Solar CEC

**User Project Number:**  
80483-001

**Project Description:**  
Gen-tie corridor

**Project Type:**  
Energy Storage/Production/Transfer, Energy Transfer, Power line/electric line (new)

**Contact Person:**  
Stacy Campbell

**Organization:**  
SWCA

**On Behalf Of:**  
PRIVATE

**Project ID:**  
HGIS-18135

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

Page 1 of 12

Arizona Game and Fish Department  
Project ID: HGIS-18135

project\_report\_winchester\_solar\_cec\_60254\_64645.pdf  
Review Date: 6/1/2023 12:58:04 PM

### 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 Department's review of site-specific projects.
3. The Department's 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. Arizona Wildlife Conservation Strategy (AWCS), specifically Species of Greatest Conservation Need (SGCN), 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.

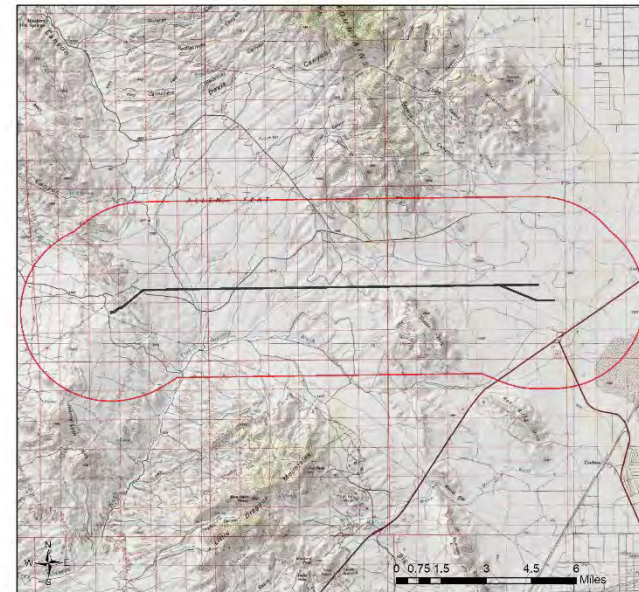
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### Exhibit C-2a. AGFD Online Environmental Review Tool results.

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) 238-7800  
Fax Number: (623) 238-7368  
Or  
[PEP@azgfd.gov](mailto: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.

Winchester Solar CEC  
USA Topo Basemap With Locator Map



Buffered Project Boundary  
Project Boundary

Project Size (acres): 304.15  
Lat/Long (DD): 32.2024 / -110.0773  
County(s): Cochise  
AGFD Region(s): Tucson  
Township/Range(s): T14S, R21E; T14S, R22E; T14S, R23E  
USGS Quad(s): DEEPWELL RANCH; RED BIRD HILLS +

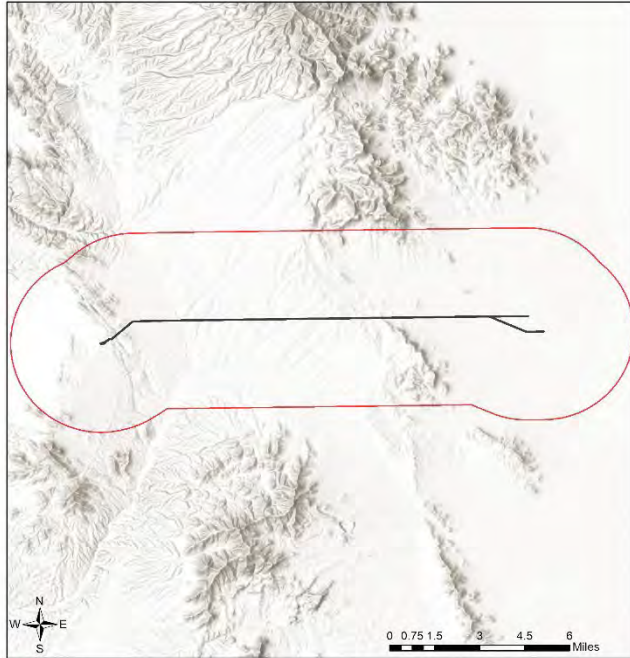
Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, IMA, Geodatasysteisen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community



Exhibit C-2b. AGFD Online Environmental Review Tool results.



### Winchester Solar CEC Web Map As Submitted By User

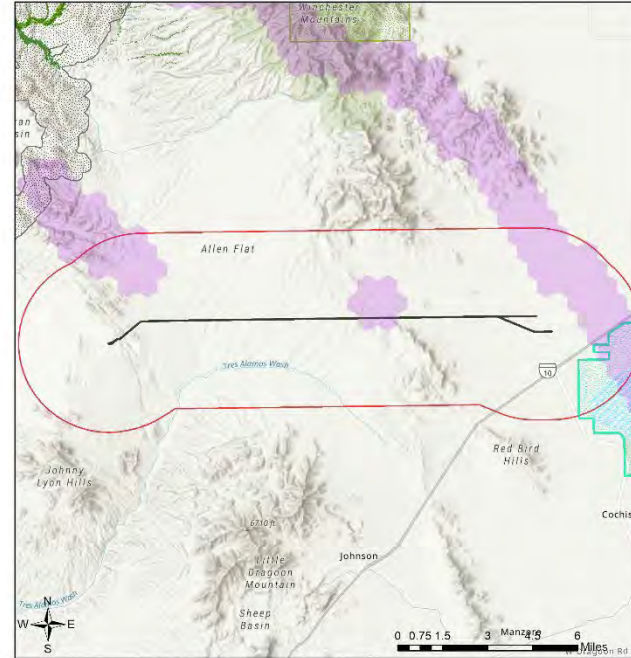


- Buffered Project Boundary
- Project Boundary

Project Size (acres): 304.15  
Lat/Long (DD): 32.2024 / -110.0773  
County(s): Cochise  
AGFD Region(s): Tucson  
Township/Range(s): T14S, R21E; T14S, R22E; T14S, R23E  
USGS Quad(s): DEEPWELL RANCH; RED BIRD HILLS +

Sources: Esri, Airbus DS, USGS, NGA, NASA, CS&SR, N Robinson, HEREAS, HES, GE, NMA, GeoInformation, Environmental, USA, Geoport, FEMA, Intermap, and the GIS user community.

### Winchester Solar CEC Important Areas



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

Project Size (acres): 304.15  
Lat/Long (DD): 32.2024 / -110.0773  
County(s): Cochise  
AGFD Region(s): Tucson  
Township/Range(s): T14S, R21E; T14S, R22E; T14S, R23E  
USGS Quad(s): DEEPWELL RANCH; RED BIRD HILLS +

Sources: Esri, Airbus DS, USGS, NGA, NASA, CS&SR, N Robinson, HEREAS, HES, GE, NMA, GeoInformation, Environmental, USA, Geoport, FEMA, Intermap, and the GIS user community.

Exhibit C-2c. AGFD Online Environmental Review Tool results.

Winchester Solar CEC  
Township/Ranges and Land Ownership



Buffered Project Boundary  
 Project Boundary  
 BLM  
 BOR  
 Indian Res.  
 Military  
 Mixed/Other  
 National Park/Mon.  
 Private  
 State & Regional Parks  
 State Trust  
 US Forest Service  
 Wildlife Area/Refuge  
 Township/Ranges

Project Size (acres): 304.15  
 Lat/Long (DD): 32.2024 / -110.0773  
 County(s): Cochise  
 AGFD Region(s): Tucson  
 Township/Range(s): T14S, R21E; T14S, R22E; T14S, R23E  
 USGS Quad(s): DEEPWELL RANCH; RED BIRD HILLS +

Sources: ERI, ARMA 3D, USGS, NGA, NASA, CGMR, NREL, NCEAS, HES, GCS, NMA, GeoInformation, Environmental, SGA, GeoInfo, FEMA, Interim, and the GIS user community. Sources: ERI, HERS, Geoinf, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

Special Status Species Documented within 3 Miles of Project Vicinity

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
<i>Aspidoscelis arizonae</i>	Arizona Striped Whiptail				S	
<i>Echinomastus erectocentrus</i> var. <i>erectocentrus</i>	Needle-spined Pineapple Cactus	SC				SR
<i>Phrynosoma cornutum</i>	Texas Horned Lizard	SC				
<i>Terrapene ornata luteola</i>	Desert Box Turtle				S	

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

Special Areas Documented that Intersect with Project Footprint as Drawn

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Important Connectivity Zone	Wildlife Connectivity					

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

Species of Greatest Conservation Need Predicted that Intersect with Project Footprint as Drawn, based on Predicted Range Models

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
<i>Accipiter gentilis</i>	Northern Goshawk	SC	S	S		2
<i>Ammodramus savannarum ammolegus</i>	Arizona grasshopper sparrow					
<i>Ammodramus savannarum petpalidus</i>	Western Grasshopper Sparrow					
<i>Ammospermophilus harrisi</i>	Harris' Antelope Squirrel					
<i>Anthus spragueii</i>	Sprague's Pipit	SC				2
<i>Antilocapra americana americana</i>	American Pronghorn					2
<i>Aquila chrysaetos</i>	Golden Eagle			S		2
<i>Artemisiopeziza nevadensis</i>	Sagebrush Sparrow					
<i>Asio otus</i>	Long-eared Owl					2
<i>Aspidoscelis sonorae</i>	Sonoran Spotted Whiptail					2
<i>Athene cucularia hypugaea</i>	Western Burrowing Owl	SB	S	S		2
<i>Auriparus flaviceps</i>	Verdin					2
<i>Baeolophus ridgwayi</i>	Juniper Titmouse					
<i>Buteo regalis</i>	Ferruginous Hawk	SC		S		2
<i>Buteo swainsoni</i>	Swainson's Hawk					2
<i>Buteogallus anthracinus</i>	Common Black Hawk					2
<i>Calcarius ornatus</i>	Chestnut-collared Longspur					2
<i>Callipepla squamata</i>	Scaled Quail					2
<i>Calypte costae</i>	Costa's Hummingbird					2
<i>Campostoma imberbe</i>	Northern Beardless-Tyrannulet		S			2
<i>Campylorhynchus brunneicapillus</i>	Cactus Wren					2

Exhibit C-2d. AGFD Online Environmental Review Tool results.

Species of Greatest Conservation Need Predicted that Intersect with Project Footprint as Drawn, based on Predicted Range Models

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Catharus ustulatus	Swainson's Thrush					2
Chaetodipus baileyi	Bailey's Pocket Mouse					2
Charadrius montanus	Mountain Plover	SC				2
Choeronycteris mexicana	Mexican Long-tongued Bat	SC	S	S		2
Chordeiles minor	Common Nighthawk					2
Coccyzus americanus	Yellow-billed Cuckoo (Western DPS)					
Colaptes chrysoides	Gilded Flicker			S		2
Coluber bilineatus	Sonoran Whipsnake					2
Columbina inca	Inca Dove					2
Corvus cryptoleucus	Chihuahuan Raven					2
Corynorhinus townsendii pallescens	Pale Townsend's Big-eared Bat	SC	S	S		1
Cynanthus latirostris	Broad-billed Hummingbird		S			2
Cynomys ludovicianus	Black-tailed Prairie Dog	CCA		S		1
Cyrtornyx montezumae	Montezuma Quail					
Dryobates arizonae	Arizona Woodpecker		S			2
Elgaria kingii	Madrean Alligator Lizard					2
Empidonax wrightii	Gray Flycatcher					2
Eumops perotis californicus	Greater Western Bonneted Bat					
Falco mexicanus	Prairie Falcon					2
Falco peregrinus anatum	American Peregrine Falcon					
Falco sparverius	American Kestrel					2
Glaucidium gnoma gnoma	Mountain Pygmy-owl					
Gopherus morafkai	Sonoran Desert Tortoise	CCA	S	S		1
Haemorhous cassinii	Cassin's Finch					2
Hypsiglena sp. nov.	Hooded Nightsnake					2
Icterus bullockii	Bullock's Oriole					2
Ictinia mississippiensis	Mississippi Kite					2
Idionycteris phyllotis	Aller's Lappet-browed Bat	SC	S	S		2
Inciilius alvareus	Sonoran Desert Toad					2
Kinosternon sonoriense sonoriense	Desert Mud Turtle					
Lanius ludovicianus	Loggerhead Shrike	SC				2
Lasiurus blossevillii	Western Red Bat		S			2
Lasiurus cinereus	Hoary Bat					2
Lasiurus xanthinus	Western Yellow Bat		S			2
Leptonycteris yerbabuenae	Lesser Long-nosed Bat	SC				1
Lithobates chiricahuensis	Chiricahua Leopard Frog	LT				1
Lithobates yavapaiensis	Lowland Leopard Frog	SC	S	S		1
Megascops kennicottii	Western Screech-owl					
Melanerpes uropygialis	Gila Woodpecker					2

Species of Greatest Conservation Need Predicted that Intersect with Project Footprint as Drawn, based on Predicted Range Models

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Melospiza lincolni	Lincoln's Sparrow					2
Microthene whitneyi	Elf Owl					
Micruroides euryxanthus	Sonoran Coralsnake					2
Myadestes townsendi	Townsend's Solitaire					2
Myotis auricolus	Southwestern Myotis					2
Myotis thysanodes	Fringed Myotis	SC				2
Myotis velifer	Cave Myotis	SC		S		2
Myotis yumanensis	Yuma Myotis	SC				2
Notiosorex cockrumi	Cockrum's Desert Shrew					2
Nyctinomops femorosaccus	Pocketed Free-tailed Bat					2
Nyctinomops macrotis	Big Free-tailed Bat	SC				2
Parabuteo unicinctus	Harris's Hawk					2
Passerculus sandwichensis	Savannah Sparrow					2
Peucaea botteri arizonae	Arizona Botteri's Sparrow			S		2
Peucaea carpalis	Rufous-winged Sparrow					2
Phrynosoma solare	Regal Horned Lizard					2
Pooecetes gramineus	Vesper Sparrow					2
Psiloscops flammeolus	Flammulated Owl					2
Rhynchophanes mocowinii	McCown's Longspur					2
Sciurus arizonensis	Arizona Gray Squirrel					2
Senticolis triaspis	Green Ratsnake		S			2
Setophaga nigrescens	Black-throated Gray Warbler					2
Sigmodon arizonae cienegae	Arizona Cotton Rat					2
Spizella breweri	Brewer's Sparrow					2
Strix occidentalis lucida	Mexican Spotted Owl		LT			1
Tadarida brasiliensis	Brazilian Free-tailed Bat					
Terrapene ornata	Ornate Box Turtle			S		1
Toxostoma bendirei	Bendire's Thrasher					2
Vireo vicinior	Gray Vireo					

Species of Economic and Recreation Importance Predicted that Intersect with Project Footprint as Drawn

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Antilocapra americana americana	American Pronghorn					
Callipepla gambelii	Gambel's Quail					
Callipepla squamata	Scaled Quail					
Odocoileus hemionus	Mule Deer					
Patagioenas fasciata	Band-tailed Pigeon					
Pecari tajacu	Javelina					
Puma concolor	Mountain Lion					

Exhibit C-2e. AGFD Online Environmental Review Tool results.



Arizona Game and Fish Department      project\_report\_winchester\_solar\_cec\_60254\_64645.pdf  
 Project ID: H61S-19135      Review Date: 6/1/2023 12:58:04 PM

Species of Economic and Recreation Importance Predicted that Intersect with Project Footprint as Drawn

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Zenaida asiatica	White-winged Dove					
Zenaida macroura	Mourning Dove					

Project Type: Energy Storage/Production/Transfer, Energy Transfer, Power line/Electric line (new)

Project Type Recommendations:

Minimize the potential introduction or spread of exotic invasive species, including aquatic and terrestrial plants, animals, insects and pathogens. Precautions should be taken to wash and/or decontaminate all equipment utilized in the project activities before entering and leaving the site. See the Arizona Department of Agriculture website for a list of prohibited and restricted noxious weeds at <https://www.invasivespeciesinfo.gov/unitedstates/az.shtml> and the Arizona Native Plant Society <https://aznps.com/invas> for recommendations on how to control. To view a list of documented invasive species or to report invasive species in or near your project area visit iMapInvasives - a national cloud-based application for tracking and managing invasive species at <https://i.map.nature.org/iMapInvasives/pages/map.html>.

- To build a list: zoom to your area of interest, use the identify/measure tool to draw a polygon around your area of interest, and select "See What's Here" for a list of reported species. To export the list, you must have an account and be logged in. You can then use the export tool to draw a boundary and export the records in a csv file.

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 herpetofauna (snakes, lizards, tortoise) from entering ditches. In addition, indirect effects 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 (<https://azstateparks.com/>).

Based on the project type entered, coordination with U.S. Fish and Wildlife Service (Migratory Bird Treaty Act) may be required (<https://www.fws.gov/office/az/aznps/aznps.html>).

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.

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Arizona Game and Fish Department      project\_report\_winchester\_solar\_cec\_60254\_64645.pdf  
 Project ID: H61S-19135      Review Date: 6/1/2023 12:58:04 PM

Project Location and/or Species Recommendations:

HDMS records indicate that one or more native plants listed on the Arizona Native Plant Law and Antiquities Act have been documented within the vicinity of your project area. Please contact Arizona Department of Agriculture 1088 W Adams St. Phoenix, AZ 85007 Phone: 602.542.4373 <https://agriculture.az.gov/sites/default/files/Native%20Plant%20Rules%20-%20AZ%20Dept%20of%20Ag.pdf> starts on page 44

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/wp4/wp-content/uploads/2001/01/23-120719/ALNWCA\\_Final\\_Report\\_Part\\_2013\\_lowres.pdf](https://s3.amazonaws.com/azgfd-portal-wordpress/azgfd/wp4/wp-content/uploads/2001/01/23-120719/ALNWCA_Final_Report_Part_2013_lowres.pdf)

Please contact the Project Evaluation Program ([pep@azgfd.gov](mailto:pep@azgfd.gov)) for specific project recommendations.



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Exhibit C-2f. AGFD Online Environmental Review Tool results.



April 24, 2023

Ms. Christine McLachlan  
Cochise County Development Services  
1415 Melody Lane, Building F  
Bisbee, Arizona 85603

Electronically submitted to [CMcLachlan@cochise.az.gov](mailto:CMcLachlan@cochise.az.gov)

**RE: SU-23-11 Winchester Solar project**

Dear Ms. McLachlan:

The Arizona Game and Fish Department (Department) appreciates the opportunity to review the Winchester Solar project (SU-23-11). The Department understands that Torch Clean Energy, LLC, proposed to develop a photovoltaic (PV) solar facility with a battery energy storage system (BESS) on 3,584 acres of private and Arizona State Land Department (ASLD) lands. The first phase of the project would include a 160 MW PV system with a 160 MW BESS, with the option to expand to up to 400 MW PV and 400 MW BESS in the future. The project would be sited just north of Interstate 10 in Willcox, Arizona, between the Winchester Mountains and the Willcox Playa, in undeveloped semi desert grassland and Chihuahuan desert scrub habitat.

Under Title 17 of the Arizona Revised Statutes, the Department, by and through the Arizona Game and Fish Commission (Commission), has jurisdictional authority and public trust responsibilities to conserve and protect the state fish and wildlife resources. In addition, the Department manages threatened and endangered species through authorities of Section 6 of the Endangered Species Act and the Department's Section 10(a)(1)(A) permit. It is the mission of the Department to conserve and protect Arizona's diverse fish and wildlife resources and manage for safe, compatible outdoor recreation opportunities for current and future generations.

The Department recognizes the importance of planning efforts to develop renewable energy locations that contribute to regional and state economic growth needs and would like to work closely with Torch Clean Energy, LLC, during the planning and development of this facility. The Department recognizes that appropriate coordination, proper planning, and voluntary implementation of best management practices allow projects to be developed that avoid, minimize, or offset potential impacts to wildlife and recreational access during development and operation of the facilities. For your consideration, the Department provides the following comments based on the agency's statutory authorities, public trust responsibilities, and special expertise related to wildlife resources and recreation.

[azgfd.gov](http://azgfd.gov) | 602.942.3000

5000 W. CAREFREE HIGHWAY, PHOENIX AZ 85086

GOVERNOR: KATIE HOBBS COMMISSIONERS: CHAIRMAN JAMES E. GOUGHNOUR, PAYSON | TODD G. GEILER, PRESCOTT | CLAY HERNANDEZ, TUCSON  
MARSHA PETRIE SUE, SCOTTSDALE | JEFF BUCHANAN, PATAGONIA DIRECTOR: TY E. GRAY DEPUTY DIRECTOR: TOM P. FINLEY

**Exhibit C-3a. AGFD comment letter, April 24, 2023.**



Arizona has recently seen an increase in the number of proposed and in-development renewable energy generation projects and associated infrastructure. A number of solar projects have been built or proposed within the vicinity of this project. Although each of these projects individually may have a minimal impact on the broader landscape, these projects cumulatively could result in loss of habitat, impact wildlife movements, and affect wildlife-related recreation. Additionally, long-term effects to wildlife can extend several kilometers beyond the footprint of a solar project area ([Sawyer et al. 2022<sup>1</sup>](#)). It is important to consider all potential cumulative effects and to evaluate this project in association with other projects in the area. Department staff are available to assist in identifying potential cumulative impacts to wildlife and associated voluntary conservation measures that can be implemented for the project.

The proposed project occurs within 1.5 miles of the [Willcox Playa/Cochise Lakes Important Bird Area<sup>2</sup>](#) (IBA). The Willcox Playa/Cochise Lakes area is of state and regional significance and serves as an important overwintering ground for sandhill cranes and numerous other avian species, including several shorebirds. Sandhill cranes are present on the playa between October and March and fly between roosting and feeding sites several times a day. The Department has concerns regarding the potential for bird fatalities or injuries (i.e., bird strikes) if avian species mistake the solar panels for open water. Large-scale solar photovoltaic facilities can result in bird mortality due to habitat loss, collision with panels, attraction due to an optical illusion of water, and unknown causes ([Kosciuch et al. 2020<sup>3</sup>](#)). The Department would welcome the opportunity to explore conservation measures with Torch Clean Energy, LLC, that aim to reduce potential impacts to cranes and other avian species, such as the following:

- The Department encourages the use of non-reflective coatings on the solar panels. Although some daytime reflectivity would still be expected, non-reflective coatings on the solar panels can reduce the appearance of the array as a body of water and reduce the attraction of birds to the site.
- To the extent feasible, the Department recommends maximizing the spacing between solar panels to reduce the “lake effect,” in which continuous or closely-spaced panel arrays create an optical illusion of water.
- The Department encourages the use of both bird diverters and near-ultraviolet light Avian Collision Avoidance Systems (ACAS) on any new powerlines needed for this project. New powerlines in this area may pose a risk of collision and mortality for cranes and other large birds. Providing a combination of bird diverters (or floppy tags), which are useful in daytime/full light scenarios, and near-ultraviolet ACAS, which are useful in nighttime/low light scenarios, can significantly reduce the occurrence of crane strikes ([Dwyer et al. 2019<sup>4</sup>](#)). The Department also recommends following standards established by the Avian Power Line Interaction Committee (APLIC) for new powerlines, which can be found in [Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006<sup>5</sup>](#) and [Reduced Avian Collisions with Power Lines: The State of the Art in](#)

<sup>1</sup> <https://esajournals.onlinelibrary.wiley.com/doi/10.1002/fee.2498>

<sup>2</sup> [https://aziba.org/?page\\_id=712](https://aziba.org/?page_id=712)

<sup>3</sup> <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0232034>

<sup>4</sup> [https://www.researchgate.net/publication/333903783\\_Near-ultraviolet\\_light\\_reduced\\_Sandhill\\_Crane\\_collisions\\_with\\_a\\_power\\_line\\_by\\_98](https://www.researchgate.net/publication/333903783_Near-ultraviolet_light_reduced_Sandhill_Crane_collisions_with_a_power_line_by_98)

<sup>5</sup> [https://www.aplic.org/uploads/files/2643/SuggestedPractices2006\(LR-2\).pdf](https://www.aplic.org/uploads/files/2643/SuggestedPractices2006(LR-2).pdf)



2012<sup>6</sup>. Tuk Jacobson, the Department's Raptor Coordinator, can provide further information on specific design features and best management practices; he can be contacted at [raptors@azgfd.gov](mailto:raptors@azgfd.gov) or 623-236-7575.

- The Department encourages Torch Clean Energy, LLC, to implement post-construction monitoring for avian injuries and fatalities. Recommendations for monitoring design and frequency can be found in the U.S. Geological Survey's 2016 [Mortality Monitoring Design for Utility-Scale Solar Power Facilities](#)<sup>7</sup>. Any avian injuries or fatalities should be reported both to the Department and by using the U.S. Fish and Wildlife Service's [Injury and Mortality Reporting](#)<sup>8</sup> website. Department staff are available to assist in developing the monitoring protocol and to further refine the monitoring and reporting recommendations in order to develop feasible and repeatable protocols to be implemented during operations. The Department is also available to help determine adaptive management measures based on results of the post-construction monitoring. For example, the U.S. Geological Survey has been conducting research that indicates birds are most attracted to solar arrays around midday, and tilting of panels during key times of strikes could reduce bird attraction.

The Department appreciates that field reconnaissance of the project area occurred and recommends conducting additional surveys in the project area and adjacent lands to further assess wildlife species presence. These surveys should be of sufficient duration and intensity to adequately assess all habitat types and potential species occurrence in and adjacent to the project area. Additionally, Department staff are available to assist Torch Clean Energy, LLC, in determining appropriate design features and best management practices that can help minimize potential impacts. Based on the information provided, the Department offers the following recommendations to reduce impacts to wildlife and habitat; additional information can be found in [Guidelines for Solar Development in Arizona](#)<sup>9</sup>:

- Bald and golden eagles, which are regulated under the Bald and Golden Eagle Protection Act (BGEPA), have been documented within 5 miles of the project area. If uncertain about the effects of the project to eagles, or if it is anticipated the project will not be in compliance with the BGEPA, the Department recommends contacting the [U.S. Fish and Wildlife Service](#)<sup>10</sup> (USFWS) for technical assistance, as well as Tuk Jacobson at [raptors@azgfd.gov](mailto:raptors@azgfd.gov) or 623-236-7575. The USFWS and the Department will provide options to comply with the BGEPA, such as conservation measures to avoid or minimize adverse effects to the eagles.
- The Department recommends conducting avian surveys in order to better understand species presence and to inform potential conservation measures. Department staff are available to assist with identifying appropriate conservation measures based on species presence at the site. The Department also recommends conducting surveys for nesting birds prior to vegetation removal and/or construction activities that occur during the

<sup>6</sup> [https://www.aplic.org/uploads/files/15518/Reducing\\_Avian\\_Collisions\\_2012watermarkLR.pdf](https://www.aplic.org/uploads/files/15518/Reducing_Avian_Collisions_2012watermarkLR.pdf)

<sup>7</sup> <https://pubs.usgs.gov/of/2016/1087/ofr20161087.pdf>

<sup>8</sup> <https://ecos.fws.gov/imr/welcome>

<sup>9</sup> <https://s3.amazonaws.com/azgfd-portal-wordpress/PortalImages/files/wildlife/planningFor/wildlifeFriendlyGuidelines/FinalSolarGuidelines03122010.pdf>

<sup>10</sup> <https://www.fws.gov/office/arizona-ecological-services/contact-us>

**Exhibit C-3c. AGFD comment letter, April 24, 2023.**



breeding season. The vegetation within the project area may provide nesting opportunities for avian species that are regulated under the Migratory Bird Treaty Act (MBTA). Breeding season for birds in this area is generally mid-January through late September, and raptor nesting season is generally January through late June. If it is anticipated the project will not be in compliance with MBTA, the Department recommends contacting the USFWS for technical assistance.

