BEFORE THE NEW MEXICO PUBLIC REGULATION COMMISSION

IN THE MATTER OF THE APPLICATION FOR THE LOCATION OF THE CLINES CORNERS WIND FARM AND GEN-TIE SYSTEM IN TORRANCE AND GUADALUPE COUNTIES PURSUANT TO THE PUBLIC UTILITY ACT, NMSA 1978, §§62-9-3 AND 62-9-3.2	)	Case No. 19 -_____
CLINES CORNERS WIND FARM, LLC	)	
APPLICANT.	)	

DIRECT TESTIMONY
OF
CHRISTOPHER KNOPP

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DIRECT TESTIMONY OF

CHRISTOPHER J. KNOPP

ON BEHALF OF CLINES CORNERS WIND FARM LLC

I. INTRODUCTION AND QUALIFICATIONS

Q: PLEASE STATE YOUR NAME AND BUSINESS ADDRESS?

A: My name is Christopher J. Knopp. My business address is 4225 Executive Way, Suite 500, La Jolla, CA 92024.

Q: BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A: I am employed by Burns & McDonnell Engineering Company, Inc. ("Burns & McDonnell"). I hold the position of Senior Project Manager within Environmental Services.

Q: ON WHOSE BEHALF ARE YOU APPEARING IN THIS PROCEEDING?

A: I am testifying on behalf of Clines Corners Wind Farm LLC ("Clines Corners" or "Applicant") regarding the proposed approximately 600 megawatt ("MW") wind generation facilities ("Clines Corners Wind Farm") and associated approximately 18.72-mile 345-kilovolt ("kV") alternating current transmission line and associated transmission facilities ("Clines Corners Gen-Tie System" or "Gen-Tie System"), including a 150-foot right-of-way ("ROW") to be located within a 1 mile-wide corridor ("Clines Corners Gen-Tie System Corridor"). I refer to the Clines Corners Wind Farm and the Gen-Tie System collectively as the "Clines Corners Wind Farm Project" or "Project".

Q: PLEASE DESCRIBE YOUR EDUCATIONAL AND WORK BACKGROUND.

A: I am a 1998 graduate of the University of Wisconsin-Madison with a Bachelor of Arts in International Relations-Environmental Science. I have been working in the environmental consulting industry since 2002 and joined Burns & McDonnell as Senior Project Manager in 2016. My previous work experience includes positions as an Environmental Planner and

Project Manager for environmental consulting and engineering firms located in San Diego, California working on large and small-scale utility projects as a certified California Environmental Quality Act ("CEQA") consultant. I have managed major environmental compliance projects and project teams, including teams of subcontractors, and have prepared CEQA and National Environmental Policy Act compliance documents such as environmental impact reports, environmental impact statements, initial studies, mitigated negative declarations, environmental assessments, and proponent's environmental assessments. In this capacity, I have assisted and managed aspects of siting and routing studies for transmission lines and solar, geothermal, and wind developments. My project work experience also includes work on land planning and development projects and interfacing and negotiating with federal, state, and local agencies to obtain project approvals and permits.

Q: WHAT IS THE PURPOSE OF YOUR TESTIMONY.

A: My testimony supports the Application for location control approval of the Clines Corners Wind Farm Project, before the New Mexico Public Regulation Commission ("Commission"), pursuant to NMSA 1978, §§62-9-3, 62-9-3.2 and Rule 17.9.592 NMAC.

Q: HAVE YOU TESTIFIED BEFORE ANY REGULATORY AUTHORITIES BEFORE?

A: In July 2018, I provided direct testimony before the Commission to support the application of Ancho Wind LLC, Cowboy Mesa LLC, Duran Mesa LLC, Red Cloud Wind LLC, Tecolote Wind LLC and Viento Loco LLC (collectively the "Corona Wind Companies") for location control approval of the Corona Wind Projects under development by Pattern Energy Group 2 LP in Guadalupe, Lincoln and Torrance Counties and its 345-kV

transmission system and associated facilities, including a 180-foot ROW located within a 1 mile-wide corridor. In addition, I have provided testimony before city and county boards in California.

Q: WHAT EXHIBITS DO YOU SPONSOR AS PART OF YOUR TESTIMONY?

