

# Corona Environmental Report – 2022 Corona Generation Supplement



**Ancho Wind LLC, Cowboy Mesa LLC, Gallinas Mountain Wind LLC, Mesa Canyons Wind, LLC, Pattern SC Holdings LLC, and Viento Loco LLC  
(the “Corona Wind Companies”)**

**Corona Environmental Report – 2022 Corona Generation Supplement  
Project No. 131336**

**7/12/2022**

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prepared for

**Ancho Wind LLC, Cowboy Mesa LLC, Gallinas  
Mountain Wind LLC, Mesa Canyons Wind, LLC,  
Pattern SC Holdings LLC, and Viento Loco LLC (the  
“Corona Wind Companies”)**

**Corona Environmental Report – 2022 Corona Generation  
Supplement  
New Mexico**

**Project No. 131336**

**7/12/2022**

prepared by

**Burns & McDonnell Engineering Company, Inc.  
Houston, Texas**

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## LIST OF ABBREVIATIONS

<b><u>Abbreviation</u></b>	<b><u>Term/Phrase/Name</u></b>
2021 Corona Wind Update	2021 Corona Generation Expansion and 2021 Revised Corona Gen-Tie System
2022 Corona Generation Expansion	Wind generation land proposed in this Environmental Report as an addition to wind generation land previously approved under Commission Case No. 21-00281-UT (2021 Corona Generation Expansion)
AC	alternating current
ACSR	aluminum conductor steel reinforced
ACSS	aluminum conductor steel supported
APLIC	Avian Power Line Interaction Committee
BCI	Bat Conservation International
BGEPA	Bald and Golden Eagle Protection Act
BIA	Bureau of Indian Affairs
BISON-M	Biota Information System
BLM	U.S. Bureau of Land Management
BLS-SW	Bureau of Labor Statistics, Southwest Information Office
BMPs	Best Management Practices
Burns & McDonnell	Burns & McDonnell Engineering Company, Inc.
CLUP	Comprehensive Land Use Plan
CO	Carbon monoxide
Commission	New Mexico Public Regulation Commission
Corona Wind Companies	Ancho Wind LLC, Cowboy Mesa LLC, Gallinas Mountain Wind LLC, Mesa Canyons Wind, LLC, Pattern SC Holdings LLC, and Viento Loco LLC
Corona Wind Project	Overall wind generation land and generation tie-in transmission system (the “Corona Gen-Tie System”), as approved in Commission Case Nos. 18-00065-UT, 20-0008-UT, and 21-00281-UT, and submitted with this Environmental Report
dBA	A-weighted decibels

<b><u>Abbreviation</u></b>	<b><u>Term/Phrase/Name</u></b>
DNH	Determination of No Hazard
ECOS	Environmental Conservation Online Service
EPA	U.S. Environmental Protection Agency
ER	Environmental Report
ESA	Endangered Species Act
FAA	Federal Aviation Administration
FCC	Federal Communications Commission
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Map
FSA	Farm Service Agency
ft	feet
GAP	Gap Analysis Program
GLO	General Land Office
GRT	Gross Receipts Tax
I	interstate
IPaC	Information for Planning and Consultation
IRBs	Industrial Revenue Bonds
kcml	Thousand Circular Mil
kV	kilovolt
LM	land mobile
m	meters

<b><u>Abbreviation</u></b>	<b><u>Term/Phrase/Name</u></b>
MBTA	Migratory Bird Treaty Act
MRLC	Multi-Resolution Land Characteristics Consortium
MW	megawatt
NAIP	National Agriculture Imagery Program
NASS	National Agricultural Statistics Service
NESC	National Electrical Safety Code
NHD	National Hydrography Dataset
NLCD	National Land Cover Database
NM CHAT	New Mexico Crucial Habitat Assessment Tool
NMCRIS	New Mexico Cultural Resource Information System
NMDGF	New Mexico Department of Game and Fish
NMDOT	New Mexico Department of Transportation
NMED-AQB	New Mexico Environment Department Air Quality Bureau
NMED-SWQB	New Mexico Environment Department Surface Water Quality Bureau
NM MMD	New Mexico Minerals and Mining Division
NM OCD	New Mexico Oil Conservation Division
NMSA	New Mexico Statutes Annotated
NO <sub>x</sub>	nitrogen oxide
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NWI	National Wetlands Inventory

<b><u>Abbreviation</u></b>	<b><u>Term/Phrase/Name</u></b>
NWP	Nationwide Permit
O&M	operations and maintenance
OHWM	ordinary high-water mark
OPGW	optic ground wire
PILOTs	provide payments in-lieu of taxes
PLJV	Playa Lakes Joint Venture
PLSS	Public Land Survey System
PM	particulate matter
PPAs	Power Purchase Agreements
Project	Corona Wind Project, including phases both proposed and previously approved
RETA	Renewable Energy Transmission Authority
ROW	right-of-way
SGP CHAT	Southern Great Plains Crucial Habitat Assessment Tool
SLO	State Land Office
SPCC	Spill Prevention, Containment, and Countermeasures Plan
SPS	Special Protection System
SSURGO	Soil Survey Geographic
Staff	Commission Staff
SO <sub>2</sub>	sulfur dioxide
SWCD	Soil and Water Conservation District
SWPPP	Stormwater Pollution Prevention Plan
USDA	U.S. Department of Agriculture

<b><u>Abbreviation</u></b>	<b><u>Term/Phrase/Name</u></b>
UDP	Unanticipated Discovery Protocol
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VOCs	volatile organic compounds

## **1.0 SUMMARY**

Pattern Energy and its affiliates (Ancho Wind LLC, Cowboy Mesa LLC, Gallinas Mountain Wind LLC, Mesa Canyons Wind, LLC, Pattern SC Holdings LLC, and Viento Loco LLC; collectively the “Corona Wind Companies”) are proposing to construct and operate up to 2,650 megawatts (MW) of new wind energy facilities and associated high-voltage transmission lines, as part of the Corona Wind Project (the “Project”) and the Mesa Canyons Wind Project, located in Lincoln and Torrance Counties. This supplemental report (the “2022 Corona Generation Supplement”) to the 2021 Corona Wind Update Environmental Report (ER) addresses wind generation land proposed as an addition (the “2022 Corona Generation Expansion”) to wind generation land previously approved for generation location control by the New Mexico Public Regulation Commission (Commission) under Commission Case No. 21-00281-UT.

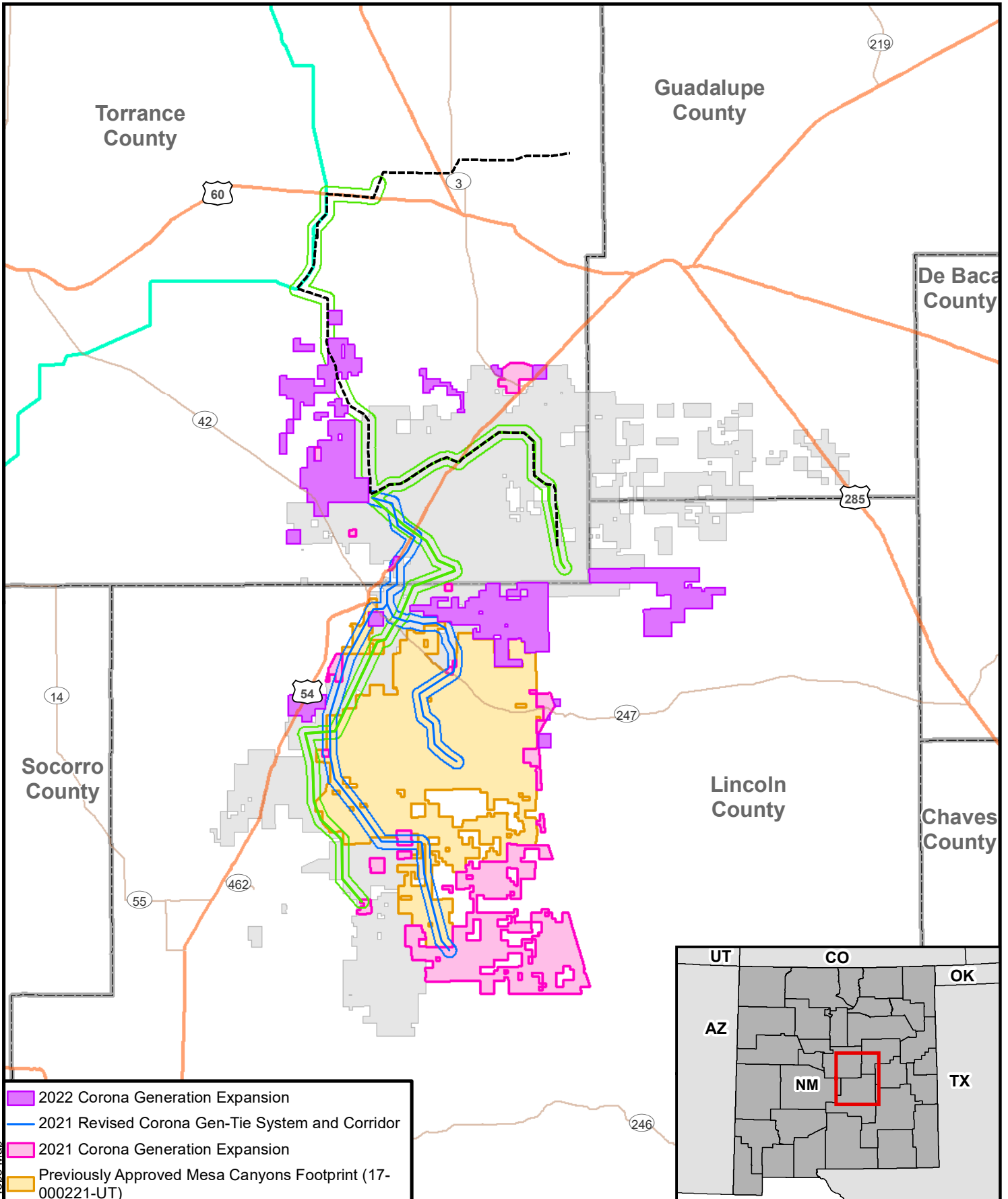
### **1.1 Background**

The Commission has previously provided location control approval of a total of 3,200 MW of wind generation for projects owned by the Corona Wind Companies in Lincoln and Torrance Counties in Case Nos. 17-00221-UT, 18-00065-UT, 20-0008-UT, and 21-00281-UT, as well as a large generation tie-in transmission system (the “Corona Gen-Tie System”), which was approved in Case Nos. 18-00065-UT, 20-0008-UT, and 21-00281-UT. The footprint of these wind generation areas and gen-tie systems is shown on Figure 1-1.

Since the time of these approvals, portions of the wind generation and gen-tie system approved in 2018 and 2020 have commenced commercial operations. These wind project areas are comprised of the Duran Mesa, Red Cloud Wind, and Tecolote Wind Projects and associated portions of the approved Corona Gen-Tie System (together with the Clines Corners Wind Farm and the Western Spirit Wind Projects). These three projects will be interconnecting to the Western Spirit Transmission Project in Torrance County and collectively represent 750 MW of wind generation and approximately 30 miles of the approved gen-tie system.

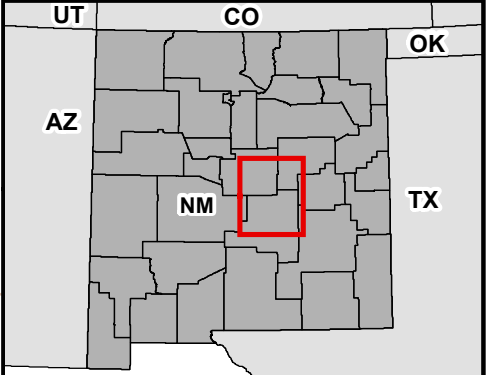
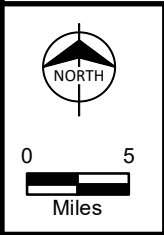
Collectively, the previously approved projects owned by Corona Wind Companies and the 2022 Corona Generation Expansion proposed in this ER are referred to as the “Corona Wind Project.” The current proposal included in this ER consists solely of wind generation project analysis for the 2022 Corona Generation Expansion, consisting of 63,549 acres of new wind generation area in Lincoln and Torrance Counties adjacent to the wind generation areas previously approved in the foregoing cases. The proposed

Path: C:\TEMP\WORK\101335 Pattern Energy Corona Wind\MXD\2022 Corona South Env Report\Figure1.1 Overall Map.mxd vakarpov 7/11/2022  
 Service Layer Credits: ESRI Topo Map



- 2022 Corona Generation Expansion
- 2021 Revised Corona Gen-Tie System and Corridor
- 2021 Corona Generation Expansion
- Previously Approved Mesa Canyons Footprint (17-000221-UT)
- Previously Approved Corona Wind Footprint
- Previously Approved Corona Gen-Tie System and Corridor
- Western Spirit Wind Transmission Line
- Western Spirit Wind Gen-Tie

**Note:** Previously approved Corona Wind Footprint correlates to approved PRC filings 18-00065-UT, 20-0008-UT, and 21-00281-UT.



**Figure 1-1**  
 Corona Wind Companies, Projects and Gen-Tie System  
 Pattern Energy  
 Lincoln and Torrance Counties,  
 New Mexico



acreage does not represent increased power output beyond what has previously been authorized or submitted for approval by the Commission.

### **1.1.1 Previously Approved and Submitted Projects**

Between 2018 and 2022, the Commission approved applications for the Corona Wind Project and the Corona Gen-Tie System in Lincoln, Torrance, and Guadalupe Counties, New Mexico, under Case Nos. 17-00221-UT, 18-00065-UT, 20-0008-UT, and 21-00281-UT. The most recent of these, Case No. 21-00281-UT, obtained Commission approval for updates to the Corona Gen-Tie System including approximately 59.2 miles (312,576 ft) of new 345-kilovolt (kV) transmission line (the 2021 Revised Corona Gen-Tie System) and 50,100 acres of additional wind generation area in Lincoln and Torrance Counties (the 2021 Corona Generation Expansion) adjacent to the previously approved areas of the Corona Wind Project. These updates reflect design improvements and provide connection to the 2021 Corona Generation Expansion and the Mesa Canyons Wind Project.

### **1.1.2 Update to Previously Submitted Projects**

The Corona Wind Companies are proposing the 2022 Corona Generation Expansion, consisting of 63,549 acres of additional wind generation area adjacent to the previously approved areas of the Corona Wind Project. The proposed 2022 Corona Generation Expansion will not increase the number of turbines for the Corona Wind Project, but will increase the acreage within which the Corona Wind Project will be located. Figure 1-1 provides an overview of the proposed 2022 Corona Generation Expansion along with previously approved projects.

This ER provides a review of the existing environment within the footprint of the 2022 Corona Generation Expansion and analyzes the potential environmental impact outside previously approved areas of the Corona Wind Project footprint. The affected environment (existing condition) for the environmental values provided in NMSA 1978 Section 62-9-3.M, Commission Rule 17.9.592 NMAC, and additional resource areas identified to be of interest by Commission Staff (Staff) are evaluated in this ER. The resources addressed in this ER include: air resources; water resources; biological resources; land use (including recreation and schools); visual and scenic; cultural, historic, and archeological resources; religious resources; geology and paleontology; soils; minerals and mining; socioeconomic; roads; noise; communication signals; military activities and aviation; geographic resources; radioactive waste and radiation hazard; hazardous materials; and safety.

The discussion for each resource includes data sources used, current regional conditions, and conditions within the footprint of the 2022 Corona Generation Expansion (63,549 acres). Impact evaluations for each resource are discussed alongside Best Management Practices (BMPs) that can help manage impacts.

## **2.0 INTRODUCTION AND PURPOSE AND NEED**

The Corona Wind Companies are proposing to locate the 2022 Corona Generation Expansion in Lincoln and Torrance Counties, New Mexico. A sum total of 63,549 acres of land within the 2022 Corona Generation Expansion are currently being negotiated with landowners. Although information about the Corona Wind Project as a whole is discussed herein to provide overall project context, the New Mexico statutes only require evaluation of the 2021 Revised Corona Gen-Tie System.

### **2.1 Purpose and Need**

The purpose and need of the 2022 Corona Generation Expansion is to increase design efficiencies of the associated 2021 Revised Corona Gen-Tie System, which would allow renewable energy from the Corona Wind Project to interconnect to the electrical grid. New wind generation area footprint totaling approximately 63,549 acres will be acquired in Lincoln and Torrance Counties. The proposed acreage does not represent increased power output beyond what has previously been authorized or submitted for approval by the Commission.

### **2.2 Decisions to be Made**

The siting statute, NMSA 1978, Section 62-9-3.E provides that the Commission shall approve the location of generating plants with a capacity of three hundred thousand kilowatts [300 MW] or more unless it finds that the operations of the facilities for which approval is sought will not comply with all applicable existing air and water pollution control standards and regulations. This ER addresses the important environmental values the Commission has identified in its location rule 17.9.592 NMAC, as well as other issues identified by Staff.

### **3.0 ALTERNATIVES INCLUDING THE PROPOSED ACTION**

#### **3.1 Alternatives Considered**

The Corona Wind Companies are planning to construct the 2021 Revised Corona Gen-Tie System, which will consist of an overhead 345-kV transmission line to connect the Corona Wind Project (including the proposed 2022 Corona Generation Expansion) to the existing SunZia Transmission Line System. The final transmission line route will be determined with respect to several factors, such as, the final turbine layout, siting of the step-up substations and switchyards based on the final turbine layout, interconnection requirements, landowner coordination, geographic features, and micro-siting of poles. Measures would be undertaken to reduce impacts to important environmental resources to the extent practicable.

#### **3.2 Proposed Project (Proponent Preferred)**

The Corona Wind Companies plan to construct, operate, and maintain a new 345-kV transmission line located within the region of the previously approved areas of the Corona Wind Project and the proposed 2022 Corona Generation Expansion. The proposed 2022 Corona Generation Expansion will not increase the number of turbines for the Corona Wind Project, but will increase the acreage within which the Corona Wind Project will be located. It is anticipated that there will be approximately 59.2 miles (312,576 ft) of 345-kV transmission line along with the related substation facilities that would transport electricity generated at the Corona Wind Project (including the proposed 2022 Corona Generation Expansion) to the existing SunZia Transmission Line System. Step-up substations previously approved in Commission Case No. 21-00281-UT would convert lower voltage (34.5-kV) electricity generated at the Corona Wind Project (including the proposed 2022 Corona Generation Expansion) and increase it to higher voltage electricity (345-kV) for interconnection to the transmission line. A switchyard would also be constructed within the 2021 Revised Corona Gen-Tie System to connect individual projects together for interconnection into the SunZia Transmission Project at a single point.

##### **3.2.1 Transmission Line**

*Section 3.2.1 and subsections are included only to reference the 2021 Revised Corona Gen-Tie System previously approved under Commission Case No. 21-00281-UT. No additional transmission line or revised route is proposed as part of this supplemental report.*

Electricity generated by the wind turbines would be gathered via buried electrical collection system lines that will be charged at 34.5-kV. The collection system circuits would be gathered at one of the Corona Wind Project's step-up substations where the voltage would be increased from 34.5-kV to 345-kV via large power transformers. The Corona Wind Project's step-up substations would be connected to each

other via a 345-kV transmission line that could connect to not only the SunZia Transmission Project but also the Western Spirit Transmission Project. The decision on the number of 34.5 to 345-kV step-up substations would be made prior to construction and would be determined by design efficiencies that reduce total electrical infrastructure needed and minimize electrical losses. The transmission line(s) would consist of an overhead line operated at 345-kV. The length of the transmission line would depend on final design. The transmission line would require a right-of-way (ROW) width of about 180 ft.

### **3.2.1.1 Structures**

The transmission structure types for the 345-kV transmission line would be wood or steel monopole, two-pole H-frame, and/or three-pole angle structures. Most structures would be self-supporting; however, in some areas, structures would be guyed to provide additional structural support. In areas that require long spans between structures, such as riparian or stream crossings, a taller, larger structure would typically be used. In areas where the line turns, the transmission line could be supported by three-pole angle transmission structures or a structure with guy wires. Typical transmission structure heights for the tangent (structures that hold the line up, but bear little tension), dead-end (structure that bears tension), and angle transmission structures (structure that supports change in line direction and bears tension) would be approximately 80 to 130 ft above the existing ground, depending on terrain and span length.

Structures spans would typically be 600 to 900 ft in length. In most cases, transmission structures would be directly embedded into the ground. Additional foundation support, such as drilled pier concrete foundations may be used in special design cases depending on geotechnical conditions. The diameter of the transmission structure poles would be approximately 3 to 5 ft, depending on framing configuration and the angle to adjacent transmission structures.

### **3.2.1.2 Conductors and Associated Hardware**

The 345-kV transmission line would consist of three phases with each phase consisting of bundled conductors composed of two 954-Thousand Circular Mil (kcmil) aluminum conductor steel supported (ACSS) cables or conductors of comparable capacity. An ACSS consists of 7 steel wires surrounded by 54 aluminum strands. Each conductor is approximately 1.2 inches in diameter. Minimum conductor height above the ground for the 345-kV transmission line would be 30.3 ft, at 167 degrees Fahrenheit based on National Electrical Safety Code (NESC) standards and Special Protection System (SPS) standards. At road crossings, minimum clearance would typically increase to approximately 37.3 ft above ground. Similar sized aluminum conductor steel reinforced (ACSR) cables or conductors also could be used.

### **3.2.1.3 Fiber Optics**

Fiber optic ground wire (OPGW) cable for substation-to-substation control would be installed on top of each transmission structure in the shield wire. The outer strands would consist of aluminum wire and the entire OPGW would be approximately 0.55 inch in diameter.

### **3.2.2 Step-Up Substation and Adjacent Switchyard**

*Section 3.2.2 is included only to reference the 2021 Revised Corona Gen-Tie System previously approved under Commission Case No. 21-00281-UT. No additional substations or switchyards are proposed as part of this supplemental report.*

More than one new step-up substation would be constructed within the 2021 Revised Corona Gen-Tie System corridor. The step-up substation(s) would consist of transformers; circuit breakers; switching devices; auxiliary equipment; control enclosure containing equipment for proper control; protection, monitoring; and communications; and associated equipment and facilities. The final location(s) would be determined upon the micrositing and geotechnical examinations of proposed wind turbine locations. The principal function of the substation is to increase the voltage from the collector system (34.5-kV) to the voltage of the 2021 Revised Corona Gen-Tie System transmission line (345-kV). The 2021 Revised Corona Gen-Tie System would allow for the delivery of the electricity of the Corona Wind Project to the SunZia Transmission Project (where the voltage would then be increased to 500-kV). The step-up substation(s) would be located within a fenced area. The fence would be designed in accordance with industry standards to provide safety and security.

A switchyard and 345- to 500-kV step-up substation would be located adjacent to the Western Spirit Transmission Project. The switchyard and step-up substation would connect the electricity to the existing transmission system.

### **3.2.3 Right-of-Way Acquisition**

*Section 3.2.3 is included only to reference the 2021 Revised Corona Gen-Tie System previously approved under Commission Case No. 21-00281-UT. No additional transmission line ROW is proposed as part of this supplemental report.*

ROW width for the transmission line would be 180 ft (90 ft each side of the transmission line). A 180-foot-wide ROW would accommodate the anticipated structure types, span lengths, and heights for the transmission line; would comply with electrical safety codes; would provide adequate logistical space for construction, operations, and maintenance of the line; and would provide sufficient flexibility for siting structures in the ROW. Final design will determine the structure locations and characteristics. Easements

for the transmission line ROW, temporary work areas, and temporary access roads would be required for the transmission line and substations. Some public road upgrades may be necessary and will be negotiated through the Torrance and Lincoln County Roads Maintenance Departments and private landowners. The 2021 Revised Corona Gen-Tie System on private lands would be obtained as private easements or ROWs.

### **3.2.4 Access Roads**

The Corona Wind Project would use existing roads and overland travel wherever feasible for access in order to reduce new disturbance. Some new permanent or temporary access/short spur roads may be required to access structure locations within the ROW. New access roads within the existing ROW would retain access for maintenance. Portions of existing access roads located outside of the proposed ROW may require improvements as well as new access roads (temporary or permanent). To reduce ground disturbance and/or reduce visual contrast with the landscape, the alignment of any new temporary access roads or cross-country routes would follow landform contours in designated areas where practicable, provided that such alignment does not impact other resource values additionally. All temporary access roads would be revegetated with native or similar grasses and forbs following construction. Where ground disturbance is substantial, surface preparation and reseeding would occur. The method of restoration would normally consist of loosening the soil surface, reseeding, installing cross drains for erosion control, placing water bars in the former access road, and filling temporary ditches and swales. Impacts and protection measures for disturbance resulting from the 2022 Corona Generation Expansion to soils, water resources, flora and fauna, and visual resources are discussed in Sections 5.5, 5.7, 5.8, and 5.11 of Chapter 5.0.

All new access that is not required for maintenance would be closed with concurrence of the landowner. Gates, where present or if installed, would be closed and/or locked, depending on the agreement with each landowner. Access roads on private property may be maintained with mutual consent of the landowner. A discussion of impacts and protection measures related to land use along the 2022 Corona Generation Expansion is included in Section 5.12 of Chapter 5.0.

### **3.2.5 Laydown / Material Staging Areas**

Temporary laydown material staging areas would be required to store materials and equipment and to assemble structures for the duration of construction of the Corona Wind Project. The staging areas would be up to 20 acres in size and located at level areas in close proximity to existing roads within the area. The laydown staging areas would be used to store material and equipment prior to delivery to the structure sites, park vehicles, and, possibly, station a portable construction trailer. The staging areas would be surveyed for potential environmental impacts, and if any are found, the staging areas would be relocated

or shifted to avoid such sensitive areas. The staging areas would be revegetated and reclaimed after completion of construction of the Corona Wind Project. Impacts and protection measures related to micro-siting staging areas and impacts due to disturbance are discussed below in Section 5.8 of Chapter 5.0.

### **3.2.6 Construction Activities**

The proposed Corona Wind Project will use standard construction and operation procedures used for other transmission projects in the western United States. Construction is expected to take approximately 12 to 18 months, depending on the results of interconnection studies and final design. The construction schedule forecasts activity commencing late 2022 or early 2023 and concluding by the end of 2025. The Corona Wind Project is expected to be in full operation by the end of 2025.

#### **3.2.6.1 Sequence of Activities**

The construction of the Corona Wind Project is expected to follow the sequence of: (1) new structure locations surveyed and staked; (2) laydown/materials yard and work areas cleared, as needed; (3) access roads improved or built where necessary; (4) materials distributed along centerline and at wind turbine locations; (5) structure holes dug and poles framed and erected; (6) conductors installed; and (7) site cleaned-up and reclaimed. The timing of construction activities may occur at different locations throughout the construction process. This may require several crews operating simultaneously at different locations.

Temporary laydown/material staging areas would be located on existing disturbed areas or other areas on private lands along the line route with negotiated access rights from private landowners. The yards would serve as field offices, reporting locations for workers, parking space for vehicles and equipment, or sites for temporary marshalling of construction materials.

#### **3.2.6.2 Surveying**

Construction survey work for the proposed Corona Wind Project consists of ascertaining soil and geotechnical conditions for foundations, determining specific pole locations, and delineation of ROW and work area boundaries, and, in some areas, roads to access work areas.

#### **3.2.6.3 Access Road Construction**

The Corona Wind Project would be located in close proximity to many public roads in order to facilitate access the ROW, to the extent practicable. The construction of temporary construction access roads or overland travel may be required to allow access of construction equipment in the transmission line



corridor and turbine layout. This may involve clearing vegetation and crushing vegetation for overland travel. In construction areas where re-contouring is not required, disturbance would be limited to overland driving, where feasible, to minimize changes in the original contours. Large rocks and vegetation may be moved within these areas to allow vehicle access. Impacts and protection measures resulting from access road construction to soils, flora and fauna, and visual resources are discussed in Sections 5.5, 5.8, and 5.11 of Chapter 5.0

Equipment to construct the access roads would include hand tools, bulldozers, and graders. Specific BMPs would be implemented to reduce construction impacts. For example, roads would be built at right angles to streams to the extent practicable, to limit the impact of stream crossings; existing public roads would be utilized to the extent possible; appropriately sized culverts would be installed where needed; and road construction would include dust-control measures during construction, as required. Standard design techniques, such as installing water bars and dips to control erosion, would be included in areas with slopes. In addition, measures would be taken to reduce impacts such as rutting and soil compaction in specific locations and during certain periods of the year. Discussion of impacts and protection measures for water resources resulting from construction within the 2022 Corona Generation Expansion area is included in Section 5.7 of Chapter 5.0.

#### **3.2.6.4 Structure Holes**

Excavations for structure holes would be generally made with truck-mounted power auger equipment or a standard-sized backhoe or large excavator. Where the soil and geotechnical conditions permit, a truck-mounted power auger would be used. The foundation excavation and installation require equipment access to the foundation sites. Structure hole excavation and installation require access to the site by a power auger or drill, a crane, and material trucks.

Structure holes left temporarily open or unguarded during construction would be covered and/or fenced where practical to protect the public, livestock, and wildlife. Soil removed from foundation holes would be stockpiled on the work area and replaced or disposed, in consultation with landowners.

#### **3.2.6.5 Structure Framing and Assembly**

Pole sections, pole framing, and associated hardware would be shipped to each laydown/materials yard site by truck. Structures may be assembled offsite and transported to the appropriate pole locations by truck or helicopter. Insulator strings and stringing sheaves are installed at each ground wire and conductor position while the pole is on the ground. Stringing sheaves (pulleys) are used to guide the conductor

during the stringing process for attachment onto the insulator strings. The assembled pole would then be hoisted into place by a crane. Helicopter assisted construction may be utilized for portions of the line.

### **3.2.6.6 Conductor Installation**

*Section 3.2.6.6 is included only to reference the 2021 Revised Corona Gen-Tie System previously approved under Commission Case No. 21-00281-UT.*

Once structures are in place, a pilot line would be pulled (strung) from structure to structure and threaded through the stringing sheaves on each insulator. A larger diameter, stronger line would then be attached to the pilot line and strung. This is called the pulling line. This process is repeated until the ground wire and conductor are pulled through all insulator sheaves.

Conductor would be strung using powered pulling equipment at one end and powered braking or tensioning equipment at the other end. For public protection during wire installation, guard structures would be erected over roadways, transmission and distribution lines, structures, and other obstacles. Guard structures would consist of H-frame poles temporarily placed on either side of an obstacle. These structures prevent ground wire, conductor, or equipment from falling on an obstacle. Equipment for erecting guard structures includes augers, line trucks, pole trailers, and cranes. Guard structures may not be required for small roads where other safety measures such as barriers, flagmen, or other traffic control devices would be used. Impacts and protection measures pertaining to safety are included in Section 5.17 of Chapter 5.0.

Conductor splicing would be required at the end of a conductor spool or if a conductor is damaged during stringing. The work would occur on work areas for the poles or pulling tensioning sites.

### **3.2.6.7 Helicopter Use**

Access is required to each transmission structure site for construction activities, and helicopters may be used to support construction activities on unique areas that limit vehicle access. Gen-Tie construction activities potentially facilitated by helicopters may include:

- Transport of equipment and materials to transmission structure sites.
- Transmission structure placement.
- Hardware installation.
- Wire and conductor stringing operations.

All helicopter operations would be coordinated with and approved by the Federal Aviation Administration (FAA).

### **3.2.6.8 Step-up Substations and Switchyard**

*Section 3.2.6.8 is included only to reference the 2021 Revised Corona Gen-Tie System previously approved under Commission Case No. 21-00281-UT.*

Following survey and staking of the substation and switchyard site, erosion control measures would be installed, as necessary. Site access would be prepared, including installation of culverts in drainages, if needed, to install a gravel driveway. The substation and switchyard site would be graded and fenced. Concrete pads and footing for equipment would be installed. Aggregate would be spread throughout the fenced area. Equipment would be delivered to the site and generally stored inside the fenced area, although some materials may need to be stored on the property outside the fence due to size or safety considerations. Equipment such as circuit breakers, bus work, capacitors, and dead ends would be assembled and installed. Transformers would be delivered to the site and installed. Substation control house and supervisory control and data acquisition equipment would be installed. Upon completion of construction activities, disturbed areas outside the fence would be restored and erosion control measures removed.

### **3.2.6.9 Construction Waste Disposal**

Construction sites, laydown and material storage yards, and access roads would be kept in an orderly condition throughout the construction period. Refuse and trash would be removed from the sites and disposed of in an approved manner, including recycling options. Oils and fuels would be hauled to an approved site for disposal. No open burning of construction trash would occur at any time.

### **3.2.6.10 Site Reclamation**

Work sites would be reclaimed using excess materials, native or similar vegetation, and topsoil stockpiled for that purpose. The contractor would dispose of excess soil materials, rock, and other objectionable materials that cannot be used in reclamation work.

Disturbed areas, with the exception of access roads, would be reclaimed, to the extent possible, to their original contour and reseeded where appropriate. Ripping and other surface scarification on construction roads or other areas would be done as necessary. Depending on the amount of soil compaction and vegetation destruction, ripping may not be required for reclamation. This would be determined on a case-by-case basis. Discussion of impacts and protection measures for disturbance resulting from construction,

operation, and maintenance of project infrastructure on the 2022 Corona Generation Expansion area to soils and flora and fauna are discussed in Sections 5.5 and 5.8 in Chapter 5.0.

### **3.2.6.11 Protection of Private Property and Environmental Resources**

Existing improvements would be repaired or replaced if they are damaged by construction activities. All existing roads would be left in a condition generally equal to or better than their condition prior to the construction of the transmission line. Fences and gates would be installed or repaired and replaced (if they are damaged by construction activities) to their original conditions as required by the landowner.

Temporary gates would be installed only with the permission of the landowner and would be restored to original condition following construction unless otherwise agreed with the landowner. Gates would be closed and locked, depending on the agreement with the private landowners.

Prior to construction, all supervisory construction personnel would be instructed on the protection of ecological and cultural resources. To assist in this effort, the construction contract would address: (a) federal, state, and local laws regarding wetlands, vegetation, wildlife, and cultural resources; (b) the importance of these resources and the purpose and necessity of protecting them; and (c) methods for protecting sensitive resources.

All waste products, including food garbage, from construction sites would be deposited in a covered waste receptacle, or removed daily. Garbage would be hauled to a suitable and appropriately permitted disposal facility.

To reduce the number of sensitive features disturbed in designated areas, transmission poles would be sited during the engineering design process so as to avoid sensitive features such as, but not limited to, riparian areas and watercourses and/or to allow conductors to clearly span the features, within limits of standard pole design. A discussion of impacts and protection measures for the environmental resources present in the 2022 Corona Generation Expansion area are included in Chapter 5.0.

## **3.2.7 Operation and Maintenance**

Operation and maintenance (O&M) of the Corona Wind Project is anticipated to include the following.

### **3.2.7.1 Operation**

After the constructed Corona Wind Project has been energized, land uses compatible with safety regulations and activities associated with O&M would be permitted within and adjacent to the ROW. Existing land uses such as agriculture and grazing are generally permitted within the ROW. Incompatible

land uses include construction of permanent dwellings and any use requiring changes in surface elevation that would affect NESC electrical clearances of existing or planned facilities.

Safety is a primary concern in the planning and design of the Corona Wind Project. An AC transmission line would be protected with power circuit breakers and related line relay protection equipment. If a conductor failure occurs, power would be automatically removed from the line. Lightning protection would be provided by overhead static and grounding wires along the length of the line. All fences, metal gates, pipelines, etc., that cross or are within the Corona Wind Project ROW would be grounded to prevent electrical shock and to meet NESC requirements. A discussion on impacts and protection measures regarding safety are included in Section 5.17 of Chapter 5.0.

### **3.2.7.2 Maintenance**

Maintenance of the transmission line would be performed as needed. When access is required for non-emergency maintenance and repairs, the same precautions taken during construction activities would be implemented to the extent practicable. Landowners would be contacted when access to their lands is required for maintenance activities on transmission lines.

Emergency maintenance would involve prompt movement of crews to repair or replace any damage. Crews would be instructed to protect vegetation, wildlife, and other environmental resources to the extent possible. Reclamation procedures following completion of repair work would be similar to those prescribed for normal construction.