- The western burrowing owl, a special status species that is regulated under the MBTA, could occur within the project area. The Department recommends conducting occupancy surveys for western burrowing owls throughout the project area to determine if this species occurs within the project footprint. Guidelines for conducting this survey are found in [Burrowing Owl Project Clearance Guidance for Landowners](#)<sup>11</sup>. Please note that the surveys should be conducted by a surveyor who is certified by the Department or has similar qualifications. If an active burrowing owl burrow is detected, please contact the Department and the USFWS for direction, in accordance with the guidelines. The Department recommends conducting surveys in advance of the design phase to understand distribution of burrowing owls in the project site; avoidance of a large burrowing owl population may be advisable over removal or other conservation measures.
- The Sonoran desert tortoise, which is a federal and state species of concern, has been observed within the project vicinity. The Department recommends conducting surveys, in accordance with the [Desert Tortoise Survey Guidelines for Environmental Consultants](#)<sup>12</sup>, to determine the presence of this species or its habitat. If tortoises are identified, please refer to and implement the [Recommended Standard Mitigation Measures for Projects in Sonoran Desert Tortoise Habitat](#)<sup>13</sup> and [Guidelines for Handling Sonoran Desert Tortoises Encountered on Development Projects](#)<sup>14</sup>.
- Burrowing species could occur within the project area and could be influenced by construction activities and by loss of habitat. Surveys for these species are recommended to determine presence and to inform pre-construction activities. Department staff are available to assist in identifying suitable conservation measures, such as one-way enclosures on burrows that allow wildlife to exit the burrows and disperse to adjacent lands in advance of construction.
- A variety of other Arizona Species of Greatest Conservation Need (SGCN) have the potential to occur within the project area. If wildlife are encountered during construction activities, the Department recommends moving them out of harm's way, no more than 0.25 mile outside the project boundary within similar habitat. Please note that the Arizona State Wildlife Action Plan was recently updated, and the Department has an interactive website, [Arizona Wildlife Conservation Strategy](#)<sup>15</sup>, that includes the most recent list of SGCN to help navigate and identify conservation opportunities.

<sup>11</sup> <https://www.azgfd.com/wildlife/speciesofgreatestconservneed/raptor-management/burrowing-owl-mangement/>

<sup>12</sup> <https://s3.amazonaws.com/azgfd-portal-wordpress/PortalImages/files/wildlife/2010SurveyguidelinesForConsultants.pdf>

<sup>13</sup> <https://s3.amazonaws.com/azgfd-portal-wordpress/PortalImages/files/wildlife/MitigationMeasures.pdf>

<sup>14</sup> <https://s3.amazonaws.com/azgfd-portal-wordpress/PortalImages/files/wildlife/2014%20Tortoise%20handling%20guidelines.pdf>

<sup>15</sup> <https://awcs.azgfd.com>

**Exhibit C-3d. AGFD comment letter, April 24, 2023.**



Maintaining habitat connectivity is a priority for the Department, and wildlife movement corridors are important for wildlife to respond to changing environmental conditions. The landscape in which this project is proposed provides important movement pathways for wildlife. The Department would like to meet with Torch Clean Energy, LLC, to discuss opportunities to incorporate connectivity into the project design, including the following:

- The Department recommends incorporating open corridors across the project area into the project design to facilitate wildlife movement, including maintaining the ephemeral washes that occur in the project area in their natural state without fencing or other barriers to wildlife movement. These washes serve multiple functions in the ecosystem. Not only do they provide for hydrologic flow, which is especially important in areas that receive infrequent and isolated precipitation events, but these washes also serve as important landscape-level conveyance corridors for wildlife movement.
- The Department appreciates that minimal grading will occur in the project area. To the extent possible, the Department recommends retaining habitat features underneath the panels, including vegetation and soils. The topography in the majority of the site is flat and would require minimal trimming of shrubs and existing vegetation to install the panels. Keeping the existing soil and root structures intact would serve to minimize erosional run-off and help reduce biodiversity loss within the site ([Grotsky and Hernandez 2020](#)<sup>16</sup>).
- The Department's *Wildlife Compatible Fencing Guidelines*<sup>17</sup> provide information on how fencing impacts wildlife, ways to design fencing to prevent wildlife entanglement and impalement, and to ensure wildlife movement is not restricted. Department personnel are available as resources to help determine appropriate fencing design and layout that will achieve its objective while reducing impact to wildlife, such as leaving a 6–8-inch gap between the ground surface and bottom of the fence to allow for smaller wildlife species to move freely through the area and make use of any habitat within the project boundary.

Finally, the Department offers the following general recommendations to reduce potential impacts to wildlife and habitat during construction and operation of the facility:

- Because proposed ground disturbance (both temporary and permanent) will exceed 0.25 acre in areas with native vegetation, please ensure the project complies with [Arizona Native Plant Law](#) regulations<sup>18</sup>. A Native Plant Inventory may need to be conducted to identify, record, and coordinate plant salvage efforts for species that are Protected under the Arizona Native Plant Law.
- To minimize the potential introduction or spread of exotic invasive species, including aquatic and terrestrial plants, animals, insects, and pathogens, the Department encourages taking precautions to wash and/or decontaminate equipment before entering and leaving the site. See the [Arizona Department of Agriculture website](#)<sup>19</sup> for a list of prohibited and restricted noxious weeds and the [Arizona Native Plant Society](#)<sup>20</sup> for recommendations on

<sup>16</sup> <https://www.nature.com/articles/s41893-020-0574-x>

<sup>17</sup> [https://s3.amazonaws.com/azgfd-portal-wordpress/PortalImages/files/wildlife/planningFor/wildlifeFriendlyGuidelines/110125\\_AGFD\\_fencing\\_guidelines.pdf](https://s3.amazonaws.com/azgfd-portal-wordpress/PortalImages/files/wildlife/planningFor/wildlifeFriendlyGuidelines/110125_AGFD_fencing_guidelines.pdf)

<sup>18</sup> <https://agriculture.az.gov/plantsproduce/native-plants>

<sup>19</sup> <https://agriculture.az.gov/pestspest-control/agriculture-pests/noxious-weeds>

<sup>20</sup> <https://aznps.com/invas>

**Exhibit C-3e. AGFD comment letter, April 24, 2023.**

how to control them. To view a list of documented invasive species or to report invasive species in or near your project area, visit [iMapInvasives](https://imap.natureserve.org/imap/services/page/map.html)<sup>21</sup>, which is a national cloud-based application for tracking and managing invasive species.

- If trenching will occur for the proposed project, the Department recommends that trenching and backfilling crews be close together to minimize the amount of open trenches at any given time. Where trenches cannot be back-filled immediately, the Department recommends escape ramps be constructed at least every 90 meters. Escape ramps can be short lateral trenches or wooden planks sloping to the surface. The Department recommends that slopes be less than 45 degrees (1:1) and trenches that have been left open overnight be inspected to remove animals prior to backfilling.
- The Department recommends revegetating disturbed areas with native drought-tolerant species that represent the natural surrounding landscape. Landscaping with native plants can help support wildlife and pollinator species in the area while reducing dust and erosion. In addition, the applicable land management agencies should be consulted regarding guidelines for revegetation efforts.
- Artificial lighting could impair the ability of nocturnal animals to navigate (e.g., owls, migratory birds, bats, and other nocturnal mammals) and may affect wildlife behavior and populations (Davies et. al. 2013<sup>22</sup>). The Department recommends using only the minimum amount of light needed for safety. If feasible, narrow spectrum lighting is wildlife-friendly and should be used as often as possible to minimize the number of species affected by lighting. It is also beneficial that all lighting is shielded, canted, or cut to minimize the amount of upward shining light.

Thank you for the opportunity to provide input on the Winchester Solar project (SU-23-11). For further coordination, please contact Tiffany Sprague at [tsprague@azgfd.gov](mailto:tsprague@azgfd.gov) or 623-236-7222.

Sincerely,



Luke Thompson  
Habitat, Evaluation, and Lands Branch Chief

cc: Tom Koronkiewicz, SWCA Environmental Consultants  
Raul Vega - Regional Supervisor, Region V  
Laura Paulson - Region V Habitat, Evaluation, and Lands Program Specialist  
Ginger Ritter - Project Evaluation Program Supervisor

AZGFD #M23-04102101

<sup>21</sup> <https://imap.natureserve.org/imap/services/page/map.html>

<sup>22</sup> <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3657119>



Arizona Game & Fish Department  
 Attn: Tiffany Sprague  
 5000 Carefree Highway  
 Phoenix, AZ 85086

May 2, 2023

In a letter from the Arizona Game and Fish Department (Department) dated April 24, 2023, the Department expressed interest in working with Torch Clean Energy, LLC during the planning and development of the Winchester Solar I and II facilities (Project) located in Cochise County. The Department provided comments and best management practices for Torch's considerations to offset potential impacts to wildlife throughout the planning and development of the Project. Torch and the Department discussed each concern and potential solutions in a meeting on April 26, 2023.

The below outlines the Department's concerns and suggestions as well as responses from Torch regarding the ways, where possible, the Project can address the Department's concerns and mitigate potential impacts.

- The Department has concerns regarding the potential for bird fatalities or injuries (i.e. bird strikes) if avian species mistake the solar panels for open water and stated that they would welcome the opportunity to explore conservation measures with Torch with the aim to reduce potential impacts to cranes and other avian species, such as the following:
  - The Department encourages the use of non-reflective coatings on the solar panels.
    - *The majority of modern solar modules include an advanced coating that reduces reflectivity of the solar panel to allow the PV cell to make more energy with the same amount of sunlight. When procuring solar panels for the Project, Torch will seek panels with an anti-reflectivity coating that is integral to the panel in order to reduce impacts to avian species.*
  - To the extent feasible, the Department recommends maximizing the spacing between the solar panels to reduce the "lake effect," in which continuous closely spaced panel arrays create an optical illusion of water.
    - *Because the Project boundary includes a larger acreage than necessary to meet the target generation capacity for the Project, Torch is able to design the Project to include more space between module rows than is typically planned for within solar facilities in order to mitigate the potential for bird strikes. Torch will maintain a distance of 12 feet between tracker rows. It is also important to note that trackers typically rotate every 10-15 minutes and are stored at a 60-degree angle when the sun is not shining so the panels are parallel to the earth for only 1-15 minutes per day.*
  - The Department encourages the use of both bird diverters and near-ultraviolet light Avian Collision Avoidance Systems (ACAS) and following Avion Power Line Interaction Committee ("APLIC") standards on any new powerlines needed for this project.

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**Exhibit C-4a. Torch reply to AGFD, May 2, 2023.**

- *Torch will follow APLIC guidelines and will explore the feasibility of incorporating bird diverters and ACAS into the design of the Winchester generation-tie line and will coordinate with the Department in a few months on this topic once the Project has applied for a Certificate of Environmental Compatibility with the Arizona Corporation Commission.*
  - The Department encourages Torch to implement post-construction monitoring for avian injuries and fatalities.
    - *The Operations and Management (O&M) team selected for the Project will perform quarterly inspections of the site, and, during this process they will also identify and report (with photo, lat/long, date, and time of sighting) any injured or dead species.*
- The Department recommends conducting additional surveys in the project area and adjacent lands to further assess wildlife species presence. Surveys should be of sufficient duration and intensity to adequately assess all habitat types and potential species occurrence in and adjacent to the project area.
  - *Torch and the Department discussed that additional avian surveys ahead of construction would yield little to no additional information that could be used for project siting to reduce impacts to avian species.*
- The Department recommends conducting additional surveys in the project area and adjacent lands to further assess wildlife species presence, and noted the documentation of bald and golden eagles within 5 miles of the Project area. The Department stated that if Torch is uncertain about effects of the project to eagles, or if it is anticipated the project will not be in compliance with the Bald and Golden Eagle Protection Act (BGEPA), the Department recommends contacting USFWS for technical assistance as well as Tuk Jacobson.
  - *Torch will contact USFWS and AZGFD, if needed, and will remain in compliance with the BGEPA.*
- The Department noted that vegetation within the Project area may provide nesting opportunities for avian species that are regulated under the Migratory Bird Treaty Act. Breeding season for birds in this area is generally mid-January through late September, and raptor nesting season is generally January through late June. If it is anticipated the project will not be in compliance with the MBTA, the Department recommends contacting the USFWS for technical assistance.
  - *Torch will coordinate with USFWS, if needed, and will remain in compliance with the MBTA.*
- The Department noted that the western burrowing owl, sonoran desert tortoise, and a variety of other Arizona Species of Greatest Conservation Need have the potential to occur within the project area. If wildlife are encountered during construction activities, the Department recommends moving them out of harm's way (no more than .25 miles outside the project boundary within similar habitat).
  - *In a survey performed by SWCA, there were no western burrowing owl species, sonoran desert tortoise*

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**Exhibit C-4b. Torch reply to AGFD, May 2, 2023.**



*species, or species sign in the area; nor were there burrow for either. However, Torch will do pre-construction surveys per the MBTA and state-listed sensitive species guidelines ahead of any ground disturbance.*

- The Department prioritizes habitat connectivity and wildlife movement corridors are important for wildlife to respond to changing environmental conditions. In the meeting between Torch and the Department, the following opportunities were discussed to incorporate connectivity into the project design:
  - Incorporating open corridors across the project area to facilitate wildlife movement, including maintaining the ephemeral washes that occur in the project area in their natural state without fencing or other barriers to wildlife movement.
    - *Torch is actively working with the Department on this topic; the Connectivity Department within AZGFD is evaluating if a wildlife highway crossing is proposed along the southern edge of the project site. If a wildlife crossing is proposed, Torch will work with the Department on locating a corridor that allows for connectivity.*
  - Retaining habitat features underneath the panels, including vegetation and soils.
    - *The Project will aim to minimize grading and, where grading is not required and the vegetation can be mowed rather than removed completely, the Project will do so. In order to comply with federal National Pollutant Discharge Elimination System ("NDPES") permit, the site will be stabilized with vegetation.*
  - Leaving a 6-8 inch gap between the ground surface and bottom of the fence to allow for smaller wildlife species to move freely through the area and make use of any habitat within the project boundary.
    - *Torch will incorporate a 6" to 8" gap between the ground surface and bottom of fence within Project designs, though in the event Project security becomes a concern for financial lenders or insurance providers, Torch will coordinate with the Department on potentially reducing or eliminating the gap.*
- Finally, the Department offered the following general recommendations to reduce potential impacts to wildlife and habitat during construction and operation of the facility:
  - Conducting a Native Plant Inventory to identify, record, and coordinate plant salvage efforts for species that are protected under the Arizona Native Plant Law.
    - *A Native Plant Inventory per Arizona State Land Department (ASLD) protocol will be completed by SWCA for the transmission line area located on ASLD lands, and because of the homogeneity of the habitat in this area, this inventory will be helpful in further identifying vegetation features/species composition for the Project area as well.*

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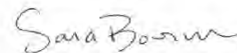
**Exhibit C-4c. Torch reply to AGFD, May 2, 2023.**



- Taking precautions to wash and/or decontaminate equipment before entering and leaving the site.
  - *As there will be very minimal disturbance of the soil and soil will not likely not be brought in from offsite, contamination of equipment is likely very minimal. Torch will refer to the list of prohibited and restricted noxious weeds and the Arizona Native Plant Society for recommendations on how to control them and ensure the contractor makes a reasonable effort to integrate this into the Worker Education Awareness Program.*
  
- Trenching and backfilling crew work to be close together to minimize the amount of open trenches at any given time. When trenches cannot be back-filled immediately, the Department recommends escape ramps be constructed at least every 90 meters. Escape ramps can be short lateral trenches or wooden planks sloping to the surface. The Department recommends that slopes be less than 45 degrees and trenches that have been left open overnight be inspected to remove animals prior to backfilling.
  - *Torch will commit to utilizing escape ramps at least every 90 meters and should wildlife be encountered within open trenches, the Engineering, Procurement, and Contractor (“EPC”) staff will remove the wildlife based on protocols established within a Worker Education Awareness Program.*
  
- Using only the minimum amount of light needed for safety. If feasible, narrow spectrum lighting is wildlife-friendly and should be used as often as possible to minimize the number of species affected. It is also beneficial that lighting is shielded, canted, or cut to minimize the amount of upward shining light.
  - *The Project’s only lighting will be two foot candles at the substation, per the National Electric Safety Code Table 111-1. A foot candle is defined as enough light to saturate one square foot with one lumen of light. This lighting will only be used when necessary during maintenance.*

Torch looks forward to continue coordinating with Arizona Game and Fish to identify best wildlife management practices for the Project. Please don’t hesitate to reach out with further questions or concerns at (303) 775-1773 or sborn@torchcleanenergy.com.

Respectfully,



**Sara Born, P.E.**  
**Director of Project Development**  
**Torch Clean Energy**

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**Exhibit C-4d. Torch reply to AGFD, May 2, 2023.**



**Exhibit C-5a. EDM report “Rapid Desktop Avian Collision Risk Assessment.”**

Transmission lines occurring in or between daily foraging or roosting areas near open water are particularly problematic because birds moving within or back and forth between these areas will likely encounter the line at least twice daily, and potentially more often, increasing the number of opportunities for collisions to occur (summarized in APLIC 2012). Large birds with heavy wing loading are most densely concentrated around water bodies, and in the absence of anthropogenic infrastructure, the airspace above water bodies is usually free of potential obstacles. Avian collisions with power lines can also occur where large numbers of other types of bird gather if those gatherings are under or adjacent to a power line, particularly at night or during inclement weather (Hamer et al. 2021). Smaller birds are also regularly killed in power line collisions, but are less well documented (e.g., Sporer et al. 2013, Rogers et al. 2014).



Figure 1. Location of the CEC corridor (yellow polygon). Willcox Playa is the pale, white-edged area at the bottom right (southeast) side and corner of the illustrated area.

**Exhibit C-5b. EDM report “Rapid Desktop Avian Collision Risk Assessment.”**





Figure 2. The Avian Collision Avoidance System (ACAS; purple lights on tower) uses ultraviolet (UV) light to illuminate power lines at night to reduce the risk of avian collisions. ACAS lights are faintly purple because they primarily produce UV light that is invisible to people.

### Methods

To conduct this rapid desktop assessment, EDM examined the entire CEC corridor via Google Earth and searched for publicly available information on birds in the area, via ebird, Christmas Bird Counts, and through searches of various websites describing birds in and around Willcox Playa Wildlife Management Area (WMA). The Willcox Playa WMA is an Important Bird Area (IBA) 9 miles south southeast of Willcox, AZ, and is managed by the Arizona Game & Fish Department (Fig. 1). Willcox Playa provides wintering habitat to thousands of Sandhill Cranes (*Grus canadensis*) and other water birds annually, and so is regularly occupied by species at risk of collision with power lines.

EDM relied on publicly available information to evaluate whether birds might be at risk of collision with a power line constructed in the CEC corridor. EDM used this approach to meet the tight assessment deadline (approximately 1 week including contracting), and because Winchester Transmission, LLC did not indicate that it possessed any non-public information on avian concentrations, locations, or movements in the area. For these reasons, there was not sufficient time for EDM to contact state and Federal agencies or wildlife researchers to request additional data typically included in an assessment, nor was there time for EDM to conduct a site visit to view the length of the proposed line location in person. These activities may be possible at a later date with an additional budget to convert the rapid desktop assessment to a full Avian Collision Risk Assessment.

### Exhibit C-5c. EDM report “Rapid Desktop Avian Collision Risk Assessment.”

## Results

The new 345kV transmission line being planned for the CEC corridor will be supported primarily by 2-pole wood H-frame structures interspersed with 3-pole wood structures at corners and stress points in the line (Fig. 3). The structures supporting the line will vary in height from 60 feet to 120 feet, with most structures approximately 90 feet tall. The line will include two overhead shield wires suspended between the tops of each pole (i.e., reaching up to 90 feet above the ground on most of the line, and three bundled conductors suspended between the insulators on each pole. The conductors will hang as low as 30 feet above the ground at the midpoint between structures, with most hanging to 33 to 37 feet above ground level. This configuration creates two sets of horizontal planes when viewed from the horizontal; one composed of the shield wire, and one composed of the conductors. Overhead shield wires are involved in the majority of avian collisions with electric transmission lines, so the anticipated configuration of the line does present the potential for avian collisions if biological risk factors are also met.

The CEC corridor crosses an open desert landscape with relatively little vertical terrain variation and almost no trees. Shrubs less than approximately 5 feet tall appear present in numerous dry washes mostly running northeast to southwest and often crossing the east-to-west running CEC corridor at approximately 45-degree angles (Fig. 4). None of the terrain or vegetation appears tall enough in Google Earth to shield the powerline from avian flight paths or to alert flying birds to the presence of a tall obstacle in the airspace. In wetland or open water landscapes, this could indicate an area of relatively high collision risk due to the potential to attract large concentrations of waterbirds. In the location of the CEC corridor however, this is not the case. The only water bodies visible within 2 miles of the CEC corridor centerline in Google Earth are small, likely ephemeral ponds used as stock tanks. There are three of these in or immediately adjacent to the CEC corridor. Specifically, there are small water bodies between structures 55-56, north of structure 84, and south-southeast of structure 104 (Fig 5, Fig. 6, and Fig. 7).

The CEC corridor is not adjacent to any ebird locations (Fig. 8) or Christmas Bird Count locations (Fig. 9). The nearest ebird locations to the CEC corridor are approximately 8 miles south and 8 miles east. The nearest Christmas Bird Count locations to the CEC corridor are approximately 23 miles south, 43 miles north, 44 miles west, and 53 miles southeast.

Willcox Playa extends from approximately 2 miles east of the easternmost end of the CEC corridor to Willcox Playa WMA 12 miles east southeast of the easternmost end of the CEC corridor (Fig. 10). Birds using Willcox Playa and roosting at the Willcox Playa WMA are likely to either stay in or near wetland areas associated with water if present, and to disperse to forage in agricultural areas primarily east and southeast of the WMA. There are no agricultural areas towards or immediately beyond the CEC corridor, and thus little likely motivation for birds using the Willcox Playa and Willcox Playa WMA to include areas traversed by the CEC corridor in their daily foraging or roosting movements. Birds migrating to, through, or from Willcox Playa are likely to move along a primarily north-south axis as they enter and exit the Playa on migratory movements, and so appear to cross the CEC corridor to the west. These predicted bird movements could be supported or refuted by telemetry data if it exists. EDM does not have knowledge of or access to any such data at the time of this writing. Winchester Transmission, LLC may benefit from such data if it exists and if it can be evaluated for an a more in-depth avian collision risk assessment for the CEC corridor.



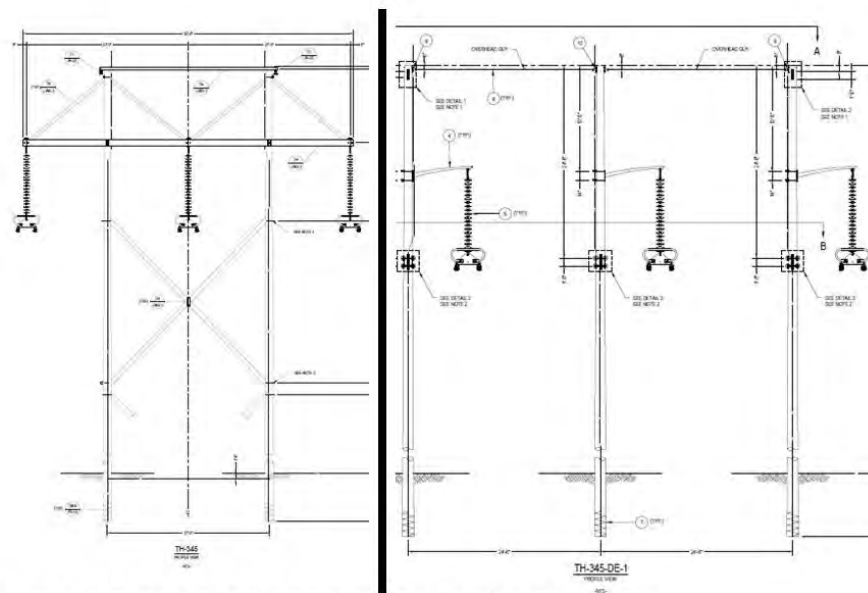


Figure 3. Drawings of structure types planned for the CEC corridor.



Figure 4. A Google Earth view from W. Airport Road looking south toward the CEC corridor shows relatively flat terrain and low scattered shrubs well below transmission line height. Hills in the background of the image are beyond the CEC corridor.

**Exhibit C-5e. EDM report “Rapid Desktop Avian Collision Risk Assessment.”**



Figure 5. Standing water 275-325 feet east of structure 55 and west of structure 56. Yellow lines indicate the CEC corridor. White numbers indicate structure locations.



Figure 6. Standing water 400-450 feet north of structure 84. Yellow lines indicate the CEC corridor. White numbers indicate structure locations.

**Exhibit C-5f. EDM report “Rapid Desktop Avian Collision Risk Assessment.”**





Figure 7. Standing water 1,900-1,950 feet south-southeast of structure 104. Yellow lines indicate the CEC corridor. White numbers indicate structure locations.

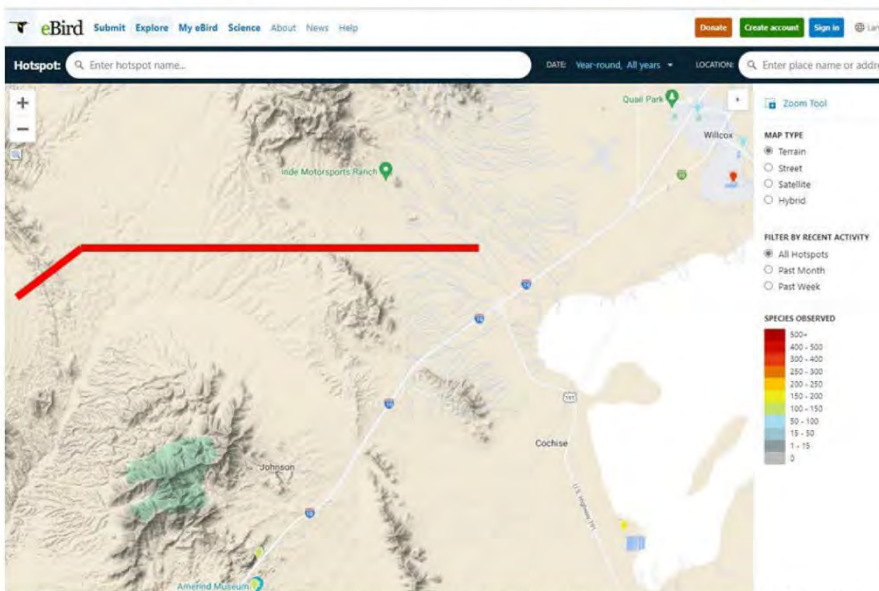


Figure 8. CEC corridor (red line) relative to ebird hotspots (green pins near bottom (south) edge of map, and green and red pins near right (east) edge of the map).

**Exhibit C-5g. EDM report “Rapid Desktop Avian Collision Risk Assessment.”**

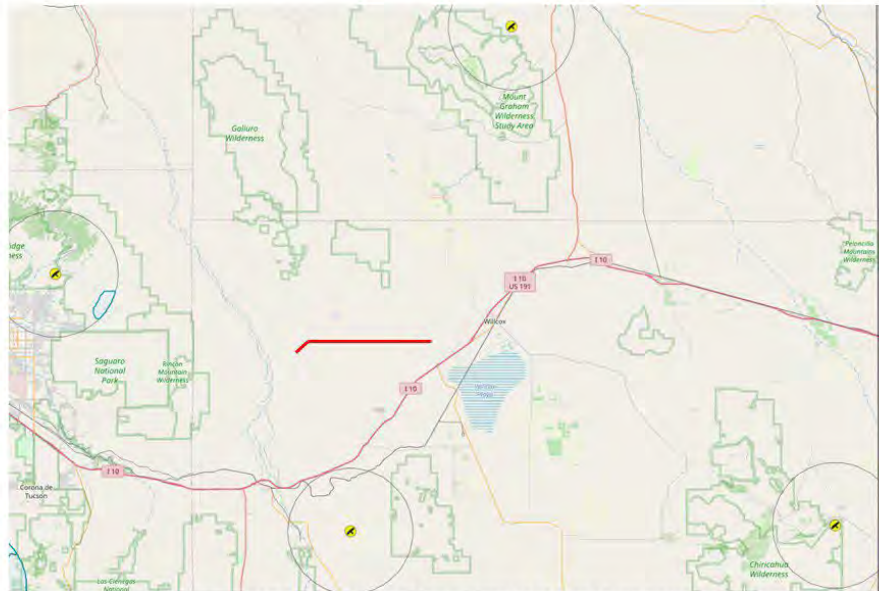


Figure 9. The four nearest Christmas Bird Count locations (circles around bird icons) to the CEC corridor (red line).



Figure 10. The CEC corridor (yellow polygon) is on the opposite side (northwest) of Willcox Playa from the agricultural fields (southwest), creating minimal risk of encountering the line.

**Exhibit C-5h. EDM report “Rapid Desktop Avian Collision Risk Assessment.”**



## Discussion

The ACAS can be highly effective (Dwyer et al. 2019a, Dwyer et al. 2019b, Baasch et al. 2022), but is also more complex, more expensive, and potentially more in need of maintenance than line markers which are traditionally used to mark power lines to increase their visibility to birds. For these reasons, the ACAS is not recommended for all power line applications. Instead, it is recommended specifically for locations where avian collisions are likely to occur in high numbers, have already been detected, include birds of conservation concern with low population sizes, or some combination thereof. EDM did not find any indication that these criteria are likely to be met in the CEC corridor. Specifically, based on the lack of aquatic or agricultural habitats within or adjacent to the CEC corridor, and lack of ebird and Christmas Bird Count sites near the line, it does not appear that large numbers of birds are likely to use the area. This assessment suggests that no ACAS unit(s) are warranted on the CEC corridor. If risk mitigation measures and locations have already been identified in pre-existing planning and permitting documents, then assessment of the appropriateness of ACAS in the CEC corridor should be repeated in light of that additional information.

EDM did identify three locations where collisions, although probably likely to occur only in low numbers and with low frequency, may be slightly more likely to occur than elsewhere in the CEC corridor. These locations are where ephemeral ponds are adjacent to structures 55, 84, and 104. If collision risk mitigation measures and locations have not already been identified in previously developed planning and permitting documents, then EDM recommends line markers be installed at these sites from structures 54-57 (3 spans), 83-85 (2 spans), and 101-104 (3 spans). Line markers are widely used in managing avian collisions with power lines (APLIC 2012, Sporer et al. 2013, Murphy et al. 2016a, Kolnegari et al. 2020), although with varied and inconsistent effectiveness (Bernardino et al. 2019b, Ferrer et al. 2020, Shaw et al. 2021, Dwyer and Harness 2022).

If more substantial mitigation measures have already been identified in other project-related documents, EDM defers to those prior materials, particularly if data that is not publicly available indicates birds moving from Willcox Playa northwest to and over the CEC corridor either during foraging flights or migration. For small projects such as the line marking suggested by EDM, installing line markers via Uncrewed Aircraft System (UAS; Fig. 11; Lobermeier et al. 2015, Acklen et al. 2020) may be faster, less expensive, and less logistically complex than traditional helicopter installation methods.

EDM's observations and conclusions in this report are based on minimal publicly available data. This rapid desktop assessment did not include a site visit or an attempt to gather non-public information on bird use in the area. A more comprehensive assessment may be possible if those actions are undertaken, although the findings of minimal avian use of the CEC corridor are likely to be supported with additional information, if such information exists and is shared.

### Exhibit C-5i. EDM report “Rapid Desktop Avian Collision Risk Assessment.”

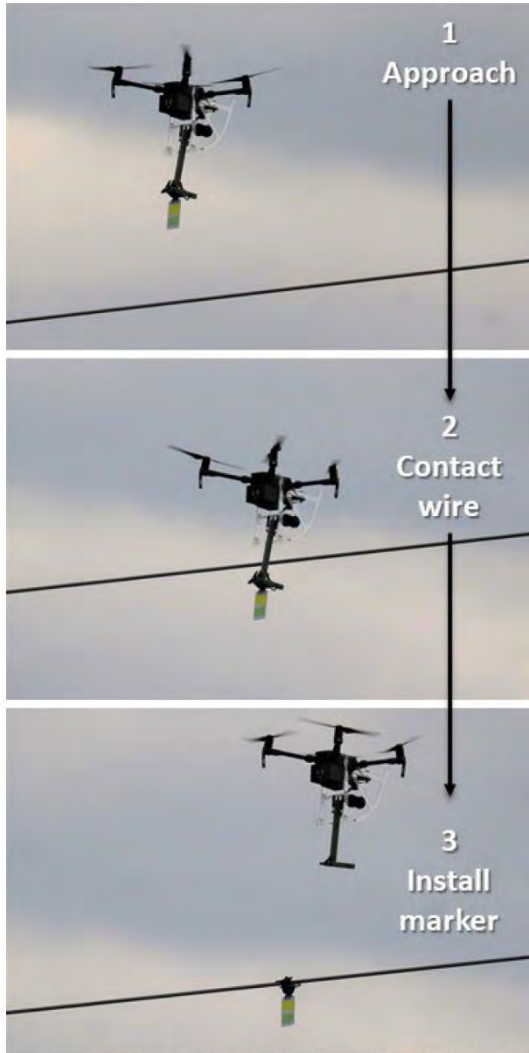


Figure 11. Installation of a FireFly line marker via EDM's UAS.

**Exhibit C-5j. EDM report “Rapid Desktop Avian Collision Risk Assessment.”**

## Contact Information

Questions or comments regarding this report should be directed to:

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**Exhibit C-5L. EDM report “Rapid Desktop Avian Collision Risk Assessment.”**





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# EXHIBIT D. BIOLOGICAL RESOURCES

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*As stated in the Arizona Corporation Commission Rules of Practice and Procedure R14-3-219, Exhibit 1:*

*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.*

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## Introduction

Throughout Exhibit D, the term Project Area refers to the 1,000-foot-wide CEC corridor within which the Transmission Project would be constructed and the Study Area refers to the Project Area plus a 1-mile buffer. To identify the plant and wildlife species that may occur in the vicinity of the proposed Transmission Project, SWCA Environmental Consultants (SWCA) consulted publicly available data sources, including the following:

- Topographical and aerial maps
- Arizona Game and Fish Department (AGFD) Online Environmental Review Tool (AGFD 2023a)
- *Biotic Communities: Southwestern United States and Northwestern Mexico* (Brown 1994)
- Regional checklists, reports, and publications (e.g., Brennan and Holycross 2006; eBird 2023; Hoffmeister 1986; Kesner and Marsh 2010)

In March 2023, an SWCA biologist with expertise in the biology of flora and fauna of the region surveyed portions of the Project and Study Area. A biologist conducting other studies in the Project Area in May 2023, additionally added to the list of flora and fauna. The site was assessed to determine if habitat features for species protected under federal, state, or local regulations were present in the Project Area and Study Area. An SWCA biologist also reviewed the AGFD's Project Evaluation Program comment letter dated April 24, 2023, and incorporated relevant information and recommendations into this application (see Exhibits J-1 and J-2).

For the purposes of Exhibit D, the biological resources of the requested Certificate of Environmental Compatibility (CEC) Corridor (i.e., the Project Area) are considered together. The impacts to general wildlife or vegetation species would not be substantially differently impacted depending on the final route selected within the CEC Corridor. This is because of the general homogeneity of biotic and abiotic habitat types in the Study Area. Results

## ***Ecological Setting***

Most of the Project Area and Study Area is located within the semi-desert grassland biotic community (Brown 1994) with two isolated patches of Madrean evergreen woodland intersecting the Study Area at elevations ranging from approximately 4,200 to 5,120 feet above mean sea level (amsl) approximately 7 miles southwest of Willcox, Arizona. Land uses in the Study Area include undeveloped grassland or scrubland and cattle ranging. Interstate 10 (I-10) runs northeast to southwest and is approximately 0.4 mile southeast of the eastern end of the Study Area. The Project Area and Study Area topography ranges from flat, to rolling hills, to steep hills. Ephemeral drainages bisect the Project Area. The eastern



ephemeral drainages flow toward the Willcox Playa, a dry lake situated 3 miles southeast of the Project Area (2 miles southeast of the Study Area). The western drainages flow toward the San Pedro River, approximately 3.5 miles west of the Project Area (4.5 miles west of the Study Area). Permanent water does not occur within the Study Area; however, cattle tanks that contained water at the time of the survey were present in the Project Area. Outside the Project Area, there is active and inactive agricultural land to the northeast and southeast of the Project Area within the Sulphur Springs Valley. Willcox, Arizona occurs northeast along I-10. Most of the land use in the vicinity of the Transmission Project is undisturbed arid grassland and scrubland.

## Vegetation

Even though the Project Area was partially mapped within the Madrean evergreen woodland biotic community, vegetation within the Project Area is typical of semi-desert grassland and shrub-invaded semi-desert grassland. The semi-desert grassland biotic community originally consisted of expanses of perennial bunch grass with patches of bare ground between; however, livestock grazing and fire suppression have shifted the species composition and structure within much of this biotic community toward annual grasses, shrubs, and trees being dominant (Brown 1994). Small, isolated patches of juniper (*Juniperus* sp.) occurred in the Project Area, but the field surveys did not otherwise find vegetation consistent with Madrean evergreen woodland (such as oak [*Quercus* sp.] or Mexican pinyon [*Pinus cembroides*]). Vegetation in most of the Project and Study Areas was typically open, with small-stature trees, shrubs, cacti, and succulents that are widely scattered and form a sparse upper canopy with an understory of grasses and patches of bare ground. Grasses included native species such as curly-mesquite (*Hilaria belangeri*), deergrass (*Muhlenbergia rigens*), hairy grama (*Bouteloua hirsuta*), low woollygrass (*Dasyochloa pulchella*), purple threeawn (*Aristida purpurea*), side-oats grama (*Bouteloua Curtipendula*), tobosagrass (*Pleuraphis mutica*), and nonnative species including Bermudagrass (*Cynodon dactylon*) and Lehmann lovegrass (*Eragrostis lehmanniana*). Common forbs and subshrubs include careless weed (*Amaranth palmeri*), desert globemallow (*Sphaeralcea ambigua*), desert thorn-apple (*Datura discolor*), desert zinnia (*Zinnia acerosa*), prickly poppy (*Argemone gracilentia*), and trailing windmills (*Allionia incarnata*). Common trees and shrubs, and succulents included banana yucca (*Yucca baccata*), burroweed (*Isocoma tenuisecta*), cactus apple (*Opuntia engelmannii*), candy barrelcactus (*Ferocactus wislizeni*), catclaw mimosa (*Mimosa aculeaticarpa* var. *biuncifera*), Christmas cactus (*Cylindropuntia leptocaulis*), desertbroom (*Baccharis sarothroides*), dollarjoint pricklypear (*Opuntia chlorotica*), honey mesquite (*Prosopis velutina*), jointfir (*Ephedra* sp.), ocotillo (*Fouquieria splendens*), Palmer's century plant (*Agave palmeri*), pinkflower hedgehog cactus (*Echinocereus fendleri*), purple pricklypear (*Opuntia macrocentra*), sacahuista (*Nolina microcarpa*), soaptree yucca (*Yucca elata*), spinystar (*Escobaria vivipara*), twistspine pricklypear (*Opuntia macrorhiza*), velvet mesquite (*Prosopis velutina*), walkingstick cactus (*Cylindropuntia spinosior*), water jacket (*Lycium andersonii*), and whitethorn acacia (*Vachellia constricta*). Nonnative species were observed including redstem stork's bill (*Erodium cicutarium*) and Russian thistle (*Salosa tragus*).

No broadleaf deciduous riparian vegetation communities (i.e., communities containing willow [*Salix* sp.], cottonwood [*Populus* sp.], or ash [*Fraxinus* sp.]), were observed during in the surveyed portion of the Project Area or Study Area, and GoogleEarth (2023) does not indicate that permanent water or broadleaf deciduous riparian vegetation communities occur within the Study Area.

## Wildlife Species

Bird species observed during field studies included American avocet (*Recurvirostra americana*), black-throated sparrow (*Amphispiza bilineata*), Brewer's sparrow (*Spizella breweri*), Chihuahuan meadowlark (*Sturnella lilianae*), common raven (*Corvus corax*), green-winged teal (*Anas crecca*), loggerhead shrike (*Lanius ludovicianus*), mourning dove (*Zenaida macroura*), and red-tailed hawk (*Buteo jamaicensis*). The

shorebirds and waterfowl observed were associated with a cattle tank that contained water at the time of the survey. Brewer’s sparrow and loggerhead shrike are addressed in Exhibit C.

No mammals or reptiles were observed. Small mammal burrows were observed, but none appeared to be suitable for use by western burrowing owls (*Athene cunicularia hypugaea*). No owls or evidence of use by western burrowing owls was observed within the Project Area. No fish or amphibians were observed in the cattle tanks. Habitat for bat species or potential bat roost sites (boulders, mine shafts, small caves, snags, and abandoned structures) may be present in the Project and Study Areas.

Species that may occur in the Study Area are listed in Table D-1 (mammals), Table D-2 (birds), Table D-3 (reptiles), and Table D-4 (amphibians). Species were considered for their potential to occur as follows. A list of mammal species typical of semi-desert grassland and Madrean evergreen woodland biotic communities evaluated for this report included mammals found in Table 4.1 of *Mammals of Arizona* (Hoffmeister 1986). Bird species evaluated in this report include those listed for semi-desert grassland and Madrean evergreen woodland in Appendix II of *Biotic Communities Southwestern United States and Northwestern Mexico* (Brown 1994). Reptiles and amphibians evaluated in this report were taken from a list of commonly occurring species in the semi-desert grassland and Madrean evergreen woodland biotic communities in *A Field Guide to Amphibians and Reptiles in Arizona* (Brennan and Holycross 2006). Finally, no fish species were evaluated for this report, because no native fish habitat occurs within the Project and Study Areas; therefore, no impacts to native fish species would be expected to occur.

Some species from these lists of typical species overlap with special-status species evaluated in Exhibit C, and these species have been removed from consideration in Exhibit D because they have already been addressed. Occurrence records were obtained from the AGFD Online Environmental Review Tool (AGFD 2023a), *Mammals of Arizona* (Hoffmeister 1986), eBird (2023), and the *Arizona Breeding Bird Atlas* (Corman and Wise-Gervais 2005).

## MAMMALS

Small and medium-sized terrestrial mammal species may occur in the Project Area and Study Area (Table D-1). Bat species have the potential to disperse or migrate through or forage within the Project Area and Study Area. While no roost sites were observed in the portions of the Project and Study Areas during site visits, roost sites for bats have the potential to occur in the Project and Study Areas (Google Earth 2023). Special-status bat species are addressed in Exhibit C.

**Table D-1. Mammal Species that May Occur in the Study Area**

Common Name (Scientific Name)	Habitat
Badger ( <i>Taxidea taxus</i> )	Found in grassland and desertscrub.
Banner-tailed kangaroo rat ( <i>Dipodomys spectabilis</i> )	Prefers dry, gravelly soil in arid or semiarid grasslands and foothill slopes with scattered mesquite or juniper.
Black-tailed jackrabbit ( <i>Lepus californicus</i> )	Occurs in open habitat with scattered patches of shrubs, including plains, fields, and deserts.
Bobcat ( <i>Lynx rufus</i> )	Found in various habitats including woodlands, river bottomlands, deserts, and mountains.
Botta’s pocket gopher ( <i>Thomomys bottae</i> )	Found in extremely xeric locations below 11,000 feet amsl with variable soils and ground cover ranging from open to grasslands. Occurs in roadsides, valleys, and mountain meadows.
Chihuahuan pronghorn ( <i>Antilocapra americana mexicanus</i> )	Found in grasslands, sagebrush plains, deserts, and foothills. This subspecies was reintroduced into the San Bernardino Valley in Arizona in 1984 and 1986, and into the Buenos Aires National Wildlife Refuge in 2023. The subspecies is likely to have expanded beyond its initial release.

<b>Common Name (Scientific Name)</b>	<b>Habitat</b>
Coyote ( <i>Canis latrans</i> )	Occurs in all habitat types, including agricultural, urban, and suburban areas.
Desert cottontail ( <i>Sylvilagus audubonii</i> )	Found in grasslands, brushlands, edges of foothill woodlands, willow thickets, and occasionally in cultivated fields or under buildings.
Hispid pocket mouse ( <i>Chaetodipus hispidus</i> )	Prefers prairie or dry grasslands with sparse or moderate vegetation.
Kit fox ( <i>Vulpes macrotis</i> )	Prefers open desert, shrubby, or shrub grassland habitat.
Merriam's kangaroo rat ( <i>Dipodomys merriami</i> )	Occurs in low deserts in sparsely vegetated areas, grasslands, open chaparral, creosote scrub, sagebrush scrub.
Mexican ground squirrel ( <i>Ictidomys parvidens</i> )	Level grasslands with mesquite, creosotebush, cacti, or brush; prefers sandy or gravelly soil and avoids rocky areas.
Mountain lion ( <i>Puma concolor</i> )	Generally prefers mountainous, undisturbed areas. Stream courses and ridgetops used for travel corridors.
Mule deer ( <i>Odocoileus hemionus</i> )	Occurs in mountains and lowlands, often associated with successional vegetation.
Ord's kangaroo rat ( <i>Dipodomys ordii</i> )	Occurs in sandy soil in sparsely vegetated areas, grasslands, and shrublands into woodlands.
Silky pocket mouse ( <i>Perognathus flavus</i> )	Sandy or sometimes rocky soils in desert grasslands up through pinyon-juniper woodlands.
Spotted ground squirrel ( <i>Xerospermophilus spilosoma</i> )	Dry, sandy soil in grasslands and desert scrub; often associated with overgrazed grassland.
Southern grasshopper mouse ( <i>Onychomys torridus</i> )	Arid valleys and scrub deserts, characterized by sparse vegetation.
White-throated woodrat ( <i>Neotoma albigula</i> )	Found in brushlands, rocky cliffs, creosote bush scrub, mesquite-yucca ( <i>Prosopis</i> spp.– <i>Yucca</i> spp.), and pinyon-juniper woodland.
<b>Bat Species</b>	
Big brown bat ( <i>Eptesicus fuscus</i> )	Occurs in variable habitat, from ponderosa pine ( <i>Pinus ponderosa</i> ) forests, pinyon-juniper woodlands, the lower edge of spruce-fir ( <i>Picea</i> spp.– <i>Abies</i> spp.) forests, and Lower Sonoran zones. Migratory; found throughout the state in summer and in southern Arizona in the winter. Roosts in buildings, bridge joints, mines, hollow trees, and caves.
Canyon bat ( <i>Parastrellus hesperus</i> )	Occurs in deserts, woodlands, and shrublands. Roosts in boulders, cracks, and crevices.
California myotis ( <i>Myotis californicus</i> )	Found in desert ranges and flatlands; desertshrub-oak ( <i>Quercus</i> spp.) to ponderosa pine zones. Migratory; winter distribution in southern Arizona, south of the Gila River. Roosts in crevices and cracks in canyon walls, caves, and mine shafts, and under bark in trees or snags.

Source: Range or habitat information is from AGFD (2023a; 2023b); Hoffmeister (1986); and NatureServe (2023).

Amsl = above mean sea level

## BIRDS

The semi-desert grassland biotic community hosts a wide variety of bird life (Brown 1994). Birds have potential to use the Study Area and Project Area for their life-history needs (i.e., foraging, nesting, or perching). Table D-2 lists the bird species that may occur in the Study Area. Brewer's sparrow and loggerhead shrike were observed in the Project and Study Areas and are addressed in Exhibit C.

**Table D-2. Bird Species that May Occur in the Study Area**

<b>Common Name (Scientific Name)</b>	<b>Habitat</b>
Black-throated sparrow* ( <i>Amphispiza bilineata</i> )	Occurs in semi-open areas and nests in shrubs.

<b>Common Name (Scientific Name)</b>	<b>Habitat</b>
Common raven* ( <i>Corvus corax</i> )	Found in most habitat types in select open areas. Regularly encountered in rural, agricultural, and urban settings. Year-round resident.
Curve-billed thrasher ( <i>Toxostoma curvirostre</i> )	Found in creosote bush desertscrub, grasslands, and residential areas.
Elf owl ( <i>Micranthe whitneyi</i> )	Found in deserts, dry shrublands, riparian woodlands, and open pine-oak ( <i>Pinus</i> spp.– <i>Quercus</i> spp.) forests.
Gambel’s quail ( <i>Callipepla gambelii</i> )	Typically associated with brushy Sonoran Desert uplands and desert washes. Can also occur in residential areas and along the margins of cultivated lands. Year-round resident.
Great-tailed grackle ( <i>Quiscalus mexicanus</i> )	Occurs in partly open areas with scattered trees around human habitation. Year-round resident.
Greater roadrunner ( <i>Geococcyx californianus</i> )	Occurs in open, arid country with scattered shrubs, trees, or cacti. Also common in agricultural areas and urban and suburban settings. Year-round resident.
House finch ( <i>Carpodacus mexicanus</i> )	Occurs in arid scrub and brush, open woodland, oak-juniper, and pine-oak habitats, and towns and cultivated lands. Year-round resident.
Lark sparrow ( <i>Chondestes grammacus</i> )	Grasslands with scattered trees and shrubs.
Mourning dove* ( <i>Zenaidura macroura</i> )	Occurs in a wide variety of habitats, most regularly in desertscrub, shrubby grasslands, and open woodlands. Also found in rural and urban habitats.
Northern mockingbird ( <i>Mimus polyglottos</i> )	Prefers open and partly open situations. Occurs in areas of scattered brush or trees to semi-desert, and around towns and cultivated areas.
Red-tailed hawk* ( <i>Buteo jamaicensis</i> )	Occurs in a wide variety of open habitats. Elevated perches are important. Year-round resident.
Say’s phoebe ( <i>Sayornis saya</i> )	Dry, sparsely vegetated areas. Year-round resident.
Turkey vulture ( <i>Cathartes aura</i> )	Widespread, and uses a variety of habitats. Commonly perches on rocky outcrops, cliffs, canyon walls, transmission towers, telephone poles, and tall trees. Migratory.
Waterfowl and occasional-use birds*	Waterfowl and other birds may use the cattle tanks within the Study Area as loafing ponds—midday stops where birds rest before feeding or heading back to the roost. Other birds may be attracted to the water in the tanks, but would not use the area for nesting, roosting, foraging, or reproduction.
Western kingbird ( <i>Tyrannus verticalis</i> )	Prefers open areas in many habitat types including desert, rural, and agricultural areas. Migratory.

Source: Range or habitat information is from Corman and Wise-Gervais (2005); eBird (2023); and NatureServe (2023).

\*Observed in Project Area during field reconnaissance.

## REPTILES

The semi-desert grassland biotic community is home to many reptile species (Brown 1994). Species of this biotic community may occur the Project Area and Study Area. Table D-3 lists the reptile species that may occur in the Study Area.

**Table D-3. Reptile Species that May Occur in the Study Area**

<b>Common Name (Scientific Name)</b>	<b>Habitat</b>
Arizona striped whiptail ( <i>Aspidoscelis arizonae</i> )	Grassland specialist found in low valleys and sandy flats. Arizona endemic with a small range in the southeastern portion of the state.
Coachwhip ( <i>Coluber flagellum</i> )	Typically occurs in desertscrub and semi-desert grasslands. Uses a wide range of habitats including desert, prairie, scrubland, woodland, farmland, and creek valleys, generally in dry, open terrain.
Common kingsnake ( <i>Lampropeltis getula</i> )	Ranges from desertscrub to grasslands to lower reaches of Madiran evergreen woodland. Typically avoids open, dry desert and is more common near water or drainages.
Common side-blotched lizard ( <i>Uta stansburiana</i> )	Typically occurs in desertscrub, semi-desert grasslands, Great Basin grasslands, and interior chaparral.

<b>Common Name (Scientific Name)</b>	<b>Habitat</b>
Desert nightsnake ( <i>Hypsiglena chlorophaea</i> )	Ranges from flat, open sandy deserts to steep, rocky, and wooded slopes.
Desert spiny lizard ( <i>Sceloporus magister</i> )	Sonoran desertscrub, Great Basin desertscrub, semi-desert grassland, interior chaparral, and woodlands
Desert glossy snake ( <i>Arizona elegans eburnata</i> )	Found in desertscrub and semi-desert grasslands in open areas with sandy soils.
Gila monster ( <i>Heloderma suspectum</i> )	Ranges from desertscrub to lower reaches of Great Basin Conifer Woodland and Madrean evergreen woodland. Commonly found above the flats in rocky drainages and rugged terrain.
Gophersnake ( <i>Pituophis catenifer</i> )	Found in biotic communities up to Alpine tundra. Occurs in deserts, forests, and coastal grasslands.
Long-nosed leopard lizard ( <i>Gambelia wislizeni</i> )	Found in desertscrub and semi-desert grasslands.
Long-nosed snake ( <i>Rhinocheilus lecontei</i> )	Occurs in deserts, dry prairies, arid river valleys, thornbrush, and shrubland.
Mohave rattlesnake ( <i>Crotalus scutulatus</i> )	Found in desertscrub and semi-desert grassland, usual in relatively level terrain.
Ornate tree lizard ( <i>Urosaurus ornatus</i> )	Occurs in most biotic communities from desertscrub to subalpine.
Texas horned lizard ( <i>Phrynosoma cornutum</i> )	Open, arid areas with sparse vegetation.
Tiger whiptail ( <i>Aspidoscelis tigris</i> )	Occurs in a wide variety of habitats including creosote bush flats, sandy wash, canyons, and hillsides. Found in desertscrub, semi-desert grasslands, and lower reaches of chaparral.
Western banded gecko ( <i>Coleonyx variegatus</i> )	Ranges from dry creosote bush flats to rugged, rocky slopes to barren high desert plateaus.
Western diamondback rattlesnake ( <i>Crotalus atrox</i> )	Widespread; found in desert, grassland, woodland, shrubland, chaparral, and talus.
Western patch nosed snake ( <i>Salvadora hexalepis</i> )	Found in flatlands and low valleys from desertscrub to woodlands.

Range or habitat information is from AGFD (2023a; 2023b), Brennan (2012), and NatureServe (2023).

## AMPHIBIANS

There are no perennial water sources within the Project Area or Study Area. Amphibian species have the potential to occur within the Project Area or Study Area in any location that accumulates water, including roadside puddles or depressions following monsoon rains or within cattle tanks. Amphibians could also occur in mud cracks, mammal burrows, or structures within the Study Area to avoid desiccation. Table D-4 lists the amphibian species that may occur in the Study Area.

**Table D-4. Amphibian Species that May Occur in the Study Area**

<b>Common Name (Scientific Name)</b>	<b>Habitat</b>
<b>Amphibians</b>	
American bullfrog* ( <i>Lithobates catesbeianus</i> )	Introduced in Arizona. Occurs in a wide variety of aquatic habitats from cattle tanks and canals to ponds, reservoirs, and marshes.
Couch's spadefoot ( <i>Scaphiopus couchii</i> )	In the United States, found in arid and semi-arid shrublands, shortgrass plains, mesquite savanna, creosote bush desert, thorn forest, and cultivated areas. Individuals are typically buried underground except during, and for a short time following, monsoon rains.
Great Plains toad ( <i>Anaxyrus cognatus</i> )	Cattle tanks, roadside ditches, canals in agricultural areas, wetlands, and ciénegas. Occurs in desertscrub, grasslands, and into montane woodlands.