### **3.2.7.3 Traffic Safety**

Minimal additional vehicular traffic would occur on public roads in the area as a result of transmission line construction and O&M of the transmission line. Because of the low number of vehicles accessing the transmission line, minimal impacts are anticipated. The transmission line would cross U.S. Highways 54 in Torrance County and New Mexico State Highway 247 in Lincoln County. County road use and crossings in Torrance and Lincoln Counties would also be required and would be coordinated with the New Mexico Department of Transportation (NMDOT) and the Torrance and Lincoln County Roads Maintenance Departments. Final engineering design would determine specific road crossing requirements (see additional discussion in Section 5.20).

### **3.2.8 Decommissioning**

Decommissioning of the Corona Wind Project will involve removal of all wind facilities. Corona Wind Companies will take appropriate measures to restore the development area to its pre-existing conditions. Removal and restoration efforts will generally involve:

- **Wind turbines (including towers and pad-mount transformers):** Wind turbines will be cleared, cleaned and removed from the Corona Wind Project footprint. Any liquids, greases, etc. contained therein will also be removed safely from the site in accordance with then-existing laws and regulations.
- **Tower foundations and pad mount transformer foundations:** All foundations installed in the ground, the foundations will be cleared, cleaned and removed from the ground to at least four ft below the grade. Holes or cavities created in the ground, as a result of such removal, will be filled with topsoil of the same or similar type found at the site.
- **Overhead power and/or communication lines:** Overhead power and/or communication lines owned by Corona Wind Companies and no longer in use will be cleaned and removed from the Corona Wind Project footprint.
- **Substations:** Substations will be cleared, cleaned and removed from the Corona Wind Project footprint and any liquids, greases, etc. contained in the substations will be removed safely from the site in accordance with then-existing laws and regulations.
- **Buried cables (power and/or communication):** All buried cables (power, fiber-optic, communication, etc.) installed in the ground will be cleared, cleaned at least three ft below the grade of the land affected. Corona Wind Companies will ensure that any holes or cavities created in the ground as a result of such removal are filled with topsoil of the same or similar type found at the Project site.
- **O&M building:** Will be cleared, cleaned and removed from the Corona Wind Project footprint. Corona Wind Companies may request that the O&M building be assigned to a new owner.
- **Restoration of property:** To the extent reasonably practicable, the Project site will be returned to pre-existing conditions. Corona Wind Companies will ensure that any holes or cavities created in the ground are filled with topsoil of the same or similar type found at the Project site and to the extent reasonably practicable, the surface is returned to the same condition as before the holes or cavities were dug.

## 4.0 AFFECTED ENVIRONMENT

### 4.1 Introduction

The affected environment is described below for the environmental values provided in NMSA 1978 Section 62-9-3.M, Commission Rule 17.9.592 NMAC, and additional resource areas identified to be of interest by Staff. These are: air resources; noise, geology and mineral resources; soil resources; paleontological resources; water resources; flora and fauna; cultural and historic archaeological resources; religious and cemetery sites; socioeconomics and environmental justice; communication signals; radioactive waste and radiation hazards; hazardous materials; safety; geographic resources; military activities and aviation; and roads. The discussion for each resource includes data sources used, current regional conditions, and conditions within the 2022 Corona Generation Expansion. The 2022 Corona Generation Expansion and the previously approved 2021 Corona Wind Update and Mesa Canyons Wind Project are shown in Exhibit 1. Final siting of transmission facilities will depend upon the results of Southwest Power Pool interconnection studies and other factors such as landowner preferences.

This section of the ER describes the existing conditions of certain relevant resources. The primary focus is on the resources potentially affected by an electric transmission line that will enable certain wind generation systems to connect to electric markets. This area of potentially affected resources is defined as the parcels of land within the 180-foot ROW of the transmission line and associated facilities, including areas of interconnection (substations) and access roads for maintenance or operation of the line, and all areas of previously approved or currently proposed generation footprint that may be utilized for routing of the 2021 Revised Corona Gen-Tie System. This area is shown in Exhibit 1.

### 4.2 Air Resources

#### 4.2.1 Data Sources

The following data sources were reviewed to assess the existing air quality conditions of Torrance and Lincoln Counties as crossed by the 2022 Corona Generation Expansion.

- AirNow. 2022. *U.S. Air Quality Index*. Accessed June 2022 from: <https://www.airnow.gov/>.
- New Mexico Environment Department Air Quality Bureau (NMED-AQB). 2013. *Air Resources Manager* (map). Accessed June 2022 from: <https://aqi.air.env.nm.gov/>
- U.S. Environmental Protection Agency (EPA). 2021a. *Criteria Air Pollutants*. Accessed June 2022 from: <https://www.epa.gov/criteria-air-pollutants>.

- EPA. 2022. *Nonattainment Areas for Criteria Pollutants (Green Book)*. Accessed June 2022 from: <https://www.epa.gov/green-book>.

## **4.2.2 Current Conditions and Trends, Regional Overview – 2022 Corona Generation Expansion**

The EPA sets National Ambient Air Quality Standards (NAAQS) for the six “criteria air pollutants” and using technical information provided from states designates each county as nonattainment, attainment, or attainment/unclassifiable to describe if the standards are being met (EPA, 2021a). All counties crossed by the 2022 Corona Generation Expansion are currently designated as attainment/unclassifiable for all criteria pollutants (EPA, 2022). An attainment/unclassifiable designation means that EPA has determined that these areas likely meet or are cleaner than the NAAQS based on available data. The attainment/unclassifiable status for these counties is reflective of low population density and land use dominated by agriculture. No unique air quality conditions are known to occur in Torrance or Lincoln County where the 2022 Corona Generation Expansion is located (NMED-AQB, 2013; AirNow, 2022).

## **4.3 Noise**

### **4.3.1 Data Sources**

The following data source was reviewed to assess the existing noise conditions of Lincoln and Torrance Counties and the 2022 Corona Generation Expansion.

- U.S. Census. 2020. Accessed June 2022 from: [www.census.gov](http://www.census.gov).

### **4.3.2 Current Conditions and Trends, Regional Overview – 2022 Corona Generation Expansion**

Torrance and Lincoln Counties are rural counties located in central New Mexico with population densities below the state and national averages (U.S. Census, 2020). The counties generally have relatively low ambient noise levels due to the rural setting. Noise in the 2022 Corona Generation Expansion area typically ranges from very quiet with natural sounds and wind dominating to noisy in localized areas near towns, at highway crossings, and in agricultural areas during cultivation activities. Additional noise is also created by existing wind energy generation turbines operating within the proximity and aircraft when operating within nearby airspace.



## 4.4 Geology and Mineral Resources

### 4.4.1 Data Sources

The following data sources were reviewed to assess geological and mineral resources of Torrance and Lincoln Counties as crossed by the 2022 Corona Generation Expansion.

- Green, G.N., Jones, G.E., and Anderson, O.J. 1997. *The Digital Geologic Map of New Mexico in ARC/INFO Format: U.S. Geological Survey Open-File Report 97-0052*. Accessed June 2022 from <https://mrdata.usgs.gov/geology/state/fips-unit.php?code=f35019>.
- New Mexico Mining and Minerals Division (NM MMD). 2022. *Mine Registrations and Permits Search*. Accessed June 2022 from: <https://wwwapps.emnrd.state.nm.us/MMD/MMDWebInfo/>.
- New Mexico Oil Conservation Division (NM OCD). 2022. *NM OCD Oil and Gas Map* (web application). Accessed June 2022 from: <https://nm-emnrd.maps.arcgis.com/apps/webappviewer/index.html?id=4d017f2306164de29fd2fb9f8f35ca75>
- The Drillings. 2022. *Lincoln and Torrance Counties, New Mexico*. Accessed June 2022 from <https://thedrillings.com/usa/new-mexico>.
- U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS). 2022. *Web Soil Survey*. Accessed June 2022 from: <http://websoilsurvey.nrcs.usda.gov>.
- U.S. Geological Survey (USGS). 2011. Mineral Resources Data System (MRDS). Accessed June 2022 from: <https://mrdata.usgs.gov/mrds/>.

### 4.4.2 Current Conditions and Trends, Regional Overview – 2022 Corona Generation Expansion

The 2022 Corona Generation Expansion is located on the west side of the Great Plains physiographic province. The signature geologic deposit of the Great Plains is the Ogallala Formation, and it has been largely eroded away in the area by the Pecos River. The resulting landscape is largely a piedmont – thin to non-existent soil over a gently sloping bedrock surface. In places there are remnants of the Ogallala and younger alluvial sediments (Green et al., 1997). The bedrock itself is mostly Permian aged sedimentary rock that had been deposited in the ocean on a continental shelf. Soil type parent materials as mapped by the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) are shown on Exhibit 2 (NRCS, 2022).

There are no currently active oil and gas leases on public lands in Torrance or Lincoln County, including lands administered by the U.S. Department of Interior’s Bureau of Land Management (BLM) (The Drillings, 2022). According to the New Mexico Oil Conservation Division (NM OCD) Oil and Gas Map,

there are no active hydrocarbon extraction activities within one mile of the 2022 Corona Generation Expansion (NM OCD, 2022) (Exhibit 3). One natural gas pipeline operated by El Paso Corporation crosses the 2022 Corona Generation Expansion’s westernmost parcel in Lincoln County. This parcel is adjacent to the El Paso Corporation pipeline’s Lincoln compressor station.

According to data obtained in 2022 from the New Mexico Mining and Minerals Division (NM MMD), Lincoln County has had 76 mine registration and/or permit applications and Torrance County has had 43 mine registration and/or permit applications for the extraction of aggregate, caliche, dimension & flagstone, limestone, copper, gold, and silver (NM MMD, 2022). Twenty of these are listed as active mines (5 in Lincoln County and 15 in Torrance County), all for the extraction of aggregate, caliche, dimension & flagstone, or iron. According to the USGS Mineral Resources Data System (MRDS), no current producers occur within the footprint of the 2022 Corona Generation Expansion, although one crushed stone materials pit of unknown development is present within the westernmost parcel in Lincoln County (USGS, 2011; Exhibit 4). Additionally, one iron mine of unknown development is present within one mile of the easternmost parcel in Torrance County. Areas around abandoned mines may contain contaminated soils originating from extraction and processing activities.

## **4.5 Soil Resources**

### **4.5.1 Data Sources**

The following data source was reviewed to assess the existing soil resources of Lincoln and Torrance Counties and the 2022 Corona Generation Expansion.

- USDA NRCS. 2022. *Web Soil Survey*. Accessed June 2022 from:  
<http://websoilsurvey.nrcs.usda.gov>.

### **4.5.2 Current Conditions and Trends, Regional Overview – 2022 Corona Generation Expansion**

Table 4-1 summarizes the existing soil resources located within the 2022 Corona Generation Expansion. For a visual representation of the soil locations within the 2022 Corona Generation Expansion, refer to Exhibit 5.

**Table 4-1: Soil Coverage Types within 2022 Corona Generation Expansion**

Soil Type	Estimated Acreage
<b>Lincoln County</b>	
Deama-Pastura association, moderately sloping	2941.84
Pastura loam, gently sloping	812.71
Pastura-Harvey association, moderately rolling	3452.89
Pastura-Partri association, gently sloping	1249.62
Penistaja-Travessilla association, gently sloping	9695.92
Plack-Dioxice loams, 0 to 8 percent slopes	1193.12
Plack-Dioxice association, gently sloping	2167.12
Plack-Penistaja association, gently sloping	3779.61
Reventon-Sampson association, gently sloping	1148.59
Rock outcrop-Stroupe-Deama association, extremely steep	3386.14
Sampson loam, 0 to 5 percent slopes	132.49
Darvey-Asparas association, gently sloping	108.18
Tortugas-Asparas-Rock outcrop association, moderately sloping	978.75
Darvey-Pastura association, gently sloping	2309.92
Tortugas-Rock outcrop association, moderately sloping	2173.45
Carnero loam, 3 to 8 percent slopes	4.77
Harvey loam, 1 to 9 percent slopes	2.20
Laporte-Rock outcrop complex	0.26
Manzano loam, 1 to 5 percent slopes	3.17
Pinon channery loam, 3 to 20 percent slopes	0.38
Scholle loam, 1 to 5 percent slopes	1.22
Tapia-Dean loams, 0 to 5 percent slopes	0.23
Wilcoxson loam, thick surface, 1 to 6 percent slopes	0.43
<b>Torrance County</b>	
Penistaja-Travessilla association, gently sloping	1.88
Plack-Dioxice association, gently sloping	5.42
Darvey-Asparas association, gently sloping	0.01
Chilton-La Fonda complex, 1 to 9 percent slopes	0.75
Clovis loam, 0 to 5 percent slopes	1059.76
Dean loam, 1 to 9 percent slopes	2370.45
Hagerman fine sandy loam, 1 to 5 percent slopes	338.88
Harvey loam, 1 to 9 percent slopes	636.91
Harvey-Dean loams, 1 to 9 percent slopes	10801.70
Karde-Willard loams, saline	482.12
Kim-Pastura-Tapia loams	979.88
La Fonda loam, 1 to 9 percent slopes	395.89
La Fonda-Rock outcrop complex	1711.84
Laporte-Rock outcrop complex	23.49
Manzano loam, saline substratum, 0 to 1 percent slopes	252.35
Otero and Palma soils	3465.07

Pastura loam, 1 to 9 percent slopes	104.07
Pedrick loamy fine sand	110.14
Penistaja fine sandy loam, 1 to 6 percent slopes	265.93
Penistaja loamy fine sand, hummocky, 1 to 8 percent slopes	6.17
Penistaja-Dean complex, 1 to 5 percent slopes	43.85
Penistaja-Dean fine sandy loams, 1 to 5 percent slopes	620.21
Pinon channery loam, 3 to 20 percent slopes	1.36
Prewitt and Manzano soils	449.94
Rance-Gypsum land complex	320.52
Rock land	25.70
Rock outcrop-Pinon-La Fonda complex	135.64
Stony steep land	78.42
Tapia loam, 0 to 5 percent slopes	451.23
Tapia-Dean loams, 0 to 5 percent slopes	1839.96
Tapia and Dean soils, eroded	85.03
Willard loam, strongly saline	941.56
<b>TOTAL</b>	<b>63,549.13<sup>a</sup></b>

<sup>a</sup> Sum of components may not add up to the total due to the overlap of some geographic integration systems (GIS) data received.

Source: USDA NRCS, 2022

## 4.6 Paleontological Resources

### 4.6.1 Data Sources

The following data sources were reviewed to assess paleontological resources of Lincoln and Torrance Counties and the 2022 Corona Generation Expansion.

- Green, G.N., Jones, G.E., and Anderson, O.J. 1997. *The Digital Geologic Map of New Mexico in ARC/INFO Format: U.S. Geological Survey Open-File Report 97-0052*. Accessed June 2022 from <https://mrdata.usgs.gov/geology/state/fips-unit.php?code=f35019>.
- Hunt, A.P., and Santucci, V.L. 2001. *Paleontological Resources of Lake Meredith National Recreation Area and Alibates Flint Quarries National Monument, West Texas*. New Mexico Geological Society. Guidebook 52<sup>nd</sup> Field Conference, Geology of Llano Estacado, p. 257–264.
- Leonard, A.B., and Frye, J.C. 1978. *Paleontology of Ogallala Formation, Northeastern New Mexico*. New Mexico Bureau of Mines & Mineral Resources, Circular 161.
- Paleobiology Database. Accessed June 2022 from: <https://paleobiodb.org/#/>.

#### **4.6.2 Current Conditions and Trends, Regional Overview – 2022 Corona Generation Expansion**

No paleontological resources have been identified in the 2022 Corona Generation Expansion (Paleobiology Database, 2022). Geology consists of Middle Proterozoic, Permian, Tertiary, and Quaternary deposits. These geologic units have differing potential for yielding paleontological resources. Any discoveries which may occur during construction would be managed through an Unanticipated Discovery Protocol (UDP).

Middle Proterozoic deposits are approximately 1.8 to 1 billion years old. These granite and metamorphic rocks include the Ortega Quartzite and equivalents in northern New Mexico and quartzites in central New Mexico (Green et al., 1997). North of the 2022 Corona Generation Expansion, these localized deposits cluster in and around Pedernal Mountain, east of McGillivray Draw (approximately 10 miles south of Clines Corner, NM). These deposits do not contain substantive fossils but can include microfossils. Potential for paleontological remains in Middle Proterozoic rocks varies from very low to none.

Permian deposits include the Yeso, Glorieta, and San Andres formations, as well as formations associated with the Artesia Group. These deposits of sandstone and limestone have metamorphosed into dolomite and other types of rocks that are called *textually mature*. Fossils did not survive that metamorphosis. The only fossils that are recovered from the Permian deposits of New Mexico are either in very fine silts or in now-coal formations; neither of which are found in the Project Area (Green et al., 1997). Potential for paleontological remains varies from very low to none.

The Tertiary period is represented by the alluvial and eolian deposits and petrocalcic soils of the Ogallala Formation. This formation has been known to contain scattered unfossiliferous megafaunal elements (such as mastodon/gomphothere bones/teeth), a variety of smaller mammals, turtles, fish, gastropods, plants, and trace fossils (Leonard and Frye, 1978; Hunt and Santucci, 2001). Given the scattered nature of the finds in the unconsolidated Tertiary Ogallala Formation, the potential for paleontological deposits is low.

Quaternary deposits include Late Pleistocene alluvium and older Piedmont alluvial, eolian, and lacustrine deposits of the Tahoka, Double Tanks, Tule, Blanco, Blackwater Draw, and Gatuna formations (Green et al., 1997). Paleontological resources are not fossiliferous and consist of an array of mammals, turtles, fish, gastropods, plants, and trace fossils (Leonard and Frye, 1978; Hunt and Santucci, 2001). Late Pleistocene and Holocene age alluvium is stored in draws and in stream valley landforms. Given the sparse and

scattered nature of the finds in the unconsolidated Quaternary deposits, the potential for paleontological deposits is low.

The alluvial deposits consist of sand and gravels that were deposited during the Lower Pleistocene into the Holocene. A diverse assemblage of not fossiliferous mammals (including bison and mammoths), birds, fish, gastropods, plants, wood, and trace fossils could occur in these deposits (Leonard and Frye, 1978; Hunt and Santucci, 2001). Given that most modern fauna developed by the Early Holocene, the potential of finding now extinct or important paleontological resources in these deposits is low.

## 4.7 Water Resources

### 4.7.1 Data Sources

The following data sources were reviewed to assess the existing water resources Lincoln and Torrance Counties and the 2022 Corona Generation Expansion.

- Burns & McDonnell. 2022. “Desktop Wetland Evaluation, Corona Wind Projects, Pattern SC Holdings LLC,” letter report to Adam Cernea Clark, Pattern SC Holdings LLC, dated June 10, 2022.
- EPA. 2021b. *Ecoregions of North America*. Accessed June 2022 from: <https://www.epa.gov/ecoresearch/ecoregions-north-america>.
- Federal Emergency Management Agency (FEMA). 2022. *Flood Map Service Center*. Accessed June 2022 from: <https://msc.fema.gov/portal/search>.
- Google Earth. 2022. Publicly available aerial imagery. Accessed June 2022 from: <https://www.google.com/earth/download>.
- Playa Lakes Joint Venture (PLJV). 2022. *Maps of Probable Playas, Roosevelt, New Mexico*. Accessed June 2022 from: <http://pljv.org/for-habitat-partners/maps-and-data/interactive-playa-map/>.
- USDA Farm Service Agency (USDA FSA). 2020. *National Agriculture Imagery Program (NAIP)*. Accessed June 2022 from: <https://gis.apfo.usda.gov/arcgis/rest/services>.
- USDA NRCS. 2022. *Web Soil Survey*. Accessed June 2022 from: <http://websoilsurvey.nrcs.usda.gov>.
- U.S. Fish and Wildlife Service (USFWS). 2022c. *National Wetlands Inventory (NWI) Data Mapper*. Accessed June 2022 from: <https://fwsprimary.wim.usgs.gov/wetlands/apps/wetlands-mapper/>

- USGS. 2022b. *Historical Topographic Map Explorer*. Accessed June 2022 from <https://livingatlas.arcgis.com/topoexplorer/>.
- USGS. 2022c. *National Hydrography Dataset (NHD)*. Accessed June 2022 from: <https://nhd.usgs.gov/tools.html>.
- USGS and USDA NRCS. 2022. *Watershed Boundary Dataset*. Accessed June 2022 from: <https://datagateway.nrcs.usda.gov/Catalog/ProductDescription/WBD.html>.
- Western Regional Climate Center. 2016. *Climate of New Mexico*. Accessed March 2022 from: [https://wrcc.dri.edu/Climate/narrative\\_nm.php](https://wrcc.dri.edu/Climate/narrative_nm.php).

#### 4.7.2 Current Conditions and Trends, Regional Overview – 2022 Corona Generation Expansion

The 2022 Corona Generation Expansion is situated in various watersheds throughout the area of development (Exhibit 6; Table 4-2). Surface water features in the vicinity of the 2022 Corona Generation Expansion include ponds, intermittent drainages and stream channels.

**Table 4-2: 2022 Corona Generation Expansion Watersheds**

Watershed	HUC 10 <sup>a</sup>
Camaleon Draw	1306000302
Bonita Canyon	1306000601
Cola de Gallo Arroyo	1306000602
Headwaters Gallo Arroyo	1306000603
Town of Cedarvale	1305000202
Pueblo Blanca Canyon	1305000107

<sup>a</sup> 10-digit Hydrologic Unit Code  
 Source: USGS and USDA NRCS, 2022

Wetlands, floodplains, and streams were inventoried for the 2022 Corona Generation Expansion. The National Wetland Inventory (NWI) data documented approximately 400 acres of wetlands within the 2022 Corona Generation Expansion (see Table 4-3) (USFWS, 2022c). The NWI identified wetlands included three wetland types: freshwater emergent wetland, freshwater pond, and riverine (Exhibit 7). According to the USGS National Hydrography Dataset (NHD), 2022 Corona Generation Expansion has approximately 124.6 miles of mostly unnamed intermittent stream features (USGS, 2022c). There are no mapped ephemeral or perennial streams, approximately 7.8 miles of artificial paths and connectors present.

**Table 4-3: 2022 Corona Generation Expansion Wetlands Based on the U.S. Fish and Wildlife Service National Wetland Inventory Data**

Wetland Type	Sum of Acres	Percentage of 2022 Corona Generation Expansion Land Area
Freshwater Emergent Wetland	17.22	0.03%
Freshwater Pond	8.21	0.01%
Riverine	314.52	0.49%
<b>Total</b>	<b>339.95</b>	<b>0.53%</b>

Source: USFWS, 2022c

The 2022 Corona Generation Expansion is part of the Southeastern Plains of New Mexico which slope gradually eastward and southeastward. This part of these eastern plains lies within the Pecos River watershed and flows southward through the Southeastern Plains into Texas, and then southeastward to join the Rio Grande. Summer rains fall almost entirely during brief, but frequently intense thunderstorms. July and August are the rainiest months over most of the State, with 30 to 40 percent of the year’s total moisture falling at that time. During the warmest six months of the year, May through October, total precipitation averages 80 percent of the annual total.

General floods are seldom widespread in New Mexico. Heavy summer thunderstorms may bring several inches of rain to small areas in a short time. Because of the rough terrain and sparse vegetation in many areas, runoffs from these storms frequently cause local flash floods. Normally dry arroyos may overflow their banks for several hours, halting traffic where water crosses highways; damaging bridges, culverts, and roadways; and if in an urban area, possibly causing considerable property damage. Snowmelt during April to June, especially in combination with a warm rain, and heavy general rains during August to October may occasionally cause flooding of the larger rivers (Western Regional Climate Center, 2016).

Playa lakes are shallow, clay-lined ephemeral rainwater basins occurring throughout the Great Plains ecoregion (EPA, 2021b). There are estimated to be over 4,000 playa lakes in eastern New Mexico, none of which occur within the 2022 Corona Generation Expansion (PLJV, 2022). Approximately 35,545 acres of FEMA mapped floodplain fall within the 2022 Corona Generation Expansion. Approximately 35,099 acres are mapped as FEMA Zone D floodplain (unknown flood risk) and the remainder lies within unmapped or minimal flood hazard FEMA areas (FEMA, 2022) (Exhibit 8).

Burns & McDonnell Engineering Company, Inc. (Burns & McDonnell) performed a desktop evaluation to identify locations where wetlands and other waterbodies may exist within the footprint of the Corona



Wind Project, including the 2022 Corona Generation Expansion. During the desktop evaluation, data from multiple map sources were reviewed, then integrated into a single digital layer overlaid on the Project Area. A probability of wetland occurrence was then designated, based on the amount of overlap among the map sources. The following map sources were included:

- NRCS Soil Survey Geographic (SSURGO) digital data (USDA NRCS, 2022);
- USFWS NWI maps (USFWS, 2022c);
- USGS 7.5-minute topographic maps (USGS, 2022b);
- USGS NHD digital data (USGS, 2022c);
- FEMA Flood Insurance Rate Maps (FIRMs) (FEMA, 2022);
- National Agriculture Imagery Program (NAIP) 2020 natural color aerial photography (USDA FSA, 2020); and
- Google Earth aerial imagery (Google Earth, 2022).

The majority of acreage within the footprint of the 2022 Corona Generation Expansion received a designation of “No Probability” of wetland occurrence (Burns & McDonnell, 2022). While the actual location and extent of wetlands and waterbodies as determined by an on-site wetland delineation may differ from the desktop evaluation, the results of the desktop evaluation are useful to indicate areas where impacts to probable wetlands and waterbodies should be avoided or minimized.

## **4.8 Flora and Fauna**

### **4.8.1 Data Sources**

The following data sources were reviewed to assess the existing biological resources of Lincoln and Torrance Counties and the 2022 Corona Generation Expansion.

- Cornell Lab of Ornithology. 2022. *eBird* (online database). Accessed June 2022 from: <https://ebird.org/>.
- EPA. 2021b. *Ecoregions of North America*. Accessed June 2022 from: <https://www.epa.gov/eco-research/ecoregions-north-america>.
- Multi-Resolution Land Characteristics Consortium (MRLC). 2021. *2019 National Land Cover Database (NLCD)*. Accessed June 2022 from: <https://www.mrlc.gov/>
- National Audubon Society. 2022. *Important Bird Areas*. Accessed June 2022 from: <http://www.audubon.org/important-bird-areas>.

- New Mexico Avian Conservation Partners (NMACP). 2017. *Bald Eagle (Haliaeetus leucocephalus)*. Accessed June 2022 from: <http://avianconservationpartners-nm.org/wp-content/uploads/2017/01/Bald-Eagle.pdf>.
- New Mexico Department of Game & Fish (NMDGF). 2022. *Biota Information System of New Mexico (BISON-M)*. Accessed June 2022 from: <https://bison-m.org/#>.
- NMDGF and Natural Heritage New Mexico (NHNM). 2013. *New Mexico Crucial Habitat Assessment Tool (NM CHAT)*. Accessed June 2022 from: <http://nmchat.org/data.html>.
- Southern Great Plains Crucial Habitat Assessment Tool (SGP CHAT). 2022. Accessed June 2022 from: <https://www.sgpchat.org/>
- USFWS. 2022a. *Environmental Conservation Online System (ECOS) Species Profiles*. Accessed June 2022 from: <https://ecos.fws.gov/ecp/species-reports>.
- USFWS. 2022b. *Information for Planning and Consultation (IPaC) web application*. Accessed June 2022 from: <https://ecos.fws.gov/ipac/>.
- USGS. 2022a. *Gap Analysis Project (GAP) Protected Areas Database of the U.S. (PAD-US)*. Accessed June 2022 from: <https://gapanalysis.usgs.gov/padus/>.
- WEST, Inc. 2017a. *Critical Issues Analysis for the Proposed Ancho Wind Project*. Report issued March 2017.
- WEST, Inc. 2017b. *Critical Issues Analysis for the Proposed Cowboy Mesa Wind Project*. Report issued March 2017.
- WEST, Inc. 2017c. *Raptor Nest Survey, Pattern Wind Energy Project*. Report issued August 2017.

#### **4.8.2 Current Conditions and Trends, Regional Overview – 2022 Corona Generation Expansion**

The New Mexico Crucial Habitat Assessment Tool (NM CHAT) is a habitat classification system for crucial habitat using a relative, six-level prioritization scheme, where 1 represents most crucial areas and 6 represents least crucial areas. The NM CHAT identified approximately 1,805 acres within the 2022 Corona Generation Expansion as Rank 1 for Wildlife Corridors for the cougar (*Puma concolor*), which are defined as areas that link core habitats for sustaining populations across landscapes (NMDGF and NHNM, 2013). Approximately 94 percent of the overall area was either Rank 3 or Rank 4 for crucial habitat, which is defined as areas that may provide high-priority wildlife corridors, mid-level priority wetland/riparian habitat, or mid-level habitat for species of concern.

The 2022 Corona Generation Expansion is within the Central New Mexico Plains, Pinyon-Juniper Woodlands and Savannas, and Pluvial Lake Basins Level IV Ecoregions (Exhibit 9) (EPA, 2021b). Considering the potential habitats present within these ecoregions, the likelihood of a special-status animal or plant species that may occur was determined by considering the species' range, habitat suitability, species' mobility, population size, and records of occurrence within or adjacent to the 2022 Corona Generation Expansion (USFWS, 2022a; USGS, 2022a). Based on these factors, the likelihood of occurrence was defined for each special-status species using the following categories:

- **None** – outside the species known range, no suitable habitat within the 2022 Corona Generation Expansion, restricted mobility and small population size;
- **Not likely** – outside the species known range and suitable habitat appears absent within the 2022 Corona Generation Expansion; however, due to the species mobility and population size, species may occur within the 2022 Corona Generation Expansion during migration or other times of the year;
- **Possible** – is located within the range of the species but contains marginal suitable habitat; species highly mobile and may occur year-round;
- **Likely** – is located within the range of the species and contains suitable habitat; records of species occurrence in the surrounding area but no records from the 2022 Corona Generation Expansion; and
- **Occurs** – records of species occurrence within the 2022 Corona Generation Expansion based on USFWS/NMDGF data or other survey data.

Brief species accounts are written for special-status and other protected species whose likelihood of occurrence was either possible, likely, or occurs.

#### **4.8.2.1 Federally Listed Species**

Seven animal species that are federally listed under the Endangered Species Act (ESA) may potentially occur in the 2022 Corona Generation Expansion (USFWS, 2022b). Table 4-4 summarizes the list of federally protected species with potential to occur in Lincoln and Torrance counties and an impact analysis based on a literature review of species' specific habitat requirements (USFWS, 2022a).

**Table 4-4: Federally Listed Species in the 2022 Corona Generation Expansion**

Common Name	Scientific Name	Federal Status <sup>a</sup>	Likelihood of Occurrence
<b>Birds</b>			
Mexican spotted owl	<i>Strix occidentalis lucida</i>	T	<b>Possible.</b> The 2022 Corona Generation Expansion area is located with the elevational and ecological range for the owl. Evergreen forest within the 2022 Corona Generation Expansion area may provide suitable nesting or wintering habitat.
Yellow-billed cuckoo	<i>Coccyzus americanus</i>	T	<b>Not likely.</b> The 2022 Corona Generation Expansion area is not likely to include riparian, wetlands, riverine, lacustrine, or otherwise suitable habitat. There is at least some potential for the species to migrate through the 2022 Corona Generation Expansion area.
Northern aplomado falcon	<i>Falco femoralis septentrionalis</i>	EXPN	<b>Possible.</b> This species forages in open terrain with scattered shrubs, which is likely present in portions of the 2022 Corona Generation Expansion area.
Southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	E	<b>Not likely.</b> The 2022 Corona Generation Expansion area is not likely to include dense riparian, riverine, lacustrine, or otherwise suitable habitat; however, this species may migrate through the region.
<b>Mammals</b>			
Peñasco least chipmunk	<i>Tamias minimus atristriatus</i>	PE	<b>Not likely.</b> The 2022 Corona Generation Expansion area is outside the known range of this species (White and Sacramento Mountains).
<b>Fishes</b>			
Rio Grande cutthroat trout	<i>Oncorhynchus clarkia virginalis</i>	C	<b>Not likely.</b> The 2022 Corona Generation Expansion area is not likely to permanently impact linear waterbodies.
<b>Insects</b>			
Monarch butterfly	<i>Danaus plexippus</i>	C	<b>Possible.</b> The 2022 Corona Generation Expansion area is likely to include suitable habitat.

Source: USFWS, 2022b

<sup>a</sup> E=Endangered, T=Threatened, C=Candidate, EXPN=Experimental Population Non-Essential, PE= Proposed Endangered

#### 4.8.2.2 State Listed Species

State listed endangered or threatened wildlife species are identified for Lincoln and Torrance Counties in which the 2022 Corona Generation Expansion is located (NMDGF, 2022), as shown in Table 4-5. These species include two mammals, eight birds, one amphibian, and one fish.

**Table 4-5: State Listed Species in the 2022 Corona Generation Expansion**

Common Name	Scientific Name	State Status <sup>a</sup>	Likelihood of Occurrence
<b>Mammals</b>			
Spotted bat	<i>Euderma maculatum</i>	T	<b>Not likely.</b> The 2022 Corona Generation Expansion area is not likely to affect cliff habitat; however, isolated individuals may forage in pinyon-juniper woodlands near cliffs.
Penasco least chipmunk	<i>Neotamias minimus atristriatus</i> <sup>b</sup>	E	<b>Not likely.</b> The 2022 Corona Generation Expansion area is outside the known range of this species (White and Sacramento Mountains).
<b>Birds</b>			
Broad-billed hummingbird	<i>Cynanthus latirostris</i>	T	<b>Not likely.</b> The 2022 Corona Generation Expansion area is not likely to include riparian forest and is located outside of known habitat. This species is typically found in the Guadalupe Canyon in NM east of the 2022 Corona Generation Expansion area.
Brown pelican	<i>Pelecanus occidentalis</i>	E	<b>Not Likely.</b> Species primarily inhabits marine areas and is a rare visitor to New Mexico. The 2022 Corona Generation Expansion area does not contain large water bodies or major rivers that may attract the species.
Bald eagle	<i>Haliaeetus leucocephalus</i>	T	<b>Likely.</b> Species likely to occur within the 2022 Corona Generation Expansion area as occasional winter visitor.
Common black hawk	<i>Buteogallus anthracinus</i>	T	<b>Not Likely.</b> The 2022 Corona Generation Expansion area is not likely to contain suitable riparian woodland habitat.
Peregrine falcon	<i>Falco peregrinus</i>	T	<b>Likely.</b> Peregrine likely to occur in The 2022 Corona Generation Expansion area as occasional year-round resident and migrant.
Southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	E	<b>Not Likely.</b> The 2022 Corona Generation Expansion area does not appear to contain suitable riparian breeding habitat.
Gray vireo	<i>Vireo vicinior</i>	T	<b>Possible.</b> Species may occur in the 2022 Corona Generation Expansion area as summer resident or migrant.
Baird's sparrow	<i>Centronyx bairdii</i>	T	<b>Possible.</b> Species may occur in the 2022 Corona Generation Expansion area during migration; 2022 Corona Generation Expansion area is outside species' breeding range but presents suitable habitat.
<b>Amphibians</b>			

Common Name	Scientific Name	State Status <sup>a</sup>	Likelihood of Occurrence
Sacramento Mountain salamander	<i>Aneides hardii</i>	T	<b>Not likely.</b> The 2022 Corona Generation Expansion area is outside of known range for this species (Capitan, Sacramento, and Sierra Blanca Mountains)
<b>Fish</b>			
White Sands pupfish	<i>Cyprinodon tularosa</i>	T	<b>Not likely.</b> The 2022 Corona Generation Expansion area is not likely to permanently impact linear waterbodies.

Source: NMDGF, 2022

<sup>a</sup> E=Endangered, T=Threatened

<sup>b</sup> NMDGF database lists the Penasco least chipmunk with genus *Neotamias* rather than the USFWS database listing of genus *Tamias*.