<b>Common Name (Scientific Name)</b>	<b>Habitat</b>
Woodhouse's toad ( <i>Anaxyrus woodhousii</i> )	Found in areas near ponded permanent water, such as backwaters and slack water of lakes, irrigation ditches, and canals, but can also be found at cattle tanks and other seasonal wetlands foraging in rural or urban areas near these habitats.

Range or habitat information is from AGFD (2023a), Brennan (2012), and NatureServe (2023).

\*Nonnative species.

## **FISH SPECIES**

There is no perennial aquatic habitat in the Project Area. Cattle tanks occur within the Project Area and Study Area, but do not connect to any larger body of water and would not be expected to contain fish. As such, there is no potential for fish to occur in the Project Area or Study Area.

## **Summary of Potential Effects**

### ***Vegetation***

The Transmission Project involves work in mostly undisturbed areas. Vegetation will be removed during Transmission Project construction activities. Permanent disturbance would be limited to transmission pole structure locations and access roads. Although the area contains largely undisturbed vegetation, the loss of vegetation caused by the Transmission Project would result in relatively minor impacts to the semi-desert grassland or Madrean evergreen woodland biotic communities at the landscape level because of the relatively small amount of these biotic communities that is being removed as compared to the total amount of these biotic communities in Arizona.

Vegetation that could be removed during Transmission Project construction includes grasses, forbs, shrubs, succulents, and trees in localized areas where new power poles and access roads would be placed. Given the minimal vegetation to be impacted and the abundance of similar vegetation in the Study Area, the Transmission Project would not significantly impact vegetation communities.

### ***Mammal Species***

Transmission Project construction activities could cause death or injury to terrestrial mammals that may not be able to flee from heavy equipment or vehicular traffic, with a higher likelihood of these impacts for individuals of species that are small, nocturnal, or fossorial. Transmission Project construction could cause behavior changes, as individuals would be expected to flee from an increase of noise, vibration, and human presence within the Transmission Project vicinity. Individuals would be expected to flee or hide, depending on the species' life history, which could increase depredation, decrease foraging success, reduce reproductive success, and result in loss of fitness for that individual from increased metabolic output. Some mammals may experience increased predation from birds, as the addition of infrastructure would provide perching space for hunting birds.

Transmission Project construction activities would be temporary. The loss and degradation of mammal habitat from short- and long-term Transmission Project activities would be minor as the entire Project Area would not be disturbed. The Study Area and surrounding vicinity contains large areas of habitat. As such, any loss of vegetation from construction activities would lead to a small overall increase in habitat fragmentation or a small decrease in connectivity between habitats for mammals.

Bat activity patterns and foraging would be unlikely to be impacted since bats are nocturnal and Transmission Project construction would typically occur during the day. Some roosting habitats may

occur in the Study Area, but none are present in the Project Area. The loss of potential foraging habitat in the Project Area is unlikely to have individual or population-level impacts on any bat species because the area of disturbance is relatively small compared with the available foraging habitat in the Study Area.

Construction of the Transmission Project would result in an increase of fugitive dust. The fugitive dust during construction could change mammal behavior (e.g., reducing the amount of foraging). The likelihood and severity of impacts from construction would decrease with increasing distance from the Project Area. These impacts would cease with completion of construction activities.

## ***Bird Species***

Birds, including raptors, can collide with power lines, resulting in injury or death (Avian Power Line Interaction Committee [APLIC] 2012). Birds that are large-bodied, fast flyers, have large wing spans, or low maneuverability (e.g., many wading birds or waterfowl), as well as birds that show certain behaviors (e.g., flocking, flying at altitudes at or below power line height, or birds that nest or forage in close proximity to power lines), have a higher risk of impacts from power line collisions (APLIC 2012). Birds generally avoid collisions with power lines when they are perceived by the bird; therefore, collision risk is lower in areas where multiple transmission lines are near one another, or where transmission lines are placed near other infrastructure (APLIC 2012).

Transmission and distribution lines can also cause bird electrocution, although the risk is highest with lower-voltage lines. Electrocution occurs when a bird simultaneously contacts energized and grounded electrical components. High-voltage lines require spacing between those components that cannot be spanned even by very large birds, so that electrocution risk is precluded almost entirely (APLIC 2012).

Waterfowl and water obligate species were observed in the Project Area in cattle tanks. However, waterfowl would use the cattle tanks in the Project and Study Areas as loafing ponds (i.e., midday stops where birds rest before feeding or heading back to the roost). Because these cattle tanks are ephemeral and are not associated with emergent vegetation, they provide limited foraging opportunities for waterfowl, and waterfowl are unlikely to nest in the Project or Study Areas.

Resident, migrating, or dispersing birds would be at risk of collision or electrocution with new transmission lines or poles. Studies have shown that no waterfowl collisions occurred where distances from transmission lines to bird-use areas were more than 1 mile (1.6 kilometers) (APLIC 2012), so the risk of collision may increase for any waterfowl using the cattle tanks in the Project or Study Area, but the risk of collision from larger concentrations of waterfowl and shorebirds using the nearby Willcox Playa would not be likely to increase. New infrastructure associated with the Transmission Project may increase the risk of collision. There is potential for impacts to nests, including death or injury of eggs or nestlings or nest failure from construction disturbance. Bird species, especially raptors, would benefit from an increased number of nesting platforms from new transmission towers.

Potential impacts from increased noise, vibration, or human presence in the Project Area and from loss, degradation, and fragmentation would be the same as those described for terrestrial mammals. The increase in potential perches for hunting from the additional power poles could improve hunting habitat for some species.

## ***Reptile Species***

Potential impacts to reptiles including death, injury, or impacts arising from behavior changes and from the loss, degradation, and fragmentation of habitat would be similar to those described for terrestrial mammals. Fossorial reptiles, reptiles that are inactive due to heat or cold, and small reptiles would have a

higher chance of injury or death compared with those individuals that are more mobile. Reptile species near the additional power poles could have increased predation due to the increase in available perches for reptile predators.

## ***Amphibian Species***

Potential impacts to amphibians including death, injury, or impacts arising from behavior changes and from the loss, degradation, and fragmentation of amphibian habitat would be similar to those described for terrestrial mammals.

## ***Fish Species***

As no habitat for fish species occurs in the Project Area or the Study Area, there would be no impacts to fish species.

## **Mitigation Measures**

The following mitigation measures are designed to reduce the risk of animal injury or spread of invasive species. For mitigation measures specific to special-status species, see Exhibit C.

- Transmission lines pose a risk of collisions and electrocution for birds, particularly raptors. To minimize that risk, the Applicant will design the Transmission Project to incorporate reasonable measures to minimize electrocution of and impacts on avian species following the guidelines outlined in *Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 2006* (APLIC 2006) and *Reducing Avian Collisions with Power Lines: The State of the Art in 2012* (APLIC 2012). Preconstruction surveys for nesting birds should be conducted by qualified biologists if vegetation-clearing activities would occur during bird nesting season (generally March–September, and January–June for raptors).
- To minimize the introduction and spread of invasive species and noxious weeds, standard best management practices will be used during construction. These best management practices can include measures such as washing equipment prior to and following mobilization to the Project Area.
- If vegetation-disturbing activities are planned during the migratory bird nesting season (March–September or January–June for raptors), measures to avoid any active bird nests within the Project Area, such as preconstruction surveys for migratory bird nests by a qualified biologist, should be taken to maintain compliance with the Migratory Bird Treaty Act since suitable nesting habitat for migratory bird species is present in the Project Area.
- The Applicant plans to continue working with AGFD to determine appropriate recommendations from the AGFD’s *Guidelines for Solar Development in Arizona* (AGFD 2009) to implement for the Transmission Project.
- If trenching is included as part of Transmission Project construction, the following should be considered to minimize injury to wildlife: when trenches cannot be backfilled immediately, the escape ramps, which can be short lateral trenches or wooden planks sloping to the surface, should be constructed at least every 90 meters; trench slopes should be less than 45 degrees (1:1); and any trenches left open overnight should be inspected to remove wildlife prior to backfilling.

## Conclusion

The Project and Study Areas occur within largely undisturbed areas with some existing roads and residences. Impacts to general plants and wildlife would be minimal and restricted to individuals as the entire Project Area will not be disturbed and no disturbance would occur outside of the Project Area. The linear Transmission Project would increase habitat fragmentation and reduce wildlife permeability within the Transmission Project vicinity. However, because construction would occur over a relatively short period of time, and the Transmission Project will not clear the entire Project Area, these wildlife connectivity impacts would be minor. At a landscape level, the Transmission Project would have minor impacts on the amount of vegetation available for wildlife use, and minor impacts on wildlife dispersal or migration corridors, and would not increase habitat fragmentation. Therefore, the proposed Transmission Project may impact individuals (both wildlife and plant) but would be unlikely to have impacts at the population level for any species.

Impacts to general wildlife or vegetation would be unlikely to substantially differ regardless of the final route selected within the CEC Corridor. The habitat within the CEC Corridor is generally homogenous.

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# EXHIBIT E. SCENIC AREAS, HISTORIC SITES AND STRUCTURES, AND ARCHAEOLOGICAL SITES

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As stated in the Arizona Corporation Commission Rules of Practice and Procedure R14-3-219, Exhibit 1:

*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.*

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## Scenic Areas and Visual Resources

### Overview

This section of Exhibit E addresses the inventory of and potential effects to scenic and/or visual resources of the Transmission Project. The following sections include a description of the methodology for assessing and inventorying visual resources, and sensitive viewers in the Transmission Project's 1-mile Study Area, and a discussion of the potential effects of the Transmission Project. As previously noted, the Transmission Project would be in unincorporated Cochise County and does not occur on any public lands that require conformance with specific visual resource management objectives or guidelines (e.g., Bureau of Land Management [BLM], U.S. Forest Service). Furthermore, the Transmission Project would not be located within any designated national or state scenic areas.

### Methodology

- The purpose of the visual impact assessment (VIA) is to identify and characterize the level of visual modification in the landscape that would result from the Transmission Project. Visual impacts are typically described in terms of the visual contrast created by a project, which can potentially affect both scenic quality and sensitive viewers. Scenic quality refers to the general characteristics and inherent aesthetic value of the landscape as a resource regardless of specific viewers. The term "sensitive viewers" refers to specific individuals and/or groups whose views could be affected by a project. The methods used to conduct this VIA are consistent with past visual resource studies conducted for similar projects approved by the Arizona Power Plant and Transmission Line Siting Committee.
- SWCA Environmental Consultants (SWCA) developed an inventory of visual resources within the 1-mile Study Area by reviewing publicly available geographic information system (GIS) data, aerial photography, and completing on-site field verification and photographic documentation.
- To assess how the Transmission Project may visually modify the existing landscape, SWCA developed photorealistic visual simulations of the Transmission Project components from representative positions referred to as key observation points (KOPs). In selecting KOPs, SWCA visited the Study Area in January and April 2023, to evaluate nearby visual resources (e.g., residential areas, recreation areas, and travel routes) from which the Transmission Project would be visible. The Applicant ultimately selected four KOPs; existing conditions were photographed

from each KOP for the purpose of creating visual simulations. Table E-1 lists the chosen KOPs and the reason for their inclusion.

**Table E-1. Key Observation Points**

<b>Name (Latitude, Longitude)</b>	<b>Location</b>	<b>Reason for Inclusion</b>
KOP-1 (32.231117°, -110.012996°)	Approximately 2 miles north of the Transmission Project	Representative recreational user from Inde Motorsports Ranch from Airport Road
KOP-2 (32.226256°, -110.028615°)	Approximately 1.6 miles north of the Transmission Project	Representative of residences to the east along Airport Road
KOP-3 (32.191552°, -110.15283°)	Approximately 0.6 mile north of the Transmission Project	Representative of residence from E Three Links Road
KOP-4 (32.203183°, -110.189257°)	Approximately 0.2 mile south of the Transmission Project	Representative of travelers along E Three Links Road

Photorealistic simulations of the Transmission Project components were made using ArcGIS, Google Earth Pro, Autodesk products (AutoCAD and 3DS Max), and Adobe Photoshop software for each KOP (see Exhibits G-4 through G-7 in Exhibit G, Conceptual Drawings of Transmission Facilities). Developing visual simulations involves creating a three-dimensional model of Transmission Project components, positioning the modeled Transmission Project components on a digital elevation model of the Project Area, and superimposing the resulting model onto the KOP photographs of existing conditions at the correct scale and distance. Date and time-of-day inputs determine shadows and reflected light, and the software accounts for distance and haze to increase the accuracy of the viewing conditions.

Using the resulting visual simulations, SWCA evaluated the potential for impacts to both scenic quality and sensitive viewers by evaluating the visual contrast the Transmission Project would have with the existing landscape. Visual contrast refers to the degree that the Transmission Project would either resemble existing features in the landscape or contrast with features in the existing landscape. The degree of visual contrast considers the existing landforms, vegetation, and built features present in the landscape and is described in terms of the degree of perceivable change in the basic design elements of form, line, color, texture, and scale that would be evident by the introduction of the Transmission Project in the landscape.

The following distance zones were used for evaluating impacts on scenery from each KOP:

- **Foreground:** up to 1 mile
- **Middle Ground:** 1 to 5 miles
- **Background:** 5 miles and outside the Study Area

The impact thresholds for this assessment are categorized as follows:

- **High:** Project features would result in a strong degree of contrast and would appear as dominant features within the existing landscape.
- **Moderate:** Project features would result in a moderate degree of contrast and would appear as codominant features within the existing landscape.
- **Low:** Project features would result in a weak degree of contrast and would be subordinate to the features of the existing landscape.

- **None:** Project features would result in no degree of contrast and would be subordinate to the features of the existing landscape.

## **SCENERY**

In the context of the Transmission Project, scenery is a qualitative measure of the landscape's inherent aesthetic value or the appearance of existing landscape features, including landforms, vegetation, and built features. In general terms, the scenic quality is based on the premise that landscapes with greater diversity and visual variety in landforms and vegetation are more aesthetically pleasing and therefore hold greater value. For this analysis, impacts to scenic quality were based on comparing the inventoried quality of the scenery with the anticipated quality considering any contrast introduced as a result of the construction and operation of the Transmission Project.

## **SENSITIVE VIEWERS**

The concept of sensitive viewers refers to members of the public for whom the Transmission Project may be visible and may be sensitive to potential changes in the scenery because of the Transmission Project. With regard to sensitive viewers, the Transmission Project contrast is dependent on several factors, including viewing distance, duration of view, viewing condition, and degree of visibility. When combined, these factors indicate the overall visual dominance of the Transmission Project within the landscape.

The term "viewing distance" refers to the viewer's physical distance from the Transmission Project components. The assessment of visual impacts is predicated on the fact that a person's ability to discern details decreases as viewing distance increases. The duration of view refers to the length of time and associated viewing angle; generally, a viewer's attention is attracted to a higher degree as the duration of view increases. Viewing conditions refer to whether the viewer is looking down at the Transmission Project from a superior position, looking up at the Transmission Project from an inferior position, or viewing the Transmission Project from an elevation that is similar to that of the Transmission Project (i.e., a neutral view). The term "degree of visibility" refers to whether views of the Transmission Project would be either open and unobstructed, or partially to fully obstructed by other features in the existing landscape (i.e., topography, vegetation, or built features). The degree of visibility also refers to whether the Transmission Project would be viewed against the sky (i.e., skylined) or viewed against a backdrop of landforms, vegetation, and/or built features.

Anticipated viewer sensitivities to visual changes are also discussed within the analysis, including brief discussions regarding the potential sensitivities of different types of identified viewer groups within the vicinity of the Transmission Project. Residential and recreational viewer groups are typically considered to have high sensitivities to visual changes in the landscape, while viewers moving along travel routes are considered to have low to moderate sensitivities to visual changes (unless traveling along a designated scenic travel route or more natural-appearing areas).

## ***Inventory Results***

### **SCENERY**

The Study Area falls within the Sonoran Basin and Range Level III ecoregion and more specifically within the Central Sonoran/Colorado Desert Basins Level IV ecoregions (U.S. Department of the Interior 2014). The Sonoran Basin and Range ecoregion consists of generally broad, open landscapes with scattered mountains and vegetation consisting of palo verde (*Parkinsonia* spp.), saguaro (*Carnegiea gigantea*), and other various Sonoran Desert plants. The Study Area consists of a modified

and/or developed landscape that includes some rural residences, open ranges for cattle grazing, and electrical infrastructure. The Rincon Mountains approximately 15 miles to the west, the Little Dragoon Mountains approximately 2.5 miles to the south, the Cochise Stronghold approximately 13 miles to the southeast, Gunnison Hills approximately 5.5 miles to the southeast, the Dos Cabeza Mountains approximately 15 miles to the east, and the Winchester mountains approximately 6 miles to the north, are visible from the Study Area. Additionally, the dry lake of the Willcox Playa is approximately 0.8 mile to the southeast.

Major roadways traversing the Study Area from east to west include I-10, U.S. Highway 191, Airport Road and E Three Links Road, and North Muleshoe Road, which continues off to the northwest away from the Study Area. Views from major roadways include Rincon Mountains to the west in the background, the Little Dragoon Mountains in the midground to the south, Cochise Stronghold in the background and Gunnison Hills in the midground to the southeast, Dos Cabeza Mountains in the background to the east, the Winchester Mountains in the background to the north, and the existing transmission line in the foreground and midground are visually prominent features from the Study Area.

The scenic quality within the Study Area is considered moderate, given the relatively open views and undulating terrain.

## **SENSITIVE VIEWERS**

### **Residences**

Two residential structures are present in the Study Area, consisting of lower-density single-family homes located in the northeastern and southwestern portions of the Study Area. The closest residence to the Transmission Project is approximately 0.7 mile away to the south along E Three Links Road. Views from residences within the Study Area typically include open ranges and rolling terrain in the midground, and surrounding mountains in the midground and background. Residential viewers are assumed to have a relatively long duration of view and relatively high sensitivities to visual changes within the Study Area. As previously noted, KOPs 2 and 3 represent views facing toward where the Transmission Project would be installed, from the residential areas.

### **Recreation Areas**

The nearest recreational facility is Inde Motorsports Ranch, located at 9301 West Airport Road, Willcox, Arizona located approximately 2.0 miles north from the Transmission Project. Typical views from recreational areas located in the Study Area include a mixture of panoramic, open views of the Rincon Mountains to the west, the Little Dragoon Mountains to the south, Cochise Stronghold and Gunnison Hills to the southeast, Dos Cabeza Mountains to the east, and the Winchester Mountains to the north. The existing transmission line is visible from Inde Motorsport Ranch. Recreational viewers are assumed to have relatively moderate durations of view and a moderate sensitivity to visual changes as a result of the mixture of existing visible development and infrastructure in the area in conjunction with more open natural views of surrounding mountainous landforms and open ranges. In general, ASLD land is not open to the public without a special land use permit.

### **Travel Routes**

The primary travel routes in the vicinity of the Transmission Project include I-10, U.S. Highway 191, Airport and E Three Links, and North Muleshoe Road; these roadways are approximately 0.0 to 2.0 miles from the Transmission Project. Collector routes that support access to residential areas closest to the Transmission Project include South Perimeter Road, South Arizona Rangers Trail, and small private roads.

Views from travel routes typically include residential developments, roadway infrastructure, open range, and existing transmission lines and infrastructure. The existing transmission lines are mostly visible from the travel routes in the western side of the Study Area near the existing 345-kilovolt (kV) Tucson Electric Power Winchester Substation. Given their height and relatively flat topography, the existing transmission lines are particularly prominent from primary travel routes. Except for travel routes surrounded by elevation changes in terrain and vegetation, views from travel routes are mostly open and panoramic and include open range, the Willcox Playa, and views of the Rincon Mountains to the west, the Little Dragoon Mountains to the south, Cochise Stronghold and Gunnison Hills to the southeast, Dos Cabeza Mountains to the east, and the Winchester Mountains to the north. Viewers moving along travel routes are expected to have relatively short durations of view due to travel speeds typically focused on the immediate foreground while in motion and relatively low sensitivities to visual changes as a result of the existing visible development and infrastructure within the Study Area.

## ***Impact Assessment Results***

The VIA results below provide a general description of the potential Transmission Project-related impacts to scenic quality and sensitive viewers. Overall, impacts associated with the Transmission Project would be low to moderate because it would generally be difficult to discern the Transmission Line at the distance of most sensitive receptors in the Study Area.

### **SCENERY**

The Transmission Project would introduce an above ground transmission line using wooden poles; the longest route option within the CEC Corridor is approximately 15.2 miles long. The Transmission Project would likely use a combination of wooden two pole H-frame and wooden three pole tangent structures. Transmission structures are anticipated to be up to 150 feet tall; with most structures anticipated to be approximately 90 feet.

The Transmission Project structures would have a wooden finish, and conductors would have a non-specular finish to reduce visibility. Variations may be required to achieve site-specific mitigation objectives or meet site-specific engineering requirements.

Given the distance between sensitive receptors and the vicinity of the Transmission Project, individual features of the Transmission Project would create a low degree of contrast and not attract significant attention. The brown-colored wooden pole structures and non-specular conductors would be more difficult to discern as compared to galvanized steel structures. Therefore, the new structures would not result in a significant degree of contrast. Overall, the Transmission Project is expected to create **low** impacts to the existing, relatively low scenic quality within the Study Area. Transmission Project components could be seen but would not attract attention or introduce new visual elements that substantially differ from existing features.

### **SENSITIVE VIEWERS**

The following is a summary of anticipated impacts to sensitive viewers resulting from the construction and operation of the Transmission Project.

#### **Residences**

Based on the relatively uneven topography of the Study Area, views of the Transmission Project from residences would be from a neutral or inferior position and may include skylined views of the Transmission Project. Views from a portion of residences in the Study Area would vary from partially to fully obstructed by other buildings or landscaping, where the Transmission Project would be visible.



Views from KOP-2 (see Exhibit G-5) provide a typical representation of the Transmission Project facing south along Airport Road and west of the identified residences north of the Transmission Project, typically from a neutral position. KOP-2 is approximately 1.5 miles from the Transmission Project. At a distance of 1.5 miles, the lines, forms, textures, and scale of the Transmission Project would create a minor feature in the viewshed. Although the Transmission Project would be visible from nearby residential properties and the long duration of view, it would create a weak degree of contrast, with low visual impacts.

KOP-3 (see Exhibit G-6 in Exhibit G, Conceptual Drawings of Transmission Facilities) represents views from the residential property located on E Three Links Road, approximately 0.7 mile south of the Transmission Project, from an inferior position. As shown in the visual simulation for KOP-3 (see Exhibit G-6 in Exhibit G, Conceptual Drawings of Transmission Facilities), the installation of the Transmission Project would introduce a new wooden H-frame to the view; however, the gently sloping terrain and vegetation partially obscures the view of the Transmission Project. Even from the relatively close vantage point and long duration of view from KOP-2, the addition of the Transmission Project would result in a weak to moderate degree of contrast and low to medium visual impacts.

## **Recreation Areas**

KOP-1 (see Exhibit G-4 in Exhibit G, Conceptual Drawings of Transmission Facilities), showing Option 1, represents views of recreation users from Inde Motorsports Ranch on Airport Road, approximately 2.0 miles north of the Transmission Project from a neutral position. The Transmission Project may be partially visible from specific locations associated with the Inde Motorsports Ranch, but the lines, forms, colors, textures, and scale of the Transmission Project would be similar to those of the existing transmission line in the Study Area. Because of the relatively distant proximity of the recreation facility and the anticipated moderate duration of view from this location, the Transmission Project views in the midground would be seen but would not attract attention and would be subordinate to other build features within the landscape, resulting in an overall weak to no degree of contrast and low to no visual impacts.

## **Travel Routes**

Views of the Transmission Project from travel routes within the Study Area would vary based on location from partially or fully obstructed, dependent on existing features (e.g., vegetation, topography). Based on the generally uneven landform on which the Transmission Project would be located, views of the Transmission Project from travel routes would generally be from a neutral and inferior position and would include skylined views of the Transmission Project, where visible.

I-10, U.S. Highway 191, Airport Road and E Three Links Road, and North Muleshoe Road are primary travel routes within the Study Area. Due to the east-west orientation of primary routes in the Study Area, the Transmission Project would be viewed peripherally from the travel lanes for a short duration of time due to travel speeds. Additionally, intervening vegetation, topography, existing transmission line infrastructure, and surrounding roadway infrastructure would further influence the viewer's ability to focus attention on the Transmission Project and lower their overall sensitivity to visual change in the landscape.

Views from KOP-1 (see Exhibit G-4) provide a typical representation of the Transmission Project facing south along Airport Road, approximately 2.0 miles north of the Transmission Project from a neutral position. The Transmission Project is visible but would not attract undue attention given that transmission lines are relatively common infrastructure that people are accustomed to seeing while driving. The lines, forms, colors, textures, and scale of the Transmission Project (transmission line and interconnection) would be similar in appearance to other transmission line and interconnection infrastructure found within the Study Area. Due to the relatively distant proximity in the midground of this KOP and the anticipated

short duration of views, the Transmission Project could be discerned but would not attract attention as a focal point and would be subordinate to other built features such as buildings and supporting Inde Motorsport Ranch facilities, transmission line, and roadway, and mountains within the landscape, resulting in a **weak** degree of contrast and **low** visual impacts.

Views from KOP-2 (see Exhibit G-5) provide a typical representation of the Transmission Project facing south along Airport Road, approximately 1.6 miles north of the Transmission Project from a neutral position. The Transmission Project could be seen but would not attract within or dominate the landscape. Due to the relatively distant proximity of this KOP and the anticipated short duration of views, the Transmission Project views in the midground are visible but hard to discern and would not attract attention within the landscape, resulting in a **weak** degree of contrast and **low** visual impacts.

Views from KOP-3 (see Exhibit G-6) provide a typical representation of the Transmission Project facing south along E Three Links Road, approximately 0.7 mile south of the Transmission Project from an inferior viewing position. The Transmission Project could be seen but would begin to attract attention within the landscape. Due to the relatively close proximity of this KOP and the anticipated short duration of views, the Transmission Project views in the foreground could be discerned and would begin to attract attention within the landscape, resulting in a **weak** degree of contrast and **low** visual impacts.

Views from KOP-4 (see Exhibit G-7) provide a typical representation of the Transmission Project facing south along E Three Links Road, approximately 0.2 mile south of the Transmission Project from a neutral position. The Transmission Project could be seen and would attract attention within the landscape. Because of the relatively close proximity of these travelers to the Preferred Route and the anticipated short duration of view from this location, contrast could be high due to the dominance and prominence of the tall, wooden, H-frame structures. Foreground, middle ground, and background views of the Transmission Project could be discerned and would attract attention within the landscape, resulting in an overall **moderate** degree of contrast and **moderate** impacts.

## ***Conclusion***

Overall, the Transmission Project may be visible from various residences and travel route-vantage points; however, the Transmission Project would be set well apart from sensitive viewers. From many vantage points, the undulating terrain and vegetation obscures the view of the Transmission Project. At distances of 0.7 (the nearest residences) and farther, the 90-foot-tall transmission structures would appear as minor features on the horizon. This Transmission Project would result in **low** impacts to scenery. Similarly, impacts to sensitive viewers would be **low** as a result of the lack of perceived contrast due to intervening visual elements, similarities with existing transmission infrastructure, and the duration of view of the Transmission Project within the Study Area.

## Historic Sites and Structures, and Archaeological Sites

As required by the Arizona Corporation Commission Rules of Practice and Procedure R14-3-219, the potential effects of the proposed Project on historic sites and structures and archaeological sites were assessed. The assessment was also prepared to support Arizona Corporation Commission compliance with the State Historic Preservation Act (Arizona Revised Statutes [ARS] 41-861 through 41-864), which requires state agencies to consider impacts of their programs on historic properties listed in or eligible for listing in the Arizona Register of Historic Places (ARHP) and to provide the State Historic Preservation Office (SHPO) an opportunity to review and comment on the actions that affect such historic properties.