Federally- and state-listed species which may be likely or possible to occur within the 2022 Corona Generation Expansion are further discussed in the following subsections.

#### 4.8.2.3 Birds

Passerines, raptors, waterfowl, and waterbirds likely migrate through the footprint of the 2022 Corona Generation Expansion. Grassland and cropland provide stopover habitat during migration or during post breeding dispersal and may attract a broad suite of birds (SGP CHAT, 2022; USGS, 2022a). Waterfowl and waterbirds (including shorebirds) would primarily be attracted to the small emergent wetlands and open water as stopover habitat during migration, these resources comprise less than 1 percent of the footprint of the 2022 Corona Generation Expansion (MRLC, 2021).

The Baird’s sparrow is a state-threatened grassland bird species that breeds in the tall grasses of the northern Great Plains and winters in northern Mexico and the southern-most areas of Arizona and New Mexico. The gray vireo is a state-threatened forest bird species that breeds in open woodlands and shrublands featuring evergreen trees and shrubs. While the 2022 Corona Generation Expansion is outside of the breeding range of these species, it does fall within the migratory pathways and there is at least some potential for the species to occur within the area of the 2022 Corona Generation Expansion during migration (Exhibit 10; National Audubon Society, 2022).

##### 4.8.2.3.1 Bald Eagle

Bald eagles are no longer listed as threatened under the ESA; however, they continue to be protected under the Bald and Golden Eagle Protection Act (BGEPA) and are state-listed as threatened. Bald eagles are known to occur in New Mexico year-round, with larger densities during both spring and fall migration, and during the winter (Cornell Lab of Ornithology, 2022). Bald eagles are uncommon breeders in New Mexico, with less than 10 pairs estimated to occur throughout the state as of 2017 (NMACP,

2017). In New Mexico, bald eagle nests are placed in large cottonwoods or ponderosa pines, typically in the vicinity of water and often also in close proximity to concentrations of small mammals such as prairie dogs (NMDGF, 2022), none of which exist in the 2022 Corona Generation Expansion. Bald eagles have been observed near Clines Corners, NM, as well as near the Pecos River, respectively 31 miles north and 48 miles northeast of the 2022 Corona Generation Expansion (Cornell Lab of Ornithology, 2022; WEST, 2017b). Potential bald eagle occurrence within the 2022 Corona Generation Expansion would be infrequent, due to the lack of large trees for perching and lack of optimal foraging habitat. However, bald eagles may occur occasionally as migrants or transient wintering birds, and grasslands and ponds in the footprint of the 2022 Corona Generation Expansion may attract foraging bald eagles.

#### **4.8.2.3.2 Raptors**

Based on raptor distribution maps (WEST, 2017c), at least 15 species of diurnal raptors, including the bald eagle, 9 owl species, and 1 vulture species may occur within or near the 2022 Corona Generation Expansion. The 2022 Corona Generation Expansion contains limited breeding habitat for most raptors because it lacks much mature forested area, which is preferred breeding habitat for many tree-nesting raptor species. Tree-nesting species would resort to nesting in man-made structures in open herbaceous areas that encompass the 2022 Corona Generation Expansion. Additionally, there are few topographic features such as ridges and large bodies of water present that would attract migrating raptors. The 2022 Corona Generation Expansion contains foraging habitat for many grassland- and wetland-associated species. Raptors could use open fields and small bodies of water where prey are present for hunting in the 2022 Corona Generation Expansion.

Two state-listed threatened species, the bald eagle and peregrine falcon, and one federally-listed species, the Mexican spotted owl, have potential to occur in the 2022 Corona Generation Expansion. As discussed in Section 4.8.2.3.1 above, bald eagle habitat is lacking, but bald eagles may occur occasionally as migrants or transient wintering birds. The peregrine falcon is one of the largest falcons in North America. Peregrine falcons are associated with habitats from sea level to 13,000 ft (4,000 meters [m]), including plains, grasslands, shrublands, forests, and deserts (WEST, 2017a). Peregrine falcons show little preference for specific ecological communities, but their hunting behavior makes them most adapted to open or partially wooded habitats (WEST, 2017a). In New Mexico, the species may nest in cliffs and hunt in a variety of woodland, grassland, and shrub/scrub habitats (USGS, 2022a). Mexican spotted owls are typically found between 4,100 ft (1,250 m) and 9,000 ft (2,740 m) in elevation. Mexican spotted owls are residents of old growth forests and canyons containing riparian or conifer communities (USFWS, 2022a).

#### **4.8.2.4 Insects**

The monarch butterfly, a federally-listed candidate insect species, has the potential to occur in the 2022 Corona Generation Expansion. Monarch butterflies occur through the United States and are known to migrate seasonally between the United States & Canada and Mexico. Monarch butterflies lay eggs primarily on milkweed host plants and seek out a variety of flowering plants for food. The 2022 Corona Generation Expansion appears to be dominated by herbaceous grasslands, shrub/scrub, and evergreen forest. These vegetation communities have high potential to support a diversity of blooming nectar resources, including milkweed which is crucial for the species (USFWS, 2022a). The monarch butterfly is currently listed as a candidate species which does not provide protection under the ESA.

### **4.9 Archaeological and Historic-Age Cultural Resources**

#### **4.9.1 Data Sources**

The following data sources were reviewed to assess the archaeological and historic-age cultural resources in Lincoln and Torrance Counties as crossed by the 2022 Corona Generation Expansion.

- BLM. 2022b. *General Land Office (GLO) Records*. Accessed June 2022 from: <https://glorerecords.blm.gov/>.
- Green, G.N., Jones, G.E., and Anderson, O.J. 1997. *The Digital Geologic Map of New Mexico in ARC/INFO Format: U.S. Geological Survey Open-File Report 97-0052*. Accessed June 2022 from <https://mrdata.usgs.gov/geology/state/fips-unit.php?code=f35019>.
- New Mexico Cultural Resource Information System (NMCRIS). 2022. Accessed June 2022 from: <https://nmcris.dca.state.nm.us>.
- USGS. 2022b. *Historical Topographic Map Explorer*. Accessed June 2022 from <https://livingatlas.arcgis.com/topoexplorer/>.

#### **4.9.2 Current Conditions and Trends, Regional Overview – 2022 Corona Generation Expansion**

A total of 21 archaeological sites have been previously recorded within the 2022 Corona Generation Expansion (NMCRIS, 2022). There have been 11 prehistoric sites, six historic-age sites, one multicomponent site, and three sites with unknown temporal affiliation recorded within the 2022 Corona Generation Expansion, as shown in Table 4-6. Two of the sites have been determine eligible for inclusion in the National Register of Historic Places (NRHP), one has been determined not eligible for NRHP inclusion, and 18 sites have undetermined NRHP eligibility or have no eligibility determination listed.



One historic-age non-archaeological resource is reported within the 2022 Corona Generation Expansion. HCPI4071 is a historic-age building with unknown NRHP eligibility and may no longer be extant.

**Table 4-6: Archeological Sites within the 2022 Corona Generation Expansion**

Site	Site Type	NRHP Eligibility
LA1847	Prehistoric	Unknown
LA6913	Unknown	Undetermined
LA86109	Historic	Unknown
LA127402	Historic	Not eligible
LA130457	Prehistoric	Unknown
LA130459	Prehistoric	Unknown
LA131113	Historic	Undetermined
LA131118	Multicomponent	Eligible
LA131119	Historic	Undetermined
LA131120	Historic	Undetermined
LA131150	Historic	Undetermined
LA176560	Unknown	Unknown
LA176561	Prehistoric	Unknown
LA176562	Prehistoric	Unknown
LA176564	Prehistoric	Unknown
LA182192	Unknown	Undetermined
LA182193	Prehistoric	Eligible
LA197090	Prehistoric	Undetermined
LA197091	Prehistoric	Undetermined
LA197092	Prehistoric	Undetermined
LA200601	Prehistoric	Unknown

Source: NMCRIS, 2021

The review of geology and historic-age maps indicates that undocumented cultural materials, both prehistoric and historic-age, may be located within the 2022 Corona Generation Expansion, particularly around the major drainages and their tributaries and in areas where ranches appear on historic-age topographic maps (BLM, 2022b; USGS, 2022b; Green et al., 1997).

## 4.10 Religious and Cemetery Sites

### 4.10.1 Data Sources

The following data sources were reviewed to assess the existing religious and cemetery sites in Lincoln and Torrance Counties as crossed by the 2022 Corona Generation Expansion.

- American Cemeteries. 2022a. *Cemeteries of Lincoln County, New Mexico*. Accessed June 2022 from: <http://www.americancemeteries.org/new-mexico/Lincoln-county>.
- American Cemeteries. 2022b. *Cemeteries of Torrance County, New Mexico*. Accessed June 2022 from: <http://www.americancemeteries.org/new-mexico/torrance-county>.

- Esri. 2022. GIS data for religious sites and cemeteries in Lincoln and Torrance Counties, New Mexico. Accessed June 2022 from: <https://www.esri.com>.

## 4.10.2 Current Conditions and Trends, Regional Overview – 2022 Corona Generation Expansion

One religious institution, San Juan Bautista Catholic Church, was identified within one mile of the 2022 Corona Generation Expansion (Esri, 2022). Two cemeteries, Pinos Well Cemetery and Pinos Well Cemetery #2, are located within the 2022 Corona Generation Expansion. Three additional cemeteries are located within one mile of the 2022 Corona Generation Expansion: Cedarvale Cemetery, Corona Cemetery, and San Juan Bautista Cemetery (Exhibit 11; American Cemeteries, 2022a, 2022b; Esri, 2022). Unknown or abandoned cemeteries could be within the footprint.

## 4.11 Visual and Scenic Resources

### 4.11.1 Data Sources

The following data sources were reviewed to assess the existing visual and scenic conditions of Lincoln and Torrance Counties for the 2022 Corona Generation Expansion.

- BLM. 2022a. *Explore Your Public Lands*. Accessed June 2022 from: <https://www.blm.gov/visit>.
- BLM. 2022c. *National Data Viewer*. Accessed June 2022 from: <https://blm-egis.maps.arcgis.com/apps/webappviewer/index.html?id=6f0da4c7931440a8a80bfe20eddd7550>
- EPA. 2021b. *Ecoregions of North America*. Accessed June 2022 from: <https://www.epa.gov/eco-research/ecoregions-north-america>.
- Federal Highway Administration (FHWA). 2022. *America's Byways*. Accessed June 2022 from: <https://www.fhwa.dot.gov/byways/>.
- National Park Service (NPS). 2022a. *Find A Park: New Mexico*. Accessed June 2022 from: <https://www.nps.gov/state/nm/index.htm>
- NPS. 2022b. *National Natural Landmarks Directory*. Accessed June 2022 from: <https://www.nps.gov/subjects/nlandmarks/nation.htm>
- NMDOT. 2012a. *Explore New Mexico's Scenic Byways*. Accessed June 2022 from: <https://www.dot.state.nm.us/content/nmdot/en/byways.html>.
- New Mexico Energy, Minerals and Natural Resources Department (NMEMNRD). 2022. *Find A Park*. Accessed June 2022 from: <https://www.emnrd.nm.gov/spd/find-a-park/>.
- U.S. Census. 2020. Accessed June 2022 from: [www.census.gov](http://www.census.gov).

#### **4.11.2 Current Conditions and Trends, Regional Overview – 2022 Corona Generation Expansion**

The 2022 Corona Generation Expansion encompasses approximately 63,549 acres of private and state lands within the Southwestern Tablelands Level III Ecoregion (EPA, 2021b) located within Torrance and Lincoln Counties. The EPA Ecoregions description for the Southwestern Tablelands states:

*The Southwestern Tablelands flank the High Plains with red hued canyons, mesas, badlands, and dissected river breaks. Unlike most adjacent Great Plains ecological regions, little of the Southwestern Tablelands is in cropland. Much of this region is in sub-humid grassland and semiarid range land. The potential natural vegetation is grama-buffalo grass with some mesquite-buffalo grass in the southeast, juniper-scrub oak-midgrass savanna on escarpment bluffs, and shinnery (midgrass prairie with open low and shrubs) along the Canadian River.*

More specifically, the 2022 Corona Generation Expansion occurs within the Central New Mexico Plains, Pinyon-Juniper Woodlands and Savannas, and Pluvial Lake Basins ecoregions containing short-grass prairie and pinyon-juniper woodland plant communities (EPA, 2021b). Common vegetation of the Southwestern Tablelands includes grama grasses (*Bouteloua gracilis*), buffalo grass (*B. dactyloides*), piñon pine (*Pinus* spp.), junipers (*Juniperus* spp.), and scrub oak (*Quercus gambelii*). This combined area is bounded by the Sacramento Mountains to the south, including the Jicarilla, Capitan and Vera Cruz ranges, and the Gallinas Mountains to the west. East and north of the combined area, the landscape transitions to mixed Chihuahuan Desert grassland.

Approximately 30,811 acres of State Trust Lands administered by the New Mexico State Land Office (SLO) are included within the 2022 Corona Generation Expansion. Non-private lands in proximity to the combined area include portions of the Mountainair District of the Cibola National Forest, Smokey Bear District of the Lincoln National Forest, BLM lands, and other State Trust Lands administered by the SLO (Exhibit 12).

Topography within the 2022 Corona Generation Expansion is variable, including relatively flat grassland, gentle slopes, small ridgelines, canyons, hills, mesas, canyons, and steep slopes. Herbaceous/grassland cover types dominate the landscape. Land use within the 2022 Corona Generation Expansion is primarily open range livestock grazing. Elevation within the 2022 Corona Generation Expansion ranges from 5,520 to 7,013 ft (1,682 to 2,137 m) above mean sea level (see Exhibit 13). The 2022 Corona Generation Expansion is located within 6 Public Land Survey System (PLSS) ranges and 3 PLSS townships in Lincoln County, New Mexico, and 4 PLSS ranges and 4 PLSS townships in Torrance County, New Mexico (Exhibit 14).

Lincoln and Tarrant Counties are both large and rather sparsely populated counties located in central New Mexico, southeast of the City of Albuquerque. The population density for Lincoln County is approximately 4.2 inhabitants per square mile, with most of the population in the county's southern portion in the Greater Ruidoso Area. Tarrant County's population density is approximately 4.5 inhabitants per square mile, with over 95 percent of the population residing in the western half of the county. A few inhabitable residences are within the 2022 Corona Generation Expansion, and other scattered rural residences and small communities are nearby. The village of Corona, New Mexico (2020 population of 129), is the closest incorporated community, located along U.S. Highway 54 roughly one mile north of the 2022 Corona Generation Expansion (U.S. Census, 2020). The next nearest incorporated communities include the village of Encino (2020 population of 51) and the town of Vaughn (2020 population 286), approximately 11 miles north and 11 miles northeast of the 2022 Corona Generation Expansion, respectively. Lincoln Station Airport is an unpaved private landing strip located within the 2022 Corona Generation Expansion's westernmost parcel in Lincoln County. High Desert Ranch Airport is another private landing strip in Lincoln County, located less than 2 miles southeast of the easternmost parcel of the 2022 Corona Generation Expansion. The closest school is the Corona High School and Elementary School (same building), approximately 1 mile north of the 2022 Corona Generation Expansion (Exhibit 18).

Travelers in proximity to the 2022 Corona Generation Expansion would include local traffic along U.S. Highway 54 and New Mexico State Routes 42 and 247, or regional and interstate traffic along U.S. Highway 54 heading to the cities of Alamogordo and Las Cruces from westbound Interstate 40. One existing transmission line (100-kV or above) occurs within the vicinity of the 2022 Corona Generation Expansion. The 115-kV line owned by Central New Mexico Electric Cooperative crosses through the center of the 2022 Corona Generation Expansion along New Mexico State Route 42, Tarrant County Road C013, and U.S. Highway 54 north of the village of Corona. One natural gas pipeline operated by El Paso Corporation crosses the 2022 Corona Generation Expansion's westernmost parcel in Lincoln County. This parcel is adjacent to the El Paso Corporation pipeline's Lincoln compressor station.

No designated federal or state scenic routes or byways were identified in the vicinity of the 2022 Corona Generation Expansion (NMDOT, 2012a; FHWA, 2022) (Exhibit 15). The nearest scenic routes are New Mexico's Salt Missions Trail located 23 miles west, Historic Route 66 National Scenic Byway which is co-located with I-40 approximately 31 miles north, and Billy the Kid Trail National Scenic Byway approximately 39 miles south. No national or state parks, preserves, recreation areas, trails, or monuments are in the vicinity of the 2022 Corona Generation Expansion (BLM, 2022a; NPS, 2022a). The closest national park is the Gran Quivira Unit of Salinas Pueblo Missions National Monument, which is

approximately 23 miles west (NPS, 2022a). Fort Stanton-Snowy River Cave National Conservation Area is approximately 41 miles south and Valley of Fires Recreation Area is approximately 32 miles southwest of the 2022 Corona Generation Expansion; both sites are managed by the BLM (BLM, 2022a). Fort Stanton-Snowy River Cave National Conservation Area is also home to Fort Stanton Cave, which is included in the National Parks Service (NPS) National Natural Landmarks Directory (NPS, 2022b). Smokey Bear Historical Park is run by the U.S. Forest Service and is located in the village of Capitan, approximately 39 miles south. The nearest state parks are Manzano Mountains State Park, Villanueva State Park, and Santa Rosa Lake State Park, all of which are located more than 35 miles from the 2022 Corona Generation Expansion (NMEMNRD, 2022).

The BLM National Data Viewer indicates the segment of the 2022 Corona Generation Expansion located in Tarrant County has a Visual Resource Inventory (VRI) Scenic Quality Rating of C (indicating low scenic quality), based on a quantitative score of 5.00. The VRI index for Maintenance of Visual Quality in this area of Tarrant County indicates low value based on a qualitative analysis of the sensitivity of visual resources, except for the 3-mile-wide corridor around U.S. Highway 54, which is indicated as high value. No other portions of the 2022 Corona Generation Expansion, including all portions in Lincoln County, have been issued a VRI Scenic Quality Rating or Maintenance of Visual Quality value (BLM, 2022c).

Apart from the U.S. Highway 54 corridor, no known visually sensitive cultural resource sites are in the vicinity of the 2022 Corona Generation Expansion. No known organized tourism activities occur in or near the 2022 Corona Generation Expansion.

## **4.12 Land Use, Including Farm, Range, and Recreational Resources**

### **4.12.1 Data Sources**

The following data sources were reviewed to assess the existing land use, including farm, range and recreational resources of Lincoln and Tarrant Counties for the 2022 Corona Generation Expansion.

- Carrizozo Soil and Water Conservation District (Carrizozo SWCD). 2015. *Carrizozo Soil and Water Conservation District Land Use Plan*.
- East Tarrant SWCD. 2009. *East Tarrant Soil and Water Conservation District Long Range Plan, July 1, 2009 - June 30, 2019*. Accessed December 2021 from: <http://easttarranteswcd.org/PDF/LongRangePlan0919.pdf>.
- Lincoln County Board of Commissioners. 2018. *Comprehensive Land Use Plan*. Accessed June 2022 from: <https://www.lincolncountynm.gov/wp-content/uploads/2019/06/LC-Comprehensive-Land-Use-Plan.pdf>.

- Mid-Region Council of Governments of New Mexico. 2003. *Comprehensive Land Use Plan for Tarrant County, New Mexico, August 2003*. Accessed June 2022 from: <https://www.mrcog-nm.gov/DocumentCenter/View/3124/Tarrant-County-Comprehensive-Plan-August-2003-PDF>.
- Military Bases.com. 2022. *New Mexico Military Bases* (map). Accessed June 2022 from: <https://militarybases.com/new-mexico/>.
- MRLC. 2021. *2019 NLCD*. Accessed June 2022 from: <https://www.mrlc.gov/>
- Sites Southwest LLC. 2007. *Lincoln County Comprehensive Plan, August 2007*. Accessed June 2022 from: [https://www.lincolncountynm.gov/wp-content/uploads/2017/12/Final\\_Comp-2.pdf](https://www.lincolncountynm.gov/wp-content/uploads/2017/12/Final_Comp-2.pdf).
- The Board of County Commissioners of Tarrant County. 2020. *Tarrant County Zoning Ordinance*. Accessed September 2021 from: <https://www.tarrantcountynm.org/uploads/Downloads/Planning%20and%20Zoning/Ordinances/2020.07.08%20Tarrant%20County%20Zoning%20Ordinance%20Revised.pdf>.
- U.S. Bureau of Indian Affairs (BIA). 2022. *U.S. Domestic Sovereign Nations: Land Areas of Federally-Recognized Tribes Map*. Accessed June 2022 from: <https://biamaps.doi.gov/indianlands/#>.

#### **4.12.2 Current Conditions and Trends, Regional Overview – 2022 Corona Generation Expansion**

A review of the 2019 National Land Cover Database (NLCD) (MRLC, 2021) identified three major cover types in the 2022 Corona Generation Expansion: shrub/scrub 64 percent, grassland/herbaceous 33 percent, and evergreen forest 4 percent. Table 4-7 below summarizes the NLCD cover types in the 2022 Corona Generation Expansion.

**Table 4-7: National Land Cover Data Summary for the 2022 Corona Generation Expansion**

Land Cover	Acres	Percent <sup>a</sup>
Developed, Open Space	205.1	< 1%
Developed, Low Intensity	4.8	< 1%
Bare Rock/Sand/Clay	2.5	< 1%
Evergreen Forest	2,278.3	4%
Shrub/Scrub	40,383.7	64%
Grasslands/Herbaceous	20,661.6	33%
Woody Wetlands	3.1	< 1%
Emergent Herbaceous Wetlands	10.0	< 1%
<b>Total</b>	<b>63,549.1<sup>b</sup></b>	<b>100%<sup>b</sup></b>

<sup>a</sup> Percentages are rounded to the nearest whole number.

<sup>b</sup> Sum of components may not add up to the total due to the overlap of some GIS private-owned and state-owned land data received.

Source: MRLC, 2021

#### 4.12.2.1 Torrance County

Torrance County is a sparsely populated county covering approximately 3,345 square miles in central New Mexico, southeast of the City of Albuquerque. Over 95 percent of the population resides in the western half of the county (U.S. Census, 2020). Farming and open-range ranching have been the traditional economic activities of the county but are diminishing as the population grows in the Estancia Valley. Large-scale irrigated agriculture has become a major feature in the central portion of the Estancia Valley. Although these agricultural croplands rely solely on groundwater pumping, there is a reluctance to eliminate such land uses. Much of Torrance County is situated within the “commuter shed” of the Albuquerque metropolitan region and is growing in scattered residential subdivisions and housing developments. As a result, non-agricultural commerce and business sectors are growing as well.

Political jurisdictions and territories within Torrance County include five incorporated municipalities, significant acreage held in state and federal ownership, and a small area in the northwest corner of the county that occurs within the Isleta Reservation (BIA, 2022). The town of Moriarty contains the largest population within Torrance County and is located approximately 38 miles northwest of the 2022 Corona Generation Expansion. The county seat is located in the town of Estancia, approximately 27 miles northwest of the 2022 Corona Generation Expansion. The village of Encino is the closest populated place within Torrance County, roughly 11 miles north of the 2022 Corona Generation Expansion. Other incorporated communities scattered throughout the county include the town of Mountainair and the village of Willard. Major state and federal properties in the county include Manzano Mountains State Park, Gallinas National Forest, Cibola National Forest, and scattered BLM parcels (Exhibits 16, 17, 18,

and 19). No military bases are located in Torrance County (Military Bases.com, 2022). Also, there are all or portions of four Mexican Land Grants in the county.

The principal transportation infrastructure in Torrance County consists of roads and highways. The county is traversed by an interstate highway (I-40) and several state and federal highways forming the base road network for the county. Relatively good east-west and north-south corridors are in the county, although they are widely spaced. Torrance County has three public airports for general aviation and are all designed for small aircraft only: Moriarty Municipal Airport, Estancia Municipal Airport, and Mountainair Municipal Airport. Of these, only Moriarty Municipal Airport has paved runways. There are two railroads in the county: the Burlington Northern & Santa Fe Railroad, situated mostly along the U.S. Highway 60 transportation corridor, and the Union Pacific Railroad, situated along the US. Highway 54 corridor. Neither of these railroads has scheduled stops within Torrance County (Mid-Region Council of Governments of New Mexico, 2003).

The Torrance County Comprehensive Land Use Plan (CLUP) (July 2003) governs all land use planning in the county and provides the rationale and guidance for specific land use regulations and projects developed by the local government (Mid-Region Council of Governments of New Mexico, 2003). It establishes a basis for regulations and programs necessary to manage current and future land development within the jurisdiction of Torrance County. The Torrance County CLUP promotes consistency and continuity in making decisions to carry out the programs, projects, and operations of Torrance County. The county presently administers the comprehensive land use management program supported by regulatory ordinances and enforcement powers. Actual implementation of the Torrance County CLUP is subject to the policy directives and actions of the Board of County Commissioners as deemed appropriate.

In accordance with the Torrance County CLUP, the Torrance County Zoning Ordinance (revised 2020) establishes comprehensive zoning regulations for the unincorporated areas of Torrance County (The Board of County Commissioners of Torrance County, 2020). It is designed to promote health and the general welfare of the county; secure safety from fire, flood, and other dangers; protect local water resources; facilitate adequate provisions for transportation, solid waste management, water and wastewater systems, schools, parks, and other community requirements; conserve the value of property; and provide for the compatible development of land and other natural resources in the county.

The East Torrance Soil and Water Conservation District (SWCD) Long Range Plan (2009-2019) promotes stewardship of natural resources by providing conservation leadership, education, technical, and financial assistance to the residents of the District (East Torrance SWCD, 2009).



Within Torrance County, the Estancia High School is the closest school to the 2022 Corona Generation Expansion, located approximately 28 miles west. As of 2022, the Estancia Municipal School District includes three elementary schools, one middle school, and one high school serving approximately 611 students from pre-kindergarten through 12th grade.

#### **4.12.2.2 Lincoln County**

Lincoln County is a sparsely populated county covering 4,831 square miles in south central New Mexico. Land use includes sprawling shrub rangeland used for sheep, goat, and cattle ranching, as well as forested mountain ranges providing forestry, big game hunting, mining and, more recently, tourism. Farming and ranching have been the traditional economic activities of the county but are being replaced by service industries (retail, food service, entertainment), health services and social assistance, and real estate construction as the population grows in the resort communities of the Sierra Blanca Mountain Range. Most of the area where the Corona Wind Project will be developed are in agriculture and ranching use, far from the residential and commercial development occurring in the southern part of the county.

Lincoln County land ownership and jurisdictions are a mix of private and government lands. Of the 3,091,840 acres of land in Lincoln County, federally owned land makes up 33.6 percent as of 2018, including ownership by the Bureau of Land Management, United States Forest Service, and U.S. Department of Defense (Exhibit 17). State trust lands make up another 9.2 percent of Lincoln County land ownership (Lincoln County Board of Commissioners, 2018) (Exhibit 16). A very small portion of the Mescalero Apache Reservation occurs in the southernmost part of the county (BIA, 2022).

The Ruidoso/Ruidoso Downs/Alto Micropolitan Statistical Area in the south part of the county is where the great majority of Lincoln County's population resides. This area is a year-round resort and retirement destination, which has been an important economic generator for the county. Beside the towns of Ruidoso and Ruidoso Downs, Lincoln County has four other incorporated communities: the town of Carrizozo (which is the county seat), and the villages of Capitan, Corona, and Lincoln. The village of Corona is the nearest incorporated community to the 2022 Corona Generation Expansion, located approximately 1 mile north. Important natural features in Lincoln County include Lincoln National Forest, Sacramento Mountain Range, Capitan Mountain Range, Bonito Lake, Alto Lake, Grindstone Lake, Snowy River Cave Conservation Area, Rio Ruidoso, Rio Bonito, Rio Hondo, and the Valley of Fires lava fields (Lincoln County Board of Commissioners, 2018). Part of the U.S. Department of Defense White Sands Missile Range is located in the westernmost part of Lincoln County.

The three primary roadways into Lincoln County include: U.S. Route 380, which travels west to east connecting the north- and southbound Interstate 25 with the city of Roswell and west Texas; U.S. Route 70, which connects Las Cruces, Alamogordo, and Tularosa with Ruidoso and joins U.S. Route 380 at the unincorporated community of Hondo in southeast Lincoln County; and U.S. Route 54, which runs from El Paso, Texas, through Carrizozo and Corona, and northeastward through several states. Two small public airports are present in Lincoln County: Carrizozo Municipal Airport and Sierra Blanca Regional Airport. The Union Pacific Railroad passes through Lincoln County along the U.S. Highway 54 corridor, but it does not have scheduled stops within the county (Sites Southwest, 2007).

The Lincoln County Comprehensive Plan (August 2007) analyzes data on existing and anticipated population and economic growth to help set future goals and policies regarding land use, infrastructure, water use, natural resources, and economic development (Sites Southwest, 2007). The plan identifies no current zoning in the unincorporated part of the county, except for a Special Zoning District in the unincorporated community of Alto and several extraterritorial zones in Ruidoso and Ruidoso Downs. The Lincoln County CLUP (February 2018) updates the August 2007 Comprehensive Plan and provides direction from the people of Lincoln County to assist county, private, state, and federal decision makers in planning and management (Lincoln County Board of Commissioners, 2018). The plan promotes the productive use and protection of all essential scarce natural resources throughout the county. It provides an assessment of Lincoln County natural resources conditions and trends and includes goals, policies, and action plans. The Lincoln County CLUP addresses Wind Energy Conversion Systems such as those facilities that may be constructed within the 2022 Corona Generation Expansion, and states that dust generated by wind, drought conditions, unpaved access roads, mining operations, and oil and gas extraction is marginal for Lincoln County.

Historically engineered ditches and irrigation channels known as acequias are present in Lincoln County and are recognized under New Mexico law as political subdivisions of the state. Acequia associations are collectively run local government units that manage the distribution and use of surface water. Acequia water law in New Mexico requires three commissioners and a majordomo to administer irrigation and conservation but gives all citizens holding irrigation rights equal ownership and responsibility in the watershed use plan. Under acequia water law, transference of water for use outside the watershed is prohibited. Acequia systems in Lincoln County include Rio Bonito, Rio Ruidoso, and Rio Hondo, and irrigate approximately 2,230 acres (Lincoln County Board of Commissioners, 2018). All of these acequias are south of the 2022 Corona Generation Expansion.

The Carrizozo Soil and Water Conservation District Long Range Plan (2009-2019) promotes stewardship of natural resources by providing conservation leadership, education, technical, and financial assistance to the residents of the District (Carrizozo SWCD, 2015).

The Corona Elementary/Junior High/High School serves less than 100 students and covers pre-kindergarten through 12<sup>th</sup> grade, but is a hub for students from surrounding areas up to 40 miles away. This school is the closest school to the 2022 Corona Generation Expansion boundary within Lincoln County, located approximately 1 mile north of the 2022 Corona Generation Expansion.

## **4.13 Socioeconomics**

### **4.13.1 Data Sources**

The following data source was reviewed to assess the existing socioeconomic conditions of Lincoln and Torrance Counties and the 2022 Corona Generation Expansion.

- Arrowhead Center. 2021. *State of New Mexico County-Level Revenue & Expenditure Analysis, 2015-2019*. Accessed June 2022 from: <https://www.nmcounties.org/wp-content/uploads/2021/02/New-Mexico-Revenue-Expenditure-Study.pdf>.
- City-Data. 2022. Accessed June 2022 from: [www.city-data.com](http://www.city-data.com).
- New Mexico Economic Development Department (NM EDD). 2021. *County Economic Summaries & Data Profiles*. Accessed June 2022 from: <https://edd.newmexico.gov/site-selection/county-profiles/>.
- Tysseling, J.C., Ph.D. 2017. *The Economic and Fiscal Impact of the Corona Wind Project in New Mexico*.
- U.S. Bureau of Labor Statistics, Southwest Information Office (BLS-SW). 2022. Accessed June 2022 from: <https://www.bls.gov/regions/southwest/>
- U.S. Census. 2020. Accessed June 2022 from: [www.census.gov](http://www.census.gov).
- USDA National Agricultural Statistics Service (NASS). 2019. 2017 Agricultural Census, published 2019. Accessed June 2022 from: <https://www.nass.usda.gov/Publications/AgCensus/2017/index.php#highlights>

### **4.13.2 Current Conditions and Trends, Regional Overview – 2022 Corona Generation Expansion**

The area where the Corona Wind Project will be developed is a largely rural region of central New Mexico, dominated by high-desert range lands and forested mountain landforms on the western margins

of the area. The largely rural area has access to major urban economic and cultural centers, with relatively close access to recreation and resort facilities in the Ruidoso and related mountain communities to the south and west, regional trade centers in Roswell and Alamogordo to the south, and the state’s largest metropolitan area comprising the Albuquerque and middle Rio Grande suburban communities approximately a 2-hour drive from the 2022 Corona Generation Expansion. These larger population centers, combined with the traditional ranching communities found within the area where the Corona Wind Project will be developed, provide wide ranging economic and cultural resources.

Of the two counties covered by the System, Lincoln County has the largest population and the largest geographic area. Torrance County, however, has the greatest population density of the two counties. An overview of the area’s population demographics is shown in [Table 4-Table 4-8](#).

**Table 4-8: Population of Study Area Counties**

<b>County</b>	<b>2020 Reported Population</b>	<b>Geographic Area (Square Miles)</b>	<b>Population Density (people/square mile)</b>
Torrance	15,045	3,345	4.5
Lincoln	20,269	4,831	4.2
<b>Study Area Total</b>	<b>35,314</b>	<b>8,176</b>	<b>4.3 (Avg.)</b>

Source: U.S. Census, 2020.

Based on 2020 U.S. Census block data, the area where the 2022 Corona Generation Expansion would be developed (Census Blocks 9602.1 and 9637.1) includes a reported 2020 combined population of 931, which comprises 0.04 percent of New Mexico’s 2020 Census population of 2,117,522 (U.S. Census, 2020). Lincoln County has a few modestly populated communities — the county seat, Carrizozo (2020 reported population 972); Capitan (2020 reported population 1,391); and the county’s commercial center, Ruidoso (2020 reported population 7,679). Torrance County has its primary population center along the I-40 corridor, namely Moriarty (2020 reported population 1,946) and the county seat of Estancia (2020 reported population 1,242), approximately 16 miles south of Moriarty. Between the 2010 census and the 2020 census, communities such as Corona, Capitan, Ruidoso, and Estancia have shown population decreases while towns such as Carrizozo and Moriarty have shown modest population increases (U.S. Census, 2020). These population estimates may indicate migration away from the rural area or a natural decline of the aging population of the area.

Primary, intermediate, and secondary schools near the 2022 Corona Generation Expansion include: Corona Public Schools, approximately 1 mile north and serving less than 100 students from pre-kindergarten through 12<sup>th</sup> grade; Vaughn Municipal Schools, approximately 11 miles northeast in

Guadalupe County and serving approximately 68 students from pre-kindergarten through 12<sup>th</sup> grade; and Estancia Municipal Schools, approximately 28 miles west and serving approximately 611 students from pre-kindergarten through 12<sup>th</sup> grade.

The counties where the 2022 Corona Generation Expansion will be developed had a total labor force of 13,853 and employment of 13,088 (approximately 0.8 percent of statewide employment) during first quarter of 2022 (BLS-SW, 2022). For reference, the annual unemployment rates for 2021 were 7.9 percent in Torrance County and 7.5 percent in Lincoln County, compared to New Mexico’s 2021 unemployment rate of 6.8 percent (BLS-SW, 2022).

2021 total wages and salaries for covered employment (non-farm) in the counties where the 2022 Corona Generation Expansion would be developed was an estimated average annual compensation of \$42,671 per employee (BLS-SW, 2022). The New Mexico statewide average annual compensation was estimated at \$57,044 for 2021, revealing that reported wages and salaries in the area where the 2022 Corona Generation Expansion would be developed are approximately 75 percent of the state average (BLS-SW, 2022).

Agriculture is an important foundation of the area economy but non-agricultural sectors provide the dominant employment and income in the regional economy. The area where the 2022 Corona Generation Expansion will occur is sparsely populated, and land use is dominated by agricultural business enterprises (particularly ranching). Table 4-9 presents an agricultural profile for the area where the 2022 Corona Generation Expansion will be developed.