To be eligible for the ARHP, a property must be at least 50 years old (less if it has special significance) and have national, state, or local significance in American history, architecture, archaeology, engineering, or culture. It should also possess integrity of location, design, setting, materials, workmanship, feeling, and association, and meet at least one of the following four criteria:

- Criterion (a): be associated with significant historical events or trends.
- Criterion (b): be associated with historically significant persons.
- Criterion (c): have distinctive characteristics of a style or a type, or have artistic value, or represent a significant entity whose components may lack individual distinction.
- Criterion (d): have yielded or have the potential to yield important information concerning history or prehistory.

The following sections include a description of known cultural resources, based on previously completed surveys that overlap with the Transmission Project and its 1-mile Study Area.

As noted in Exhibit B, the Applicant is in the process of completing a full coverage Class III pedestrian survey for cultural resources for the Transmission Project and the Solar Project. The Applicant's cultural consultant will follow Arizona State Museum (ASM) and SHPO policies and procedures to determine whether cultural resources warrant designation as archaeological sites, historical in-use structures, or isolated occurrences. Cultural resources will also be evaluated to determine whether the resources are eligible for inclusion in the National Register of Historic Places (NRHP) or ARHP. The Applicant's cultural consultant started the Class III inventory in early June 2023. The Applicant's cultural consultant will submit a full report of the Class III inventory to the ASLD, ASM, and SHPO once completed.

## Methodology

The Study Area for the purpose of assessing potential impacts to historic sites and structures, as well as archaeological sites, is defined as a 1-mile-radius buffer from the Transmission Project. SWCA reviewed archival records to identify such properties within the Study Area. Data sources searched include the AZSITE, Arizona's statewide cultural resources database, which includes records from the ASM, Arizona State University, Arizona SHPO, and BLM; the NRHP database; General Land Office (GLO) plat maps; and historic-era topographic maps.

## Previous Cultural Resources Projects

The records review identified 12 prior cultural resources surveys that have taken place within the 1-mile Study Area and Project Area. These projects took place from 1983 to 2019 in support of irrigation improvements, transportation improvements, electrical transmission lines, a cellular communications tower, and solar utilities. Five of these cultural surveys intersect and cover approximately 177.06 acres (8%) of the proposed Project Area (Table E-2).

**Table E-2. Previous Cultural Resources Projects Intersecting the Project Area**

Agency Number	Project Name	Organization	Year
1983-75.ASM	State Land Survey	ASM Archaeology Department	1983
2001-484.ASM	Davenport Cell Tower Survey	Aztlan Archaeology	2001
2001-712.ASM	Winchester Substation Class II Archaeological Survey	SWCA	2001
2002-348.ASM	Winchester Interconnect Project	SWCA	2002
2019-349.ASM	9 Cross Ranch Class III Survey	MCA Consulting	2019

Note: Shading indicates SWCA believes these surveys can be relied upon for current inventory purposes.

The SHPO has provided guidance for the reliance on survey data that is 10 years or older (SHPO 2004). Surveys conducted before 1995 did not use the current ASM site definition criteria (ASM 1995). The principal investigators listed for the four remaining previous survey projects meet current state and federal professional qualification standards. Three of these previously conducted surveys used methods that would meet modern standards for 100 percent coverage. Lastly, it is unlikely that there are additional resources present in the parts of the Project Area these two past surveys have covered that have become at least 50 years old since the previous surveys. SWCA believes three of the surveys can be relied upon for current inventory purposes and cover approximately 30.2 acres (1.4%) of the proposed Project Area.

### **Historic-era Sites**

The records review identified one historic-era site, which does not intersect the Project Area (Table E-3). Site AZ BB:16:47(ASM) is a historic-era campsite and artifact scatter not evaluated for listing in the ARHP.

**Table E-3. Previously Recorded Historic-era Sites within 1 Mile of the Project Area**

Site Number	Cultural/Temporal Affiliation	Site Type	ARHP Eligibility Status	Associated Reference(s)	Distance from Project Area (miles)
AZ BB:16:47(ASM)	Euro-American / 1910–1920s	Campsite/Artifact scatter	Not evaluated	Hesse 2001	0.53

Note: Shading indicates site intersects the proposed Project Area.

### **HISTORIC STRUCTURES**

The review of AZSITE identified no historic-era structures within the Study Area. The GLO plat of Township 14 South (S), Range 21 East (E), approved in 1918, depicts a road to hot springs, an unnamed road that follows the alignment of E Three Links Road, two fence lines, and a telecommunications line intersecting the Project Area. Within the Study Area it also depicts four unnamed roads, a cabin, a windmill, a barn, L.C. JOHNSON’S HOUSE, and W.L. JOHNSON’S HOUSE intersecting the Study Area. The GLO plat of Township 14 South, Range 22 East, approved in 1918, depicts an unimproved road and a road from Benson to Wilcox in the Project Area, with nothing additional in the Study Area. The modern E Three Links Road, a road named ROAD TO WILLCOX, and an unnamed road in the Study Area. The GLO plat of Township 14 South, Range 23 East, approved in 1914, depicts an unnamed road and a fence line in the Project Area. It additionally depicts an unnamed road, A.G. SWEENEY HOUSE, L. THOMAS HOUSE, W.M. MORGAN HOUSE, and a windmill the modern E Three Links Road, and a structure labeled “House Wm. Morgan,” and a windmill in the Study Area. The GLO plat of Township 14 South, Range 24 East, approved in 1915, depicts two roads and three fence lines in the Study Area.

The 1922 U.S. Geological Survey (USGS) Wilcox, Arizona, 30-minute map depicts one unimproved road intersecting the Project Area, and two unimproved roads in the Study Area. The 1943 USGS Dragoon, Arizona, and Cochise, Arizona, 1:62,500 scale topographic maps depict E Three Links Road (labeled Cascabel Road) as shown on the GLO plats, as well as the six unimproved roads intersecting the Project Area. They depict seven unimproved roads, a well, a water tank, and Bar X Ranch in the Study Area. The 1958 USGS Dragoon, Arizona, and Cochise, Arizona, 1:62,500 scale topographic maps do not depict anything additional in the Project Area, but add three windmills, a well, and Bar X Ranch was renamed Cross X Ranch.

## ARCHAEOLOGICAL SITES

There are six previously recorded archaeological sites within the Study Area (Table E-4). One site, AZ BB:16:45(ASM), intersects the Project Area on the western end. The sites in the Study Area consist of Indeterminate, Archaic, and Mogollon prehistoric artifact scatters.

**Table E-4. Previously Recorded Archaeological Sites within 1 Mile of the Project**

Site Number	Cultural/Temporal Affiliation	Site Type	ARHP Eligibility Status	Associated Reference(s)	Distance from Project Area (miles)
AZ BB:16:43(ASM)	Indeterminate prehistoric	Artifact scatter	Not Evaluated	Hesse 2001	0.91
AZ BB:16:44(ASM)	Indeterminate prehistoric	Lithic procurement area	Not Evaluated	Hesse 2001	0.50
AZ BB:16:45(ASM)	Indeterminate Ceramic Period	Artifact scatter	Not Evaluated	Hesse 2001	0.00
AZ BB:16:46(ASM)	Indeterminate Ceramic Period	Artifact scatter	Not Evaluated	Hesse 2001	0.30
AZ BB:16:60(ASM)	Late Archaic (1500 BC–AD 200)	Artifact scatter	Determined eligible under Criterion D	Hesse 2002	0.12
AZ CC:13:53(ASM)	Mogollon Ceramic period	Artifact scatter	Recommended eligible, Criterion D	Kearns et al. 2001	0.86

Note: Shading indicates site is within the proposed Project Area.

## Assessment of Effects

A project can have direct and/or indirect effects on historic sites and structures and archaeological sites when it alters the characteristics that qualify it for listing in the ARHP. Effects are adverse when they diminish the integrity of the property’s location, design, setting, materials, workmanship, feeling, or association. Adverse effects on historic properties include, but are not limited to:

- Physical destruction of or damage to all or part of the property.
- Removal of the property from its historic location.
- Change of the character of the property’s use of physical features within the property’s setting that contribute to its historic significance.
- Introduction of visual, atmospheric, or audible elements that diminish the integrity of the property’s significant historic characteristics.
- Neglect of a property that causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an Indian tribe.



- Transfer, lease, or sale of a property out of government ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance.

## **DIRECT EFFECTS**

The records review identified one indeterminate prehistoric artifact scatter (AZ BB:16:45[ASM]) that has the potential to be directly affected by the Project. The historical map research additionally identified historical linear resources that may intersect the Project Area.

AZ BB:16:45(ASM) has not been evaluated for eligibility; SWCA recommends that the Project avoid the site until such information can be gathered. The Applicant plans to 1) avoid this site (preferably), or 2) minimize potential effects to the sites by avoiding sensitive site features or loci by micro-siting transmission structures within the approved corridor to span resources.

## **INDIRECT EFFECTS**

The records review identified six known sites which would have the potential to be indirectly affected by the Project. Sites AZ BB:16:60(ASM) and AZ CC:13:53(ASM) have been recommended or determined eligible for listing in the ARHP under Criterion D. From the description of the four unevaluated sites, if they were found eligible for listing in the ARHP, it would be for their research potential (Criterion D). Construction of the Project is unlikely to introduce a visual element that would diminish the integrity of the characteristics for which these sites within the Study Area would be determined eligible.

## ***Conclusion***

The records review identified that approximately 1.4 percent of the Project Area has been previously adequately surveyed for cultural resources. The available records indicated that there is unlikely to be any direct or indirect effects to known historic properties. To ensure that potential historic properties would not be impacted within the Project Area, the Applicant has retained Chronicle Heritage (PaleoWest) to complete a cultural resources inventory of the Project Area to identify and evaluate the cultural resources that may be present. The Applicant's cultural consultant will submit a full report of the Class III inventory to the ASLD, ASM, and SHPO once completed. If any historic properties are encountered, the inventory would provide recommendations in consultation with ASLD, ASM, and SHPO for how to mitigate any adverse effects to those historic properties.

## Literature Cited

- Arizona State Museum (ASM). 1995. *Revised Site Definition Policy*. Arizona State Museum, University of Arizona, Tucson.
- Hesse, S. Jerome. 2001. *A Class II Archaeological Reconnaissance Survey of 1,920 Acres in the Northern Johnny Lyon Hills, Cochise County, Arizona*. SWCA Cultural Resource Report No. 01-69. SWCA Environmental Consultants, Tucson, Arizona.
- . 2002. *A Cultural Resource Survey of Approximately 160 Acres in the Northern Johnny Lyon Hills, Cochise County, Arizona: The Winchester Interconnect Project*. SWCA Cultural Resource Report No. 02-28. SWCA Environmental Consultants, Tucson, Arizona.
- Kearns, Timothy M., Thomas J. Lennon, Dorothy L. Webb, Joshua Jones, and Steven F. Mehls .2001. *An Archaeological Survey of the Arizona Portion of Link Two of the AT&T NEXGEN/CORE Project*. Report No. WCRM(F)174. Western Cultural Resource Management, Inc. Farmington, New Mexico.
- State Historic Preservation Office (SHPO). 2004. *SHPO Position on Relying on Old Archaeological Survey Data*. SHPO Guidance Point No. 5. Arizona State Parks, Phoenix.
- U.S. Department of the Interior. 2014. *Ecoregions of Arizona*. Available at: <https://www.epa.gov/eco-research/ecoregion-download-files-state-region-9#pane-02>. Accessed May, 2023

## EXHIBIT F. RECREATION

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As stated in the Arizona Corporation Commission Rules of Practice and Procedure R14-3-219, Exhibit 1, the intent of this exhibit is to:

*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.*

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### Existing and Planned Recreational Facilities

The 1-mile Study Area is located on vacant desert land within unincorporated Cochise County. The Project team reviewed the Cochise County Comprehensive Plan (Cochise County 2013a) and Comprehensive Plan Map (Cochise County 2013b), topographic maps, and aerial photography, and completed a field visit to the Study Area.

The Study Area does not overlap with any existing or planned recreational facilities. The nearest recreational facility is the Inde Motorsports Ranch and Airstrip, located 1.5 miles north of the Study Area (Google Earth 2023). The City of Willcox, about 7.5 miles northeast of the Transmission Project, contains other developed recreational facilities serving the municipality of Willcox. The Kartchner Caverns, managed by the State of Arizona, is the nearest state-sponsored recreational area, located about 35 miles southwest of the Study Area (Arizona State Parks and Trails 2023). Finally, the Saguaro National Park, managed by the National Park Service, is the nearest federally sponsored recreational area, and it is almost 15 miles west of the Winchester Substation (Google Earth 2023).

Recreational users may occasionally use public roadways to walk, bike, and for general transportation as well as incidental uses such as bird watching. Within the Study Area and surrounding region, recreational opportunities such as off-road vehicle use, hiking, camping, bird watching, rockhounding, and horseback riding are available. Generally, all State lands can be accessed by the public if they obtain a Special Use Permit, which would provide similar recreational opportunities.

The Transmission Project would have minimal impact on existing recreational use in the Study Area because there is currently limited use of the area (primarily travel along public roadways) and such access would continue to be available following construction of the Transmission Project. Similarly, implementation would have minimal to no impact on recreation in the Study Area or surrounding region because implementation would not block access to recreational areas.

The Applicant does not have plans to develop public “recreational aspects” along the Transmission Project.

## Literature Cited

Arizona State Parks and Trails. 2023. Find Your Park. Available at: <https://azstateparks.com/find-a-park/>. Accessed May 2023.

Cochise County. 2013a. Cochise County Comprehensive Plan. Available at: <https://www.cochise.az.gov/DocumentCenter/View/203/Comprehensive-Plan-PDF>. Accessed May 2023.

———. 2013b. Cochise County Comprehensive Plan Map. Available at: <https://www.cochise.az.gov/DocumentCenter/View/191/Comprehensive-Plan-Map-PDF>. Accessed May 2023.

# EXHIBIT G. CONCEPTUAL DRAWINGS OF TRANSMISSION FACILITIES

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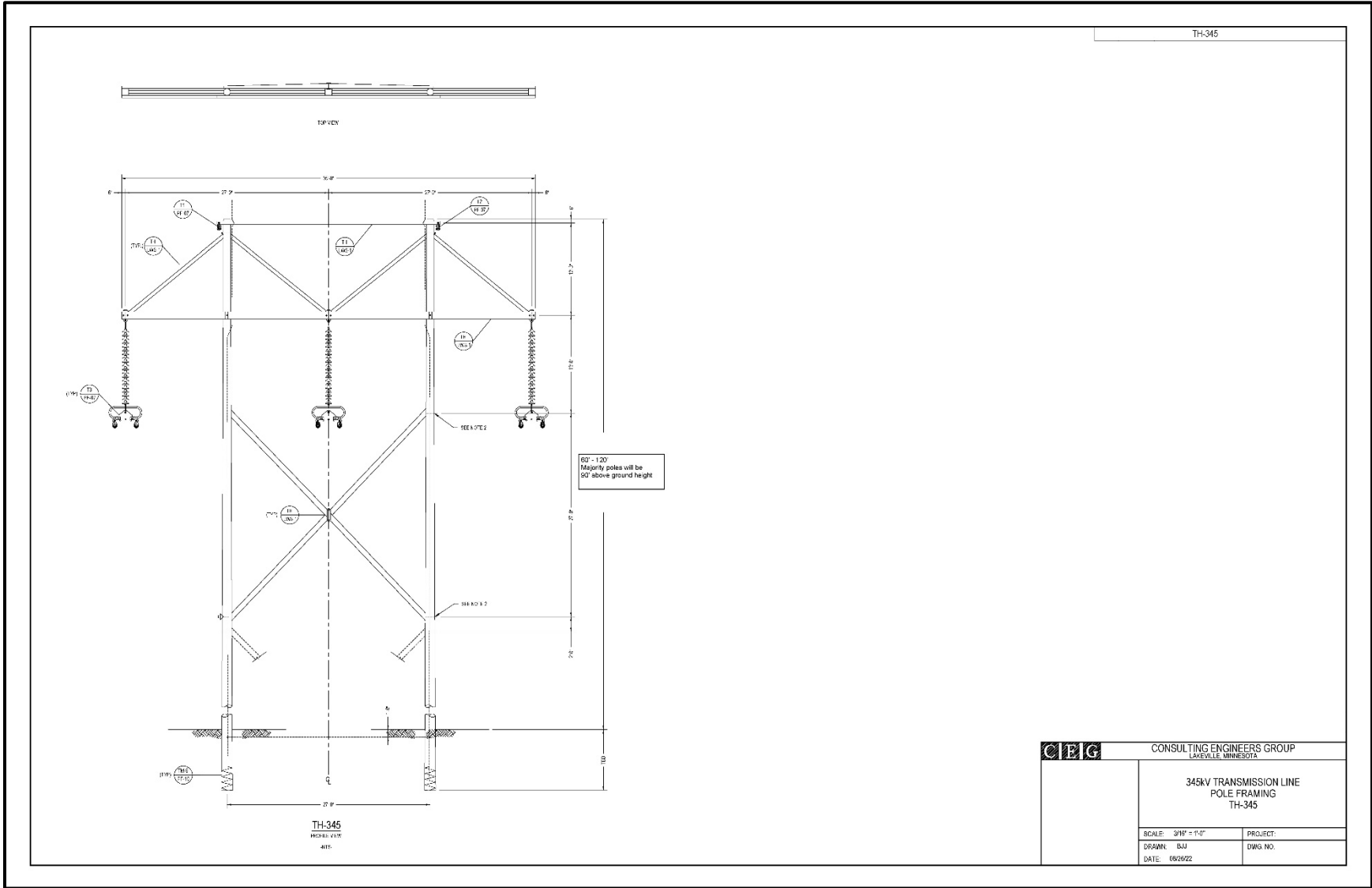
As stated in the Arizona Corporation Commission Rules of Practice and Procedure R14-3-219:

*Attach any artist's or architect's conception of the proposed plan or transmission line structures and switchyards, which applicant believes may be informative to the committee.*

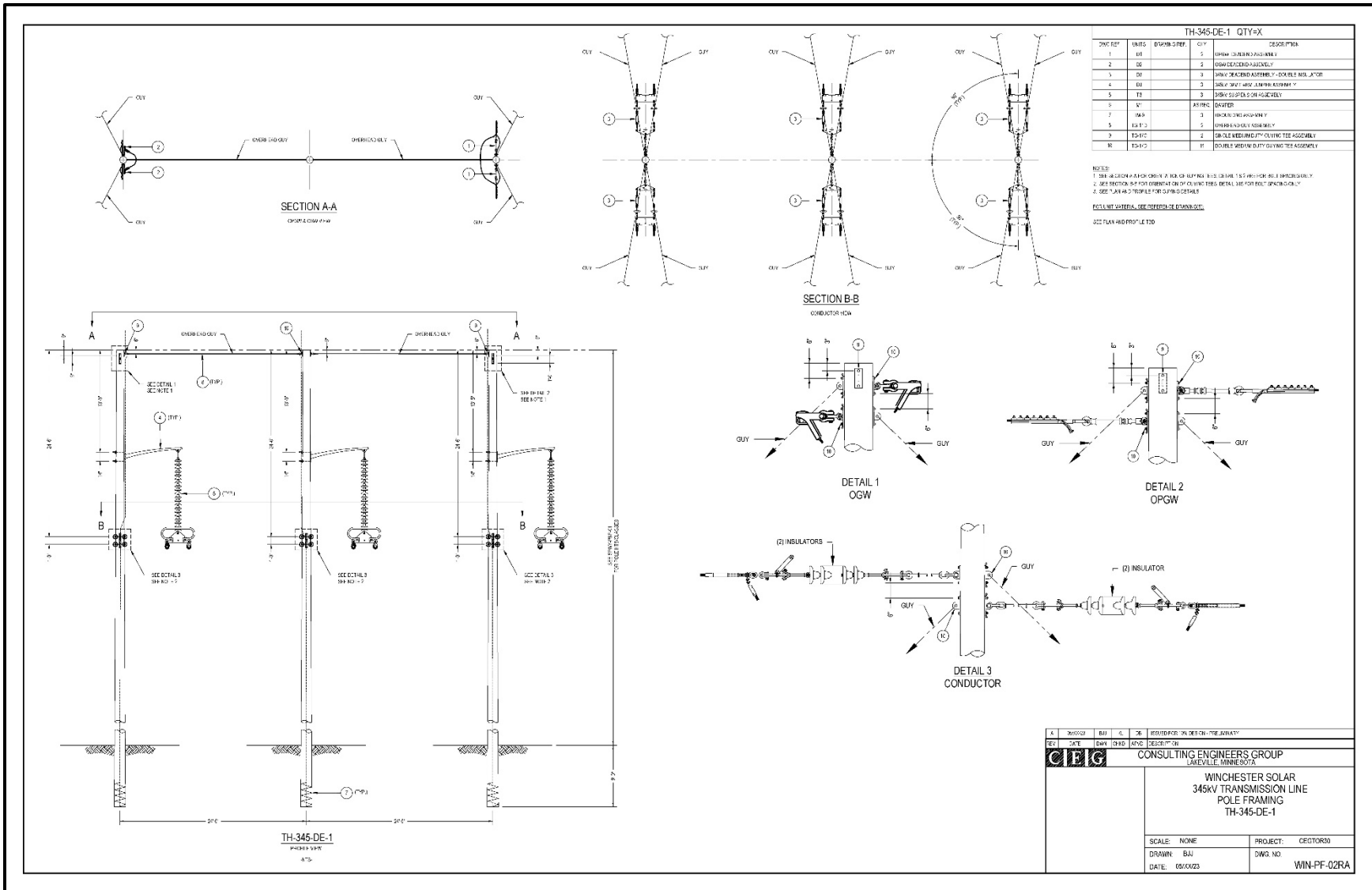
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- Exhibit G-1: Two-pole H-frame structure
- Exhibit G-2: Three-pole tangent structure
- Exhibit G-3: 345-kV A-frame deadend structure
- Exhibit G-4: Photosimulation of the Transmission Project from KOP-1
- Exhibit G-5: Photosimulation of the Transmission Project from KOP-2
- Exhibit G-6: Photosimulation of the Transmission Project from KOP-3
- Exhibit G-7: Photosimulation of the Transmission Project from KOP-4

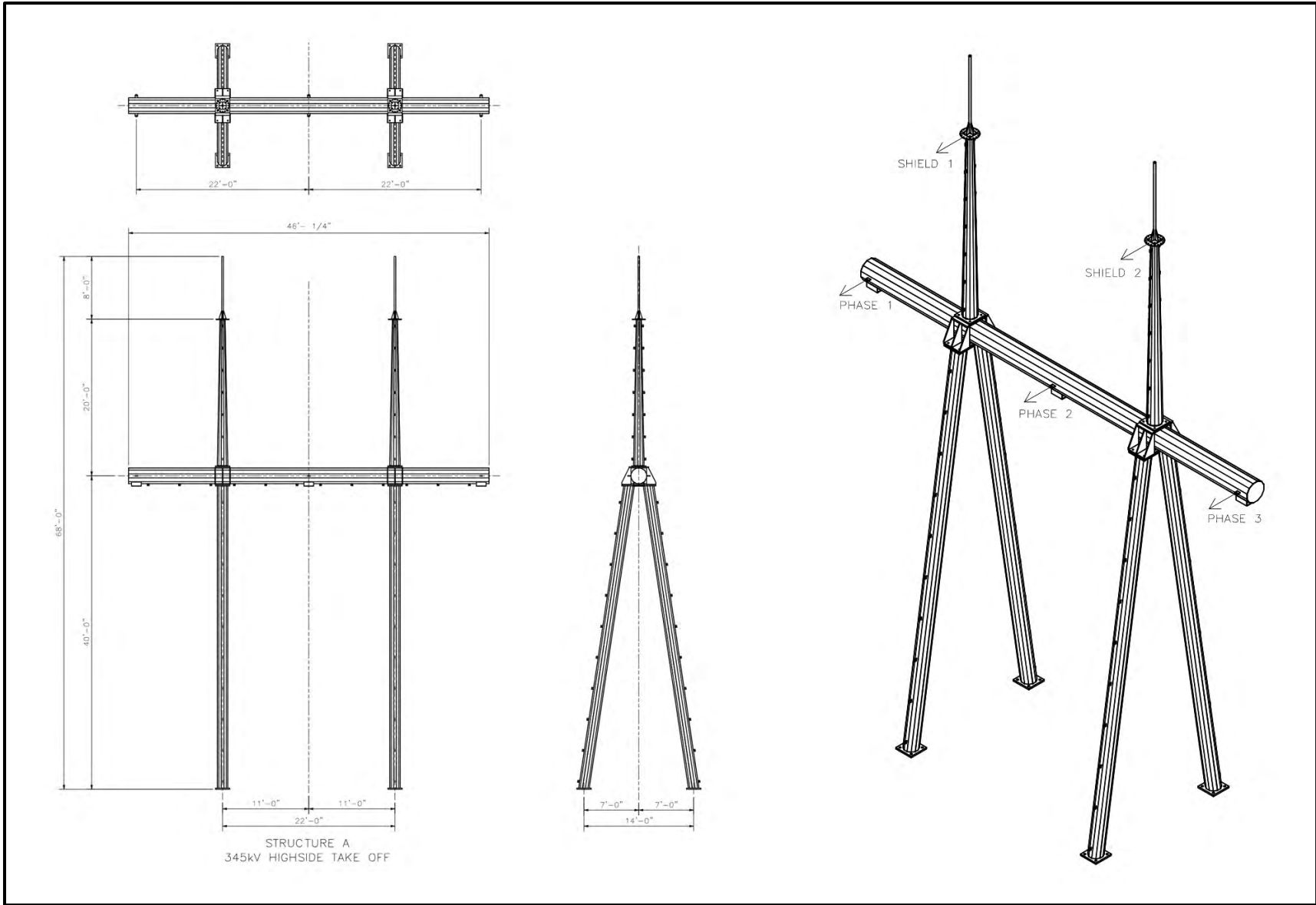




**Exhibit G-1. Two-pole H-frame structure.**



**Exhibit G-2. Three-pole tangent structure.**



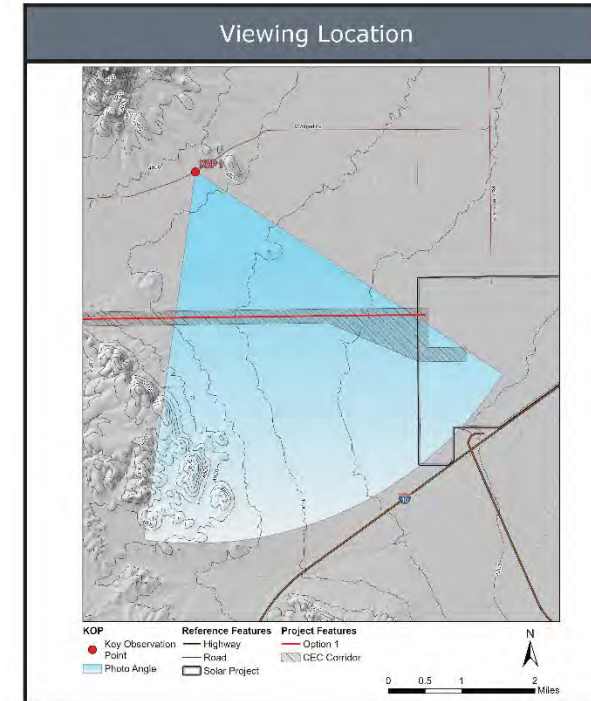
**Exhibit G-3. 345-kV A-frame deadend structure.**





**Existing Condition**

KOP 1: View near Inde Motorsports Ranch on Airport/Cascabel Road looking southeast



**Simulated Condition**

KOP 1: View near Inde Motorsports Ranch on Airport/Cascabel Road looking southeast

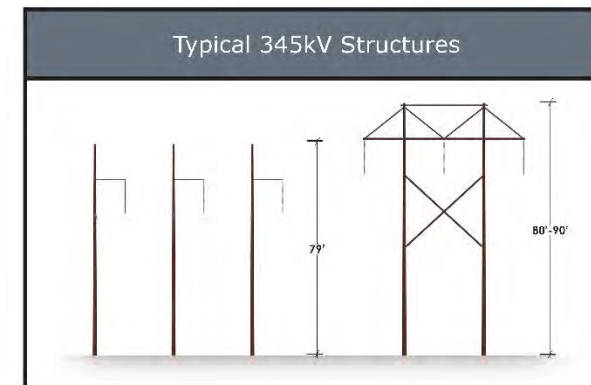


Photo Date and Time: April 27, 2023, 1:25 pm

View Location: Approximate distance to nearest new structure from photo location is 2 miles.