**Table 4-9: 2017 and 2012 2022 Corona Generation Expansion Area Farm Demographics**

2017 and 2012 USDA Agricultural Profile for Torrance and Lincoln Counties					
Number of Farms	2017	2012	Average Farm Size (acres)	2017	2012
	1,170	951		2,587	3,594
2017 Market Value of Agricultural Products Sold (\$ millions)					
Crops		Livestock and Poultry		Total	
\$11.75		\$50.00		\$61.75	
19.0%		81.0%			
2017 Top Commodity Groups and Values of Sales (\$ millions)					
Cattle and Calves	Hay and Other Crops	Sheep, Goats, Wool, Mohair, and Milk	Vegetables, Melons, Potatoes, and Sweet Potatoes	Horses, Ponies, Mules, Burros, and Donkeys	

2017 and 2012 USDA Agricultural Profile for Tarrant and Lincoln Counties				
\$37.98	\$3.62	\$0.89	\$0.86	\$0.38

Source: USDA NASS, 2019.

Private firms comprise about 83 percent of the business entities in the area where the 2022 Corona Generation Expansion would be developed (City-Data, 2022). However, the agricultural production sector is excluded, which is recognized to be a significant component of the rural economy in the area where the 2022 Corona Generation Expansion would be developed. Due to the population and predominantly rural nature of the counties' land area, most of the establishments in the area where the 2022 Corona Generation Expansion will be developed are quite small, with a limited number of employees (Tysseling, 2017).

Excluding the agricultural production sector, statistics from 2008 to 2021 suggest that the area economy, where the 2022 Corona Generation Expansion will occur, is largely driven by retail; accommodations and food services; healthcare and social assistance; and public administration (NM EDD, 2021). These four sectors alone comprise around two-thirds of total annual employment by industry for the area where the 2022 Corona Generation Expansion will occur (Tysseling, 2017).

The area where the 2022 Corona Generation Expansion will be developed, had an annual average of approximately \$198.4 million in Gross Receipts Tax (GRT) collections over the period of 2015 to 2019, providing 1.4 percent of the total GRT collections in the state of New Mexico (Arrowhead Center, 2021). The economic sector reporting the highest levels of GRT, in the area where the 2022 Corona Generation Expansion will be developed, is the Construction sector, with revenues from the sales in this sector constituting 32 percent of the GRT collections for Tarrant and Lincoln Counties in 2021. This is followed by the Retail Trade sector, which boasts 23 percent of the total GRT for Tarrant and Lincoln Counties in 2021. The observation that Construction provides 32 percent of the GRTs, but only about 13 percent of the employment in the counties where the 2022 Corona Generation Expansion will be developed, highlights the ready supply of construction firms and workers from the larger population centers surrounding the 2022 Corona Generation Expansion (NM EDD, 2021; BLS-SW, 2022).

#### 4.14 Communication Signals

##### 4.14.1 Data Sources

The following data sources were reviewed to assess the existing communication signals of Lincoln and Tarrant Counties for the 2022 Corona Generation Expansion.

- Cavell Mertz & Associates, Inc. 2022. Publicly available Federal Communications Commission (FCC) data. Accessed June 2022 from: <http://www.fccinfo.com/>

#### 4.14.2 Current Conditions and Trends, Regional Overview – 2022 Corona Generation Expansion

Lincoln and Torrance Counties are rural counties in central New Mexico with population densities below the state and national averages. Table 4-10 presents a review of signaling structures within a 35-mile search radius from the coordinates at the north, south, east, and west endpoints of the 2022 Corona Generation Expansion (Exhibit 20; Cavell Mertz & Associates, 2022).

**Table 4-10: Signaling Structures Within 35 Miles of the 2022 Corona Generation Expansion**

Structure Type	Number of Structures
Antenna Structure Registration	114
Cellular	38
Land Mobile (LM) – Comm	34
Land Mobile (LM) – Private	495
Microwave	463
Paging	5

#### 4.15 Radioactive Waste and Radiation Hazards

Electric transmission line and substation infrastructure do not generate or contain radioactive waste or radiation hazards. The 2022 Corona Generation Expansion would not generate radioactive waste or radiation hazards and, therefore, they are not addressed further in this ER.

#### 4.16 Hazardous Materials

Prior to construction, a Phase I Environmental Site Assessment will be performed to identify any hazardous materials, substances, or facilities in the vicinity of the 2022 Corona Generation Expansion. Chapter 5, Section 5.16 describes potential hazardous materials associated with construction, operation, and maintenance of project infrastructure on the 2022 Corona Generation Expansion area as well as protection measures to reduce impacts from hazardous materials.

#### 4.17 Safety

The vicinity of the 2022 Corona Generation Expansion does not contain any known uncommon safety concerns. Chapter 5, Section 5.17 describes potential safety concerns associated with construction, operation, and maintenance of project infrastructure on the 2022 Corona Generation Expansion area as well as protection measures to reduce safety impacts.

## 4.18 Geographic Resources

### 4.18.1 Data Sources

The following data sources were reviewed to assess the existing geographic resources of Lincoln and Tarrant Counties and the 2022 Corona Generation Expansion.

- MRLC. 2021. *2019 NLCD*. Accessed June 2022 from: <https://www.mrlc.gov/>
- NPS. 2017. *Physiographic Provinces*. Accessed June 2022 from: <https://www.nps.gov/subjects/geology/physiographic-provinces.htm>.
- NPS. 2022a. *Find A Park: New Mexico*. Accessed June 2022 from: <https://www.nps.gov/state/nm/index.htm>

### 4.18.2 Current Conditions and Trends, Regional Overview – 2022 Corona Generation Expansion

The area where the Corona Wind Project will be developed is located within the Great Plains physiographic province and the Basin and Range province (NPS, 2017). The Great Plains extend from Texas north to Montana and are bordered to the west by the Rocky Mountains and to the east by the Central Lowlands. The Great Plains slope downward to the east, with maximum heights in the foothills of the Rockies at 5,500 ft, decreasing to 2,000 ft (MRLC, 2021). The bedrock is horizontal beds of sandstones, shales, limestones, conglomerates, and lignite. Coal, petroleum, and natural gas are all mined extensively throughout the Great Plains. National Parks and Monuments of the Great Plains in New Mexico include Carlsbad Caverns National Park, Fort Union National Monument, and Capulin Volcano National Monument. None of these items are within or near the 2022 Corona Generation Expansion.

The Basin and Range province Extends from eastern California to central Utah and from southern Arizona to New Mexico and Texas. Over time, stretching of the Earth's crust created faults from which the mountain ranges were formed. This resulted in the patterns of alternating mountain ranges and valleys characteristic of this province. The southern basin and range province consist of the Sonoran Desert, Salton Trough, Mexican Highland, and the Sacramento sections. This portion of the province mountains have a slightly lower elevation than those found in the northern part of the province. National Parks and Monuments of the Basin and Range province in New Mexico include the Gila Cliff Dwellings National Monument, Pecos National Historical Park, Petroglyph National Monument, Salinas Pueblo National Monument, and White Sands National Monument. None of these items are within or near the 2022 Corona Generation Expansion.



No national or state parks, preserves, recreation areas, trails, or monuments are in the footprint of the 2022 Corona Generation Expansion (NPS, 2022a). Section 4.11.2 identifies other nearby sites managed by the NPS, BLM, or NMEMNRD and their distances from the 2022 Corona Generation Expansion.

## **4.19 Military Activities and Aviation**

### **4.19.1 Data Sources**

The following data sources were reviewed to assess the existing military and aviation conditions of Lincoln and Torrance Counties and the 2022 Corona Generation Expansion.

- Digital Aviation LLC. 2022. *VFR Map*. Accessed June 2022 from: <http://vfrmap.com>.
- Military Bases.com. 2022. *New Mexico Military Bases* (map). Accessed June 2022 from: <https://militarybases.com/new-mexico/>.

### **4.19.2 Current Conditions and Trends, Regional Overview – 2022 Corona Generation Expansion**

No military bases occur within the 2022 Corona Generation Expansion. Three military training routes intersect the 2022 Corona Generation Expansion (Exhibit 21; Digital Aviation, 2022; Military Bases.com, 2022). Corona Wind Companies would request Determination of No Hazard (DNH) from the FAA for any transmission line structures over 200 ft (transmission line structures of this height are very unlikely for the Corona Wind Project).

## **4.20 Roads**

### **4.20.1 Data Sources**

The following data sources were reviewed to assess the road conditions of Lincoln and Torrance Counties and the 2022 Corona Generation Expansion.

- NMDOT. 2012b. *Interactive Transportation Maps*. Accessed June 2022 from: [https://www.dot.state.nm.us/content/nmdot/en/Maps.html#m\\_par\\_text](https://www.dot.state.nm.us/content/nmdot/en/Maps.html#m_par_text).

### **4.20.2 Current Conditions and Trends, Regional Overview – 2022 Corona Generation Expansion**

Torrance and Lincoln counties are rural counties in central New Mexico with a sparse network of U.S. highways, state highways, county roads, and private roads within the area where the 2022 Corona Generation Expansion will be developed. Corona Wind Companies will work with NMDOT and the

County Road Maintenance Departments of each county to determine current road conditions for construction access prior to the start of any construction. U.S. Highway 54 and several east-west and north-south segments of state routes and county roads traverse the 2022 Corona Generation Expansion (NMDOT, 2012b).

## **5.0 ENVIRONMENTAL EFFECTS**

### **5.1 Introduction**

This chapter provides an overview of potential consequences, or impacts, on the environment that could result from adding the 2022 Corona Generation Expansion to the Corona Wind Project taking into account the protection measures identified in this report. Each of the resource areas provided in NMSA 1978 Section 62-9-3M, Commission Rule 17.9.592.10 NMAC are addressed, as well as additional resource areas identified by Staff. These resources are: air resources; noise; geology and mineral resources; soil resources; paleontological resources; water resources; flora and fauna resources; archaeological and historic-age cultural resources; religious and cemetery sites; socioeconomics and environmental justice; communication signals; radioactive waste and radiation hazards; hazardous materials; safety; geographic resources; military activities and aviation; and roads. Impact evaluations for each resource are discussed below in the context of the Corona Wind Project together with BMPs that can help manage impacts.

Addition of the 2022 Corona Generation Expansion to the Corona Wind Project could affect the existing condition of the environment. Effects can occur directly or indirectly as a result of the 2022 Corona Generation Expansion development. Direct effects are those that occur through direct or immediate interaction of the new proposed transmission line facilities with environmental components. Indirect effects are those that are somewhat distant from the new proposed transmission line facilities in time, space, or both.

Short-term impacts are considered those impacts that occur during construction and are generally anticipated to return to a preconstruction condition, at or within 3 to 5 years following construction. Environmental effects that would be anticipated to remain for the life of the Corona Wind Project (approximately 30 years) were considered long-term impacts. Permanent impacts are those that would be anticipated to remain for the life of the Corona Wind Project and beyond.

For each resource area review below, this report: describes the potential ground disturbance and environmental effects that may occur due to the addition of the 2022 Corona Generation Expansion to the Corona Wind Project, and identifies the protection measures the Corona Wind Companies proposes to avoid and minimize impacts.

## **5.2 Air Resources**

### **5.2.1 Impact Assessment Methods**

Assessment of impacts to air resources resulting from construction, operation, and maintenance of project infrastructure on the 2022 Corona Generation Expansion area follows the impact assessment methodology described in Section 5.1 above and is discussed below. Construction, operations, and maintenance impacts are generally short term and temporary in nature for air resources.

### **5.2.2 Impacts Specific to the 2022 Corona Generation Expansion**

#### **5.2.2.1 Construction**

The large equipment used during construction that is powered by internal combustion (IC) engines would likely use diesel or gasoline as fuel. The products of the combustion of these fuels include pollutants such as nitrogen oxides (NO<sub>x</sub>), carbon monoxide (CO), carbon dioxide (CO<sub>2</sub>), volatile organic compounds (VOC), Particulate Matter (PM), small amounts of sulfur dioxide (SO<sub>2</sub>), and trace amounts of hazardous air pollutants (HAP). Construction contractors and their equipment are required to comply with all applicable emissions standards. An onsite concrete batch plant is anticipated for project facility construction, and the proper state and county location and air quality permitting would be obtained by Corona Wind Companies prior to construction.

Fugitive dust emissions will also contribute to air quality impacts associated with construction of project infrastructure on the 2022 Corona Generation Expansion area. Fugitive dust arises from land clearing, grading, excavation, and vehicle traffic on unpaved roads. The amount of fugitive dust depends on the amount of vehicular traffic, construction activities, moisture content of the soil, and wind speed. During dry periods with high winds, fugitive dust would be much more prevalent than during wet periods with low winds. Dust suppression methods such as watering are planned to be used in construction zones during dry periods to minimize fugitive dust impacts.

Since the fugitive dust and combustion engine emissions will be temporary (limited to the construction period), limited to the construction area, and controlled with watering, these emissions sources are not expected to significantly impact the air quality in the area of the 2022 Corona Generation Expansion.

#### **5.2.2.2 Operations and Maintenance**

During operation of project infrastructure on the 2022 Corona Generation Expansion area, the primary emissions are expected to be fugitive dust from worker and maintenance vehicles traveling intermittently on unpaved roads. In addition, there would be emissions from the vehicles themselves. Such emissions

are not anticipated to be substantial, and, therefore, only minimal impacts to air quality are anticipated during the operation of project infrastructure on the 2022 Corona Generation Expansion area.

### **5.2.3 Protection Measures**

Protection measures would be implemented to reduce potential impacts to air quality from construction activities. Emissions are only anticipated to arise from ground disturbing activities, equipment movement, fuel combustion, and a concrete batch plant, if required. These emissions would be temporary and localized. Protection measures to address construction-related impacts to air quality resources would include:

**Air-1:** Maintaining all fossil fuel-fired construction equipment in accordance with manufacturers' recommendations to minimize construction-related combustion emissions.

**Air-2:** Controlling combustion emissions through engine manufacturing requirements for both mobile sources and portable equipment such as air compressors.

**Air-3:** Limiting the idling time of equipment, unless idling must be maintained for proper operation (e.g., drilling, hoisting, and trenching).

**Air-4:** Limit the speed of vehicles within construction sites and along the utility ROW during construction to reduce the amount of fugitive dust generated.

**Air-5:** Water trucks will be utilized as necessary to reduce fugitive dust from construction activities.

### **5.2.4 Conclusion**

Considering the limited and transient nature of emissions resulting from construction, operation, and maintenance of project infrastructure on the 2022 Corona Generation Expansion area, as well as the protection measures detailed above, it is not expected that the proposed location of the new proposed project facilities would materially impair air resources.

## **5.3 Noise**

### **5.3.1 Impact Assessment Methods**

Assessment of impacts to noise conditions anticipated from the construction, operation and maintenance of project infrastructure on the 2022 Corona Generation Expansion area follows the impact assessment methodology described in Section 5.1 above and is discussed below. Construction, operations, and maintenance impacts are generally low, short term, and temporary in nature for noise.

### **5.3.2 Impacts Specific to the 2022 Corona Generation Expansion**

The existing noise levels in rural areas surrounding the 2022 Corona Generation Expansion in Torrance and Lincoln Counties is relatively low. The primary existing sources of noise in the 2022 Corona Generation Expansion area are traffic along U.S. and State highways, local county roads, existing wind generation turbines, and some agricultural machinery. Localized noise associated with equipment operation during construction and maintenance activities would increase local noise levels in areas adjacent to the 2022 Corona Generation Expansion area. Noise impacts from construction of the new proposed project infrastructure would be localized, short term, and temporary, and in compliance with all applicable state and local noise regulations.

### **5.3.3 Protection Measures**

Protection measures that would be implemented to reduce any potential negative noise impacts from construction activities include:

**Noise-1:** Restrict construction activity near residences to normal business hours.

**Noise-2:** Audible noise due to wind energy facility operations shall not exceed fifty (50) A-weighted decibels (dBA) for any period of time, when measured at any occupied residence, school, hospital, church or public library existing on the date of approval of the wind energy facility.

### **5.3.4 Conclusion**

Based on localized, low-volume, short-duration impacts, compliance with regulated noise limits during operation, negligible impacts to receptors during operation, and the protection measures detailed above, it is not expected that the proposed location of the 2022 Corona Generation Expansion would result in a significant noise burden for the area.

## **5.4 Geology and Mineral Resources**

### **5.4.1 Impact Assessment Methods**

Assessment of impacts to geological and mineral resources anticipated from the construction, operation, and maintenance of project infrastructure on the 2022 Corona Generation Expansion area follows the impact assessment methodology described in Section 5.1 above and is discussed below.

### **5.4.2 Impacts Specific to the 2022 Corona Generation Expansion**

There are no identified operational hydrocarbon facilities or unique geological features located within the 2022 Corona Generation Expansion footprint, and impacts from the construction, operation, and

maintenance of project infrastructure on the 2022 Corona Generation Expansion area are not anticipated. There are no known faults or landslide areas in the 2022 Corona Generation Expansion area, and, therefore, adverse impacts resulting from construction, operation, and maintenance of the new proposed facilities are not anticipated.

### **5.4.3 Protection Measures**

No protection measures are needed for geology resources. This is due to the lack of unique geological features, faults, or landslide areas in the 2022 Corona Generation Expansion area.

### **5.4.4 Conclusion**

Due to an absence of unique geological features, faults, or landslides; the types of bedrock in the area; and the proposed activities for the 2022 Corona Generation Expansion, it is not expected that the proposed location of the 2022 Corona Generation Expansion would significantly impair geological resources.

## **5.5 Soil Resources**

### **5.5.1 Impact Assessment Methods**

Assessment of impacts to soil resources from construction, operation, and maintenance of project infrastructure on the 2022 Corona Generation Expansion area follows the impact assessment methodology described in Section 5.1 above and is discussed below. Construction, operations, and maintenance impacts are generally low, short term, and temporary in nature for soil resources. A small amount of soil would be lost due to the permanent footprint of the 2022 Corona Generation Expansion and is discussed below in Section 5.5.2.3.

### **5.5.2 Impacts Specific to the 2022 Corona Generation Expansion**

Construction activities affecting soils include permanent and temporary land-disturbance activities such as structure work areas, wire-pulling, tensioning and splicing sites, construction yards, and temporary and permanent roads.

#### **5.5.2.1 Temporary Erosion**

Ground disturbance during construction may increase the potential for erosion. For example, removal of protective vegetation may expose soil to potential wind and water erosion. Certain soils within the 2022 Corona Generation Expansion would be more sensitive to soil erosion impacts. The primary soil erosion factor is water erosion and wind erosion on bare soils.

Potential erosional effects from operations would consist of soil disturbances necessary to maintain the project infrastructure on the 2022 Corona Generation Expansion area in working order and conduct necessary repairs. Potential stormwater BMPs, including erosion and sediment control structures, as well as new culverts, might require inspection, maintenance, and/or repair throughout the operational life of the project infrastructure on the 2022 Corona Generation Expansion area to reduce soil erosion or sedimentation to surface water. Temporary access, not retained for operations, would be seeded with a native grass mix and allowed to revegetate, thereby minimizing the surface exposed to erosive conditions.

The areas used for construction would be reclaimed as soon as possible, which may include regrading to original land contours, topsoil replacement, and revegetation. Implementation of a Stormwater Pollution Prevention Plan (SWPPP)—a stormwater management program from the EPA under National Pollutant Discharge Elimination System that would protect water and soil resources—and use of appropriate soil mitigation measures and BMPs would reduce the effects of erosion.

#### **5.5.2.2 Accidental Spills**

During construction, use of trucks, heavy equipment, and stored supplies could result in accidental discharge of fuel, lubricants, and automotive fluids. Although the potential exists, any spills would be accidental, occasional, and of limited extent and would be considered minor to negligible and temporary in duration. BMPs for construction housekeeping, spill prevention, and cleanup would be used to prevent and remediate accidental spills. Therefore, accidental spills would not result in widespread or long-term effects to soils.

#### **5.5.2.3 Permanent Soil Loss**

The area within the footprint of the 2022 Corona Generation Expansion would result in minor long-term loss of acreage to other productive soil uses. The total permanent footprint would range from approximately 50 to 60 acres inside the 2022 Corona Generation Expansion, equaling less than one-tenth of 1 percent of the 2022 Corona Generation Expansion footprint.

### **5.5.3 Protection Measures**

Protection measures that would be implemented to reduce any potential negative soil impacts from construction activities include:

- Soil-1:** Construction crews will reduce the amount of soil compaction by using equipment with more tires and wider tires to distribute the weight of the vehicle and tilling the severely compacted areas after construction is completed or using ground mats when the ground is wet.



**Soil-2:** To the extent possible, topsoil will be placed separately from sub-soils/bedrock during excavation and not comingled. Corona Wind Companies will replace soil in reverse order, to help preserve topsoil.

**Soil-3:** Corona Wind Companies will reduce erosion by applying and maintaining standard erosion and sediment control methods. These may include using certified weed-free straw wattles, bale barriers, and silt fencing, which would be placed at construction boundaries and where soil would be disturbed near a wetland or water body. Specific erosion and sediment control measures and locations will be specified in a SWPPP.

#### **5.5.4 Conclusion**

Based on BMPs to minimize and stabilize disturbed soils, BMPs to reduce accidental spills, the small amount of permanent soil loss as well as the protection detailed above, it is not expected that the proposed location of the 2022 Corona Generation Expansion would significantly impair soil resources.

### **5.6 Paleontological Resources**

#### **5.6.1 Impact Assessment Methods**

Assessment of impacts to paleontological resources from construction, operation, and maintenance of project infrastructure on the 2022 Corona Generation Expansion area follows the impact assessment methodology described in Section 5.1 above and is discussed below.

#### **5.6.2 Impacts Specific to the 2022 Corona Generation Expansion**

Construction activities that may affect paleontological resources include excavation, heavy equipment usage and movement, drilling, and trenching for utilities. Grading for access roads could also directly impact paleontological resources. The geology in the area consists of Mesoproterozoic plutonic rocks, Permian deposits of the Yeso, Glorieta, and San Andres formations, the Tertiary Ogallala Formation, and several deposits of the Quaternary Period including piedmont alluvium, eolian deposits, and lacustrine/playa lake deposits, all unconsolidated, all of which would have a low probability for the presence of paleontological deposits. The greatest possibility of discovery of paleontological resources would be from Ogallala Formation, but these would be rare. However, any grading and excavation during site preparation and construction would have potential to impact paleontological resources that may be present within the boundaries of the 2022 Corona Generation Expansion. As previously mentioned, any discoveries which may occur during construction would be managed through a UDP.

### **5.6.3 Protection Measures**

Protection measures that would be implemented to reduce any potential negative impacts from construction activities include:

**Paleo-1:** Follow a UDP, providing protection for unknown sites.

### **5.6.4 Conclusion**

Due to the low probability for the presence of paleontological deposits in the area and the fact that no ground disturbance activities would be completed prior to paleontological survey work being completed, it is not expected that the proposed location of the 2022 Corona Generation Expansion would significantly impair paleontological sites.

## **5.7 Water Resources**

### **5.7.1 Methods and Impact Types**

Assessment of impacts to water resources from construction, operation, and maintenance of project infrastructure on the 2022 Corona Generation Expansion area follows the impact assessment methodology described in Section 5.1 above and is discussed below. Construction, operations, and maintenance impacts are generally low, avoidable, short term, and temporary in nature for water resources.

### **5.7.2 Impacts Specific to the 2022 Corona Generation Expansion**

#### **5.7.2.1 Surface Water**

The potential sources of surface water resource impacts from the project infrastructure on the 2022 Corona Generation Expansion area include permanent and temporary soil-disturbance activities from structure work areas, wire-pulling, tensioning and splicing sites, construction yards, and temporary and permanent roads as well as potential accidental spills of hazardous materials from these activities. Short-term impacts from soil disturbances that increase erosion (or water runoff in areas with compacted soils) would potentially result in an increase in suspended sediments within adjacent waterbodies and accidental spills of hazardous materials that could wash into and pollute surface water. Based on the short construction duration, the small ground disturbance area, and minimal amount of surface water present within the vicinity, low impacts to surface water are anticipated from construction, operation, and maintenance of the project infrastructure on the 2022 Corona Generation Expansion.

In addition to soil-disturbance activities, impacts to surface waters may include stream crossings by transmission lines or access roads. All streams would be spanned by the transmission line, and individual

structures would be located outside the stream bank ordinary high-water mark (OHWM) to avoid potential impacts. Where available, existing road-stream crossings would be utilized for access; however, new stream crossings may be required in certain areas. These activities would be permitted through the applicable agencies. Low impacts to streams would occur based on the low number of streams in the 2022 Corona Generation Expansion and the ability to avoid stream resources through aerial spanning and overall Project avoidance and minimization strategies.

Stormwater BMPs would be used during construction to reduce potential impacts from erosion, sedimentation, and turbidity in surface waters during construction. A SWPPP would be developed and implemented for the 2022 Corona Generation Expansion, which would meet the construction stormwater discharge permit requirements of the New Mexico Environment Department Surface Water Quality Bureau (NMED-SWQB). The SWPPP would include a number of measures to control runoff and to reduce erosion and sedimentation at construction sites. In addition, a Spill Prevention, Containment, and Countermeasures Plan (SPCC) would be implemented to prevent pollution of surface waters from accidental spills of hazardous materials.

#### **5.7.2.2 Floodplains**

It is reasonable to assume that all watercourses that convey natural flows, whether or not mapped by FEMA as floodplains or flood hazard areas, present some level of flood hazard. Encroachment of a structure into a flood path could result in flooding of or erosion damage to the encroaching structure and diversion of flows. The project infrastructure on the 2022 Corona Generation Expansion area would be set back from channel banks to avoid impacts (such as channel alteration and flow modification) and, therefore, impacts to floodplains would be low.

#### **5.7.2.3 Groundwater**

It is unlikely the project infrastructure on the 2022 Corona Generation Expansion would significantly affect groundwater. Any impacts to groundwater would be for a short duration. Excavations for the project infrastructure on the 2022 Corona Generation Expansion may contact shallow groundwater; however, the groundwater contact would be unlikely to adversely impact this resource, unless an accidental spill of fuel or petroleum from construction equipment (which is very unlikely) occurs near an open excavation or is not cleaned up in a timely manner.

#### **5.7.2.4 Wetlands**

A desktop assessment utilizing existing maps and data to identify potentially jurisdictional waters of the U.S., including wetlands that could potentially be affected by construction, was conducted to address

compliance with Sections 404 and 401 of the Clean Water Act and Section 10 of the Rivers and Harbors Act. Based on the desktop assessment using NWI data, potential waters of the U.S., including wetlands, could be present. Wetland presence based only on NWI data cannot be assumed to be an accurate assessment of potentially occurring jurisdictional wetlands and waterbodies. Wetland identification criteria differ between the USFWS and the USACE. As a result, wetlands shown on an NWI map may not be under the jurisdiction of the USACE, and all USACE jurisdictional wetlands are not always included in NWI data.

The NWI data was then overlaid with other digital data, including presence of hydric soils or soils with hydric inclusions, topographic contours, USGS NHD data, FEMA mapped floodplains, and NAIP aerial photography as part of the desktop assessment. Overlapping layers representing multiple characteristics of wetlands provide a degree of probability that wetlands may be present. A review of the overlapping layers indicated that the majority of acreage within the 2022 Corona Generation Expansion footprint exhibited “No Probability” of wetland occurrence (Burns & McDonnell, 2021).

A wetland delineation would be conducted to identify any wetlands or other water bodies that may be present within or near proposed project infrastructure prior to construction. This information would be provided to the design team so direct impact to wetlands can be avoided and minimized.

Wetlands or water bodies are anticipated to be materially impacted by construction within the 2022 Corona Generation Expansion or access roads, as currently designed. All wetlands would be avoided or spanned by the transmission line to avoid direct impacts. Substations and switchyards would not be located in wetlands or playas. Other project sites would be sited to avoid wetlands to the extent practicable. Therefore, a Section 404 permit, Section 10 permit, or Section 401 water quality certification is not expected to be required. However, only the U.S. Army Corps of Engineers can make final official jurisdictional determinations. If wetlands cannot be avoided, matting and other temporary protective measures would be used, and proper permits would be obtained. No permanent loss of wetlands or playas would occur from construction, operation, or maintenance of the project infrastructure on the 2022 Corona Generation Expansion based on the following protection measures.

### **5.7.3 Protection Measures**

Protection measures that would be implemented to reduce potential negative water resource impacts from construction activities include:

**Water-1:** Develop and implement a SWPPP. The SWPPP will include measures such as: silt barrier fences to control runoff, sediment traps and basins, and minimizing exposed soils by using temporary and permanent seeding and mulching.

**Water-2:** Disturbed areas will be restored to their original condition to the extent practicable. Seed mix and seeding rates will be developed through consultation with the local agency and landowner preference.

**Water-3:** Equipment will be properly maintained to avoid fluid leaks.

**Water-4:** Fuels and petroleum will be stored away from excavated areas.

**Water 5:** Spills will be cleaned up immediately.

**Water-6:** Matting and other temporary protective measures will be used on wetlands that cannot be avoided.

**Water-7:** Impacts will be evaluated against the requirement of the U.S. Army Corps of Engineers for coverage under the Nationwide Permit (NWP) Program.

**Water-8:** Establish an appropriate buffer zone around wetlands, as necessary to reduce disturbance.

#### **5.7.4 Conclusion**

Based on the limited amount of water resources in the vicinity; avoidance of water resources; and the protection measures detailed above, it is expected that the proposed location of the 2022 Corona Generation Expansion would materially impair water resources.

### **5.8 Flora and Fauna**

#### **5.8.1 Methods and Impact Types**

Assessment of impacts to biological resources from construction, operation, and maintenance of project infrastructure on the 2022 Corona Generation Expansion area follows the impact assessment methodology described in Section 5.1 above and is discussed below. Construction and maintenance impacts would be generally short-term and temporary. Operation impacts would be low for biological resources; a small amount of permanent habitat loss would occur due to the permanent footprint of transmission line structures and substation and switchyard components. Some degree of impacts to wildlife would be expected but not to a greater extent than those areas of the Corona Wind Project already approved.

## **5.8.2 Impacts Specific to the 2022 Corona Generation Expansion**

The 2022 Corona Generation Expansion is dominated by open grassland grazing. Plant and wildlife species adapted to shortgrass lands are present within the 2022 Corona Generation Expansion.

Increased noise and equipment movement during construction might temporarily displace wildlife species from the area in which construction is occurring. These impacts are considered low and short-term. Most wildlife movements would be expected to resume to preconstruction levels a short time after construction is completed. Potential long-term impacts include those resulting from habitat modifications and/or fragmentation. Corona Wind Companies would work to minimize potential habitat fragmentation by paralleling the project transmission lines with existing linear features (e.g., road and existing transmission lines) and avoid paralleling water features (such as streams or wetlands) when feasible. Collection lines connecting wind turbines to substations will be buried to the extent practicable to reduce potential for avian electrocution. Construction activities might also impact plants and small, immobile, or fossorial (living underground) animal species through direct impact or from the alteration of local habitats. Direct impact on these species might occur due to equipment or vehicular movement on the ROW or due to the compaction of the soil if the species is fossorial as well as the potential for collision of birds and bats located in the 2022 Corona Generation Expansion. Potential impacts of this type would likely be low and population-level impacts are not likely. Therefore, low impacts to local wildlife populations may occur due to habitat disturbance and localized potential for direct mortality to individuals during construction and operations.

### **5.8.2.1 Federally and State Listed Species**

Seven animal species that are federally listed under the ESA may potentially occur in the 2022 Corona Generation Expansion (USFWS, 2022b), as shown in Table 4-4 above. These include four birds, one mammal, one fish, and one insect. Among them, the federally threatened Mexican spotted owl, the federal candidate monarch butterfly, and the federally designated “experimental population non-essential” northern aplomado falcon are all possible within the 2022 Corona Generation Expansion. The 2022 Corona Generation Expansion is located within the elevational and ecological range for the Mexican spotted owl and evergreen forest within the area may provide suitable nesting or wintering habitat. The 2022 Corona Generation Expansion also presents open terrains with scattered shrubs, which represents suitable habitat for the monarch butterfly and foraging habitat for the northern aplomado falcon.

State-listed endangered or threatened wildlife species are identified for Lincoln and Torrance Counties (NMDGF, 2022), as shown in Table 4-5 above. These species include two mammals, eight birds, one amphibian, and one fish. Among them, the state threatened peregrine falcon is likely to occur in the 2022

Corona Generation Expansion as an occasional year-round resident and migrant. The state threatened bald eagle is also likely to occur within the 2022 Corona Generation Expansion as an occasional winter migrant. Potential bald and golden eagle occurrence within the 2022 Corona Generation Expansion would be infrequent, due to the lack of large trees for perching and lack of optimal foraging habitat. However, bald and golden eagles may occur occasionally as migrants or transient wintering birds, and grasslands and ponds in the 2022 Corona Generation Expansion area may attract foraging bald eagles.

The 2022 Corona Generation Expansion is currently dominated by grazed shortgrass prairie. Unaltered native habitats are sparse due to land use practices. If any species or suitable habitat for threatened and endangered species is identified during a field survey, Corona Wind Companies would further coordinate with USFWS and NMDGF to determine avoidance or minimization strategies, if necessary. Impacts to federal and state protected species would be low based on low potential for species occurrence; the limited amount and quality of species habitat present; and short construction duration for the project infrastructure on the 2022 Corona Generation Expansion.

#### **5.8.2.2 Raptors, Eagles, and Birds**

Raptor, eagle, and migratory bird species are known to use the 2022 Corona Generation Expansion area for breeding, foraging, and migration (WEST, 2017b). If construction occurs during bird nesting season, potential impacts could occur to migratory bird eggs and/or nestlings. Increases in noise and equipment activity levels during construction could also potentially disturb breeding or other activities of bird species nesting in adjacent areas. Corona Wind Companies propose to complete all clearing and construction activities to reduce potential impacts and in alignment with the Migratory Bird Treaty Act (MBTA). Pre-construction MBTA surveys would be completed by Corona Wind Companies and/or construction activities would occur outside of breeding seasons for MBTA protected species.

Furthermore, in accordance with the BGEPA, Corona Wind Companies would avoid placing transmission lines and wind turbines near active eagle nests. Construction activities would also be limited to a safe distance around active nests. Nests identified during preconstruction surveys and are determined active would be flagged for an established protection buffer.

The project infrastructure on the 2022 Corona Generation Expansion can present additional hazards to birds due to electrocutions and/or collisions. However, no electrocution risk to perching birds would apply to the 345-kV transmission line, given the phase-to-phase and phase-to-ground clearances (Avian Power Line Interaction Committee [APLIC], 2018). Potential water resources are limited to stock ponds and intermittent drainages that may be inundated during wet seasons. A number of birds may migrate through the area, but few waterbirds or waterfowl potentially at risk of overhead line collisions would

occur in the 2022 Corona Generation Expansion (APLIC, 2018). Collision risks to waterbirds or waterfowl would only apply during wet periods during the spring and fall migration as migrating birds may descend or ascend to access stopover habitats.

Corona Wind Companies would follow APLIC guidance to implement measures to minimize collision risk with proper siting, and electrocution risk with proper transmission line engineering design. The electrocution risk to birds should not be significant since the engineering design distance between conductors, conductor to structure, or conductor to ground wire for the proposed transmission line is greater than the wingspan of any bird potentially within the area (i.e., greater than 8 ft). While the conductors are typically thick enough to be seen and avoided by birds in flight, the shield wire (upper most wire) is thinner and can present a risk for avian collision. In areas of greater risk (e.g., near wetlands) for avian collisions, Corona Wind Companies would install bird diverters to minimize collision risk for avian species.

### **5.8.3 Protection Measures**

Protection measures that would be implemented to reduce any potential negative biological resource impacts from construction activities include:

**Bio-1:** Properly disposing of trash and food debris in secured containers.

**Bio-2:** Allowing wildlife that has entered the work area to leave the area on their own.

**Bio-3:** Providing environmental awareness training to all construction personnel working on the Project.

**Bio-4:** Checking for wildlife under vehicles and equipment that have been stationary for more than 1 hour and each morning prior to moving or operation.