Simulations were prepared using information provided by Torch Clean Energy. Structure locations, colors, and heights may be different based on final engineering and design.

**Winchester 345kV Gen-Tie Project | May 2023**  
**Simulation from KOP 1: View near Inde Motorsports Ranch on Airport/Cascabel Road**



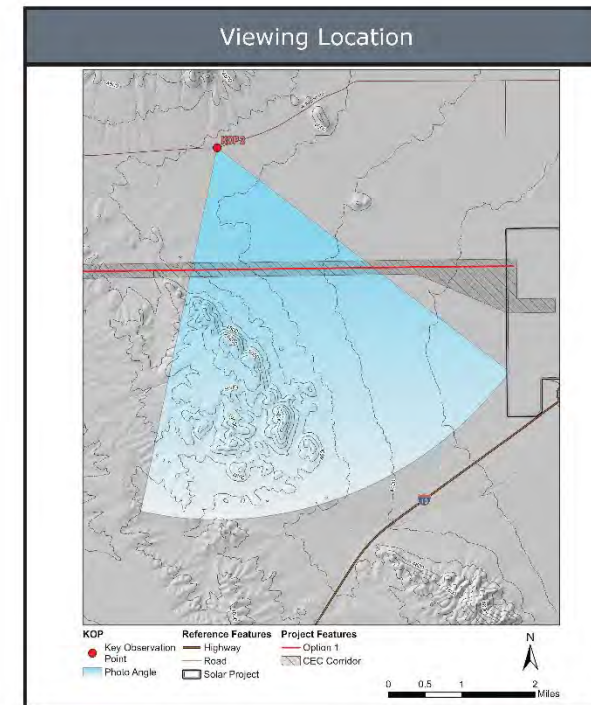
**Exhibit G-4. Photosimulation of the Transmission Project from KOP-1.**





**Existing Condition**

KOP 2: View from Airport/Cascabel Road looking south



**Simulated Condition**

KOP 2: View from Airport/Cascabel Road looking south

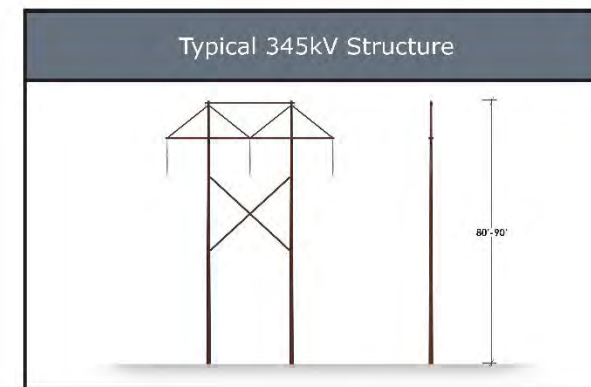


Photo Date and Time: April 27, 2023, 12:00 pm

View Location: Approximate distance to nearest new structure from photo location is 1.6 miles.

Simulations were prepared using information provided by Torch Clean Energy. Structure locations, colors, and heights may be different based on final engineering and design.

**Winchester 345kV Gen-Tie Project | May 2023**  
**Simulation from KOP 2: View from Airport/Cascabel Road**



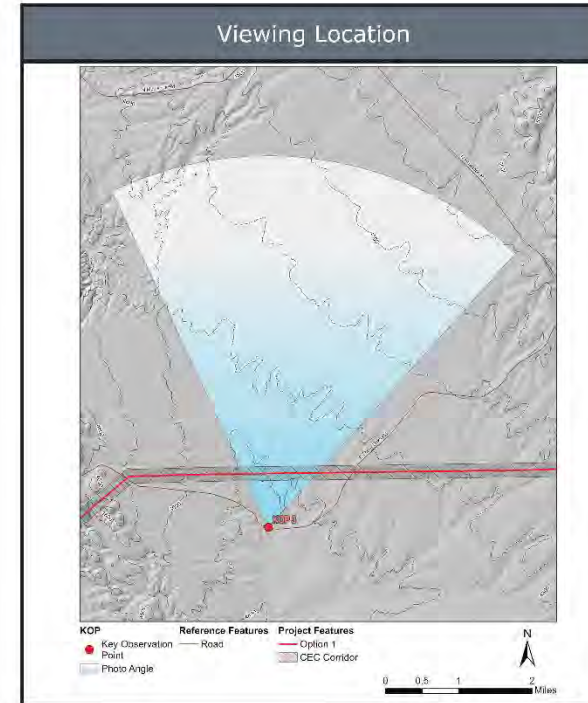
**Exhibit G-5. Photosimulation of the Transmission Project from KOP-2.**





**Existing Condition**

KOP 3: View from residence at E Three Links/Cascabel Road looking north



**Simulated Condition**

KOP 3: View from residence at E Three Links/Cascabel Road looking north

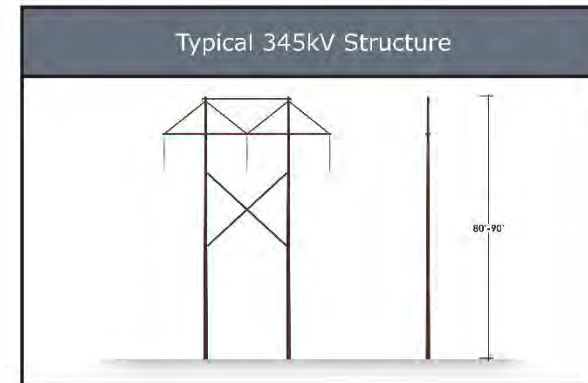


Photo Date and Time: January 24, 2023, 11:00 am

View Location: Approximate distance to nearest new structure from photo location is 0.7 miles.

Simulations were prepared using information provided by Torch Clean Energy. Structure locations, colors, and heights may be different based on final engineering and design.

**Winchester 345kV Gen-Tie Project | May 2023**  
**Simulation from KOP 3: View from residence at E Three Links/Cascabel Road**



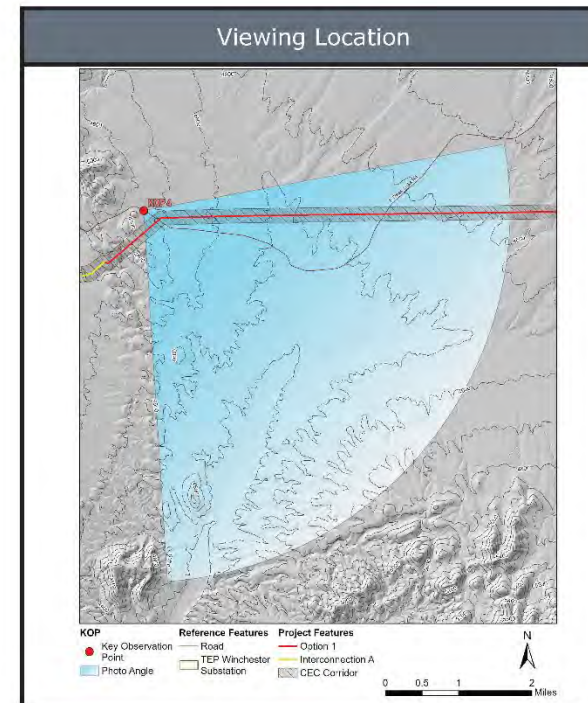
**Exhibit G-6. Photosimulation of the Transmission Project from KOP-3.**





**Existing Condition**

KOP 4: View from E Three Links/Cascabel Road looking southeast



**Simulated Condition**

KOP 4: View from E Three Links/Cascabel Road looking southeast

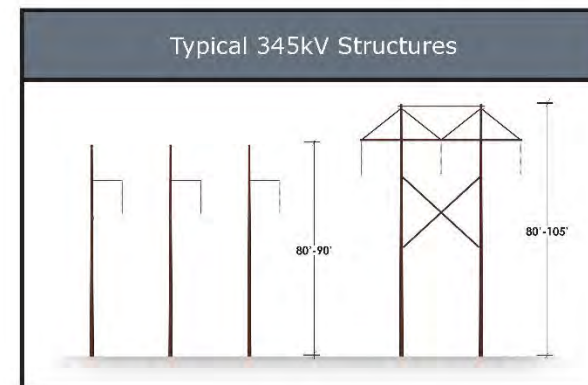


Photo Date and Time: January 24, 2023, 10:35 am

View Location: Approximate distance to nearest new structure from photo location is 0.2 miles.

Simulations were prepared using information provided by Torch Clean Energy. Structure locations, colors, and heights may be different based on final engineering and design.

**Winchester 345kV Gen-Tie Project | May 2023**  
**Simulation from KOP 4: View from E Three Links/Cascabel Road**



**Exhibit G-7. Photosimulation of the Transmission Project from KOP-4.**



# EXHIBIT H. EXISTING PLANS

As stated in the Arizona Corporation Commission Rules of Practice and Procedure R14-3-219, Exhibit 1:

*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.*

Land use in the Study Area is mapped in Exhibits A-2 and A-3 of Exhibit A, Location Map and Land Use Maps, and discussed in Exhibit B. As part of the land use study, SWCA Environmental Consultants (SWCA) reviewed the Cochise County Comprehensive Plan (Cochise County 2015).

## Agency and Stakeholder Outreach

In May and June 2023, the Applicant conducted outreach to a group of key regulatory agencies, stakeholders, and utilities (identified in Table H-1) to discuss the Transmission Project and request information about existing plans for developments in the vicinity of the Transmission Project. During this outreach, the Applicant gained information on the SunZia Southwest Transmission Project (SunZia Project) and the El Rio Sol Transmission Project (El Rio), as further described below.<sup>2</sup> The Applicant is actively coordinating with both projects in regard to planning, engineering, and design. Additionally, the Applicant is aware that TEP plans to implement various upgrades at the Winchester Substation.

Regarding the Fort Huachuca Buffalo Soldier Electronic Testing Range (ETR), a representative for Fort Huachuca, Ms. Alanna Riggs, replied to the Applicant indicating that information about the Transmission Project was shared with the “electromagnetic testing team.” Ms. Riggs stated that the electromagnetic testing team did not identify any “conflicting plans in the area of the Transmission Project.”

Other than the projects described below, the Applicant did not identify any other existing plans of the state, local government, or private entities for other developments.

**Table H-1. Entities that Torch Contacted to Discuss Future Plans for Development**

Contact Name	Title	Jurisdiction/Agency/Entity
Alanna Riggs	Executive Liaison	Fort Huachuca; Office of the Commanding General
Robert Kirschmann	Planner II	Cochise County Development Services
Michael Romero	Rights of Way Project Leader	Arizona State Land Department
David Getts	General Manager	Southwestern Power Group (El Rio Sol)
Natalie McCue	Assistant Vice President, Environmental & Permitting	Pattern Energy (SunZia)
Eileen Brien	Contract Services Consultant	Arizona Electric Power Cooperative (AEPSCO)
Daniel Wilson	Senior Vice President, Operation	Sulphur Springs Valley Electric Cooperative, Inc. (SSVEC)
Rebecca McCarthy	Senior Project Manager	Tucson Electric Power

<sup>22</sup> The El Rio Sol Transmission project is being developed by Southwestern Power Group.

## **Known Projects**

The following sections contain further information about the SunZia Project, El Rio Sol Transmission Project, and the TEP Winchester Substation upgrades.

### ***SunZia Southwest Transmission Project***

The Applicant is aware that, in November 2022, the Arizona Corporation Commission approved an amendment to the Certificate of Environmental Compatibility for the SunZia Project (ACC 2022). The SunZia Project involves construction of a new, 500 kV interstate transmission line between New Mexico and Arizona. The SunZia Project is planned to pass through Cochise County. The proposed Transmission Project would cross below the SunZia Project near the Winchester Substation (see Exhibit A-1). In May 2023, the Bureau of Land Management (BLM) issued a record of decision on the SunZia Project, authorizing a right-of-way on Federal Lands administered by the BLM (BLM 2023). Full construction of the SunZia Project is anticipated to commence in Q4 2023 (Pattern 2023). The Applicant continues to actively coordinate with the SunZia Project with regard to planning, engineering, and design of the Transmission Project crossing the SunZia Project. The Transmission Project is compatible with the SunZia Project.

### ***El Rio Sol Transmission Project***

The Applicant is aware that, in 2016, the Arizona Corporation Commission approved a Certificate of Environmental Compatibility for the El Rio Sol Transmission Project (RioSol Project). The RioSol Project involves construction of a new, 500kV interstate transmission line between New Mexico and Arizona. The RioSol Project is planned to pass through Cochise County, directly north of and adjacent to the SunZia Project. The RioSol Project would cross the Transmission Project near the Winchester Substation. Full construction of the RioSol Project is anticipated to commence in Q4 2025 (RioSol 2023). The Applicant continues to actively coordinate with the RioSol Project with regard to planning, engineering, and design of the crossings. The Parties have agreed to continue working together in good faith to achieve the goals of both Projects. The Transmission Project is compatible with the RioSol Project.

### ***Tucson Electric Power Winchester Substation Upgrade***

The Applicant is aware that, to interconnect the Transmission Project to the local regional grid, necessary interconnection upgrades are required by Tucson Electric Power at its 345 kV Winchester Substation. The Applicant has been actively coordinating with TEP regarding these upgrades. On January 12, 2021, TEP issued a Draft Facility Study which estimated the cost and timeline to upgrade the Winchester Substation. The Applicant and TEP began working closer together at the beginning of 2023 to share updated plans and finalize the Facility Study. To allow the Transmission Project to interconnect, TEP plans to build out the Applicant's interconnection bay with necessary equipment, such as a circuit breaker. In addition, TEP plans to relocate two of its dead-end structures and reroute associated conductors. TEP plans to finalize the Facility Study by July 2023 which will show refreshed estimates to the cost and construction timeline associated with these upgrades. The signing of the Interconnection Agreement between Applicant and TEP will happen soon thereafter.

## Literature Cited

- Arizona Corporation Commission (ACC). 2022. Decision No. 78769 – Order Approving Recommended Orders of the Arizona Power Plant and Transmission Line Siting Committee and Approving CC 171-A and CEC 171-B. Available at: <https://docket.images.azcc.gov/0000208023.pdf?i=1685508499939>. Accessed May 2023.
- Bureau of Land Management (BLM). 2023. Proposed SunZia Southwest Transmission Project. Available at: <https://www.blm.gov/programs/planning-and-nepa/plans-in-development/new-mexico/proposed-sunzia-transmission-project>. Accessed May 2023.
- Cochise County. 2015. Cochise County Comprehensive Plan Amended and Readopted 2015. Available at: <https://www.cochise.az.gov/DocumentCenter/View/203/Comprehensive-Plan-PDF>. Accessed May 2023.
- Pattern Energy. 2023. Pattern Receives Route Approval for SunZia Transmission Project. Available at: <https://patternenergy.com/pattern-receives-route-approval-for-sunzia-transmission-project/>. Accessed May 2023.
- RioSol. 2023. Routed, Planned, Moving Along. Available at: <https://riosol.energy/timeline/>. Accessed June 2023.



# EXHIBIT I. NOISE AND INTERFERENCE

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As stated in the Arizona Corporation Commission Rules of Practice and Procedure R14-3-219, Exhibit 1:

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

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Exhibit I describes typical high-voltage transmission electrical and noise discharges, including corona discharge, audible noise, and electromagnetic fields (EMF). This exhibit also discusses acceptable noise discharges and expected impacts from the proposed Project.

## Corona

Corona is a type of electrical discharge caused by the ionization of fluid, such as air, surrounding a conductor carrying high voltage (e.g., a 345-kilovolt transmission line); certain levels of corona are associated with all energized transmission lines. The corona associated with an energized conductor can be sufficiently concentrated to produce a tiny electric discharge, resulting in audible noise, radio noise, heat, and chemical reactions of the air components. Several factors, including conductor voltage, shape, diameter, and surface irregularities (e.g., scratches, nicks, and dust) can affect a conductor's electrical surface gradient and its corona performance (Electric Power Research Institute 1982). Audible noise from corona discharge tends to be a faint crackling or humming noise. Corona discharge also varies based on the height of the conductors above ground and meteorological conditions. Consequently, during periods of rain and foul weather, corona discharges increase. Because corona effects are very localized and minor, corona effects are expected to be negligible outside of the Project right-of-way.

## Audible Noise

A typical measurement of audible sounds ranges between 0 A-weighted decibels (dBA) and 120 dBA, with noises over 120 dBA having the potential to harm the human eardrum. In general, the total noise level from individual sources is derived logarithmically rather than arithmetically (decibels are logarithmic units). For example, if the two sound levels were equal (e.g., 30 dBA) at a given point, the resulting sound level would increase by just 3 dB (i.e., equal to 33 dBA rather than 60 dBA). If the two sound levels were not equal, the louder sound would increasingly mask the softer sound until the difference reached 10 dBA. At that point, the louder sound would completely mask the softer sound, and there would be no increase in the perceived sound level. Table I-1 shows reference noise sources and the sound levels in dBA associated with each (U.S. Department of Health and Human Services 2021).

**Table I-1. Approximate Amount of dBA from Typical Events**

Event	A-weighted Decibels (dBA)
Fireworks show	140–160
Jet taking off	140
Emergency vehicle sirens	110–129

Headphones, sporting events, and concerts	94–110
Motorcycle or lawnmower	80–110
Normal conversation	60–70
Whisper	20–30

This table assumes a typical distance of the listener from each scenario. For example, a whisper or starting a lawn mower would occur within 3 feet of the listener. A listener watching a fireworks show or a jet take off would be within approximately 200 feet.

## ***Existing Sound Levels***

The Project is in a rural, undeveloped area of open desert in unincorporated Cochise County. The surrounding land uses include cattle ranching and grazing, rural residential, and high-voltage electrical instruction (e.g., transmission lines and the Winchester Substation).

The American National Standards Institute (ANSI) estimates typical background noise levels for varying types of land uses (ANSI 2013). For “very quiet suburban and rural residential” the ANSI estimates the daytime and nighttime background noise levels to be 40 dBA and 34 dBA, respectively (ANSI 2013). Based on the land uses present near the Transmission Project, these estimates are reasonable approximations of existing conditions. Existing noise sources in the vicinity of the Project include intermittent traffic on E Three Links Road (especially near the west end of the Transmission Project) and existing transmission lines and the Winchester Substation.

The existing transmission lines can also produce noise from corona discharge. Under dry weather conditions, the audible noise from corona is minor and rarely noticed. During wet and humid conditions, which are typical during monsoon season, water drops can collect on the conductors and increase corona activity. Under these conditions, a crackling or humming sound may be heard in the immediate vicinity of the lines.

## ***Noise-Sensitive Receptors***

Noise is evaluated in terms of its potential impact on noise-sensitive receptors. Noise-sensitive receptors are locations where people reside or where the presence of unwanted sound may adversely affect the use of the land. Noise-sensitive receptors typically include residences, schools, libraries, churches, hospitals, nursing homes, auditoriums, parks, and outdoor recreation areas.

The Transmission Project would neither cross nor border any noise-sensitive receptors. The nearest residential structure is approximately 4,000 feet (approximately 0.75 mile) south of the Transmission Project, on E Three Links Road.

## ***Anticipated Noise During Project Construction***

Ground-based equipment needed to construct a transmission line usually includes heavy earthmoving vehicles, cranes, compressors, generators, and trucks. The maximum instantaneous construction noise levels from these sources typically range from 80 to 90 dBA at 50 feet from any work site (Crocker and Kessler 1982). The Cochise County Zoning Ordinance does not state any specific noise regulations for the RU-4 zoning district. Given that audible noise dissipates with distance from the noise source, noise generated during Project construction would have a negligible impact on the nearest residences, located approximately 4,000 feet (approximately 0.75 mile) south of the Transmission Project.

## ***Anticipated Noise During Project Operation***

The Project involves a 345-kV transmission line, which can be expected to have audible characteristics similar to the existing nearby electrical infrastructure (e.g., existing transmission lines connecting to the Winchester Substation).

The cumulative effect of two similar noise sources tends to result in a total noise level perceived by a receptor that is only slightly louder than either source individually. Where two sound levels are not equal, the louder sound tends to mask the lesser source. Where audible sounds generated by the Project would overlap those from existing electrical facilities, the resultant sound levels would increase by only small amounts. Most of the Project would be farther than 1 mile from sensitive receptors and is unlikely to significantly increase existing noise levels. Given that audible noise dissipates with distance from the noise source, noise generated by the Project would likely be undetectable at the nearest residence, which is approximately 4,000 feet (approximately 0.75 mile) south of E Three Links Road.

## **Communication Signal Interference**

Continuous radio frequency emissions can be generated during normal operations of transmission lines. These emissions can cause interference to AM radio and television signal reception on nearby properties. Objectionable radio frequency noise is generally a product of unintended sparking but can also be produced by corona (McDonald 2012). Such interference is commonly caused by loose hardware on the transmission line or its structures and may be remedied by maintenance activities (California Public Utilities 2005).

Transmission lines do not interfere with cellular phone tower operations or microwave communication paths. This is demonstrated by the fact that cellular phone antennas and microwave receivers are commonly mounted on transmission structures to take advantage of the added height afforded by the structures.

## ***Existing Sources of Signal Interference***

Radio frequency emissions from the existing transmission facilities have the potential to interfere with radio reception in the vicinity of the Project as explained in the preceding section.

## ***Potential Project Effects***

Given the Transmission Project's proximity to existing transmission facilities, it is not expected to cause signal interference where none currently exists.

As noted in Exhibits B, the Transmission Project passes through the Buffalo Soldier ETR. The Applicant has coordinated with a liaison at Fort Huachuca, who represented that information about the Project was passed onto the officials for the Buffalo Soldier ETR. The Fort Huachuca liaison indicated that the electromagnetic testing team did not identify any "conflicting plans in the area of the Transmission Project." The Applicant will continue to coordinate with Fort Huachuca.

## **Electric Fields**

According to the National Institute of Environmental Health Sciences (NIEHS), EMF are naturally occurring when any substance has an electrical current running through it, including power lines, electrical wiring, and other electrical equipment. Electric and electromagnetic fields are found naturally

occurring in the world in the range of 12 to 150 kV/meter. Electric fields created by televisions and other video display units typically occur in the range of 20 kV/meter (NIEHS 2002).

Electric fields and magnetic fields dissipate rapidly as distance increases away from a transmission line. The Applicant modeled electric and magnetic fields for the Transmission Project using Project-specific parameters and methods established by the Electric Power Research Institute (see Exhibit I-1). Results indicate that electric field levels would be between 2 and 4 kV/meter (m) directly beneath the line and less than 1 kV/m at a distance of 100 feet (i.e., at the edge of the right-of-way). Results indicate magnetic field levels would be between approximately 45 milligauss (MG) directly beneath the line and less than 10 MG at the edge of the right-of-way. Per Exhibit I-1, electric and magnetic field levels at the edge of the right-of-way would be *de minimis*.

PLS-CADD Version 18.00x64 12:40:21 PM Wednesday, June 21, 2023  
 Consulting Engineers Group  
 Project Name: 'Z:\PROJECTS\Other Projects\CEGTOR30 WINCHESTER\Design Documents and Data\Transmission Line\PLS-CADD\WIN-PLS-01RC\_(OPT 1)05.05.23.don'  
 Line Title: 'PRELIMINARY'

**Criteria Notes:**

Typical 2017 NESC C2-2017 Criteria File for PLS-CADD Created September 5, 2017 Version 15.00

- Assumed NESC Medium Combined Ice and Wind District Loading (Rule 250B)
- Assumed 90 MPH Extreme Wind Loading (Rule 250C); To be verified by the Engineer of Record
- Assumed 3/4" Extreme Ice with 30 MPH Concurrent Wind Loading (Rule 250D); To be verified by the Engineer of Record
- Assumed Maximum Operating Temperature of 212 F; To be verified by the Engineer of Record
- Assumed 1/2" Extreme Ice (Non-NESC); To be verified by the Engineer of Record
- Assumed Grade B Construction Only; To be verified by the Engineer of Record

**3D EMF Calculation Notes:**

- 1) Calculations based on the EPRI Red Book methods (3rd Edition, 2005 - 7.4 Calculation of Magnetic Fields and Appendices 7.1 Calculation of Field Ellipse Parameters and 7.6 Electric Field Calculations for 3D Geometry).
- 2) All wire positions are modeled at the specified weather case and wind direction. Height above ground determined by the modeled ground TIN.
- 3) Only the effects of wires are being analyzed. The effects of structures are not included unless enabled as noted below.
- 4) Ground return is being ignored for magnetic field calculations.

Meter height above ground: 3.28 (ft)  
 Maximum wire distance: 900.00 (ft)  
 Maximum cable segment size: 9.80 (ft)  
 Cross section offset +/-: 300.00 (ft)  
 Result interval: 5.00 (ft)  
 Electric field limit: 0.00 (kV/m)  
 Magnetic field limit: 0.00 (mG)  
 Space potential limit: 0.00 (kV)  
 Contour Map Spacing: 15 (ft)  
 Analyzing spans between these structures: 25 - 26

One or more sections have wind from both directions which is not supported. A wind direction of left is being used for those sections.