**Bio-5:** Checking trenches, excavations, and uncapped pipe segments for wildlife.

**Bio-6:** Complying with posted speed limits.

**Bio-7:** Conducting tree/vegetation clearing outside the nesting season where feasible, to discourage birds from establishing nests in Project work areas.

**Bio-8:** Conducting pre-construction nest surveys prior to initiating construction activities, unless vegetation clearing has been completed prior to the nesting season.



**Bio-9:** Establishing an appropriate buffer zone around occupied raptor nests, as necessary to minimize disturbance.

**Bio-10:** Design transmission line facilities to APLIC guidance or similar in order to minimize electrocution and collision risk.

**Bio-11:** Micrositing will be completed during engineering design to avoid sensitive biological resources.

**Bio-12:** Setbacks from sensitive biological resources will be implemented to protect species habitat and time critical periods (e.g., breeding season).

**Bio-13:** Install bird diverters near areas with increased risk for avian-collision, to minimize collision risk for avian species.

#### **5.8.4 Conclusion**

Based on the amount of disturbed habitat, landscape dominated by grazed grassland, the lack of quality species habitat, and low likelihood for federal and state protected species to occur in the vicinity; as well as the protection measures detailed above, it is not expected that the proposed location of the 2022 Corona Generation Expansion would significantly impair biological resources.

#### **5.9 Archaeological and Historic-Age Cultural Resources**

This section is intended to support the Application for Location Approval of Transmission Line under NMAC Title 17 Chapter 9 Part 592. The power generation portion of the project, occurring within the 2022 Corona Generation Expansion, would, as a whole, avoid or minimize impacts to environmental resources. Although studies have been conducted on the 2022 Corona Generation Expansion, those portions of the project previously described in the Existing Conditions section are not required by NMAC 17.9.592.10 to be analyzed within this report.

The amount of ground that could be disturbed as a result of construction of the project infrastructure on the 2022 Corona Generation Expansion area was estimated based on the typical design characteristics of this 345-kV line and wind turbine layout. Short-term disturbance estimates included structure work areas for the staging and installation of the wind turbines and transmission line structures as well as the conductor pulling and tensioning sites. Long-term disturbance estimates included structure base areas and associated access roads. Qualitative and quantitative variables of resource sensitivity, resource quantity, and estimated ground disturbance were considered in predicting the extent and magnitude of impacts.

What constitutes an impact level on a resource varies by resource as well as the assumptions for analysis for each resource. Protection measures were identified and include action that will reduce potential impacts to a resource from construction, operation, and maintenance of the project infrastructure on the 2022 Corona Generation Expansion.

### **5.9.1 Methods and Impact Types**

Assessment of impacts to archaeological and historic-age cultural resources from the construction, operation, and maintenance of project infrastructure on the 2022 Corona Generation Expansion area follows the impact assessment methodology described in Chapter 5.1 above and is discussed below. Construction, operations, and maintenance impacts are generally low, avoidable, short term, and temporary in nature for archaeological and historic-age cultural resources. Cultural resources surveys would be completed for all areas of anticipated ground disturbance for the 2022 Corona Generation Expansion area prior to any ground disturbance on public as well as private property.

### **5.9.2 Impacts Specific to the 2022 Corona Generation Expansion**

Twenty-one archaeological sites are reported within the 2022 Corona Generation Expansion. Cultural resource field surveys would be completed prior to any construction activity to reduce potential impacts to unlocated sites from the construction of project infrastructure on the 2022 Corona Generation Expansion area. Impacts to known locations of cultural resources would be low because project infrastructure on the 2022 Corona Generation Expansion area is intended to be designed around these areas. Any discoveries which may occur during construction would be managed through an UDP.

### **5.9.3 Protection Measures**

Protection measures that would be implemented to the extent practicable to reduce any potential negative cultural, historic, and archaeological impacts from construction activities include:

**Cul-1:** Project infrastructure on the 2022 Corona Generation Expansion area will be designed to avoid known sites.

**Cul-2:** Cultural surveys in known areas of ground disturbance for the 2022 Corona Generation Expansion will be completed ahead of construction. No ground disturbance activities will be completed prior to cultural survey work being completed.

**Cul-3:** If sites are found at the location of planned infrastructure, micrositing techniques will be used to move around and/or span sites to the greatest extent practicable.

**Cul-4:** Follow a UDP, providing protection for unknown sites.

#### **5.9.4 Conclusion**

Based on the protection measures listed above, the proposed location of the 2022 Corona Generation Expansion would not significantly impair cultural, historic, and archaeological resources. Impacts to cultural resources are expected to be *de minimis*, if at all.

### **5.10 Religious and Cemetery Sites**

#### **5.10.1 Methods and Impact Types**

Assessment of impacts to religious and cemetery sites from construction, operation, and maintenance of project infrastructure on the 2022 Corona Generation Expansion area follows the impact assessment methodology described in Chapter 5.1 above and is discussed below. Construction, operations, and maintenance impacts are generally low, avoidable, short term, and temporary in nature for religious resources.

#### **5.10.2 Impacts Specific to the 2022 Corona Generation Expansion**

Within the 2022 Corona Generation Expansion, there are two known cemeteries. One religious institution and three additional cemeteries are located within one mile of the 2022 Corona Generation Expansion. No impacts to known locations of religious resources are expected to occur. Cultural resource field surveys would be completed prior to any construction activity to identify previously unrecorded religious and cemetery site and reduce potential impacts from the construction of project infrastructure on the 2022 Corona Generation Expansion area. Siting of project infrastructure on the 2022 Corona Generation Expansion would follow industry standard siting guidelines.

#### **5.10.3 Protection Measures**

Protection measures that would be implemented to reduce any potential negative impacts to religious and cemetery sites from construction activities include:

Rel-1: Follow a UDP, providing protection for unknown sites.

#### **5.10.4 Conclusion**

Per industry standard siting guidelines and the protection measure detailed above, no impacts to religious or cemetery sites are anticipated. It is not expected that the proposed location of the 2022 Corona Generation Expansion would significantly impair religious resources.

## **5.11 Visual and Scenic Resources**

This section is intended to support the Application for Location Approval of Transmission Line under NMAC Title 17 Chapter 9 Part 592. The power generation portion of the project, occurring within the 2022 Corona Generation Expansion footprint, would, as a whole, avoid or minimize impacts to environmental resources. Although studies have been conducted on the 2022 Corona Generation Expansion footprint, that portion of the Project previously described in the Existing Conditions section is not required by NMAC 17.9.592.10 to be analyzed within this report.

Qualitative and quantitative variables of resource sensitivity, resource quantity, and estimated ground disturbance were considered in predicting the extent and magnitude of impacts. What constitutes an impact level on a resource varies by resource as well as the assumptions for analysis for each resource. Protection measures were identified and include action that will reduce potential impacts to a resource from project infrastructure on the 2022 Corona Generation Expansion area.

### **5.11.1 Methods and Impact Types**

Assessment of impacts to visual and scenic resources from construction, operation, and maintenance of project infrastructure on the 2022 Corona Generation Expansion area follows the impact assessment methodology described in Chapter 5.1 above and is discussed below. Construction, operation, maintenance of project infrastructure on the 2022 Corona Generation Expansion area would introduce new features into the visual landscape. The 2022 Corona Generation Expansion was evaluated to determine whether the following types of impacts would occur:

- Proximity of the 2022 Corona Generation Expansion to residences and residential areas.
- Changes to the visual landscape with respect to scenic resources, such as scenic byways.
- Changes to the visual landscape within or near recreational areas such as state and national parks.

### **5.11.2 Impacts Specific to the 2022 Corona Generation Expansion**

New transmission structures, conductors, substation components, turbines, and cleared ROW areas would change the visual characteristics in the vicinity and the viewshed of the 2022 Corona Generation Expansion. However, the 2022 Corona Generation Expansion would not differ from other wind energy conversion systems in the vicinity. For residences located near the 2022 Corona Generation Expansion and residents traveling area roads, a new man-made feature would be present in the landscape. Residents of homes along the transmission line or within the turbine layout would be most prone to changes in the visual environment around their homes. Impacts would likely be low based on the low population density. However, the visual sensitivity would be highly dependent on the orientation of the transmission line

and/or turbine layout relative to the home (in front, behind, alongside), any screening between the home and the line or turbines (trees, topography), distance, other visual components (existing lines, radio towers), and the general sensitivity of the occupants in the vicinity of the 2022 Corona Generation Expansion.

Visual impacts resulting from the construction and operation of the proposed substations are anticipated to have similar impacts to those associated with the construction and operation of the proposed transmission lines. Each new substation would be an added visual element in the existing landscape.

No designated federal or state scenic routes or byways are in the vicinity of the 2022 Corona Generation Expansion (NMDOT, 2012a; FHWA, 2022) (Exhibit 15). The nearest scenic route is New Mexico's Salt Missions Trail located approximately 23 miles west of the 2022 Corona Generation Expansion.

Therefore, the 2022 Corona Generation Expansion is sufficiently far from these routes that it would not be deemed to impact the scenic values of the routes.

Additionally, no national parks or state parks are in the vicinity of the 2022 Corona Generation Expansion. The closest national park is the Gran Quivira Unit of Salinas Pueblo Missions National Monument, which is approximately 23 miles west of the 2022 Corona Generation Expansion (NPS, 2022a). The BLM-managed Valley of Fires Recreation Area is approximately 32 miles southwest of the 2022 Corona Generation Expansion (BLM, 2022a). The nearest state parks are Manzano Mountains State Park, Villanueva State Park, and Santa Rosa Lake State Park, all located more than 35 miles from the 2022 Corona Generation Expansion (NMEMNRD, 2022). The only known visually sensitive resource within proximity to the 2022 Corona Generation Expansion is the 3-mile-wide corridor around U.S. Highway 54 in Torrance County, which is indicated as having a high VRI index value for Maintenance of Visual Quality (BLM, 2022c). No known organized tourism activities are in or near the 2022 Corona Generation Expansion.

### **5.11.3 Protection Measures**

Protection measures that would be implemented to reduce any potential negative visual impacts from construction activities include:

**Vis-1:** Leave (where possible) plants smaller than 8 ft in height within the 180-foot-wide ROW to help reduce the effect of the ROW of visual and aesthetic resources.

**Vis-2:** Keep the ROW free of construction debris and other litter during construction to further reduce visual intrusion to the surrounding landscape.

**Vis-3:** The design of the buildings and related structures shall, to the extent reasonably possible, use materials, colors, textures, screening and landscaping that will blend the facility into the natural setting and existing environment.

**Vis-4:** No individual tower facility shall be installed at any location that would substantially detract from or block the view of the major portion of a recognized scenic vista, as viewed from any public road ROW or publicly accessible parkland or open space within the County.

**Vis-5:** As a condition of approval of a special use district for a Wind Energy Facility, within one year of the termination or abandonment of leases, easements or operations of a Wind Energy Facility, the permittee shall cause, at its own expense, the restoration of the land to its pre-facility condition.

#### **5.11.4 Conclusion**

Based on low visual impacts due to low population and long distances to sensitive visual areas such as scenic byways and parks, as well as the protection measures detailed above, it is not expected that the proposed location of the 2022 Corona Generation Expansion would significantly impair visual resources.

### **5.12 Land Use, Including Farm, Range, and Recreational Resources**

#### **5.12.1 Impact Assessment Methods**

Assessment of impacts to land uses from construction, operation, and maintenance of project infrastructure on the 2022 Corona Generation Expansion area follows the impact assessment methodology described in in Chapter 5.1 above and is discussed below. A land use impact is one that restricts the future use of land or conflicts with an existing use. Project infrastructure on the 2022 Corona Generation Expansion area tends to restrict certain activities but may or may not change the land use. Construction, operation, and maintenance of project infrastructure on the 2022 Corona Generation Expansion area would result in both direct and indirect impacts to land use. For schools and recreational resources, impacts are generally low, short term, and temporary in nature. The 2022 Corona Generation Expansion was evaluated to determine whether the following types of impacts would occur:

- Temporary and permanent land use changes.
- Restrictions on activities within the ROW.
- Inconsistency with local land use plans and zoning.
- Removal of land from future development.
- Potential use restrictions or conflicts on public lands.

## **5.12.2 Impacts Specific to the 2022 Corona Generation Expansion**

### **5.12.2.1 Agricultural Land Use Impacts**

The lands crossed by the 2022 Corona Generation Expansion are used for agricultural purposes. Long-term land use impacts to grassland, cropland, and pasture primarily would be the result of structure placement, ROW maintenance, and access roads. Current agricultural practices would be maintained for most of the ROW. Areas of cropland within the ROW could continue to be farmed, and grazing could continue within the ROW. The only land that would be unavailable for agriculture would be the area occupied by actual generation and transmission structures. Structures would be approximately 3 to 5 ft in diameter at ground level depending on the type of structure. The permanent footprint of transmission line structures and wind turbines would be removed from production, and structures would present obstacles that would need to be avoided. Corona Wind Companies would work with landowners to reduce impacts to irrigation facilities. However, overall, the project infrastructure on the 2022 Corona Generation Expansion would result in minimal reduction in agricultural production or land available for agricultural activities.

Easements or ROWs have been or would be obtained from landowners within the 2022 Corona Generation Expansion for constructing and maintaining the wind turbines and appurtenant facilities. The landowner would maintain ownership of the property and continue to pay taxes on the property, but Corona Wind Companies would acquire rights allowing construction, operation, and maintenance of project infrastructure on the 2022 Corona Generation Expansion area in exchange for a monetary payment to the landowner. The agreement between the landowner and Corona Wind Companies would outline any use restrictions applying to the agreement. The agreement would include certain restrictions on the continued use of the property, such as prohibiting permanent structures and establishment of certain types of vegetation within the ROW that could affect access to the line or safe and reliable operation.

During construction and maintenance activities, agricultural lands would be subject to temporary impacts. Depending on the time of year, access for construction would result in damage to crops, compaction and rutting of soil, restrictions on access to the ROW, and restrictions on general agricultural practices in and around the ROW (such as prescribed burning of grassland pasture). Landowners would be compensated for crop and forage loss, and damaged soils would be restored to arable condition. Cattle may need to be re-located or confined away from the ROW areas of pasture during construction. Following completion of construction, disturbance and disruption to agricultural activities would largely cease. Periodic maintenance activities and emergency repairs would result in impacts similar to those for construction.

However, these activities would be infrequent over the life of the Project. Landowners would be compensated for any damage, and the ROW would be restored to previous conditions.

In addition to the ROW for the 2022 Corona Generation Expansion, approximately four temporary laydown areas for construction material and equipment would be necessary for the duration of construction. These laydown areas each would be up to 20 acres in size each. Where feasible, construction laydown areas are typically located at previously disturbed or developed locations such as vacant lots, existing utility yards, or parking lots to reduce impacts to sensitive resources. If existing yard locations are not available, preferred locations for yards would be undeveloped areas, such as grazing or cropland, that are cleared, flat, have all-weather access, and do not contain streams, wetlands, or other environmentally sensitive resources. Laydown yards would typically consist of flat or gently sloping lands where much of the construction material would be placed on pallets or cribbing. No topsoil would be removed, and minimal, if any, re-grading is expected to take place at these facilities. Laydown areas generally would be returned to a pre-construction condition upon completion of construction of the project infrastructure on the 2022 Corona Generation Expansion area.

Up to five step-up substations and an adjacent switchyard would also be constructed. Construction would take place on up to approximately 20 acres of land per substation/switchyard and would result in the permanent conversion of this area from agricultural land to utility land use.

#### **5.12.2.2 Land Use Plans and Regulations**

As part of Torrance County's Goals and Objectives in the Torrance County CLUP, the potential for wind and solar generated power is encouraged in order to improve and expand Torrance County-wide infrastructure to enhance the quality of life and support economic development (Mid-Region Council of Governments of New Mexico, 2003). The Torrance County Zoning Ordinance encourages the development of businesses that harness wind energy (The Board of County Commissioners of Torrance County, 2020). Special Use Districts for Wind Energy Facilities are established to foster the development of the county's wind power resources while preserving traditional land uses.

The Lincoln County Comprehensive Plan also promotes wind and solar generated power to supplement farmers' incomes as well as to expand the regional economic base (Sites Southwest, 2007). The Comprehensive Plan encourages agricultural producers within Lincoln County to apply for USDA Rural Development Section 9006 Grants and Section 9006 Guaranteed Loans which can provide commercial financing of renewable energy and energy efficiency projects.



### **5.12.2.3 Public Lands**

The 2022 Corona Generation Expansion may cross state trust lands, depending on the final arrangement of wind turbines. An easement to cross these state lands would be needed from the New Mexico SLO for these portions of the 2022 Corona Generation Expansion. If an easement is needed across state trust lands, Corona Wind Companies would coordinate with the SLO to develop an agreement that is consistent with the SLO's development of state trust lands, per its planning requirements. Applications have or will be submitted to SLO for all of the 2022 Corona Generation Expansion footprint.

### **5.12.2.4 Schools**

No direct or indirect impacts to schools would occur as a result of the construction, operation, and maintenance of project infrastructure on the 2022 Corona Generation Expansion area. The Corona Elementary/High School is located about one mile north of the 2022 Corona Generation Expansion boundary. Siting of turbines on the 2022 Corona Generation Expansion would follow industry standard siting guidelines.

### **5.12.2.5 Recreation**

No direct or indirect impacts on state or county recreation lands, local parks, trails, or hunting access lands would occur as a result of the construction, operation, and maintenance of project infrastructure on the 2022 Corona Generation Expansion area. There are no parks and recreational areas in close proximity to the 2022 Corona Generation Expansion. Existing recreational opportunities would continue as they currently exist with minor, temporary disturbances possible during construction.

## **5.12.3 Protection Measures**

Protection measures that would be implemented to reduce any potential negative land use impacts include:

**Land-1:** Coordinate with landowners for potential measures, including routing, to reduce Project impacts on uses on specific properties.

**Land-2:** Coordinate with appropriate state land management agencies to obtain appropriate permits and easements for portions of the transmission line traversing public lands.

**Land-3:** Plan and conduct construction activities to reduce temporary disturbance, displacement of crops, and interference with agricultural activities.

**Land-4:** Restore compacted cropland soils as close as possible to pre-construction conditions using tillage.

**Land-5:** Compensate landowners for any new land rights required for ROW or access road easements.

**Rec-1:** Plan and conduct construction activities to reduce temporary disturbance, displacement of recreationists, and interference with recreation activities.

#### **5.12.4 Conclusion**

Based on the compatibility of project infrastructure on the 2022 Corona Generation Expansion with the current land uses, impacts to land uses would be largely temporary and limited in area during construction. The large majority of the 2022 Corona Generation Expansion would remain in its pre-existing use. With inclusion of the protection measures detailed above, it is not expected that the proposed location of the 2022 Corona Generation Expansion would significantly impair land use resources.

Based on no direct or indirect impacts to schools and no direct or indirect impacts on state or county recreation lands, local parks, trails, or hunting access lands as a result of the construction, operation, and maintenance of project infrastructure on the 2022 Corona Generation Expansion area, it is not expected that the proposed location of the 2022 Corona Generation Expansion would significantly impair school or recreation resources.

### **5.13 Socioeconomics**

#### **5.13.1 Impact Assessment Methods**

Assessment of impacts to socioeconomic resources from construction, operation, and maintenance of project infrastructure on the 2022 Corona Generation Expansion area follows the impact assessment methodology described in Chapter 5.1 above and is discussed below. Socioeconomic resources include elements of the human environment, such as population characteristics, employment and other economic factors, public services, and housing. Construction and operation of project infrastructure on the 2022 Corona Generation Expansion would result in both direct and indirect socioeconomic impacts, most of which are positive impacts. Potential socioeconomic impacts include:

- Generation of economic activity from jobs, earnings, and economic output.
- Temporary increase in demand and spending for local goods, services, and construction materials from construction of project infrastructure on the 2022 Corona Generation Expansion.

- Temporary increase in population from the influx of construction workers.
- Temporary increase in demand for temporary lodging facilities from the influx of construction workers.
- Temporary disruptions (such as temporary traffic changes or noise) to nearby residents during construction.

### **5.13.2 Impacts Specific to the 2022 Corona Generation Expansion**

The economic and fiscal impacts of the Corona Wind Project would make a significant contribution to the economic base of Lincoln and Torrance Counties with both short-term development activities, and long-term contributions to the regional economy.

Over 30 years of operations, the overall Corona Wind Project would produce an estimated \$2.6 billion in direct economic impacts, and taking account of economic multiplier impacts, approximately \$3.8 billion in direct, indirect and induced economic benefit to the local economy (Tysseling, 2017). Discounting this stream of benefits at a 5 percent annual rate (appropriate for public benefits analysis), and noting that the undiscounted economic impacts are stated in terms of 2018 dollars (i.e., unadjusted for inflation), the present value of the direct economic benefits from the Corona Wind Project are estimated to be nearly \$1.4 billion, and the direct, indirect, and induced economic benefits of the Corona Wind Project are estimated to produce a present value of \$2.0 billion (Tysseling, 2017). This equates to an estimated \$1.44 billion, and the direct, indirect, and induced economic benefits of the Corona Wind Project are estimated to produce a present value of \$2.1 billion scaled at a 3-percent increase to account for the updated wind and transmission areas.

The Corona Wind Project align directly with several of the specific goals of the New Mexico State Energy Plan. A significant attribute of the Corona Wind Project is the development of the SunZia Transmission Project transmission facilities. Moreover, several other objectives of the State Energy Plan are achieved by the Corona Wind Project and related developments, including:

- Supporting regional energy policy, infrastructure, and development pathways and solutions.
- Ensuring that sound science and economics, as well as the availability of energy resources drive state energy policy decisions.
- Focus on economic growth, diversification, and private sector job creation.
- Consider appropriate incentives that would increase market potential and competitiveness with other states in the West.
- Accelerate reduction of freshwater consumption in the energy sector.

- Establish the energy foundation of new and improved infrastructure in electric power transmission.

Development of electric generation facilities comprising the 2022 Corona Generation Expansion to be included in the Corona Wind Project, offers New Mexico highly desirable economic development investments. Investments in these wind generation and transmission facilities stimulate substantial growth in the renewable energy sector and foster an economic development climate that broadens the state's long-standing role as a sustainable participant in the energy marketplace. Facilities within the 2022 Corona Generation Expansion would not displace or capture existing commercial energy market activities. Instead, these investments would create new economic development in its exportation of environmentally preferred New Mexico energy resources.

Once operational, the economic benefits and revenue streams would be a stable foundation of economic activity anticipated for at least the 30-year life of the Corona Wind Project and would likely continue beyond that time. Additionally, the Corona Wind Project establishes a new economic infrastructure that would likely foster further developments of a similar nature.

The short-term impacts during the development period would flow from the \$2.4 billion capital investment for the Corona Wind Project's facilities (Tysseling, 2017). These developments would occur over approximately 506,463 acres (i.e., 354,649 acres across Torrance, Lincoln, and Guadalupe Counties for the 2018 Approved Projects, and 151,814 acres across Torrance and Lincoln Counties for the 2021 Corona Wind Update and 2022 Corona Generation Expansion) and would introduce significant new economic activities for decades to come.

Corona Wind Companies estimates that of the total capital expenditures during construction of the Corona Wind Project, it is likely that \$120 million in contracts would flow to local construction service providers (Tysseling, 2017).

Once construction is completed and operations commence, the Corona Wind Project is expected to employ approximately 94 permanent jobs with a payroll estimated to be approximately \$4.5 million and total operating costs of approximately \$1.7 million per year (Tysseling, 2017).

The land lease and easement agreements with the private landowners on which the Corona Wind Project would be sited would provide direct new revenues to landowners within the footprint of development. These landowners are expected to realize approximately \$12.5 million of new revenues during the

development period, and a minimum of approximately \$9.3 to \$10.5 million per year during the operations period (Tysseling, 2017).

GRT revenues will increase as a result of the construction projects by an estimated \$22.4 million Corona Wind Project development. Fiscal impacts associated with property taxes are muted as a result of the financing through Industrial Revenue Bonds (IRBs), but provision has been made by the developers to provide payments in-lieu of taxes (PILOTs) to several of the municipal and school district beneficiaries of these tax revenues in an amount estimated at approximately \$3.6 million per year (Tysseling, 2017).

The direct economic impacts of the Corona Wind Project during the development period are anticipated to be \$128.8 million, with direct, indirect and induced (multiplier) impacts suggesting a \$211.4 million impact from the development of the Corona Wind Project (Tysseling, 2017). This equates to an estimated \$132.7 million, with direct, indirect and induced (multiplier) impacts suggesting a \$217.7 million impact from the development at a 3-percent increase to account for the updated wind and transmission areas. Once operational, the Corona Wind Project should generate an annual direct economic impact of approximately \$82.7 million, and, when economic multipliers are considered, the annual impact from the Corona Wind Project operation can be estimated to be approximately \$118.0 million (Tysseling, 2017).

### **5.13.3 Protection Measures**

Protection measures that would be implemented to reduce potential negative socioeconomic impacts from construction activities include:

**Socio-1:** Work with individual landowners to coordinate the timing of construction to minimize short-term impacts on agriculture.

### **5.13.4 Conclusion**

The 2022 Corona Generation Expansion would develop a relatively new and under-developed economic resource in the state of New Mexico—wind energy—that would be directly exported from the state along with the overall Corona Wind Project. Aside from the technology, innovation and capital investments developed in conjunction with the Corona Wind Project, this development creates new economic activity, value, and opportunity within New Mexico, which would be exported from the state. This is a highly valuable attribute of the Corona Wind Project, as it would not displace or capture existing commercial activities, but, instead, would create the most desirable form of economic development in its exportation of environmentally preferred New Mexico energy resources. In short, the Corona Wind Project would create new economic value from economic activities that are not currently a part of the New Mexico economy.

## **5.14 Communication Signals**

### **5.14.1 Impact Assessment Methods**

Assessment of impacts to communication signal resources from construction, operation, and maintenance of project infrastructure on the 2022 Corona Generation Expansion area follows the impact assessment methodology described in Chapter 5.1 above and is discussed below. Construction, operations, and maintenance impacts are generally avoidable for communication signal resources.

### **5.14.2 Impacts Specific to the 2022 Corona Generation Expansion**

Project infrastructure on the 2022 Corona Generation Expansion area is planned to avoid beam paths. Siting of project infrastructure on the 2022 Corona Generation Expansion area would be completed outside of existing, known fresnel zones and would avoid inference with communication pathways. A number of signaling structures was identified within 35 miles of the 2022 Corona Generation Expansion and can be found in Table 4-10. Project infrastructure on the 2022 Corona Generation Expansion area would avoid AM and FM station towers to the extent practicable if new tower facilities are developed.

### **5.14.3 Protection Measures**

Protection measures that would be implemented to reduce potential negative communication signal impacts from construction activities or operation include:

**Comm-1:** Corona Wind Companies shall minimize or mitigate any interference with electromagnetic communications, such as radio, telephone or television signals caused by any wind energy facility.

**Comm-2:** No individual tower facility shall be installed in any location where its proximity with fixed broadcast, retransmission or reception antenna for radio, television or wireless phone or other personal communications systems would produce electromagnetic interference with signal transmission or reception.

### **5.14.4 Conclusion**

Microwave path and AM and FM station towers would be avoided to the extent practicable; therefore, it is not expected that the proposed location of the 2022 Corona Generation Expansion would significantly impair communication signals.

## **5.15 Radioactive Waste and Radiation Hazards**

Electric transmission line and substation infrastructure do not generate or contain radioactive waste or radiation hazards. Construction, operation, and maintenance of project infrastructure on the 2022 Corona Generation Expansion would not generate radioactive waste or radiation hazards, and therefore are not addressed further in this ER.

## **5.16 Hazardous Materials**

### **5.16.1 Impact Assessment Methods**

Assessment of impacts from hazardous materials resulting from construction, operation, and maintenance of project infrastructure on the 2022 Corona Generation Expansion area follows the impact assessment methodology described in Chapter 5.1 above and is discussed below. Accidental spill of hazardous materials could occur during the construction, operation, and maintenance of project infrastructure on the 2022 Corona Generation Expansion area. This hazard is described in more detail below.

### **5.16.2 Impacts Specific to the 2022 Corona Generation Expansion**

During construction, use of trucks, heavy equipment, or stored supplies could result in accidental discharge of fuel, lubricants, and automotive fluids. Although the potential exists, any spills would be accidental, occasional, and of limited extent, and would be considered minor to negligible and temporary in duration. A SPCC Plan would be prepared by Corona Wind Companies and would contain information regarding training, equipment inspections, maintenance and repair, spill prevention kits, and refueling operations for construction vehicles, with an emphasis on preventing spills. Hazardous materials would not be drained onto the ground or into streams or drainage areas. All construction waste including trash and litter, garbage, other solid waste, petroleum products, and other potentially hazardous materials would be removed to a disposal facility authorized to accept such materials weekly.

### **5.16.3 Protection Measures**

Protection measures that would be implemented to reduce any potential negative hazardous materials impacts include:

**Haz-1:** Prepare a SPCC Plan.

**Haz-2:** Hazardous materials will not be drained onto the ground or into streams or drainage areas.

**Haz-3:** Construction waste including trash and litter, garbage, other solid waste, petroleum products, and other potentially hazardous materials will be removed to a disposal facility authorized to accept such materials weekly.

#### **5.16.4 Conclusion**

Impacts from hazardous materials would be avoided through the implementation of proper construction practices, development and implementation of a SPCC Plan, as well as the protection measures detailed above; therefore, it is not expected that the proposed location of the 2022 Corona Generation Expansion would significantly impair important environmental resources from hazardous materials.

### **5.17 Safety**

#### **5.17.1 Impact Assessment Methods**

Assessment of impacts to safety from construction, operation, and maintenance of project infrastructure on the 2022 Corona Generation Expansion area follows the impact assessment methodology described in Chapter 5.1 above and is discussed below. Safety concerns that can arise from construction, operation, and maintenance are described in more detail below.

#### **5.17.2 Impacts Specific to the 2022 Corona Generation Expansion**

Corona Wind Companies would develop a safety plan prior to construction to manage and reduce safety risk. Speed limits would be posted and followed to reduce traffic safety concerns on roadways. Proper construction practices would be followed to reduce injury to personnel and damage to property. In the unforeseen event that a safety issue arises, Corona Wind Companies' safety plan would have procedures in place to address most safety situations. Corona Wind Companies will comply with all manufacturer specifications and relevant Occupation Safety and Health Administration requirements to ensure the safety of residents, employees, contractors, livestock, the public, and other users of the land.

Construction of project infrastructure on the 2022 Corona Generation Expansion area could cause wildfire ignition. O&M activities (e.g., welding, vehicle ignition), and the presence of energized transmission line facilities (e.g., arc ignition) could also cause wildfire ignition. Corona Wind Companies and/or their contractors would notify federal, state, and local agencies of any fires and comply with all rules and regulations administered by the federal, state, and local land management agencies concerning the use, prevention, and suppression of fires, including any fire prevention orders that may be in effect at the time of the construction, operation, or maintenance activity. Additionally, Lincoln and Torrance County emergency responders and fire districts will be contacted to ensure appropriate plans are in place at the



Corona Wind Project to quickly respond to any emergencies. Corona Wind Companies will work with the departments to ensure the safety of the firefighters, Corona Wind Project employees, landowners, neighbors, livestock, and other users of the land. The Corona Wind Project will have emergency response plans in place to respond to various natural disasters, even though the 2022 Corona Generation Expansion generally is not considered to be a high-risk site. An annual emergency response drill, in which local responders will be invited to participate, will be completed onsite to test the Corona Wind Project's emergency preparedness.

Within the 2022 Corona Generation Expansion, safety risks will be reduced as electrical substations and transformers will be located inside locked fences or enclosures and will be clearly marked to show that energized electrical equipment is located inside. In addition, Corona Wind Companies will man a 24/7 monitoring center to monitor the substation and turbines. There will be signage on the substation fences with the monitoring center's phone number. Modern wind turbines are inherently unclimbable by the general public since there are no exterior ladders or lattice work and interior ladders are secured behind locked doors located at the bases of the turbine towers.

### **5.17.3 Protection Measures**

Protection measures that would be implemented to reduce any potential safety impacts include:

**Safe-1:** Corona Wind Companies and their contractors, as appropriate, will initiate discussions with local fire districts and regional fire prevention staff prior to construction to discuss emergency procedures and to provide transmission line safety training, including safety procedures for conducting fire suppression activities near a power line.

**Safe-2:** All vehicles will be equipped with appropriate fire suppression tools and equipment. Fire suppression equipment will include, but not be limited to, shovels, buckets, and fire extinguishers.

**Safe-3:** Smoking and equipment parking will be restricted to designated areas.

**Safe-4:** Corona Wind Companies and/or their contractors will fuel all highway-authorized vehicles offsite to minimize the risk of fire. Fueling of construction equipment that is transported to the site via truck and is not highway authorized will be done in accordance with regulated construction practices and federal, state, and local laws.

**Safe-5:** Corona Wind Companies will develop a safety plan prior to construction. The plan will include items such as medical emergency facilities and procedures, wildlife agency contacts and procedures, and inclement weather procedures.

**Safe-6:** Appropriate warning signage shall be placed on wind turbine towers, electrical equipment, and wind energy facility entrances.

**Safe-7:** To the extent practicable, the facility shall connect to existing substations, or if new substations are needed, minimize the number of new substations.

**Safe-8:** Electrical controls and control wiring and power lines shall be wireless or underground, except where wind farm collector wiring is brought together for connection to the transmission or distribution network, adjacent to that network.

#### **5.17.4 Conclusion**

Impacts from unsafe events would be reduced through the implementation of proper construction practices, as well as the protection measures detailed above; therefore, it is not expected that the proposed location of the 2022 Corona Generation Expansion would significantly impair important environmental resources because of safety concerns.

### **5.18 Geographic Resources**

#### **5.18.1 Impact Assessment Methods**

Assessment of impacts to geographic resources from construction, operation, and maintenance of project infrastructure on the 2022 Corona Generation Expansion area follows the impact assessment methodology described in Chapter 5.1 above and is discussed below. The Project is in the Great Plains region of New Mexico. Geographic resources identified in the region include state and national parks and monuments. The 2022 Corona Generation Expansion was evaluated to determine whether the following types of impacts would occur:

- Diminishment of scenic resources within and from state or national parks and monuments by the addition of man-made elements to the natural landscape.
- Introduction of noise/air pollution to state or national parks and monuments.

### **5.18.2 Impacts Specific to the 2022 Corona Generation Expansion**

As discussed in Section 5.11, there are no national parks or state parks in the vicinity of the 2022 Corona Generation Expansion. The closest national park is the Gran Quivira Unit of the Salinas Pueblo Missions National Monument, which is approximately 23 miles west of the 2022 Corona Generation Expansion. The closest state parks are the Santa Rosa Lake State Park, Villanueva State Park, and Manzano Mountains State Park, all located more than 35 miles from the 2022 Corona Generation Expansion. Construction of project infrastructure on the 2022 Corona Generation Expansion would result in minor emissions from construction vehicles and activities but would not impact the overall air quality in the region, including the national and state parks. Noise impacts (such as from construction activities) would be highly localized and would not impact noise level at the national or state parks.

Of the 21 archaeological sites discussed in Section 5.9, two NRHP-eligible archaeological resources are reported within the 2022 Corona Generation Expansion. One is a multicomponent site and the second is a small prehistoric lithic scatter. Impacts to known locations of cultural resources would be low because the project infrastructure on the 2022 Corona Generation Expansion area is intended to be designed around these areas. Cultural resource field surveys would be completed prior to any construction activity to reduce potential impacts to unlocated sites. Any discoveries which may occur during construction would be managed through a UDP.

### **5.18.3 Protection Measures**

Due to no anticipated impacts to geographic resources, no protection measures are proposed.

### **5.18.4 Conclusion**

Impacts to geographic resources would be avoided by the 2022 Corona Generation Expansion to the extent practicable; therefore, it is not expected that the proposed location of the 2022 Corona Generation Expansion would significantly impair geographic resources.

## **5.19 Military Activities and Aviation**

### **5.19.1 Impact Assessment Methods**

Assessment of impacts to military and aviation activities from construction, operation, and maintenance of project infrastructure on the 2022 Corona Generation Expansion area follows the impact assessment methodology described in Chapter 5.1 above and is discussed below. Construction, operations, and maintenance impacts are generally avoidable in nature for military activities and aviation.

### **5.19.2 Impacts Specific to the 2022 Corona Generation Expansion**

Three military training routes cross the 2022 Corona Generation Expansion. Corona Wind Companies would work with FAA to request DNH for the 2022 Corona Generation Expansion. Based on the height of the transmission infrastructure and the location of military and aviation resources, the construction, operation, and maintenance of project infrastructure on the 2022 Corona Generation Expansion area would not impact military activities and aviation.

### **5.19.3 Protection Measures**

Protection measures that would be implemented to reduce any potential negative military or aviation impacts from construction activities include:

**Mil-1:** Coordinate with military bases and aviation facilities as needed.

**Mil-2:** Use FAA approved lighting as required.

### **5.19.4 Conclusion**

To the extent practicable, impacts to military activities and aviation resources would be avoided by project infrastructure on the 2022 Corona Generation Expansion; therefore, it is not expected that the proposed location of the 2022 Corona Generation Expansion would significantly impair military activities and aviation resources.

## **5.20 Roads**

### **5.20.1 Impact Assessment Methods**

Assessment of impacts to roads from construction, operation, and maintenance of project infrastructure on the 2022 Corona Generation Expansion area follows the impact assessment methodology described in Chapter 5.1 above and is discussed below. Construction, operations, and maintenance impacts are generally low, short term, and temporary in nature for roads.

### **5.20.2 Impacts Specific to the 2022 Corona Generation Expansion**

Potential impacts for roads would be greatest during construction of project infrastructure on the 2022 Corona Generation Expansion. Construction equipment and increased traffic have the potential to degrade existing road conditions. Corona Wind Companies would document pre-construction road conditions and return roads used for construction access to pre-construction condition or better once construction is completed. Increased road traffic from construction would be localized and short term based on where construction is occurring that day or week. Low impacts to roads in the 2022 Corona Generation

Expansion are anticipated based on localized, short-term impacts, and Corona Wind Companies' commitments to return roads used for construction to pre-construction conditions.

### **5.20.3 Protection Measures**

Protection measures that would be implemented to reduce any potential negative road impacts from construction activities include:

**Road-1:** Pre-construction conditions will be documented, and Corona Wind Companies will develop a road use agreement with NMDOT and Lincoln and Torrance County Road Maintenance Departments, as necessary.

**Road-2:** Construction speed limits will be established.

### **5.20.4 Conclusion**

Based on localized, low, short-term impacts, and Corona Wind Companies' commitments to return roads used for construction to pre-construction conditions, as well as the protection measures detailed above, it is not expected that the proposed location of the 2022 Corona Generation Expansion would significantly impair roads.

## **6.0 CONSULTATION AND COORDINATION**

The following individuals and materials have contributed to the preparation of the Corona Wind Companies' ER for the 2022 Corona Generation Expansion.

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- Crystal Coffman, Director Business Development
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- Bob Rowe, Senior Archeologist and Paleontologist
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- Crystal Bravo-Cogar, Senior Environmental Scientist
- Gregory Buck, Assistant Environmental Scientist
- Larry Karpov, Geographic Integration Systems Specialist

### **6.2 Technical Reports Contributing to the Environmental Report**

- Burns & McDonnell. 2022. "Desktop Wetland Evaluation, Corona Wind Projects, Pattern SC Holdings LLC," letter report to Adam Cernea Clark, Pattern SC Holdings LLC, dated June 10, 2022.
- Tysseling, J.C., Ph.D. 2017. *The Economic and Fiscal Impact of the Corona Wind Project in New Mexico*.

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- WEST, Inc. 2017c. *Raptor Nest Survey, Pattern Wind Energy Project*. Report issued August 2017.

### **6.3 Recipients of the Environmental Report**

- Lincoln/Torrance County Board of County Commissioners
- Lincoln/Torrance County Manager
- Lincoln/Torrance County Road Superintendent
- City of Corona City Council
- Mayor, Corona
- Corona City Manager
- City of Duran City Council
- Mayor, Duran
- Duran City Manager
- Corona Elementary/High School
- Estancia Elementary/Middle/High School
- Vaughn Elementary/High School
- New Mexico Environment Department
- New Mexico State Engineer
- New Mexico Attorney General
- New Mexico SLO

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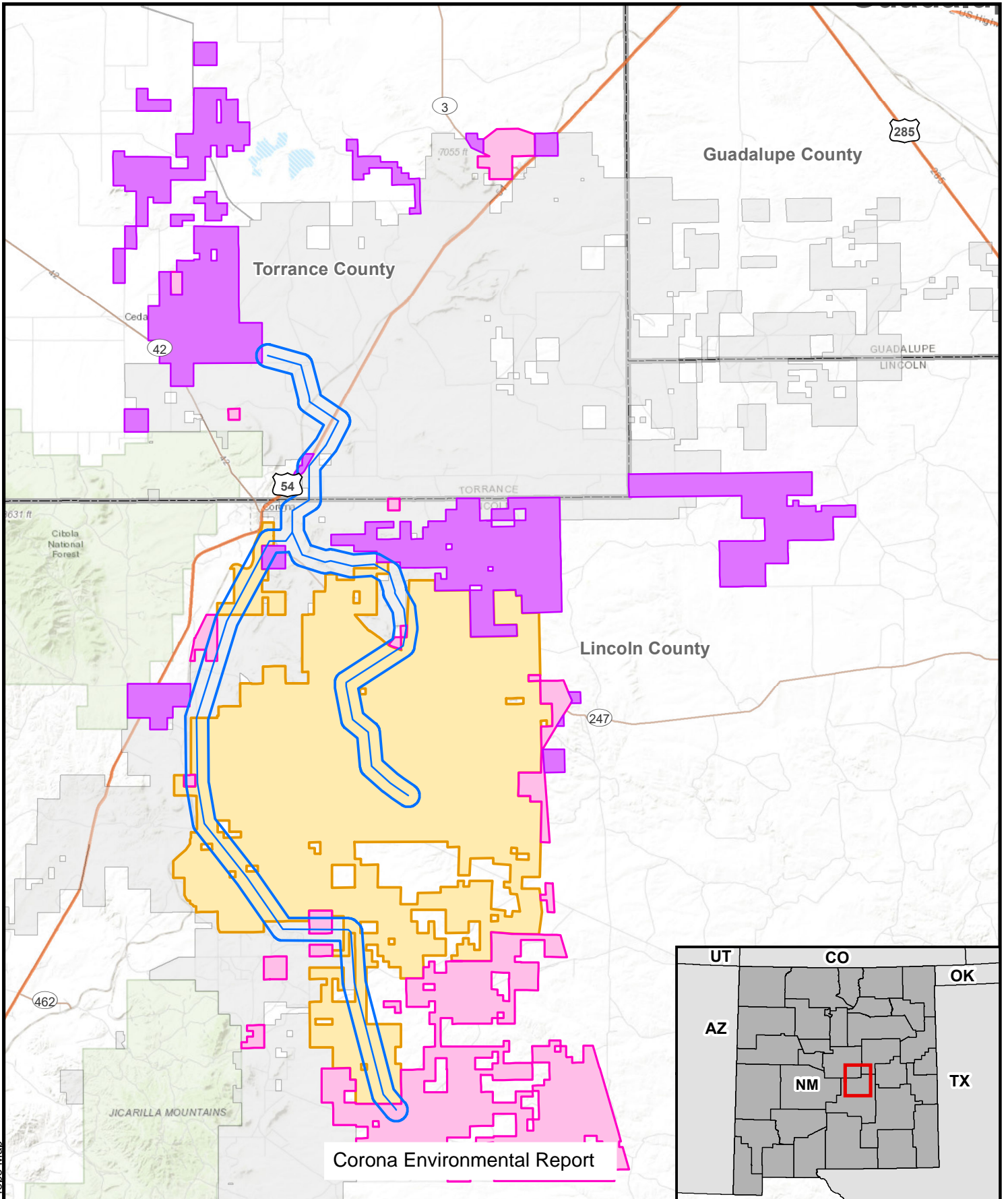
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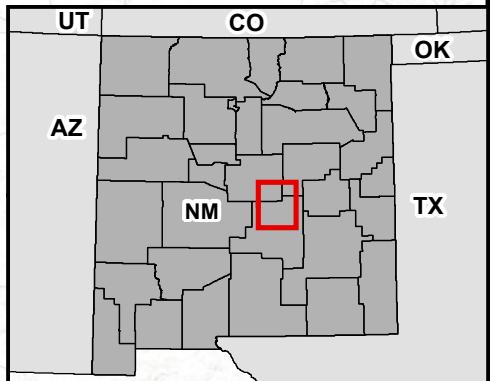
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- geology, 1-2, 4-1, 4-3, 4-6, 4-7, 4-18, 4-19, 4-34, 5-1, 5-4, 5-5, 5-7, 7-2
- land cover, vi, x, 4-11, 4-21, 4-24, 4-25, 7-2
- land use, viii, 1-2, 3-4, 3-9, 3-10, 4-2, 4-21, 4-23, 4-24, 4-25, 4-26, 4-27, 4-28, 4-31, 5-13, 5-20, 5-21, 5-22, 5-23, 5-24, 7-1, 7-2
- microwave, 4-33, 5-28
- Migratory Bird Treaty Act (MBTA), x, 5-13
- military training route, 4-35, 5-34
- mineral resources, vii, 4-1, 4-3, 4-4, 4-6, 5-1, 5-4, 7-4
- national park, x, 4-20, 4-22, 4-23, 4-34, 5-18, 5-19, 5-32, 5-33, 7-2
- noise, 1-2, 4-1, 4-2, 5-1, 5-3, 5-4, 5-12, 5-13, 5-25, 5-32, 5-33, 6-1
- paleontological resources, 4-1, 4-6, 4-7, 4-8, 5-1, 5-7
- radiation hazard, 1-2, 4-1, 4-33, 5-1, 5-29
- radio tower, 5-19
- radioactive waste, 1-2, 4-1, 4-33, 5-1, 5-29
- religious resources, 1-2, 5-17
- right-of-way (ROW), xi, 3-2, 3-3, 3-4, 3-5, 3-9, 3-10, 4-1, 5-3, 5-12, 5-18, 5-19, 5-20, 5-21, 5-22, 5-24
- river, 4-3, 4-9, 4-10, 4-14, 4-15, 4-17, 4-21, 4-23, 4-27, 5-10
- road use agreement, 5-35
- scenic byway, 4-20, 4-22, 5-18, 5-20, 7-2
- school, 1-2, 4-22, 4-26, 4-27, 4-29, 4-30, 4-31, 5-4, 5-20, 5-23, 5-24, 5-27, 6-2
- socioeconomic, 1-2, 4-1, 4-29, 5-1, 5-24, 5-27
- soil, vi, vii, xi, 1-2, 3-4, 3-5, 3-6, 3-8, 3-9, 3-11, 4-1, 4-3, 4-4, 4-5, 4-6, 4-7, 4-8, 4-11, 4-23, 4-26, 4-29, 5-1, 5-2, 5-5, 5-6, 5-7, 5-8, 5-10, 5-11, 5-12, 5-21, 5-22, 5-24, 7-1, 7-4
- species of concern, 4-12
- state park, 4-22, 4-23, 4-25, 4-35, 5-19, 5-33
- stormwater, xi, 5-6, 5-9
- substation, 3-1, 3-2, 3-3, 3-4, 3-8, 3-11, 4-1, 4-33, 5-10, 5-11, 5-12, 5-18, 5-19, 5-22, 5-29, 5-31, 5-32
- surface water, vii, x, 4-9, 4-28, 5-6, 5-8, 5-9
- switchyard, 3-1, 3-3, 3-8, 5-10, 5-11, 5-22
- transmission line, 1-1, 1-2, 3-1, 3-2, 3-3, 3-4, 3-5, 3-9, 3-10, 4-1, 4-22, 4-33, 4-35, 5-1, 5-8, 5-10, 5-11, 5-12, 5-13, 5-14, 5-15, 5-18, 5-19, 5-21, 5-23, 5-29, 5-30, 5-31
- visual, vii, 1-2, 3-4, 3-6, 4-4, 4-20, 4-23, 5-18, 5-19, 5-20
- wetlands, vi, vii, x, 3-9, 4-8, 4-9, 4-10, 4-11, 4-14, 4-16, 4-25, 5-9, 5-10, 5-11, 5-12, 5-14, 5-22, 7-4
- wildfire, 5-30

**APPENDIX 1 - EXHIBITS**



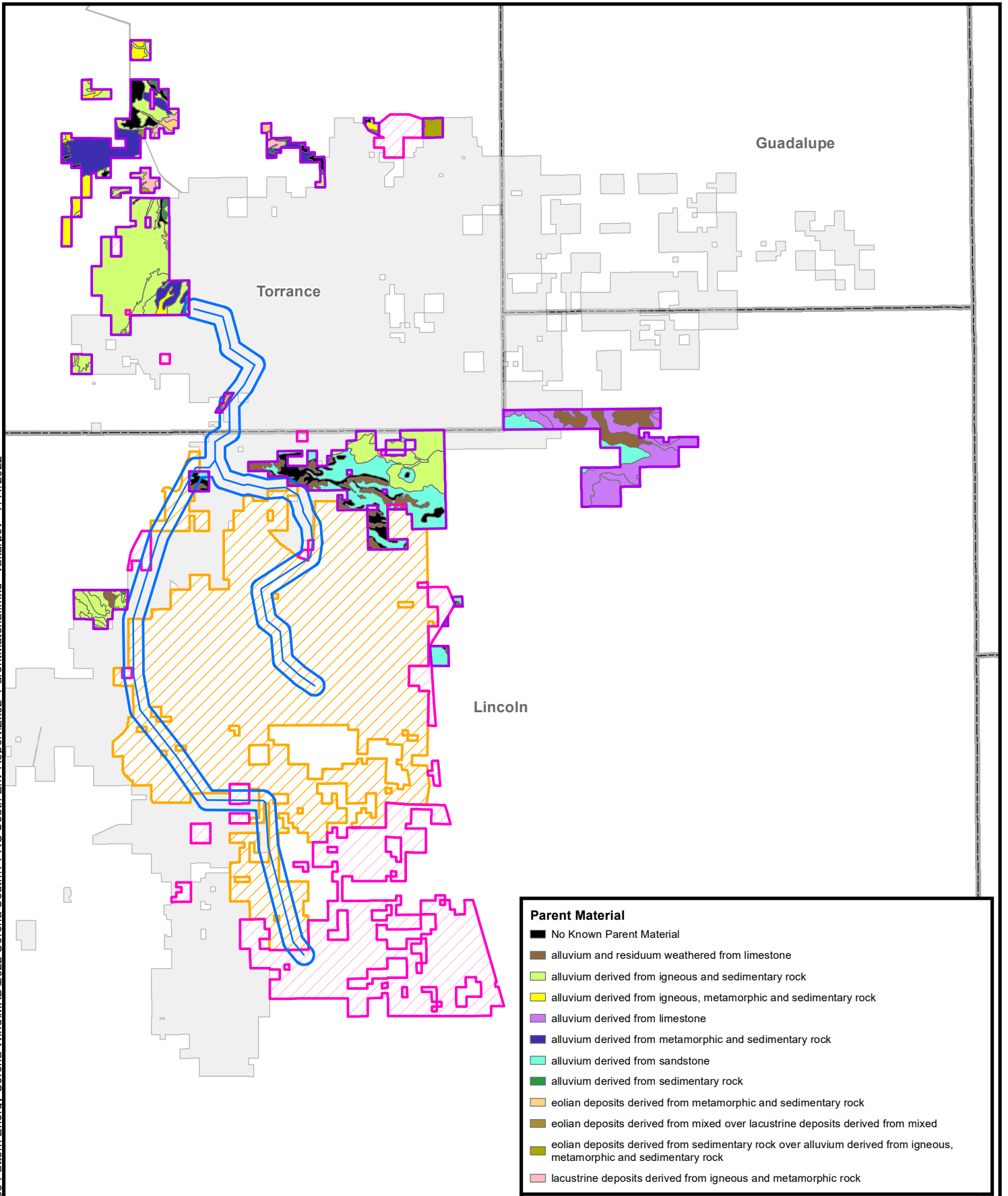
Corona Environmental Report

- 2022 Corona Generation Expansion
- 2021 Revised Corona Gen-Tie System and Corridor
- 2021 Corona Generation Expansion
- Previously Approved Mesa Canyons Footprint
- Previously Approved Corona Wind Footprint



**Exhibit 1**  
**Assessment Area**  
**Corona Environmental Report**  
**2022 Generation Supplement**  
**Pattern Energy**  
**Lincoln and Torrance Counties, NM**

Path: C:\TEMP\WORK\101\_335\_Pattern Energy Corona Wind\MXD\2022 Corona South 1.PRC.South Env Report\Ex02 ParentMaterial.mxd vakarpo 7/11/2022



Guadalupe

Torrance

Lincoln

**Parent Material**

- No Known Parent Material
- alluvium and residuum weathered from limestone
- alluvium derived from igneous and sedimentary rock
- alluvium derived from igneous, metamorphic and sedimentary rock
- alluvium derived from limestone
- alluvium derived from metamorphic and sedimentary rock
- alluvium derived from sandstone
- alluvium derived from sedimentary rock
- eolian deposits derived from metamorphic and sedimentary rock
- eolian deposits derived from mixed over lacustrine deposits derived from mixed
- eolian deposits derived from sedimentary rock over alluvium derived from igneous, metamorphic and sedimentary rock
- lacustrine deposits derived from igneous and metamorphic rock

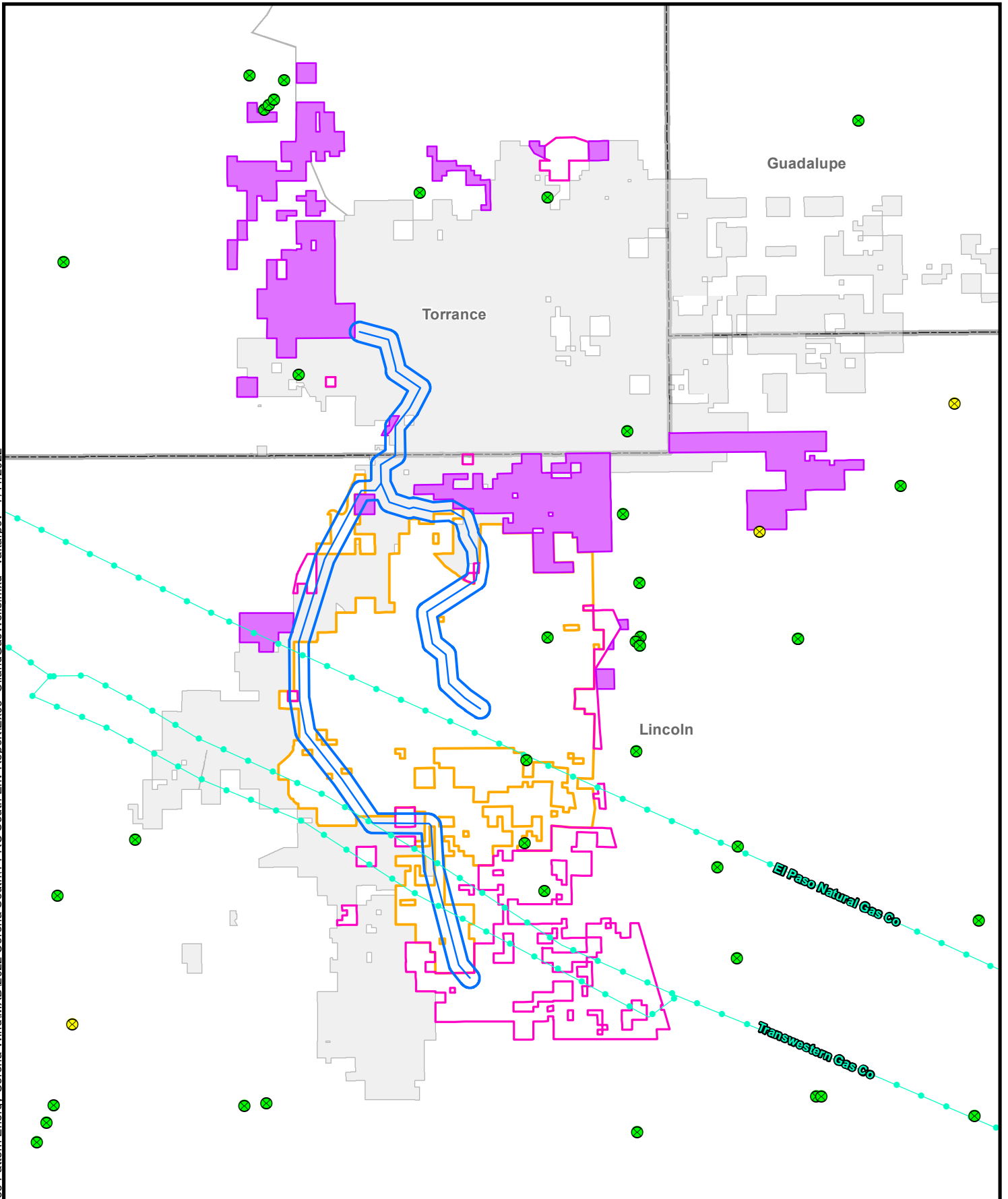
- 2022 Corona Generation Expansion
- 2021 Revised Corona Gen-Tie System and Corridor
- 2021 Corona Generation Expansion
- Previously Approved Mesa Canyons Footprint
- Previously Approved Corona Wind Footprint

0 3 6  
Miles



**Exhibit 2**  
**Parent Material**  
 Corona Environmental Report  
 2022 Generation Supplement  
 Pattern Energy  
 Lincoln and Torrance Counties, NM

Path: C:\TEMP\WORK\101\_335\_Pattern\_Energy\_Corona\_Wind\MXD\2022\_Corona\_South1\_PRC\_South\_Env\_Report\Ex03\_OilandGasWells.mxd vakarpov\_7/11/2022



- 2022 Corona Generation Supplement
- Cancelled Well
- Plugged Well
- Natural Gas Pipeline
- 2021 Revised Corona Gen-Tie System and Corridor
- 2021 Corona Generation Expansion
- Previously Approved Mesa Canyons Footprint
- Previously Approved Corona Wind Footprint

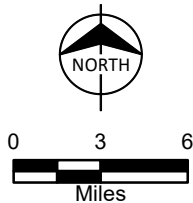
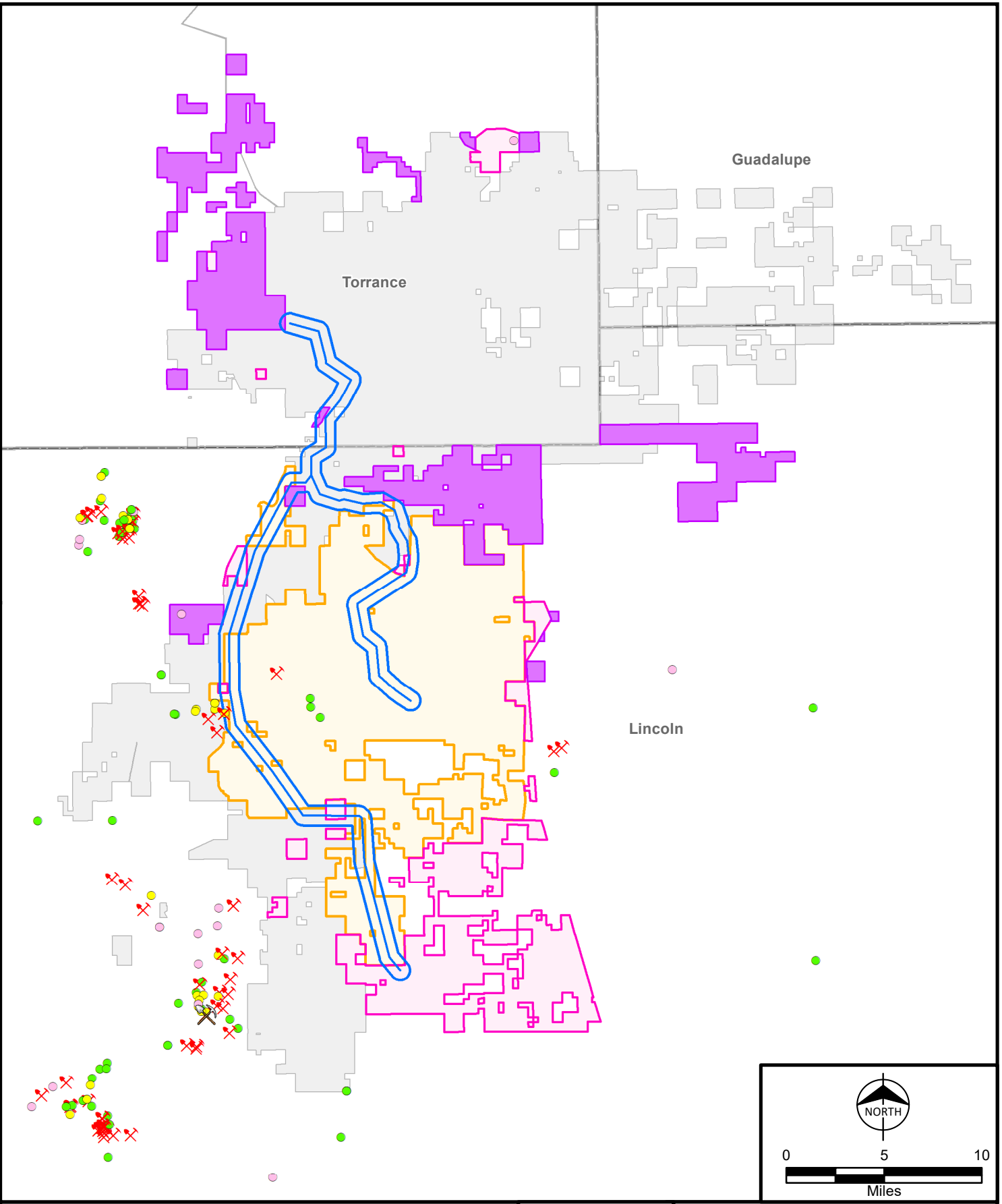












Exhibit 3  
Oil & Gas Well Summary  
Corona Environmental Report  
2022 Generation Supplement  
Pattern Energy  
Lincoln & Torrance Counties, NM



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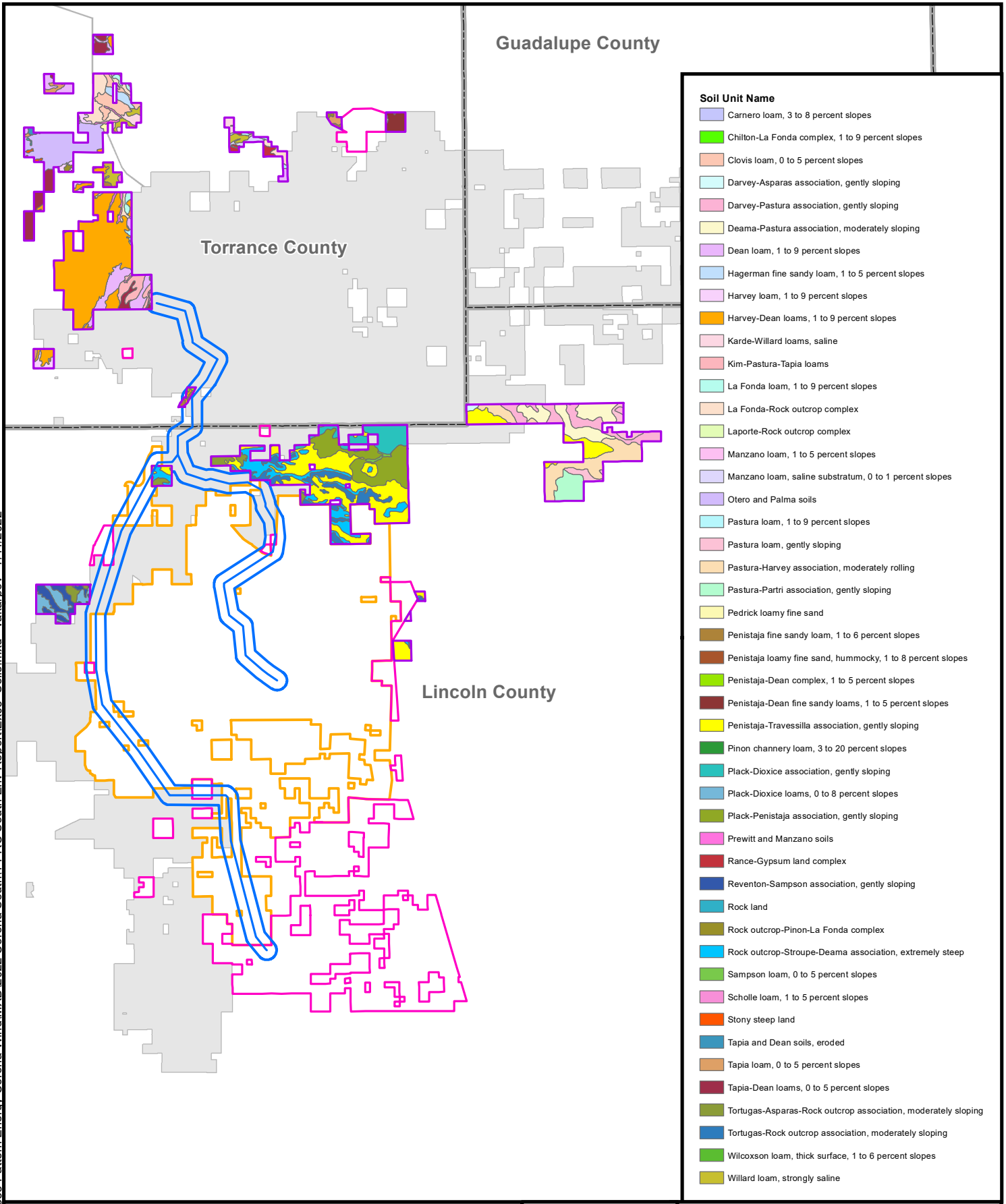


- |   |   |   |                             |
|---|---|---|-----------------------------|
|  | 2022 Corona Generation Expansion                |  | Mineral Plant/Producer      |
|  | 2021 Revised Corona Gen-Tie System and Corridor |  | Past Mineral Producer       |
|  | 2021 Corona Generation Expansion                |  | Mineral Resource Occurrence |
|  | Previously Approved Mesa Canyons Footprint      |  | Mineral Resource Prospect   |
|  | Previously Approved Corona Wind Footprint       |  | Unknown Mineral Resource    |



**Exhibit 4**  
**Mineral Resources Map**  
**Corona Environmental Report**  
**2022 Generation Supplement**  
**Pattern Energy**  
**Lincoln & Torrance Counties, NM**

Path: C:\TEMP\WORK\101\_335\_Pattern Energy Corona Wind\MXD\2022 Corona South1.PRC.South Env Report\Ex05\_Soils.mxd vakarpov 7/11/2022



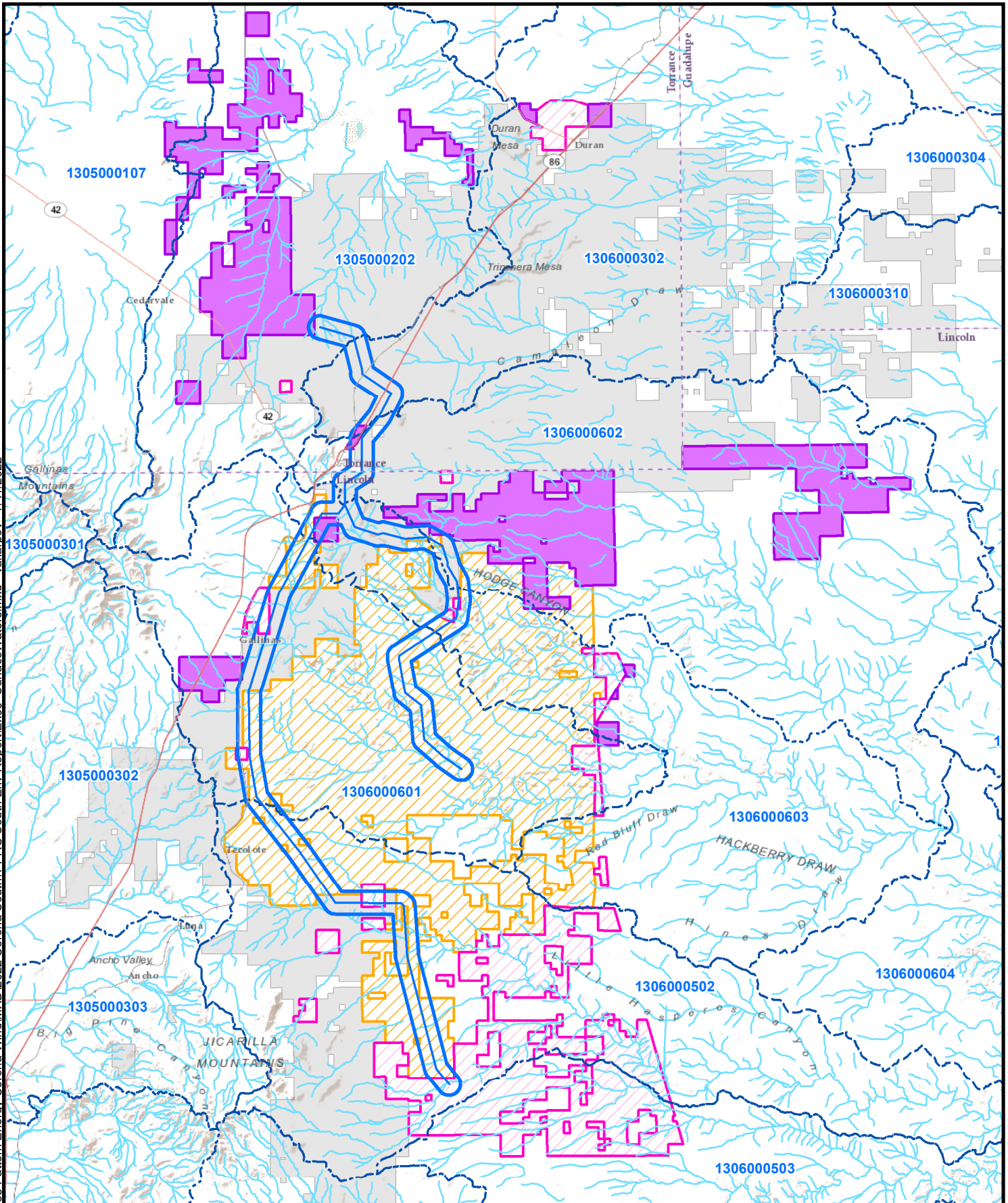
- Soil Unit Name**
- Carnero loam, 3 to 8 percent slopes
  - Chilton-La Fonda complex, 1 to 9 percent slopes
  - Clovis loam, 0 to 5 percent slopes
  - Darvey-Asparas association, gently sloping
  - Darvey-Pastura association, gently sloping
  - Deama-Pastura association, moderately sloping
  - Dean loam, 1 to 9 percent slopes
  - Hagerman fine sandy loam, 1 to 5 percent slopes
  - Harvey loam, 1 to 9 percent slopes
  - Harvey-Dean loams, 1 to 9 percent slopes
  - Karde-Willard loams, saline
  - Kim-Pastura-Tapia loams
  - La Fonda loam, 1 to 9 percent slopes
  - La Fonda-Rock outcrop complex
  - Laporte-Rock outcrop complex
  - Manzano loam, 1 to 5 percent slopes
  - Manzano loam, saline substratum, 0 to 1 percent slopes
  - Otero and Palma soils
  - Pastura loam, 1 to 9 percent slopes
  - Pastura loam, gently sloping
  - Pastura-Harvey association, moderately rolling
  - Pastura-Partri association, gently sloping
  - Pedrick loamy fine sand
  - Penistaja fine sandy loam, 1 to 6 percent slopes
  - Penistaja loamy fine sand, hummocky, 1 to 8 percent slopes
  - Penistaja-Dean complex, 1 to 5 percent slopes
  - Penistaja-Dean fine sandy loams, 1 to 5 percent slopes
  - Penistaja-Travessilla association, gently sloping
  - Pinon channery loam, 3 to 20 percent slopes
  - Plack-Dioxice association, gently sloping
  - Plack-Dioxice loams, 0 to 8 percent slopes
  - Plack-Penistaja association, gently sloping
  - Prewitt and Manzano soils
  - Rance-Gypsum land complex
  - Reventon-Sampson association, gently sloping
  - Rock land
  - Rock outcrop-Pinon-La Fonda complex
  - Rock outcrop-Stroupe-Deama association, extremely steep
  - Sampson loam, 0 to 5 percent slopes
  - Scholle loam, 1 to 5 percent slopes
  - Stony steep land
  - Tapia and Dean soils, eroded
  - Tapia loam, 0 to 5 percent slopes
  - Tapia-Dean loams, 0 to 5 percent slopes
  - Tortugas-Asparas-Rock outcrop association, moderately sloping
  - Tortugas-Rock outcrop association, moderately sloping
  - Wilcoxson loam, thick surface, 1 to 6 percent slopes
  - Willard loam, strongly saline