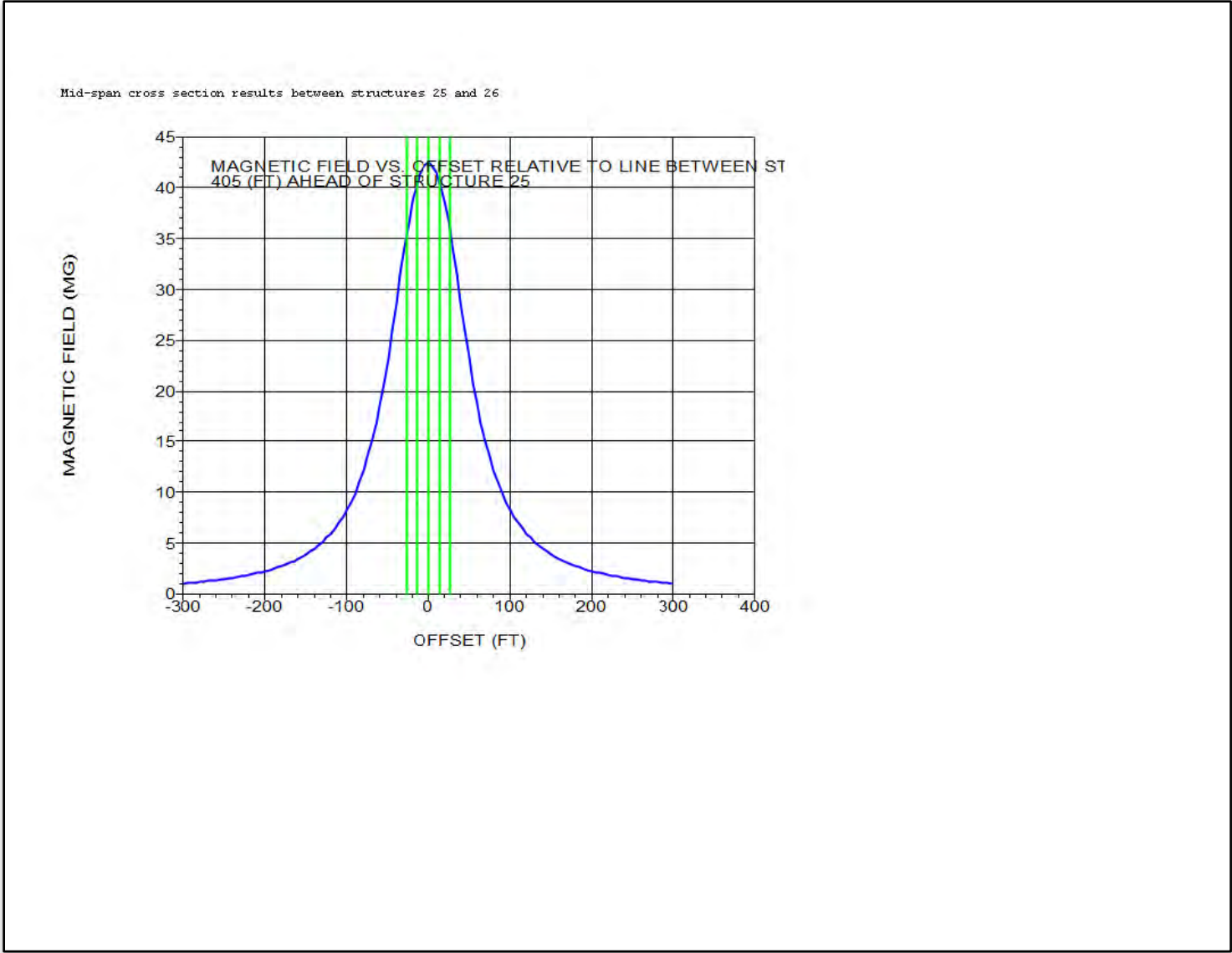
One or more sections are missing phase labels. Phase angles for these sections are assigned automatically (1 = 0°, 2 = 120°, 3 = -120°) ??  
 5, 14, 22

**Section Data for 3D EMF Results:**

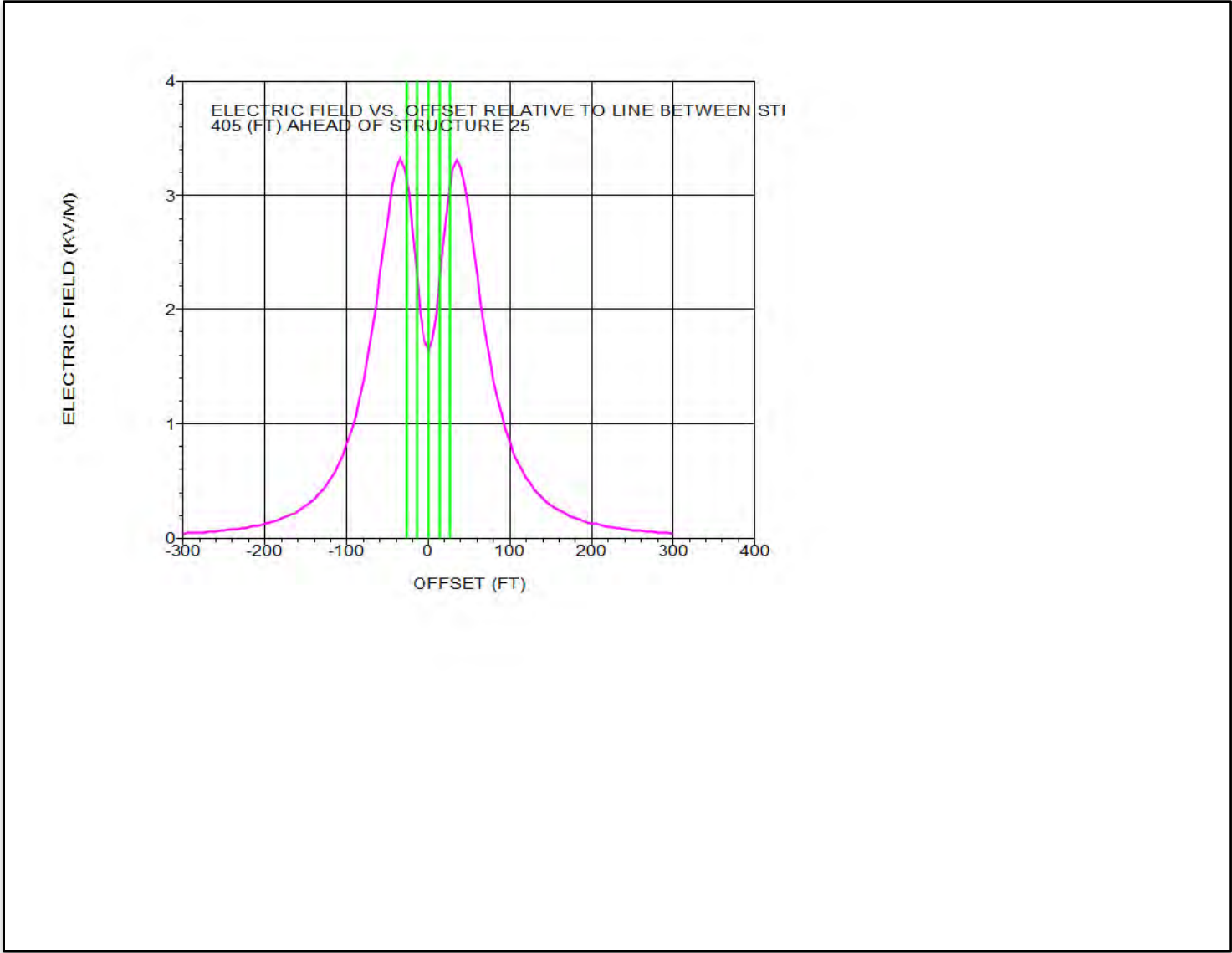
Section Number	Section Note	Voltage (kV)	Current (Amps)	Weather Case	Condition	Wind Dir.	Wind Temperature (deg F)	Cable	WC Effective	Radius (in)	Description	Per
1	5	0.0	0.0	-20 Deg F	Initial RS	Left	-20.000	dno-3825.wir	0.233		AFL OPGW DNO-3825 CC-57/465	
1	14	0.0	0.0	-20 Deg F	Initial RS	Left	-20.000	3-8-7_strand_ehs_steel.wir	0.180		3/8 inch EHS 7 Strands Steel - Adapted from 1970's Publicly Available Data	
2	22	345.0	300.0	Maximum Operating	Max Sag RS	Left	212.000	drake_acsr.wir	0.554	3.158	795 kcmil 26/7 Strands DRAKE ACSR - Adapted from 1970's Publicly Available Data	

**Exhibit I-1a. Modeled electric and magnetic fields for the Transmission Project.**





**Exhibit I-1b. Modeled electric and magnetic fields for the Transmission Project.**



**Exhibit I-1c. Modeled electric and magnetic fields for the Transmission Project.**

## Literature Cited

- American National Standards Institute (ANSI). 2013. American National Standard – Quantities and Procedures for Description and Measurement of Environmental Sound – Part 3: Short-term Measurements with an Observer Present. Standards Secretariat, Acoustical Society of America. Melville, Tennessee.
- Bonneville Power Administration. 1994. *Electrical and Biological Effects of Transmission Lines: A Review*. DOE/BP 2938 December 1996 1M. Portland, Oregon.
- California Public Utilities. 2005. *Chapter 16: Corona and Induced Current Effects*. Available at: <https://ia.cpuc.ca.gov/Environment/info/esa/lakeview/PEA/16currenteffects.pdf>. Accessed May 2023.
- Crocker, M.J., and F.M. Kessler. 1982. *Noise and Noise Control*, Volume II. CRC Press, Inc., Boca Raton, Florida.
- Electric Power Research Institute. 1982. Extra high voltage tower geometries and line characteristics. In *Transmission Line Reference Book: 345 kV and Above*, Section 2.7. 2nd ed. Palo Alto, California.
- McDonald, J.D., ed. 2012. *Electric Power Substations Engineering*. Third edition. CRC Press, New York.
- National Institute of Environmental Health Sciences (NIEHS). 2002. *Electric and Magnetic Fields Associated with the Use of Electric Power*. Available at: [https://www.niehs.nih.gov/health/materials/electric\\_and\\_magnetic\\_fields\\_associated\\_with\\_the\\_use\\_of\\_electric\\_power\\_questions\\_and\\_answers\\_english\\_508.pdf](https://www.niehs.nih.gov/health/materials/electric_and_magnetic_fields_associated_with_the_use_of_electric_power_questions_and_answers_english_508.pdf). Accessed May 2023.
- U.S. Department of Health and Human Services. 2021. National Institutes of Health. National Institute of Deafness and Other Communication Disorders. *How is sound measured?* Available at: <https://www.noisyplanet.nidcd.nih.gov/have-you-heard/how-is-sound-measured>. Accessed May 2023.

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# EXHIBIT J. SPECIAL FACTORS

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As stated in the Arizona Corporation Commission Rules of Practice and Procedure R14-3-219:

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

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## Introduction

The Applicant conducted focused outreach activities to key landowners, agencies, and stakeholders, specifically for the Transmission Project. To solicit input from and answer questions for the broader community, the Applicant held an in-person open house in Willcox, Arizona. The Applicant hosted and maintained a website for the Transmission Project to provide the public with information about the Transmission Project.

This exhibit describes the public and agency outreach that the Applicant conducted for the Transmission Project and for the Cochise County special use permit (SUP).

## Briefings for Agency and Local Officials

The Applicant discussed the Transmission and Solar Projects with various public officials. In general, the purpose of the briefings was to provide information on the Transmission and Solar Projects, answer questions, and request feedback. These meetings enabled the Applicant to identify stakeholder issues, consider suggestions during the planning process, and relay information on developments in the Project.

As noted in Exhibit B, the Applicant has coordinated with representatives for Fort Huachuca, introducing the Solar Project in Q4 2022 and further corresponding in May and June 2023. The Applicant has corresponded with AGFD as described in Exhibit C. Torch Clean Energy (Torch) continues to coordinate with Cocheise County about the development overall, as part of the Solar Project's Special Use Permit process. Additionally, Torch is in regular communication with representatives of the Arizona State Land Department in reference to the Transmission Project's right-of-way application.

## Outreach Letter

The Applicant sent an outreach letter to key public agencies and stakeholders on June 6, 2023. The outreach letter described the Transmission Project and its development context, noted that a CEC application is under development, and invited attendance at an in-person open house in Willcox, Arizona. Additionally, the outreach letter included a link to the project website and direct contact information for one of the Transmission Project's developers with Torch Clean Energy. The outreach letter requested comments and questions on the Transmission and Solar Projects. A representative copy of the outreach letter is included as Exhibit J-1. The following contacts received an outreach letter:

- Arizona Electric Power Cooperative, Inc. c/o Arizona G&T Cooperatives
- Arizona Game and Fish Department, Project Evaluation Program



- Cochise County Planning and Zoning Department
- Dos S Land and Cattle LLC, owned by Jeanne and Scott Stratton
- Kenneth Martella
- Klump Ranches, LLC, managed by Matthew Klump
- Tucson Electric Power
- Wings Over Willcox

## Newspaper Advertisement

The Applicant purchased advertisements with the *Sierra Vista Herald*, a local newspaper of general circulation in the Study Area. The purpose of the newspaper advertisements was to announce the Transmission Project, provide notice of the in-person open house, and provide key contact information for the Project team. The advertisements were published in the *Sierra Vista Herald* on June 14 and June 16, 2023, prior to the in-person open house. A copy of the advertisement is included as Exhibit J-2.

## In-Person Open House

The Applicant hosted an in-person open house for the Transmission Project on June 19, 2023. The open house was held at the Elks Lodge (247 E Stewart Rd, Willcox, AZ 85643) 5:30 p.m. to 7:00 p.m. As noted above, key regulatory agencies and stakeholders (e.g., grazing allotment lease holders, Wings Over Willcox) were invited to the open house through a direct mailing; the broader community was notified of the open house through the newspaper advertisements.

The format of the meeting was an open house with information about the Transmission Project, and key members of the Transmission Project team were available to answer questions. The meeting format allowed community members to attend at their convenience and have direct communication with representatives from Torch Clean Energy, including the Transmission Project's lead developer. Copies of the information made available at the open house are included in Exhibit J-3. A sign-in sheet and comment cards were available for attendees. A copy of the sign-in sheet is included as Exhibit J-4; a blank comment card is included as Exhibit J-5. There were no individuals who attended the open house.

## Website

The Applicant created and maintained a dedicated website for the Transmission Project website ([cecwinchestertransmission.com](http://cecwinchestertransmission.com)). The website will be updated as new information becomes available. In general, the website included the following features:

- A description of the Transmission Project and map
- A description of the Certificate of Environmental Compatibility application and hearing process
- Information about the status of permitting and development for the Transmission and Solar Projects
- Information about public involvement for the Transmission Project, including event details for the in-person open house and direct contact information for a key developer of the Transmission Project
- Information about the benefits of the Transmission and Solar Projects

- Site selection factors for the Transmission Project
- Photorealistic visual simulations of the Transmission Project from key observation points (the same visual simulations included in Exhibit G)
- A comment submittal form

The website was designed so that comments submitted through the submittal form were directed to the Applicant as an email. The website was made live on June 4, 2023. A copy of the website is included as Exhibits J-6.

## **Dedicated Contact Information**

The Applicant included direct contact information (i.e., a business email and phone number) for a key developer of the Transmission Project in the outreach letter, newspaper advertisement, and website outlined above.

## **Cochise County Special Use Permit – Citizen Review**

As previously noted, the Solar Project received an SUP from Cochise County in May 2023. The SUP process with Cochise County Planning and Zoning Division included a “citizen review process” that involved sending an outreach letter to potentially affected landowners. The SUP application is focused on the Solar Project but notes the requirement for a generation tie transmission line (i.e., the Transmission Project). On March 24, 2023, Torch Clean Energy mailed notification letters to registered property owners of parcels within 0.25 mile of the Solar Project. A copy of the property owner notification letter is included as Exhibit J-7.

Leading up to the Planning and Zoning Commission hearing for the Solar Project, the Cochise County Planning and Zoning Division mailed a public notice to property owners within 0.25 miles of the Solar Project. Additionally, a legal notice was placed in the local newspaper on April 12 and public notice signs were posted near the Solar Project on April 21.

On May 31, 2023, Torch Clean Energy applied for a modification to its previously approved SUP. The modification would add an additional 650 acres to the Solar Project. On May 26, 2023, Torch Clean Energy mailed an outreach letter to registered property owners of parcels within 0.25 mile of the Solar Project notifying them of the proposed amendment. The May 26 SUP amendment outreach letter is included as Exhibit J-8. A public notice for the SUP modification hearing was published on June 16; public notice signs will be installed by June 28.

## **Public Comment**

Other than coordination with agencies and stakeholders described in Exhibit H and J (above), the Applicant has not received any public comments on the Transmission Project.

**Arizona G&T Cooperatives**  
**Attn: Eileen Brien**  
**1000 S. Hwy 80**  
**Benson, AZ 85602**

**Subject: Notice of Proposed Winchester Transmission Project**

Dear Eileen,

I hope this letter finds you well. I am writing to inform you about the proposed Winchester Transmission Project that is located within a portion of your ASLD Grazing Lease # 5-119068. The Transmission Project is an approximately 14.5-mile, 345 kilovolt generation intertie transmission line that would connect the planned Winchester solar generation and battery storage facilities (Solar Project) to the regional electric grid at the existing Winchester Substation. The proposed route for the Transmission Project would predominately run east-to-west, starting approximately 7 miles west of Willcox and about 2 miles north of the US 191 exit on Interstate 10, in unincorporated Cochise County, Arizona. Please find the attached concept plan that depicts the location and key components of the Project.

The Solar Project was granted approval for a special use permit from the Cochise County Planning and Zoning Commission on May 10, 2023. Torch plans to file an application for a Certificate of Environmental Compatibility (CEC) and present the Transmission Project at a hearing before the Chairman of the Arizona Power Plant and Line Siting Committee (Committee). The application and hearing testimony will be reviewed by the full Committee, and if approved by the Committee, the CEC will then be presented to the Arizona Corporation Commission for their consideration and final decision.

Torch invites you and your team to attend an open house meeting to learn more about the Transmission Project and its benefits on June 19, 2023. You will be able to speak one-on-one with team members, ask questions, and provide input. The meeting will be held at the following location, date, and time:

**Elks Lodge**  
**247 E Stewart Rd, Willcox, AZ 85643**  
**June 19, 2023**  
**5:30 – 7:00 PM**

More information about the Project can be found on the Project website: [cecwinchestertransmission.com](http://cecwinchestertransmission.com). Torch welcomes public comment throughout the CEC process. Please feel reach out with any questions via the form on the website or at (405) 570-3807 or [rtaylor@torchcleanenergy.com](mailto:rtaylor@torchcleanenergy.com).

Respectfully,

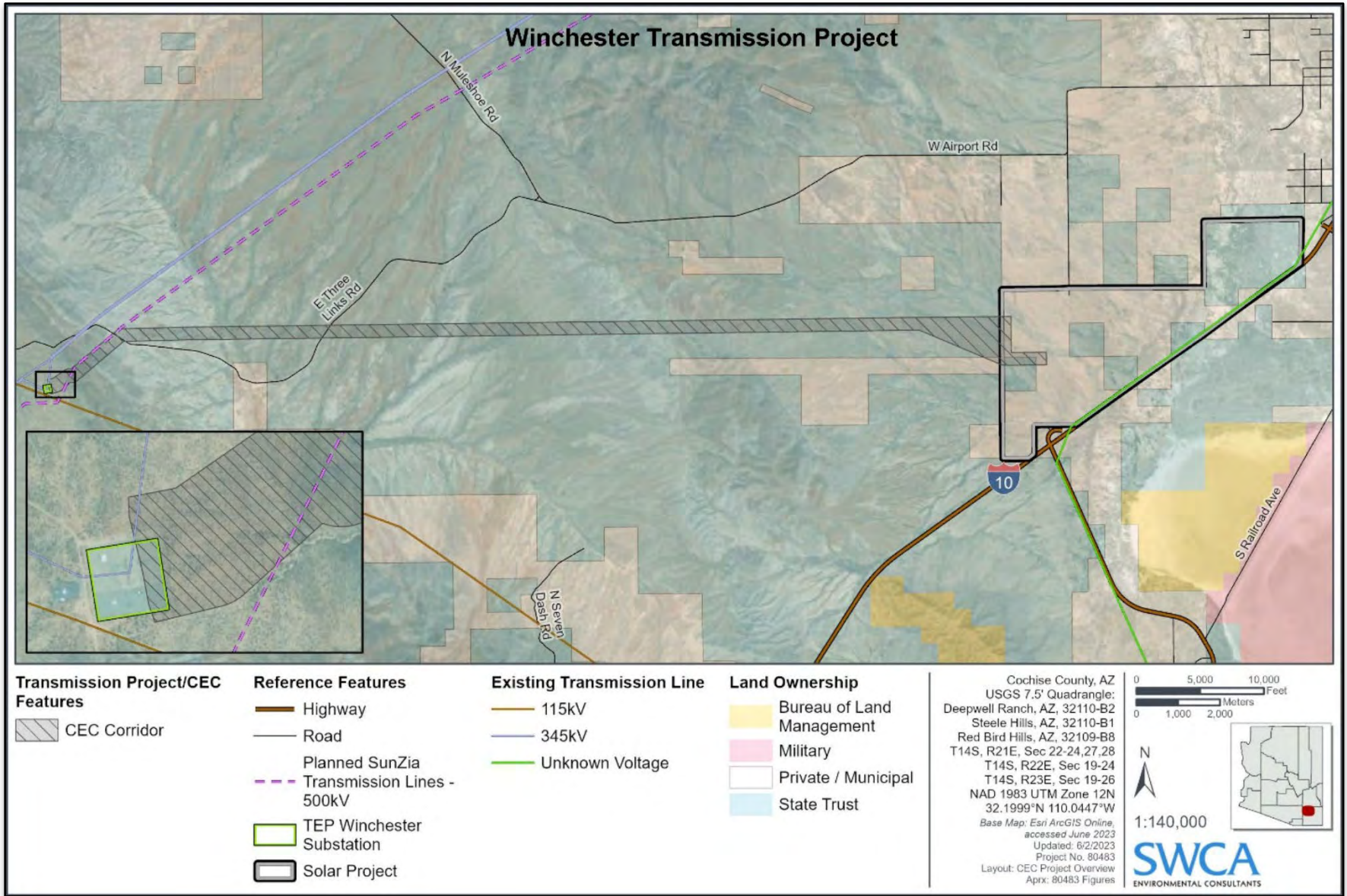


Rachael Taylor  
 Project Developer  
 Torch Clean Energy

929 PEARL STREET, SUITE 300, BOULDER, CO 80302

**Exhibit J-1a. Representative outreach letter and open house invitation, June 6, 2023.**





**Exhibit J-1b. Representative outreach letter and open house invitation, June 6, 2023.**

**PUBLIC NOTICE**

Torch Clean Energy (Torch) invites you to learn about and provide input on its proposed Winchester Transmission Project (Transmission Project). The Transmission Project involves an approximately 15.2-mile, 345 kilovolt (kV) generation intertie transmission line that would connect the planned Winchester Energy Facility to the regional electric grid at the existing Tucson Electric Power Winchester Substation. The proposed route for the Transmission Project would predominately run east-to-west, starting approximately 7 miles west of Willcox and 2 miles north of the US 191 exit on Interstate 10, in unincorporated Cochise County, Arizona.

Torch plans to file an application for a Certificate of Environmental Compatibility (CEC) and present the Project at a hearing before the Chairman of the Arizona Power Plant and Line Siting Committee (Committee). If approved by the Committee, the CEC will then be presented to the Arizona Corporation Commission for their consideration and final decision.

Torch invites you to attend an open house meeting to learn more about the Project and its benefits on June 19, 2023. You will be able to speak one-on-one with team members, ask questions, and provide input. The meeting will be held at the following location, date, and time:

**Elks Lodge**

247 E Stewart Rd, Willcox, AZ  
85643

June 19, 2023

5:30 PM – 7:00 PM

Additional information about the Transmission Project is available on the Project website: [cecwinchestertransmission.com](http://cecwinchestertransmission.com). Torch welcomes public comment throughout the CEC process. Questions and comments can be submitted using one of the options listed below:

Email :  
[rtaylor@torchcleanenergy.com](mailto:rtaylor@torchcleanenergy.com)  
Telephone :  
(405) 570-3807  
Mail :  
[rtaylor@torchcleanenergy.com](mailto:rtaylor@torchcleanenergy.com)  
**Publish: June 14 and 16, 2023**

**Exhibit J-2. Open house advertisement, *Sierra Vista Herald*, June 14 and 16, 2023.**





Exhibit J-3a. In-person open house materials.

**TORCH CLEAN ENERGY  
DEVELOPING RENEWABLE PROJECTS SINCE 2008**

**Founded in 2008, Torch is a privately-held renewable energy development company with extensive experience developing, permitting, designing, and building solar and wind projects.**

- To date, Torch has completed 18 projects that are currently operating or under construction, representing over 800 MW of generating capacity. Torch maintains a development portfolio of over 5 GW of generating capacity.
- As a company, we pride ourselves on maintaining outstanding stakeholder relationships in the communities in which we operate.
- Torch has specific experience developing projects in Arizona and was the developer for the Red Horse Wind and Solar Facility also located in Cochise County, Arizona.







Exhibit J-3b. In-person open house materials.

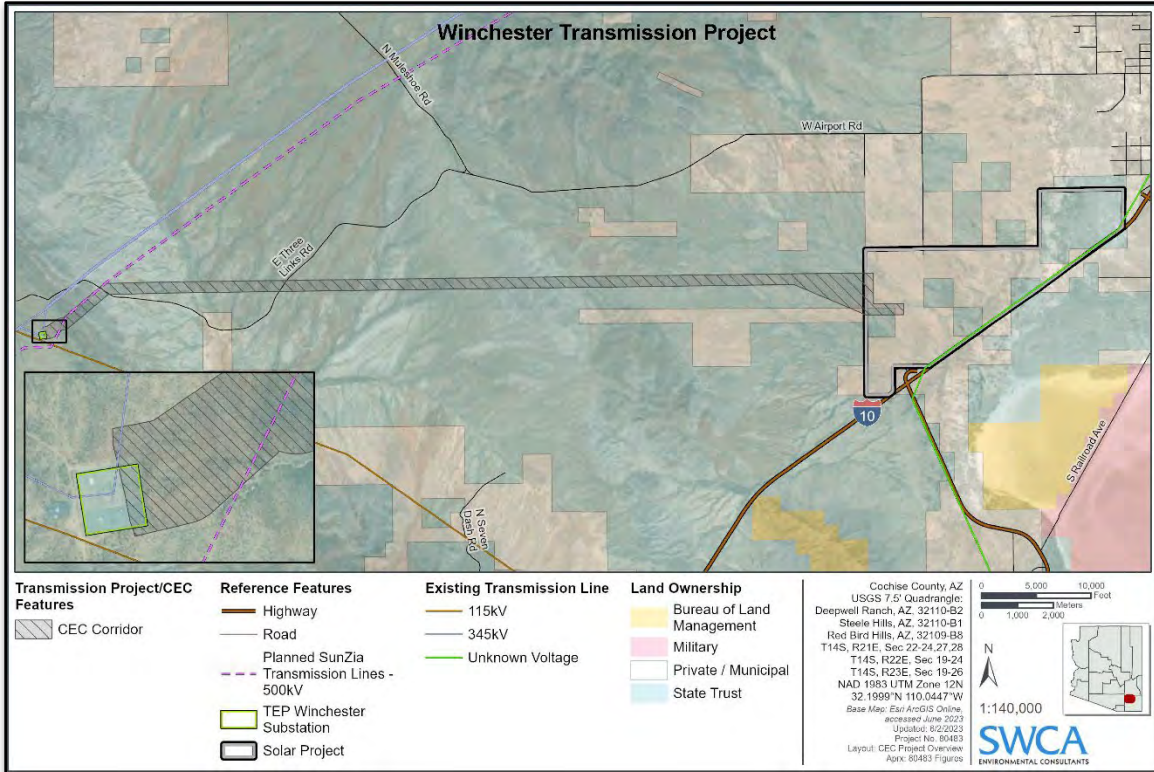


Exhibit J-3c. In-person open house materials.

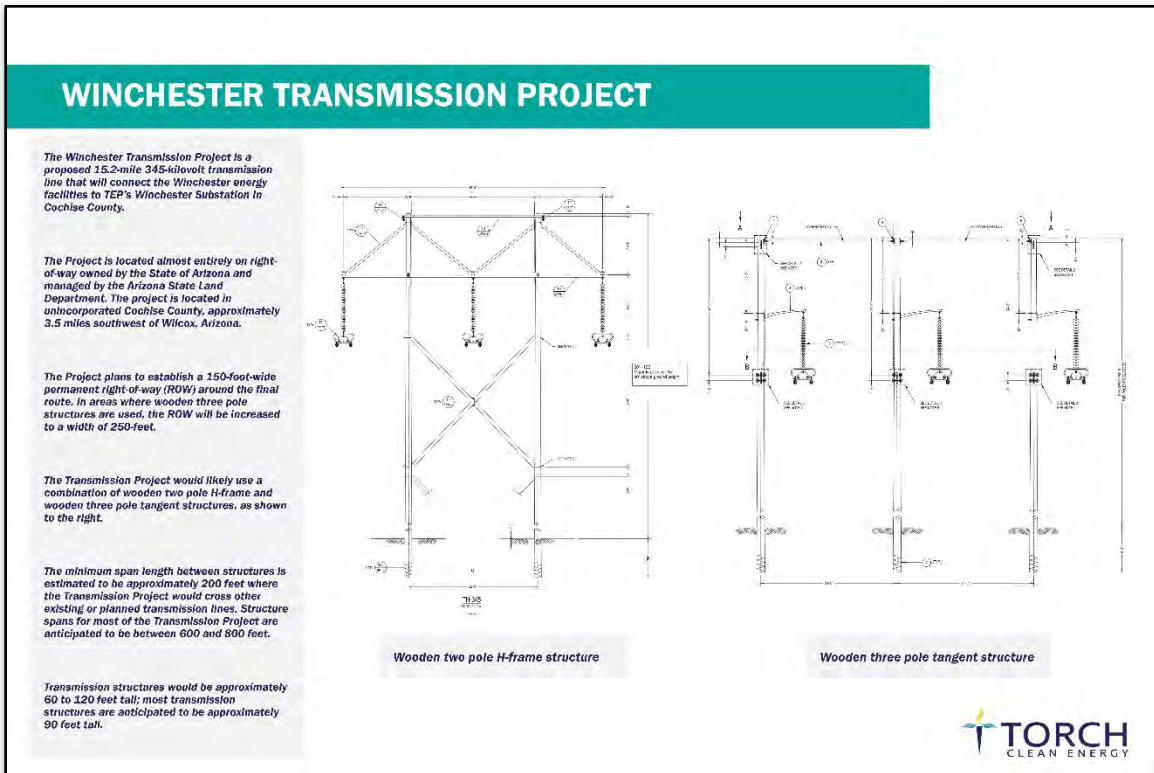


Exhibit J-3d. In-person open house materials.



## CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY

- Winchester Transmission is requesting a Certificate of Environmental Compatibility (CEC) for a 345 kV overhead transmission line. The CEC is a state permit required for new transmission lines that operate at or above 115 kV.
- CEC application will be heard by the Chairman of the Arizona Power Plant and Transmission Line Siting Committee (Siting Committee) at a public hearing.
- CEC application will then be reviewed by the full Siting Committee at a public hearing.
- The Siting Committee then recommends to the Arizona Corporation Commission (ACC) whether to approve the CEC, approve it with conditions, or deny it. Subsequently, the ACC makes a final determination on the CEC application.



Exhibit J-3e. In-person open house materials.

## WINCHESTER ENERGY FACILITIES

***The Winchester Transmission Project will interconnect the Winchester energy facilities to the regional electric grid. The Winchester energy facilities will generate and store up to 1 gigawatt of solar photovoltaic electricity. The facilities will be developed in phases and will be comprised of the following:***

- **Solar photovoltaic generation facilities (“Solar”)**
- **Battery Energy Storage Systems (“BESS”)**
- **Project substations**

On May 10<sup>th</sup>, 2023, the Cochise County Planning and Zoning Commission granted special use approval for approximately 3,584 acres of the Solar and BESS Project.

At the July 12<sup>th</sup>, 2023 Planning and Zoning meeting, Torch will be requesting an amendment to the Special Use Permit to include an additional ~645 acres for Solar and BESS Project.

The Winchester energy facilities will conform to all applicable federal, state, and local statutes, regulations, and enforceable plans.



Exhibit J-3f. In-person open house materials.

**Existing Condition** KOP 1: View near Inde Motorsports Ranch on Airport/Cascabel Road looking southeast

**Simulated Condition** KOP 1: View near Inde Motorsports Ranch on Airport/Cascabel Road looking southeast

**Winchester 345kV Gen-Tie Project | May 2023**  
**Simulation from KOP 1:** View near Inde Motorsports Ranch on Airport/Cascabel Road

**TORCH CLEAN ENERGY** **SWCA ENVIRONMENTAL CONSULTANTS**

Exhibit J-3g. In-person open house materials.

**Existing Condition** KOP 2: View from Airport/Cascabel Road looking south

**Simulated Condition** KOP 2: View from Airport/Cascabel Road looking south

**Winchester 345kV Gen-Tie Project | May 2023**  
**Simulation from KOP 2:** View from Airport/Cascabel Road

**TORCH CLEAN ENERGY** **SWCA ENVIRONMENTAL CONSULTANTS**

Exhibit J-3h. In-person open house materials.



**Existing Condition** KOP 3: View from residence at E Three Links/Cascabel Road looking north

**Simulated Condition** KOP 3: View from residence at E Three Links/Cascabel Road looking north

**Winchester 345kV Gen-Tie Project | May 2023**  
Simulation from KOP 3: View from residence at E Three Links/Cascabel Road

**Viewing Location**

**Typical 345kV Structure**

Photo Date and Time: January 24, 2023, 11:00 am  
View Location: Approximate distance to nearest new structure from photo location is 0.7 miles.  
Simulations were prepared using information provided by Torch Clean Energy. Structure locations, colors, and heights may be different based on final engineering and design.

**TORCH CLEAN ENERGY** **SWCA ENVIRONMENTAL CONSULTANTS**

Exhibit J-3i. In-person open house materials.

**Existing Condition** KOP 4: View from E Three Links/Cascabel Road looking southeast

**Simulated Condition** KOP 4: View from E Three Links/Cascabel Road looking southeast

**Winchester 345kV Gen-Tie Project | May 2023**  
Simulation from KOP 4: View from E Three Links/Cascabel Road

**Viewing Location**

**Typical 345kV Structures**

Photo Date and Time: January 24, 2023, 10:35 am  
View Location: Approximate distance to nearest new structure from photo location is 3.2 miles.  
Simulations were prepared using information provided by Torch Clean Energy. Structure locations, colors, and heights may be different based on final engineering and design.

**TORCH CLEAN ENERGY** **SWCA ENVIRONMENTAL CONSULTANTS**

Exhibit J-3j. In-person open house materials.



**Winchester Transmission Project**  
**Open House Sign-In Sheet**  
June 19, 2023

Name	Email Address	Telephone	Want to receive project updates?

**Exhibit J-4. In-person open house sign-in sheet.**

## Comment Form

Winchester Transmission

Public Open House

June 19, 2023

5:30 PM – 7:00 PM

Name: \_\_\_\_\_

Affiliation: \_\_\_\_\_

Email: \_\_\_\_\_

Phone: \_\_\_\_\_

Address: \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Comment: \_\_\_\_\_

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Exhibit J-5. In-person comment card.

# WINCHESTER TRANSMISSION PROJECT

THIS WEBSITE PROVIDES INFORMATION AND UPDATES ON THE DEVELOPMENT OF THE WINCHESTER TRANSMISSION PROJECT. THE PROPOSED TRANSMISSION PROJECT WILL INTERCONNECT THE WINCHESTER ENERGY FACILITY TO THE WINCHESTER SUBSTATION IN COCHISE COUNTY, AZ.

## PROJECT SUMMARY

The Winchester Transmission Project is a proposed 345kV transmission line that will connect the Winchester energy facilities to the Tucson Electric Power's Winchester substation in Cochise County. The proposed transmission line can carry up to 1 gigawatt of power and will initially be used to connect 160 megawatts of solar photovoltaic electricity. The proposed 345-kilovolt transmission line is approximately 15.2 miles long and will run from the Project substation to the Winchester Substation. The Winchester Transmission Project will be located almost entirely on right-of-way owned by the State of Arizona and managed by the Arizona State Land Department.

Winchester Transmission, LLC is the applicant for, and will be the owner of, the Certificate of Environmental Compatibility. Winchester Transmission, LLC is a wholly owned subsidiary of Torch Clean Energy, LLC, a privately held renewable energy company with extensive experience developing, permitting, designing, and building renewable energy and battery storage projects. To date, Torch has completed 18 projects that are currently operating or under construction, representing over 5GW of generating capacity. Included in Torch's portfolio of developed projects is the Red Horse Wind and Solar facility in Cochise County.

The following sections provide additional information about the Project, how to reach the Torch Project team, and information on an upcoming open house in Willcox, AZ.

### Contact Us

929 Pearl St, Suite 300 Boulder, CO 80302

[rtaylor@torchcleanenergy.com](mailto:rtaylor@torchcleanenergy.com)  
[\(405\) 570-3807](tel:(405)570-3807)

### Exhibit J-6a. Transmission Project website.

# PROJECT MAP

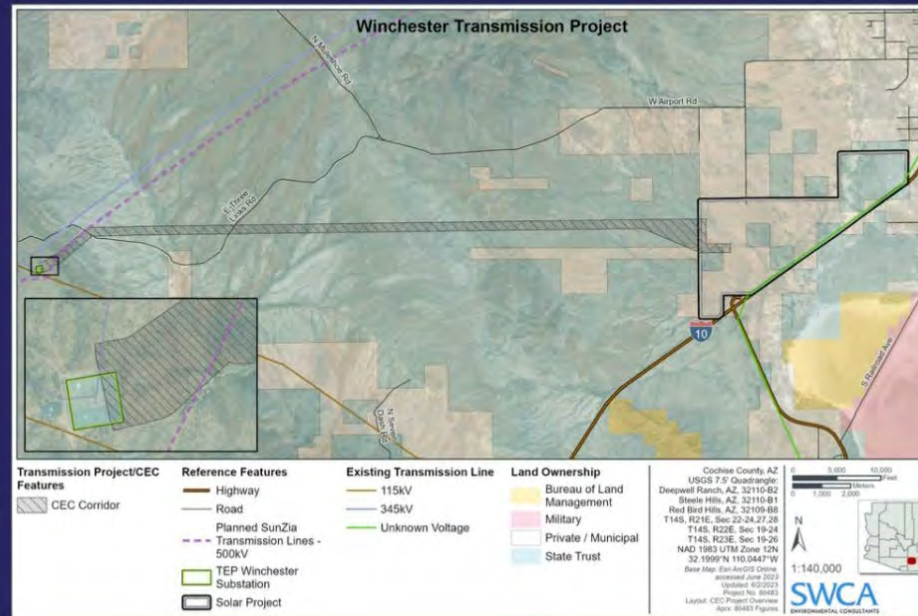


Exhibit J-6b. Transmission Project website.

## CERTIFICATE OF COMPATIBILITY

A Certificate of Environmental Compatibility (CEC) from the Arizona Corporation Commission (ACC) and Arizona Power Plant and Transmission Line Siting Committee (Committee) is required to allow for construction and operation of the Transmission Project. Winchester Transmission, LLC plans to file an application for a Certificate of Environmental Compatibility (CEC) with the ACC requesting approval to construct the Transmission Project in early July 2023 and is scheduled for a hearing before the Committee Chairman on August 15, 2023. During the hearing(s), the Chairman will consider the matters contained in the application. The full Committee will vote on whether to recommend that the ACC approve, approve with conditions, or reject the CEC. The ACC will make a final determination on the CEC during an open meeting.

This website will be continuously updated to reflect the most recent information regarding the Transmission Project and the public will be invited to attend hearings in-person, online, or via telephone. At least 24 hours in advance of the hearing, information including virtual participation links and phone numbers will be posted on this website. If the Committee conducts a tour of the gen-tie route, the route tour and a map will be posted here and on the ACC website. Members of the public may participate in the tour.

**Exhibit J-6c. Transmission Project website.**



## STATUS OF FACILITY

On May 10th, 2023, the Cochise County Planning and Zoning Commission conditionally approved a Special Use Permit (SUP) to allow construction and operation of the solar generation and battery energy storage facility in conformance with the Cochise County Zoning Ordinance. Torch is currently working with ASLD on the right-of-way for the Gen-Tie.

**Exhibit J-6d. Transmission Project website.**

# PUBLIC INVOLVEMENT

As part of the public outreach process for the Transmission Project, Torch will hold an open house at the Elks Lodge to present information about the project, answer questions, and receive feedback. The meeting will be held at the following location, date, and time.

**Elks Lodge**  
**247 E Stewart Rd, Willcox, AZ 85643**  
**June 19, 2023**  
**5:30 – 7:00 PM**

We welcome your input and questions. You may submit feedback or questions directly through this website (at the bottom of the page), by email at [rtaylor@torchcleanenergy.com](mailto:rtaylor@torchcleanenergy.com), by voicemail at (405) 570-3807, or by mail to Rachael Taylor, Torch Clean Energy, LLC, 929 Pearl St, Suite 300 Boulder, CO 80302. The Project team will promptly respond. We look forward to hearing from you.

EMAIL YOUR  
COMMENTS

LEAVE A VOICEMAIL

You may also submit your comments via mail to: Rachael Taylor, Torch Clean Energy, LLC, 929 Pearl St, Suite 300 Boulder, CO 80302

**THE PROJECT TEAM WILL PROMPTLY RESPOND. WE LOOK FORWARD TO HEARING FROM YOU.**

**Exhibit J-6e. Transmission Project website.**

## PROJECT BENEFITS

- ALLOWS FOR NEW RENEWABLE ENERGY TO BE INTERCONNECTED TO THE GRID
- INCREASED LOCAL AND STATE TAX REVENUE
- EMPLOYMENT OPPORTUNITY

## SITE SELECTION FACTORS

Torch performed a thorough site selection process for the Project. Factors which were considered included:

- Environmental Considerations – site studies were performed to avoid or mitigate impacts to sensitive resources
- Topography – the site is relatively flat, allowing minimal ground disturbance
- Technical Feasibility – the Project is located in proximity to existing electrical infrastructure, including the Winchester Substation

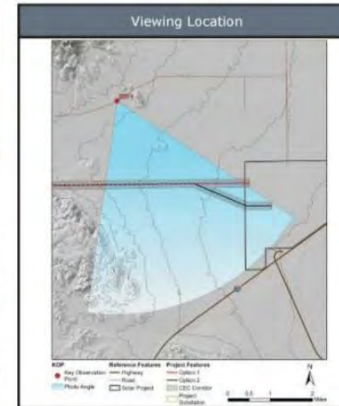
**Exhibit J-6f. Transmission Project website.**

# VISUAL SIMULATIONS



**Existing Condition**

KOP 1: View near Inde Motorsports Ranch on Airport/Cascabel Road looking southeast



**Simulated Condition**

KOP 1: View near Inde Motorsports Ranch on Airport/Cascabel Road looking southeast

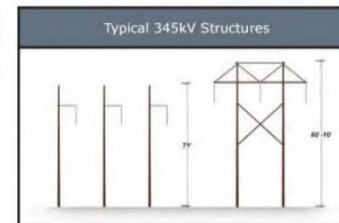


Photo Date and Time: April 27, 2023, 1:25 pm  
 View Location: Approximate distance to nearest new structure from photo location is 2 miles.  
 Simulations were prepared using information provided by Torch Clean Energy. Structure locations, colors, and heights may be different based on final engineering and design.

**Winchester 345kV Gen-Tie Project | May 2023**  
 Simulation from KOP 1: View near Inde Motorsports Ranch on Airport/Cascabel Road



Exhibit J-6g. Transmission Project website.





**Existing Condition**

KOP 3: View from residence at E Three Links/Cascabel Road looking north



**Simulated Condition**

KOP 3: View from residence at E Three Links/Cascabel Road looking north

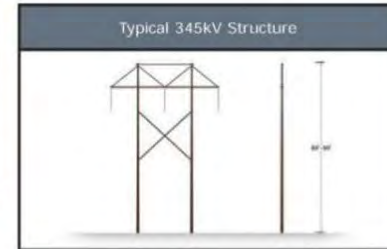
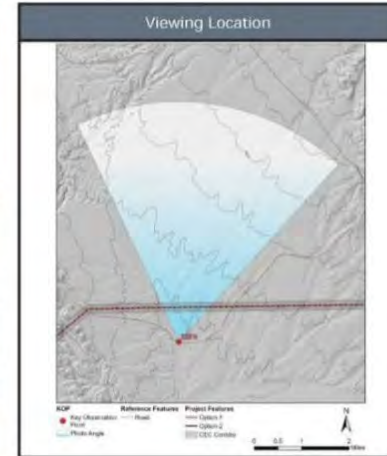


Photo Date and Time: January 24, 2023, 11:00 am  
 View Location: Approximate distance to nearest new structure from photo location is 0.7 miles.  
 Simulations were prepared using information provided by Torch Clean Energy. Structure locations, colors, and heights may be different based on final engineering and design.

**Winchester 345kV Gen-Tie Project | May 2023**  
**Simulation from KOP 3: View from residence at E Three Links/Cascabel Road**



**Exhibit J-6h. Transmission Project website.**





**Existing Condition**

KOP 4: View from E Three Links/Cascabel Road looking southeast



**Simulated Condition**

KOP 4: View from E Three Links/Cascabel Road looking southeast

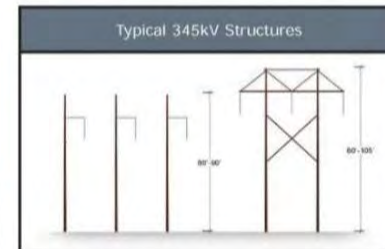
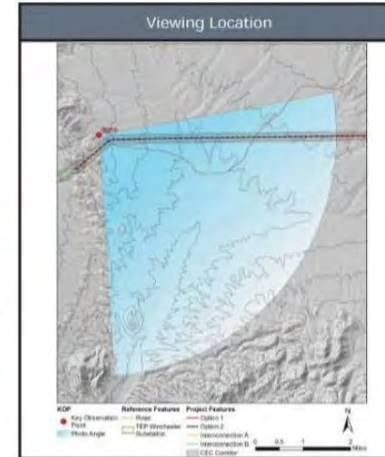


Photo Date and Time: January 24, 2023, 10:35 am

View Location: Approximate distance to nearest new structure from photo location is 0.2 miles.

Simulations were prepared using information provided by Torch Clean Energy. Structure locations, colors, and heights may be different based on final engineering and design.

**Winchester 345kV Gen-Tie Project | May 2023**  
**Simulation from KOP 4: View from E Three Links/Cascabel Road**



**Exhibit J-6i. Transmission Project website.**

# LEAVE A COMMENT

Name (required)

First Name

Last Name

Email (required)

Subject (required)

Message (required)

Submit

## TORCH CLEAN ENERGY, LLC

929 Pearl St, Suite 300 Boulder,  
CO 80302

(405) 570-3807  
[rtaylor@torchcleanenergy.com](mailto:rtaylor@torchcleanenergy.com)

Exhibit J-6j. Transmission Project website.



March 24, 2023

Dear Neighbors,

My name is Sara Born and I represent the Winchester Solar Project. The Winchester Solar Project is a newly proposed solar generation project that will be located primarily on private land in Cochise County north of Highway 10 near the intersection of Highway 10 and U.S. 191. The project is being developed by Torch Clean Energy, a renewable energy company with extensive experience developing, permitting, designing, and building renewable energy and battery storage projects. Attached is a concept plan that shows the general location of the proposed site.

The project is expected to initially generate 160 MW of electricity during the peak of the day using photovoltaic panels and will have a battery component to allow the project to provide energy when the sun isn't shining. The facility will consist of rows of solar modules mounted to racking equipment that allows the panel to track the sun, associated electrical equipment, and a battery energy storage system, all surrounded by wildlife-friendly fencing. The project will use minimal water and emit minimal noise or light during operations and provide an important tax base to the County. Construction is expected to start on the project in 2024 and be completed in 2025.

We are sending you this letter to notify you of the project, to answer any questions you might have, and seek your feedback. Should you have any questions or concerns, I encourage you to contact me directly at the phone number or email below.

Respectfully,

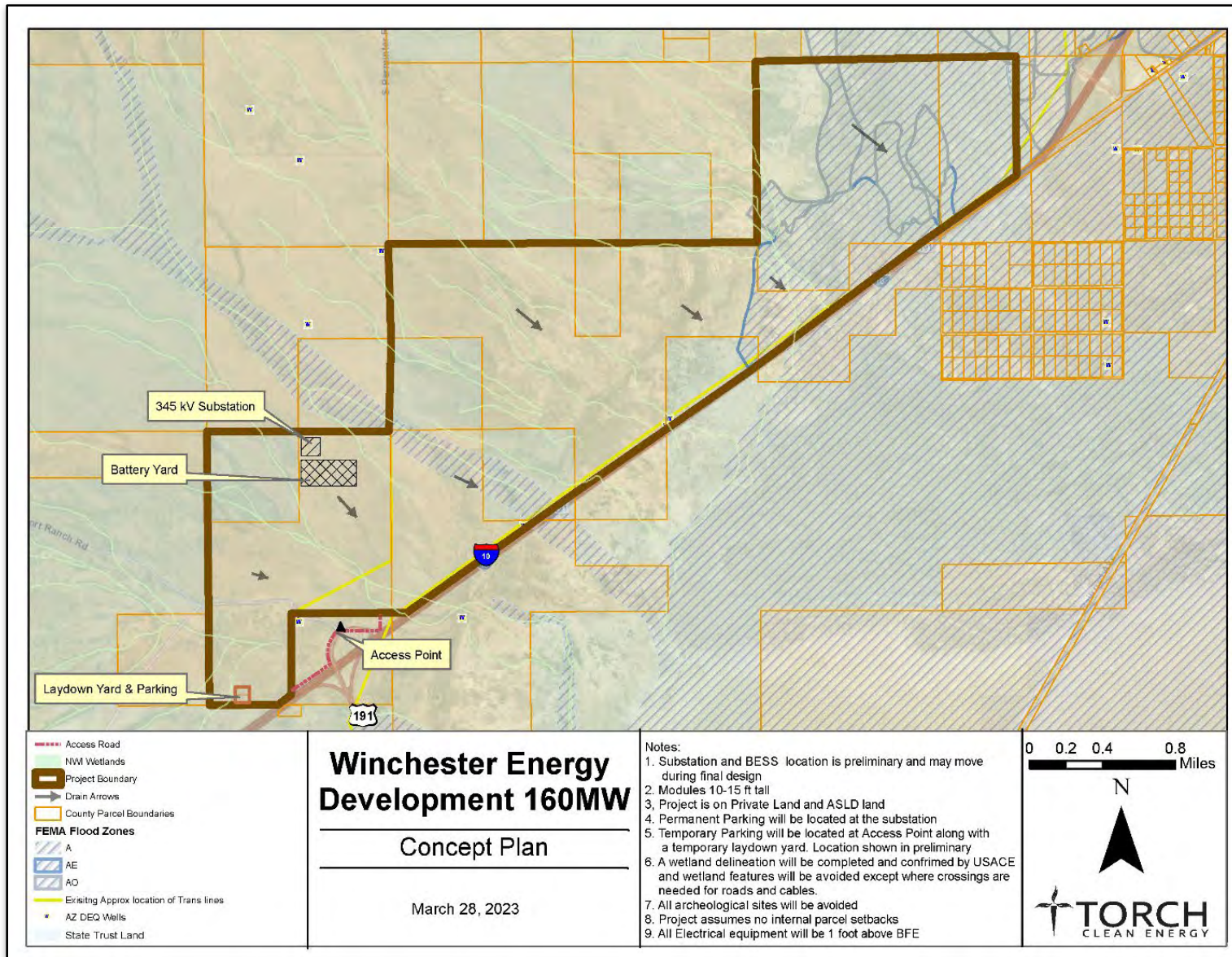
A handwritten signature in black ink that reads "Sara Born".

Sara Born  
Director of Project Development  
Torch Clean Energy  
sborn@torchcleanenergy.com  
(303) 775-1773

929 PEARL STREET, SUITE 300, BOULDER, CO 80302

**Exhibit J-7a. SUP citizen review process property owner notification letter.**





**Exhibit J-7b. SUP citizen review process property owner notification letter (continued).**



May 26, 2023

Dear Neighbors,

I am writing to notify you of a proposed amendment to the Special Use Permit (Docket SU-23-11) for the Winchester Solar Project. As you may know, at the Cochise County Planning and Zoning Commission meeting on May 10th, 2023, the Project was conditionally approved to construct, operate, and maintain a proposed Solar Energy Power Plant and Battery Energy Storage System (BESS) Project on 3,584 acres of land in Cochise County. The purpose for the request for an amended permit is to include an additional two parcels (209-86-001B and 209-86-001D) within the Project, totaling 651.21 acres. This area is depicted with a red boundary in the attached concept plan.

Please do not hesitate to contact me with any questions or concerns at the phone number or email address below.

Respectfully,

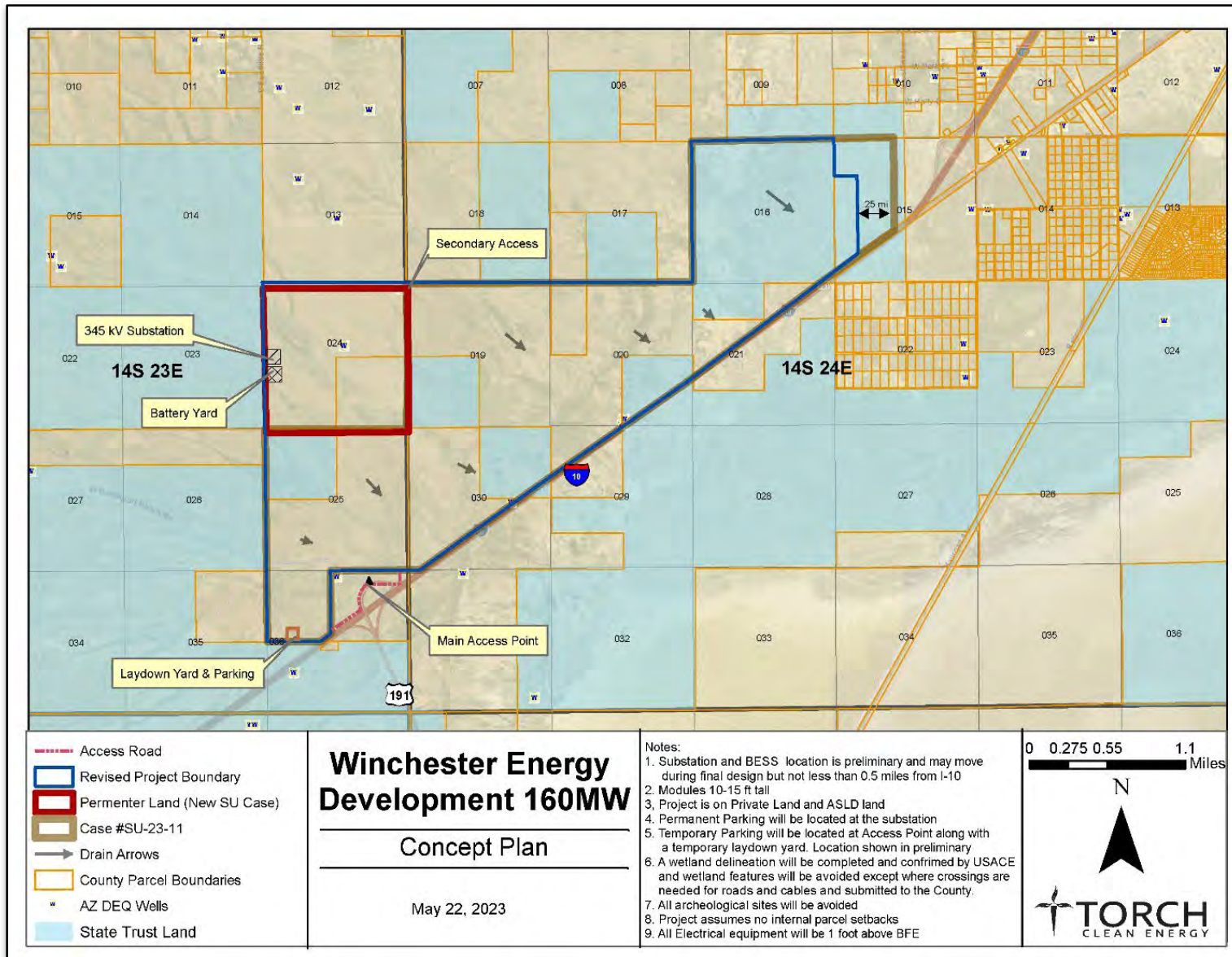
A handwritten signature in black ink that reads "Sara Born".

Sara Born  
Director of Project Development  
Torch Clean Energy  
sborn@torchcleanenergy.com  
(303) 775-1773

929 PEARL STREET, SUITE 300, BOULDER, CO 80302

**Exhibit J-8a. SUP modification citizen review process property owner letter.**





**Exhibit J-8b. SUP modification citizen review process property owner letter (continued).**

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