- 2022 Corona Generation Expansion
  - 2021 Revised Corona Gen-Tie System and Corridor
  - 2021 Corona Generation Expansion
  - Previously Approved Mesa Canyons Footprint
  - Previously Approved Corona Wind Footprint
- 0 3 6  
Miles

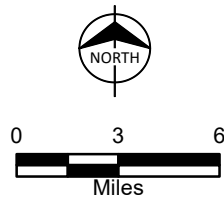


**Exhibit 5**  
**Soil Units Summary**  
**Corona Environmental Report**  
**2022 Generation Supplement**  
**Pattern Energy**  
**Lincoln and Torrance Counties, NM**

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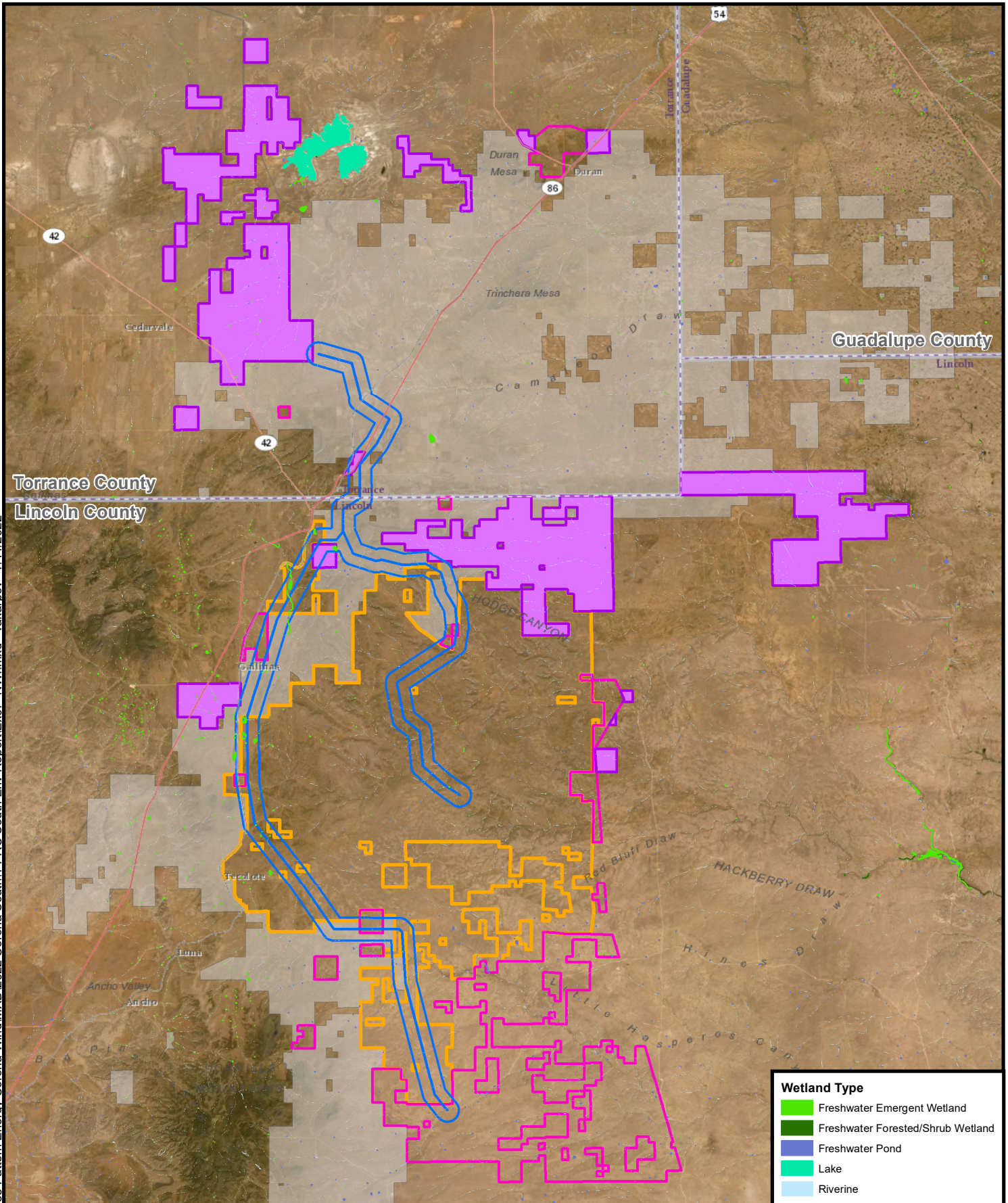


- 2022 Corona Generation Expansion
- 2021 Revised Corona Gen-Tie System and Corridor
- 2021 Corona Generation Expansion
- Previously Approved Mesa Canyons Footprint
- Previously Approved Corona Wind Footprint
- HUC Boundary
- NHD Flowline



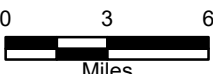
**Exhibit 6**  
**Surface Waters**  
 Corona Environmental Report  
 2022 Generation Supplement  
 Pattern Energy  
 Lincoln and Torrance Counties, NM

Path: C:\TEMP\WORK\101335 Pattern Energy Corona Wind\MXD\2022 Corona South 1 PRC South Env Report\Ex07 NWI.mxd vakarpov 7/11/2022



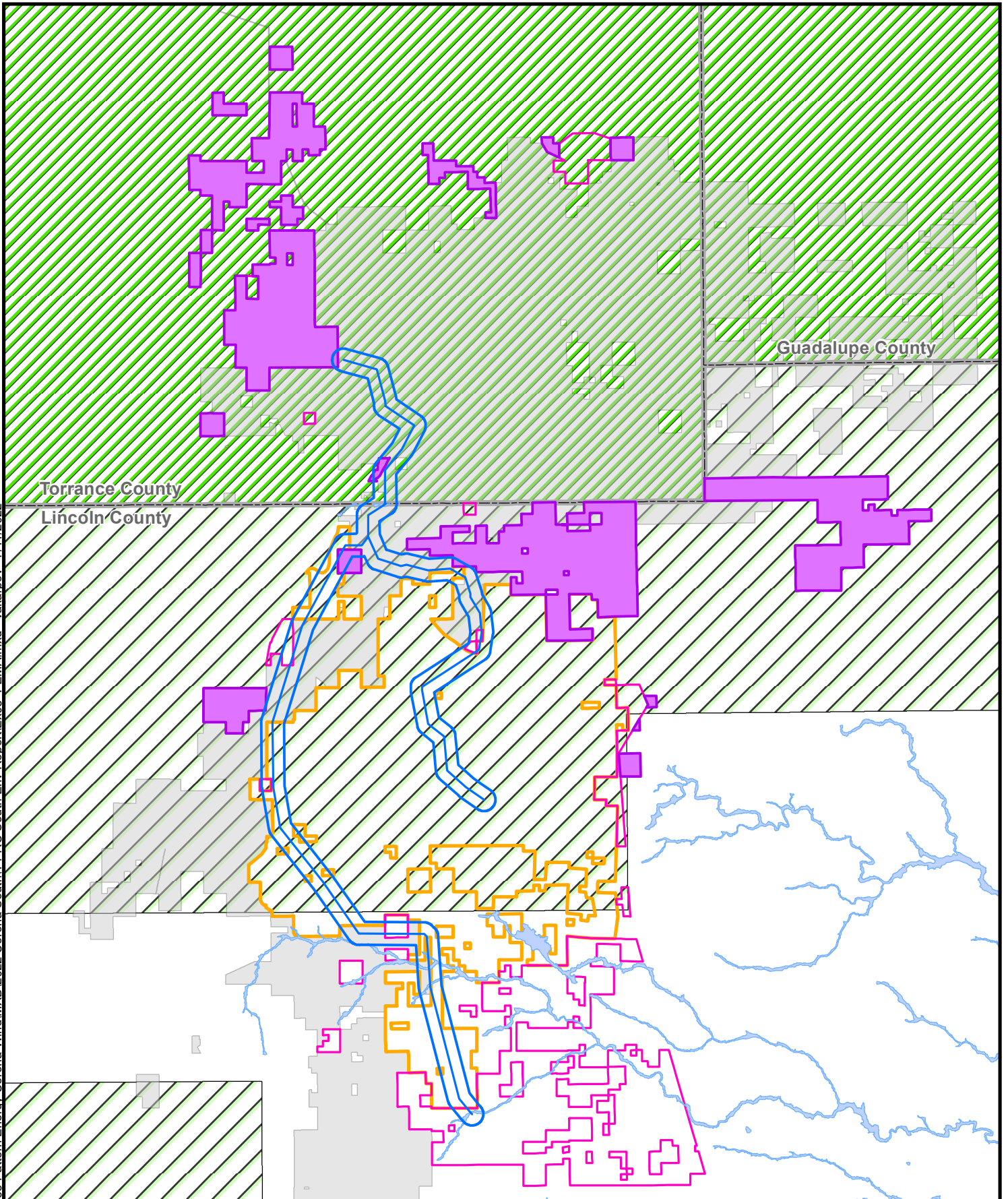
Wetland Type	
<span style="color: green;">■</span>	Freshwater Emergent Wetland
<span style="color: darkgreen;">■</span>	Freshwater Forested/Shrub Wetland
<span style="color: blue;">■</span>	Freshwater Pond
<span style="color: cyan;">■</span>	Lake
<span style="color: lightblue;">■</span>	Riverine

- 2022 Corona Generation Supplement
- 2021 Revised Corona Gen-Tie System and Corridor
- 2021 Corona Generation Expansion
- Previously Approved Mesa Canyons Footprint
- Previously Approved Corona Wind Footprint



**Exhibit 7**  
**NWI Map**  
 Corona Environmental Report  
 2022 Generation Supplement  
 Pattern Energy  
 Lincoln and Torrance Counties, NM

Path: C:\TEMP\WORK\101\_335\_Pattern\_Energy\_Corona\_Wind\MXD\2022\_Corona\_South\_1\_PRC\_South\_Env\_Report\Ex08\_FEMA.mxd vakarpoov\_7/11/2022



- 2022 Corona Generation Expansion
- 2021 Revised Corona Gen-Tie System and Corridor
- 2021 Corona Generation Expansion
- Previously Approved Mesa Canyons Footprint
- FEMA - Zone A
- Unmapped Area
- FEMA Designated Zone D
- Previously Approved Corona Wind Footprint

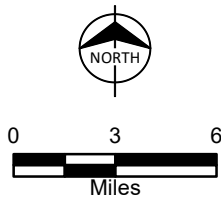
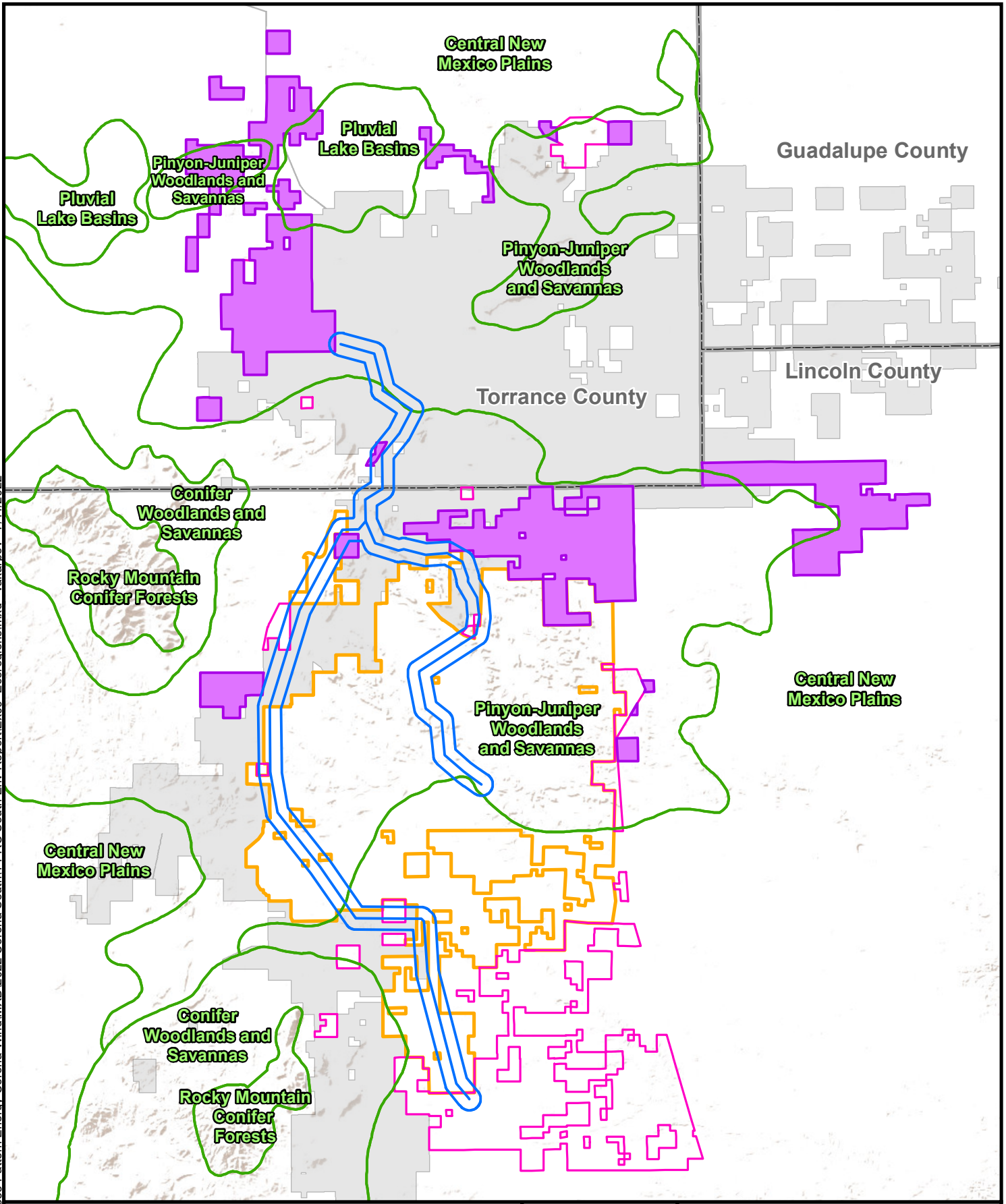


Exhibit 8  
Floodplain Summary  
Corona Environmental Report  
2022 Generation Supplement  
Pattern Energy  
Lincoln and Torrance Counties, NM

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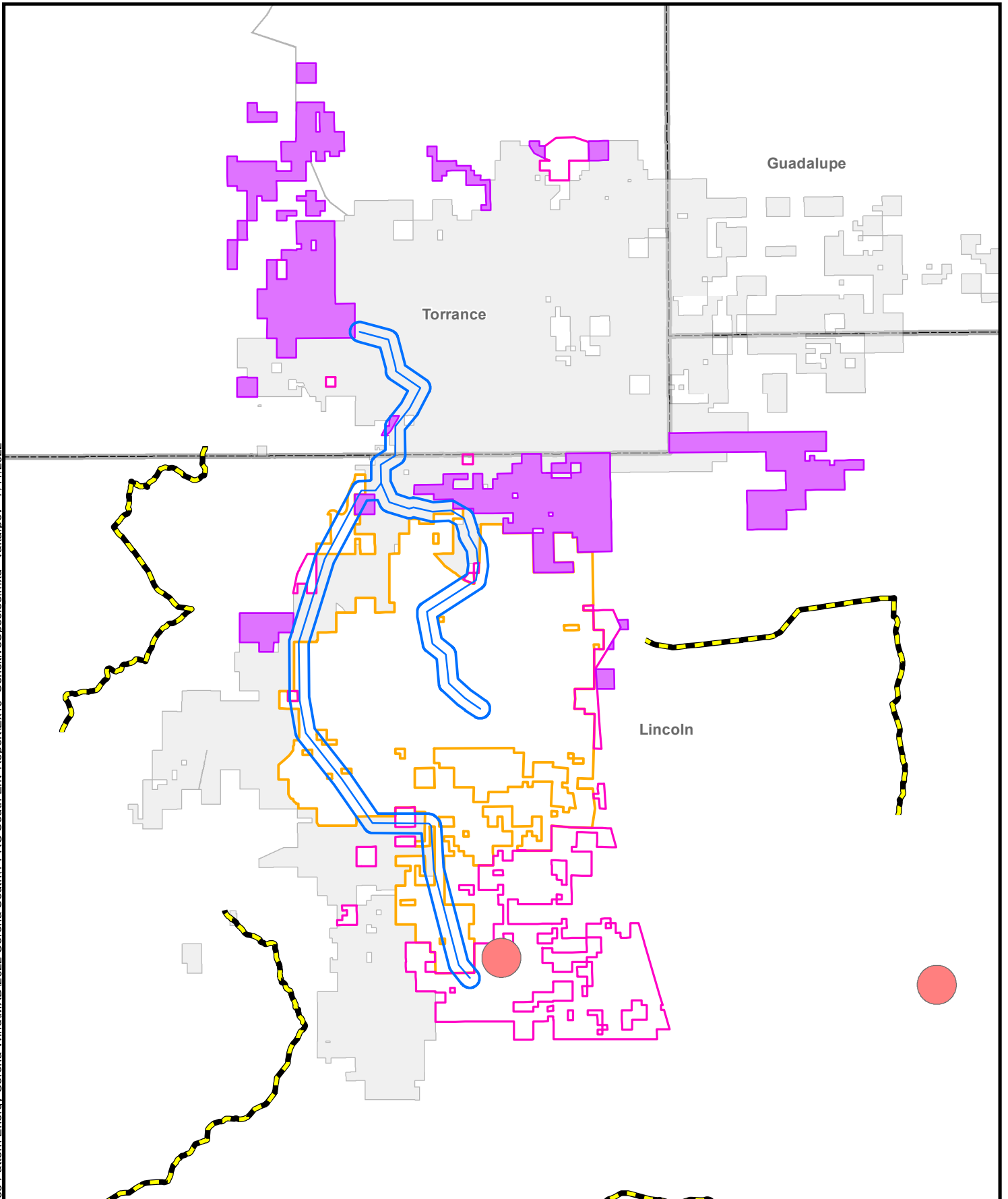


<ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: purple; border: 1px solid black; margin-right: 5px;"></span> 2022 Corona Generation Expansion</li> <li><span style="display: inline-block; width: 15px; height: 10px; border: 2px solid blue; margin-right: 5px;"></span> 2021 Revised Corona Gen-Tie System and Corridor</li> <li><span style="display: inline-block; width: 15px; height: 10px; border: 2px solid pink; margin-right: 5px;"></span> 2021 Corona Generation Expansion</li> <li><span style="display: inline-block; width: 15px; height: 10px; border: 2px solid orange; margin-right: 5px;"></span> Previously Approved Mesa Canyons Footprint</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: lightgrey; border: 1px solid black; margin-right: 5px;"></span> Previously Approved Corona Wind Footprint</li> <li><span style="display: inline-block; width: 15px; height: 10px; border: 2px solid green; margin-right: 5px;"></span> Ecoregion Boundary</li> </ul>	<p>0 3 6 Miles</p>
--	------------------------



Exhibit 9  
 EPA Level IV Ecoregions  
 Corona Environmental Report  
 2022 Generation Supplement  
 Pattern Energy  
 Lincoln and Torrance Counties, NM

Path: C:\TEMP\WORK\101\_335\_Pattern\_Energy\_Corona\_Wind\MXD\2022\_Corona\_South1\_PRC\_South\_Env\_Report\Ex10\_SensitiveSpecies.mxd vakampov 7/11/2022



- 2022 Corona Generation Supplement
- 2021 Revised Corona Gen-Tie System and Corridor
- 2021 Corona Generation Expansion
- Previously Approved Mesa Canyons Footprint
- Previously Approved Corona Wind Footprint
- BLM-Identified Openings to Roswell Cave Complex
- Breeding Bird Survey Route

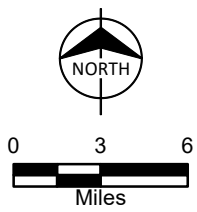
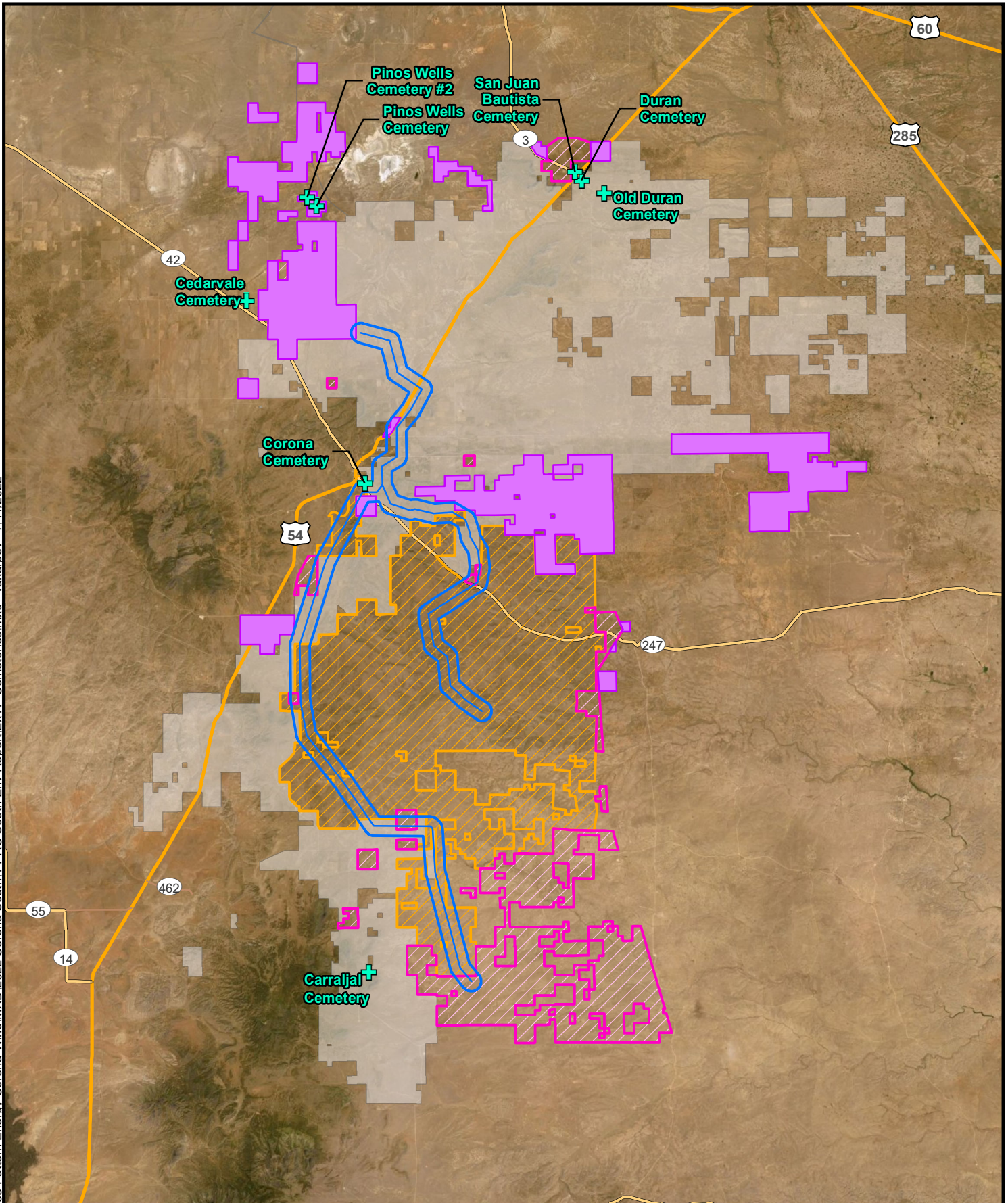


Exhibit 10  
 Sensitive Species Habitat  
 Corona Environmental Report  
 2022 Generation Supplement  
 Pattern Energy  
 Lincoln and Torrance Counties, NM

Path: C:\TEMP\WORK\101\_335\_Pattern\_Energy\_Corona\_Wind\MXD\2022\_Corona\_South1\_PRC\_South\_Env\_Report\Ex11\_Cemeteries.mxd vakarpov 7/11/2022



- 2022 Corona Generation Supplement
- 2021 Revised Corona Gen-Tie System and Corridor
- 2021 Corona Generation Expansion
- Previously Approved Mesa Canyons Footprint
- Previously Approved Corona Wind Footprint
- Cemetery

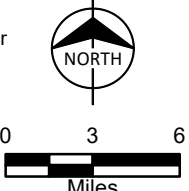
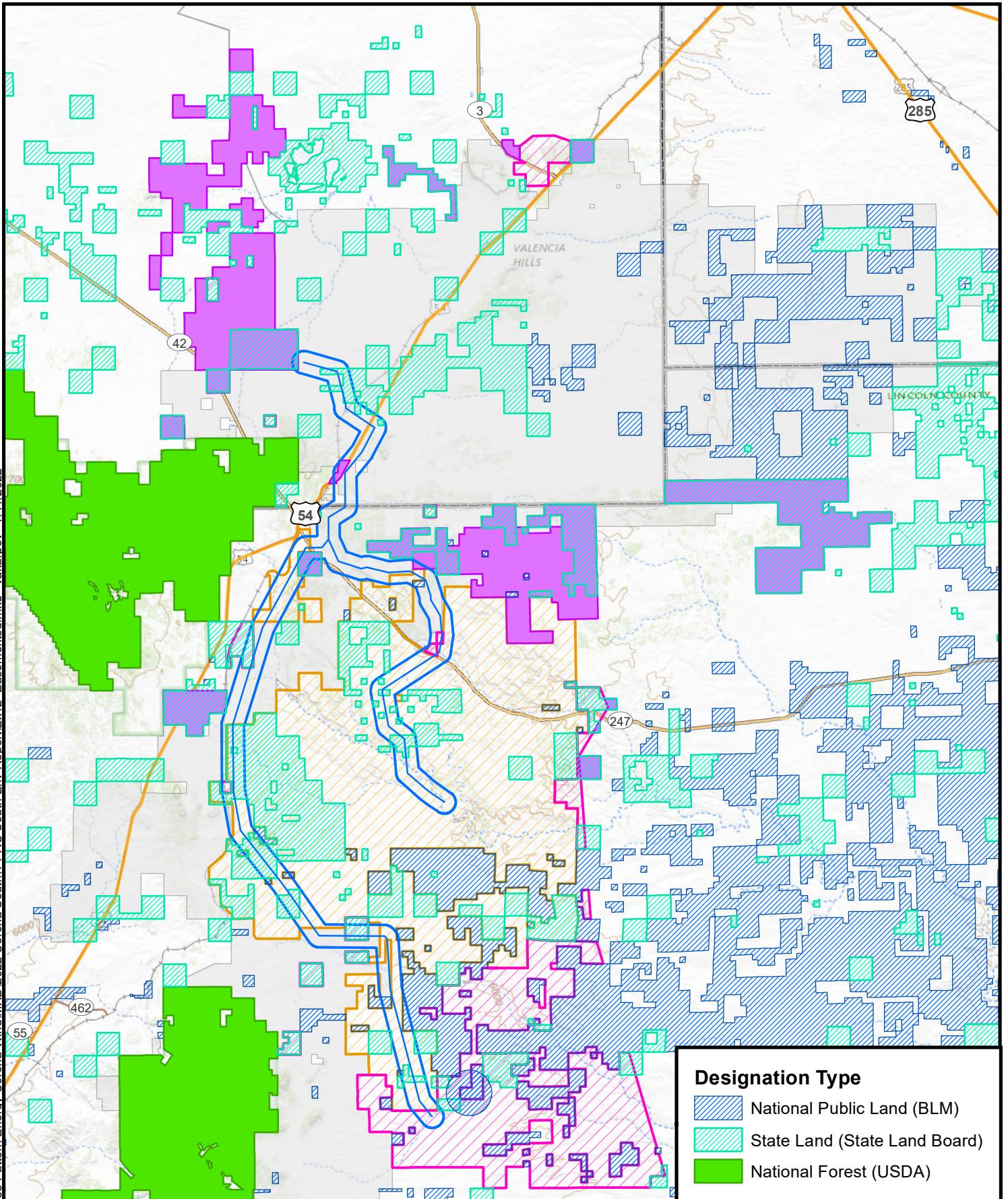


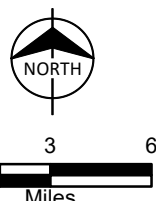
Exhibit 11  
Cemeteries  
Corona Environmental Report  
2022 Generation Supplement  
Pattern Energy  
Lincoln and Torrance Counties, NM



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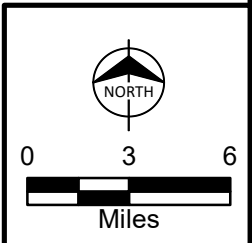
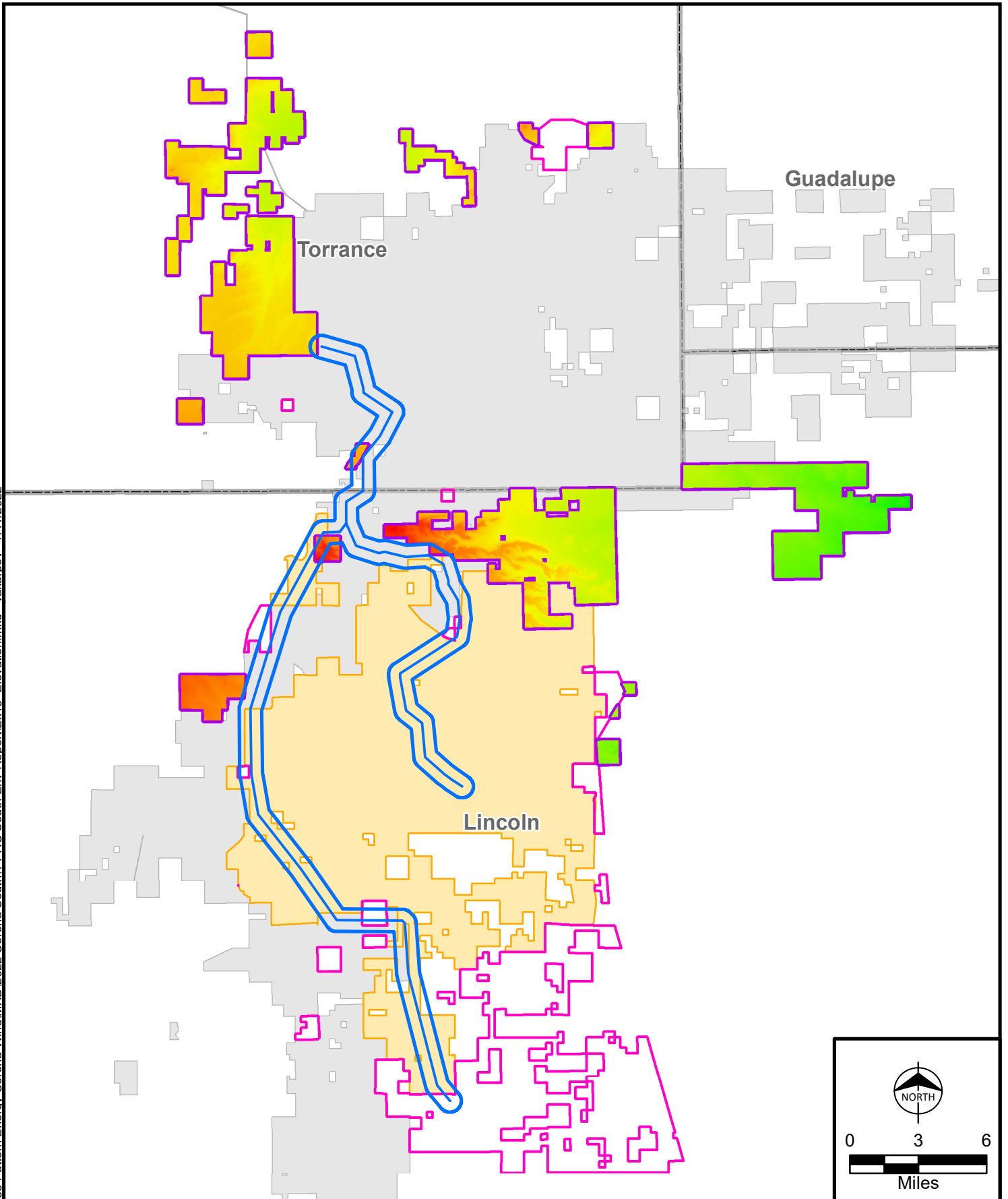


- 2022 Corona Generation Supplement
- 2021 Revised Corona Gen-Tie System and Corridor
- 2021 Corona Generation Expansion
- Previously Approved Mesa Canyons Footprint
- Previously Approved Corona Wind Footprint



- Designation Type**
- National Public Land (BLM)
  - State Land (State Land Board)
  - National Forest (USDA)

Exhibit 12  
Public Lands and Easements Map  
Corona Environmental Report  
2022 Generation Supplement  
Pattern Energy  
Lincoln and Torrance Counties, NM



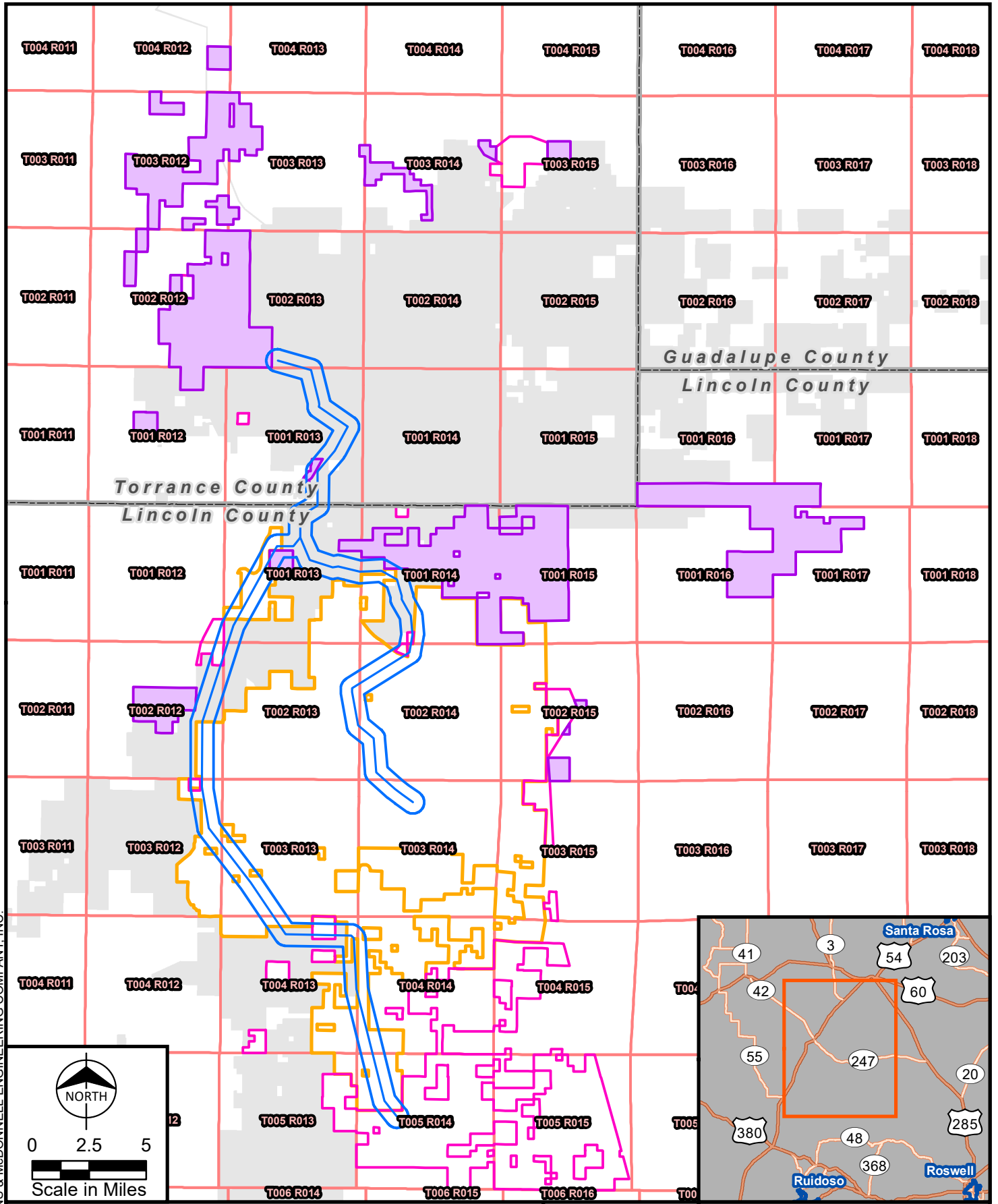
- 2022 Corona Generation Expansion
- 2021 Revised Corona Gen-Tie System and Corridor
- 2021 Corona Generation Expansion
- Previously Approved Mesa Canyons Footprint
- Previously Approved Corona Wind Footprint

**Elevation (Meters)**  
 High : 2137.49  
 Low : 1682.51



Exhibit 13  
 Elevation  
 Corona Environmental Report  
 2022 Generation Supplement  
 Pattern Energy  
 Lincoln and Torrance Counties, NM

Path: Z:\Resources\Local\Clients\KCMEN\Patterns\SCH\101335\_Corona\Wind\ENR\ArcGIS\Geospatial\DataFiles\ArcDocs\Updated Corona Figures 2021\Fig14\_BoundarySummary\_v2.mxd vakarpov 7/11/2022  
 COPYRIGHT © 2022 BURNS & McDONNELL ENGINEERING COMPANY, INC.

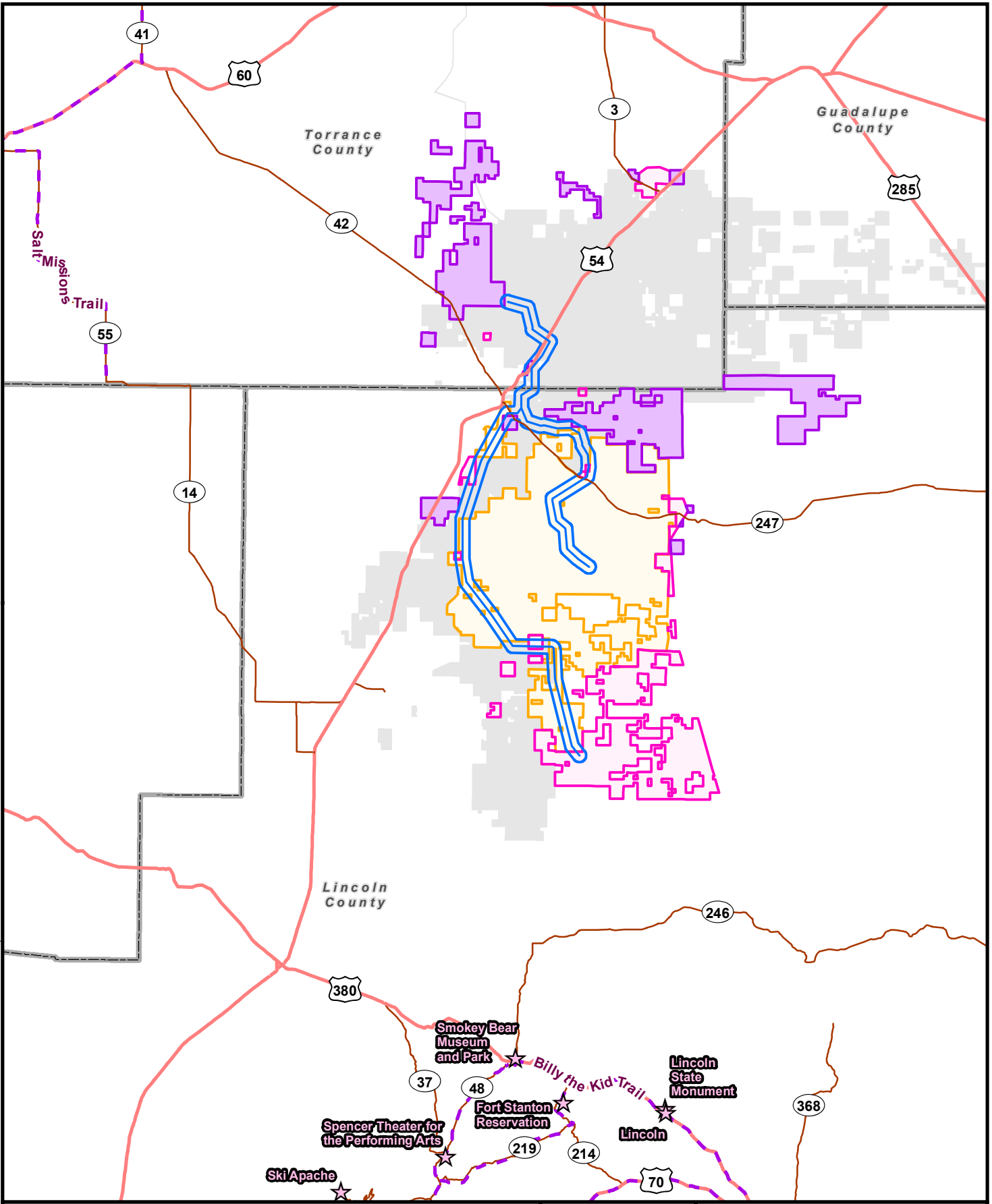


	2022 Corona Generation Expansion		Previously Approved Corona Footprint
	2021 Revised Corona Gen-Tie System and Corridor		Township
	Previously Approved Mesa Canyons Footprint		



**Exhibit 14**  
 Boundary Summary  
 Corona Environmental Report  
 2022 Generation Supplement  
 Pattern Energy  
 Lincoln and Torrance Counties, NM

Path: C:\TEMP\WORK\101335\Pattern Energy Corona Wind\MXD\2022 Corona South1 PRC South Env Report\EX15\_Byways.mxd vakarpov 7/11/2022  
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- 2022 Corona Generation Supplement
- Byway/Trail Place
- Byway/Trail
- 2021 Revised Corona Gen-Tie System and Corridor
- 2021 Corona Generation Expansion
- Previously Approved Mesa Canyons Footprint
- Previously Approved Corona Wind Footprint

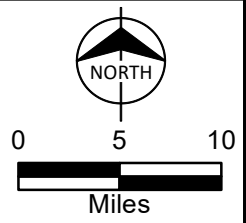
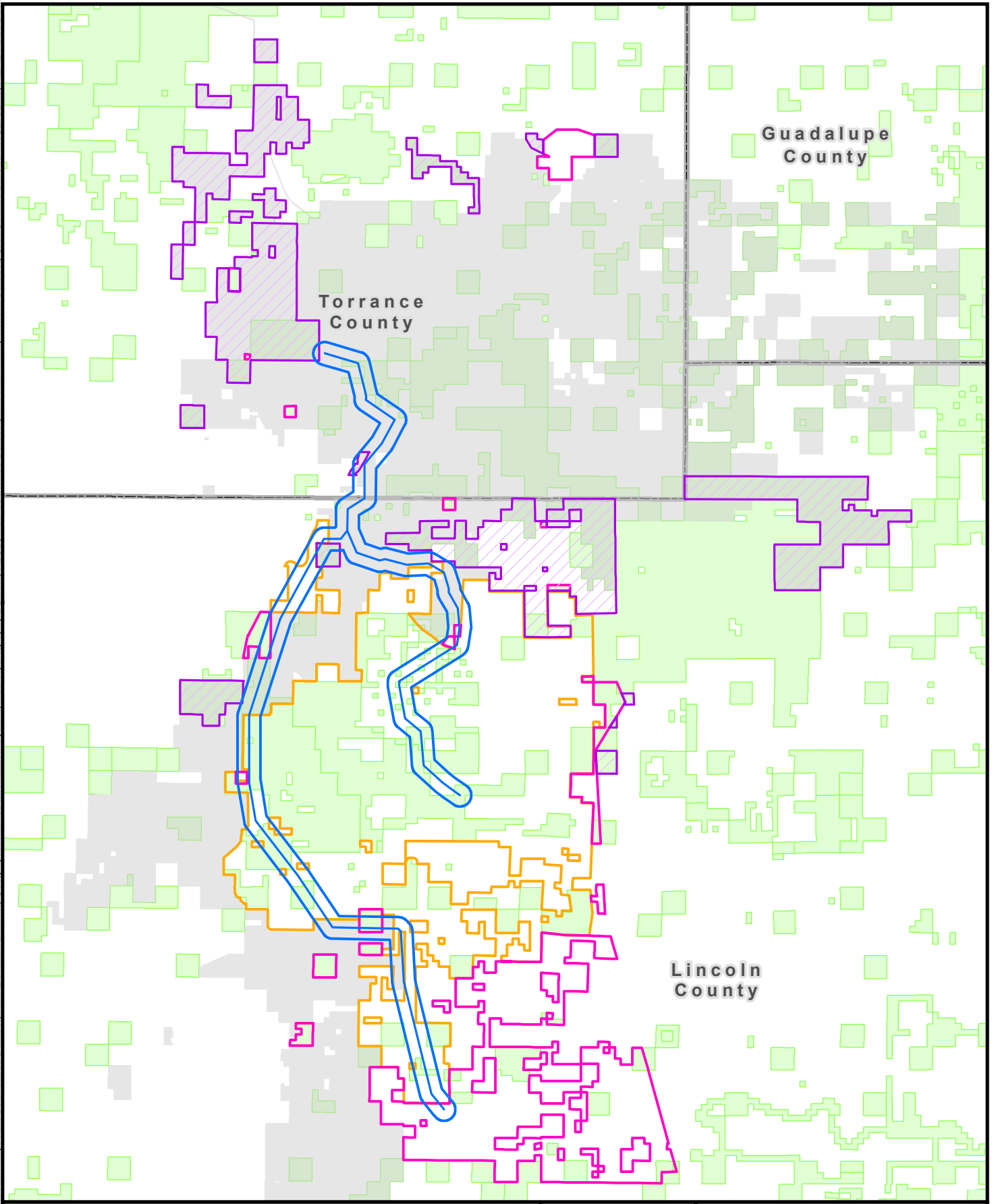







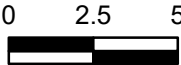


Exhibit 15  
 Byways & Trails  
 Corona Environmental Report  
 2022 Generation Supplement  
 Pattern Energy  
 Lincoln & Torrance Counties, NM

Path: Z:\Resources\Local\Clients\KCM\ENR\PatternSCH\101335\_CoronaWindENR\ArcGIS\Geospatial\DataFiles\ArcDocs\Updated Corona Figures 2021\Fig16\_StateLands.mxd vakarpov 7/11/2022  
 COPYRIGHT © 2022 BURNS & McDONNELL ENGINEERING COMPANY, INC.  
 Service Layer Credits: USGS The Nat'l Map; Nat'l Boundaries Dataset; Nat'l Elevation Dataset; Geographic Names Information System; Nat'l Hydrography Dataset; and Nat'l Structures Dataset; U.S. Census Bureau - TIGER/Line; HERE Road Data



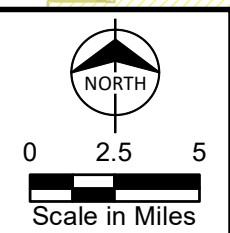
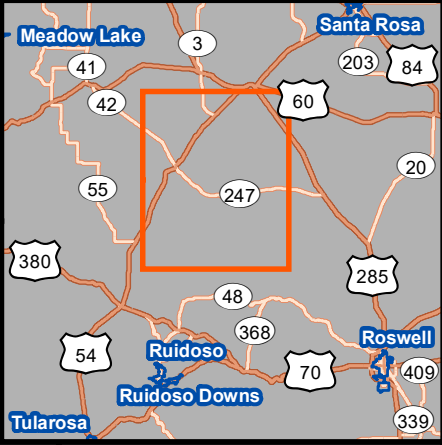
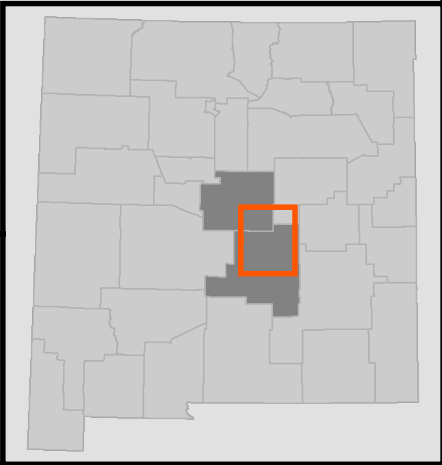
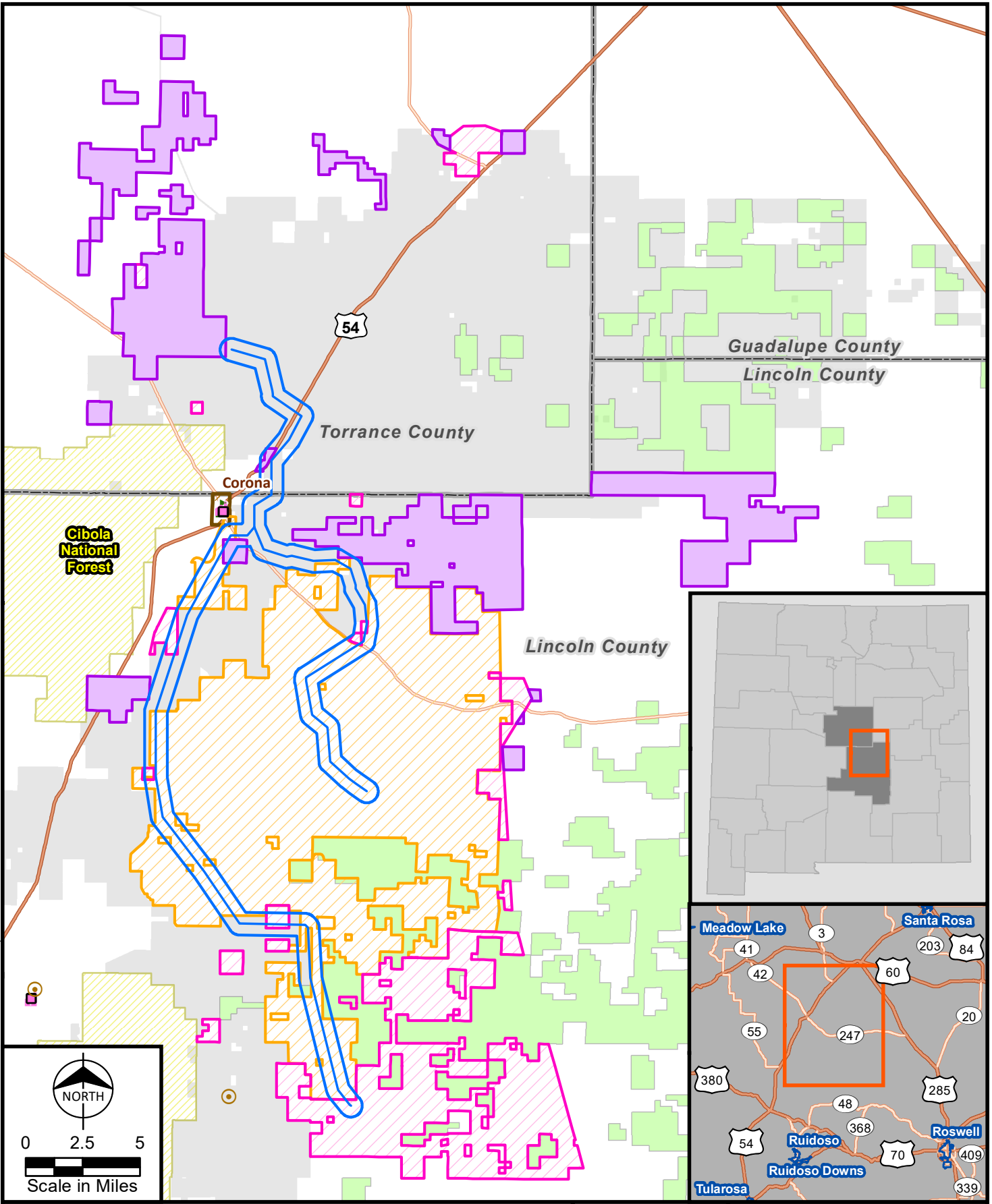
-  2022 Corona Generation Expansion
-  2021 Revised Corona Gen-Tie System and Corridor
-  2021 Corona Generation Expansion
-  Previously Approved Mesa Canyons Footprint
-  Previously Approved Corona Wind Footprint
-  State Land

  
 NORTH  
  
 0 2.5 5  
 Scale in Miles



**Exhibit 16**  
**State Lands**  
 Corona Environmental Report  
 2022 Generation Supplement  
 Pattern Energy  
 Lincoln & Torrance Counties, NM

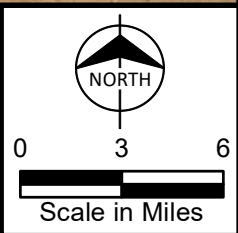
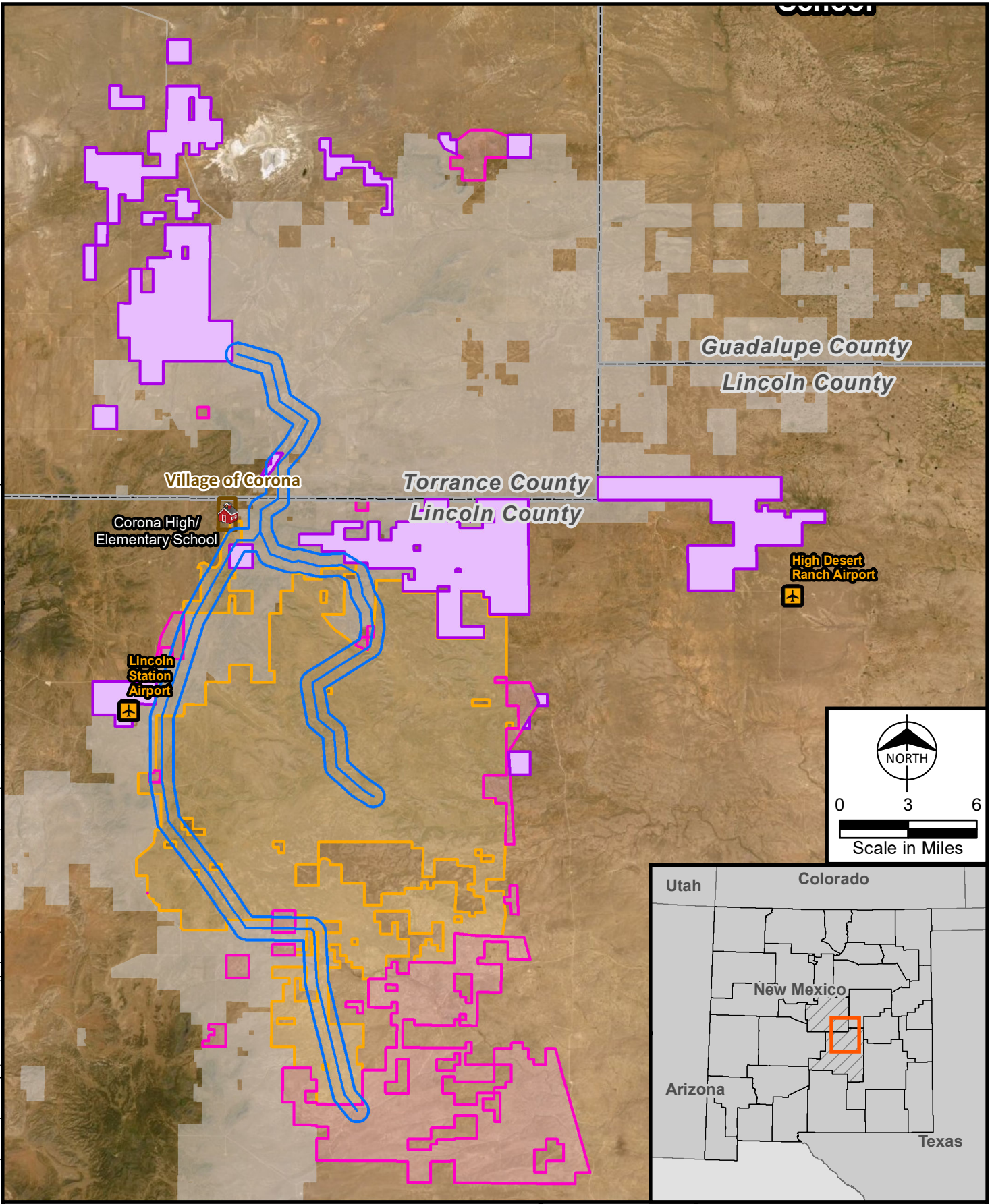
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- |   |                                   |
|---|-----------------------------------|
| 2022 Corona Generation Expansion                | School                            |
| 2021 Revised Corona Gen-Tie System and Corridor | Place of Worship                  |
| 2021 Corona Generation Expansion                | Municipality                      |
| Previously Approved Mesa Canyons Footprint      | <b>Federal Land Administrator</b> |
| Previously Approved Corona Wind Footprint       | Bureau of Land Management         |
| Public Building                                 | Forest Service                    |
| Institution                                     |                                   |



Exhibit 17  
 Project Vicinity  
 Corona Environmental Report  
 2022 Generation Supplement  
 Pattern Energy  
 Lincoln and Torrance Counties, NM

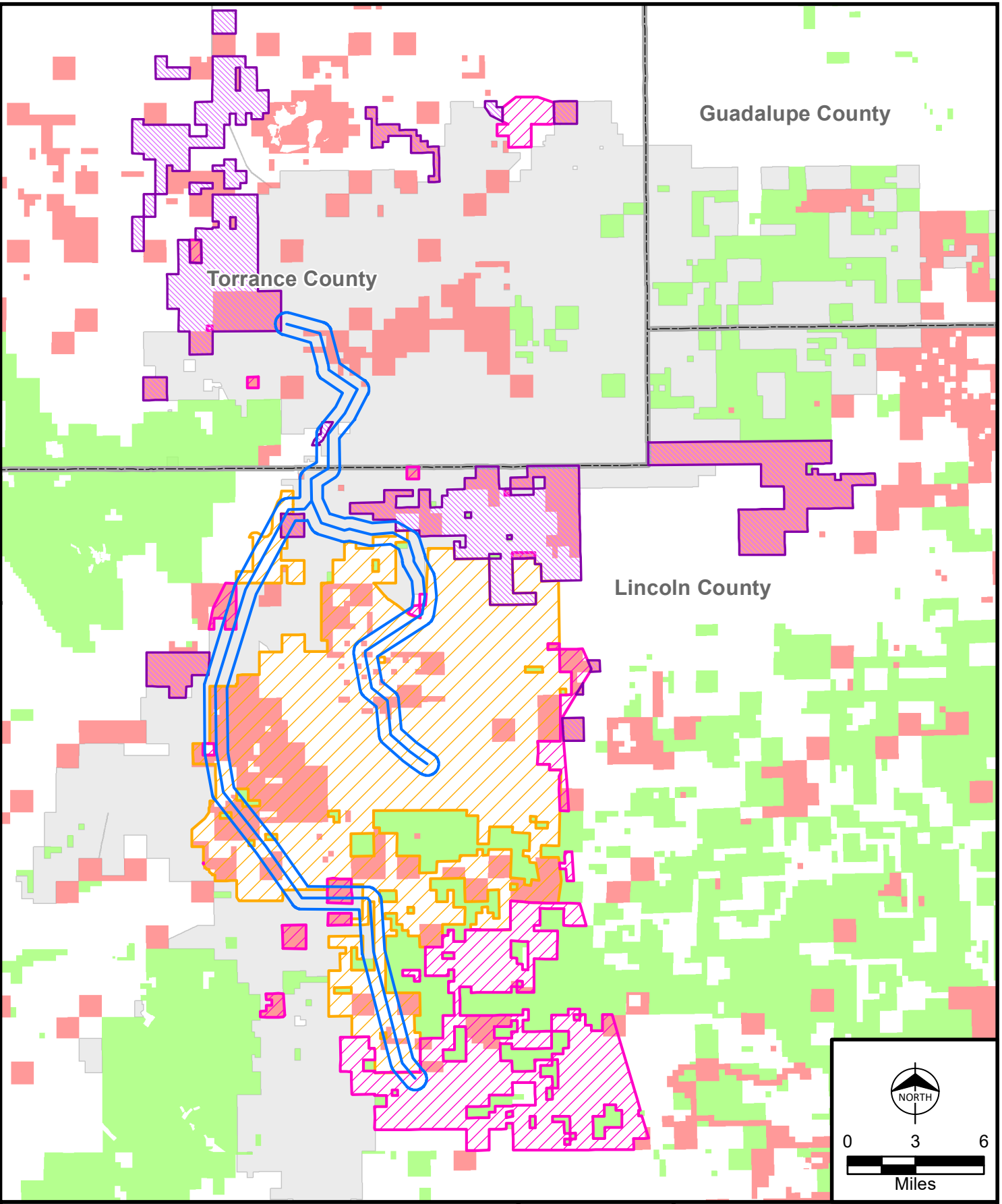


	2022 Corona Generation Expansion		Municipality
	2021 Revised Corona Gen-Tie System and Corridor		School
	2021 Corona Generation Expansion		Airport
	Previously Approved Mesa Canyons Footprint		
	Previously Approved Corona Wind Footprint		



Exhibit 18  
 General Vicinity Map  
 Corona Environmental Report  
 2022 Generation Supplement  
 Pattern Energy  
 Lincoln & Torrance Counties, NM

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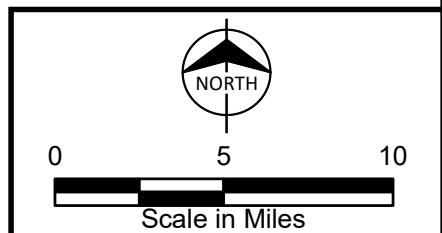
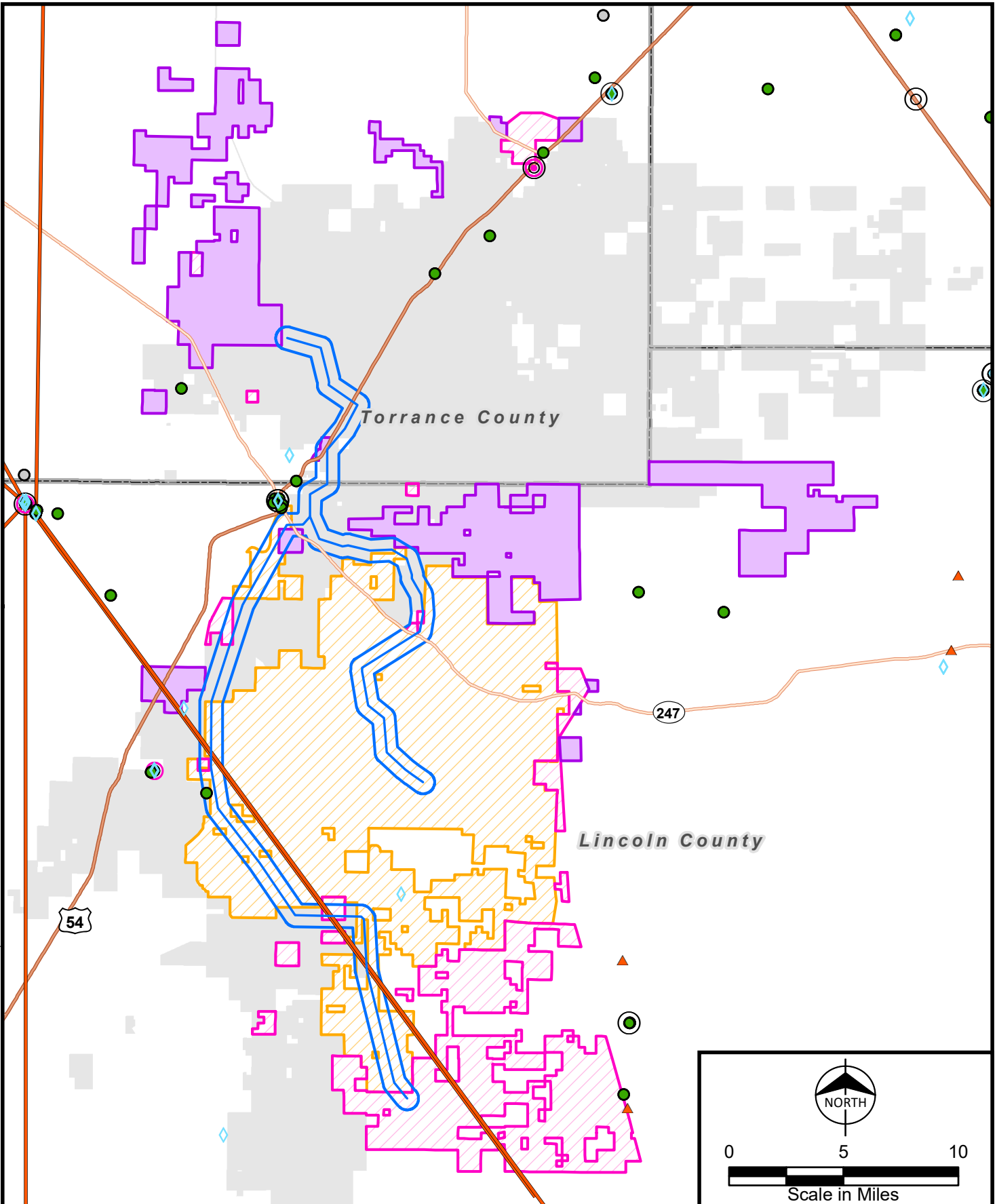
	2022 Corona Generation Expansion	<b>Manager Type</b>		Federal
	2021 Revised Corona Gen-Tie System and Corridor		State	
	2021 Corona Generation Expansion			
	Previously Approved Mesa Canyons Footprint			
	Previously Approved Corona Wind Footprint			



Exhibit 19  
 GAP Analysis Program  
 Corona Environmental Report  
 2022 Generation Supplement  
 Pattern Energy  
 Lincoln and Torrance Counties, NM



Path: Z:\Resources\Local\Clients\KCMENS\Pattern\SCH\101335\_CoronaWindENR\ArcGIS\Geospatial\DataFiles\ArcDocs\Updated Corona Figures 2021\Fig20\_Communications.mxd vakarpov 7/11/2022  
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- 2022 Corona Generation Expansion
- 2021 Revised Corona Gen-Tie System and Corridor
- 2021 Corona Generation Expansion
- Previously Approved Mesa Canyons Footprint
- Previously Approved Corona Wind Footprint
- County Boundary
- Approximate Beam Path
- LM Communication Tower
- LM Private Tower
- ASR Tower
- Microwave Tower
- Cell Tower
- Paging Tower



Exhibit 20  
 Communications Map  
 Corona Environmental Report  
 2022 Generation Supplement  
 Pattern Energy  
 Lincoln and Torrance Counties, NM

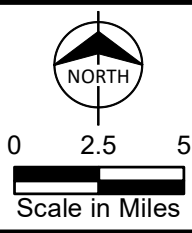
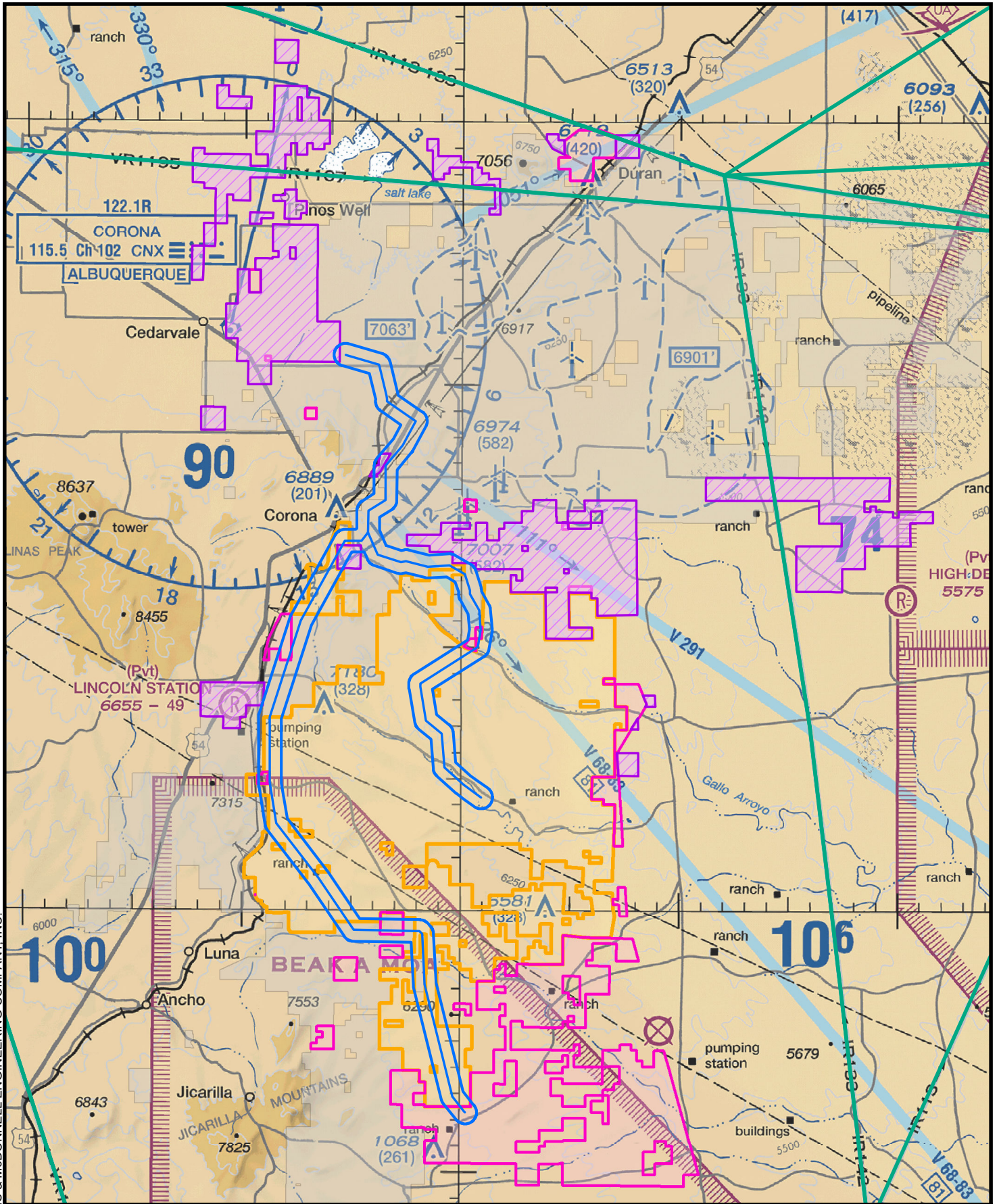


Exhibit 21  
 Visual Flight Rules Map  
 Corona Environmental Report  
 2022 Generation Supplement  
 Pattern Energy  
 Lincoln and Torrance Counties, NM



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