A: I sponsor Exhibit CK-1, which is my resume, and Exhibit CK-2, which is the environmental report prepared by Burns & McDonnell regarding the proposed Clines Corners Wind Farm Project ("Environmental Report"); and CK-3, which is the letter from the National Telecommunication and Information Administration.

II. THE CLINES CORNERS WIND FARM PROJECT ENVIRONMENTAL REPORT

Q: WHY WAS THE ENVIRONMENTAL REPORT PREPARED?

A: The Environmental Report in Exhibit CK-2 was prepared to comply with the requirement of NMSA 1978, §62-9-3 ("Siting Statute"), and Commission Rule 17.9.592 NMAC ("Location Rule") regarding the Clines Corners Wind Farm Project. The Environmental Report covers both the Clines Corners Wind Farm site, which consists of approximately 39,580 acres of private land upon which wind turbines will be installed in Torrance and Guadalupe Counties, New Mexico, and the associated transmission line and related facilities to be built mainly along the centerline of an approximately 150-foot wide ROW occurring within the Clines Corners Gen-Tie System Corridor. Please see Exhibit 1 of Exhibit CK-2. The Clines Corners Wind Farm, as well as the location of the Clines Corners Gen-Tie System Corridor and the proposed Gen-Tie System, are shown on Exhibits 1 through 21 to the Environmental Report.

Q: PLEASE EXPLAIN THE PURPOSE OF THE ENVIRONMENTAL REPORT WITH RESPECT TO THE SITING STATUTE AND THE LOCATION RULE REGARDING THE CLINES CORNERS WIND FARM.

A: My understanding is that the Siting Statute states that the Commission shall approve the application for the location of the generating plant unless the Commission finds that the operation of the facilities for which approval is sought will not be in compliance with all applicable air and water pollution control standards and regulations existing. NMSA 1978, §62-9-3(E). Similarly, the Location Rule, 17.9.592.9 NMAC, for generating facilities ("Generation Location Rule") requires an applicant to identify and show compliance or a statement of non-compliance of all applicable air and water pollution control standards and regulations to begin construction and operation of the generating facilities. Sections 5.2 and 5.7 of the Environmental Report provide an analysis of air and water resources and demonstrate that the proposed Clines Corners Wind Farm satisfies the requirements of both the Siting Statute and the Generation Location Rule.

Q: DOES THE INFORMATION CONTAINED IN THE ENVIRONMENTAL REPORT AND THE STUDIES UPON WHICH IT IS BASED SUPPORT THE CONCLUSION THAT THE CLINES CORNERS WIND FARM WILL COMPLY WITH ALL APPLICABLE AIR AND WATER POLLUTION CONTROL STANDARDS?

A: Yes.

Q: PLEASE EXPLAIN THE PURPOSE OF THE ENVIRONMENTAL REPORT WITH RESPECT TO THE SITING STATUTE AND THE TRANSMISSION LOCATION RULE REGARDING THE GEN-TIE SYSTEM.

A: The Siting Statute and the Location Rule, 17.9.592.10 NMAC, for transmission lines ("Transmission Location Rule"), identify the required contents of applications for location approval of transmission lines associated with large generation facilities. The Siting Statute, NMSA 1978, §62-9-3(F), requires the Commission to approve the location of a transmission line unless the Commission finds the location will unduly impair important environmental values. Additionally, the Transmission Location Rule, 17.9.592.10.E NMAC, requires that "if preparation of a federal environmental assessment or environmental impact statement is not required under NEPA in connection with the transmission line, then a report, comparable to an environmental impact statement, in the format prescribed in 40 C.F.R. Section 1502.10" shall be included in the application. In this case, the Clines Corners Gen-Tie System does not involve any federal actions that require the preparation of an environmental assessment or environmental impact statement. Accordingly, the Applicant, in conjunction with its consultants, Burns & McDonnell, prepared the Environmental Report in the same format as is prescribed in 40 C.F.R. Section 1502.10.

Q: WHAT FORMAT IS PRESCRIBED BY 40 C.F.R. SECTION 1502.10?

A: That federal regulation prescribes the following format:

(A) Cover sheet.

(B) Summary.

(C) Table of contents.

(D) Purpose of and need for action.

(E) Alternatives including proposed action.

(F) Affected environment.

(G) Environmental consequences.

(H) List of preparers.

(I) List of Agencies, Organizations, and persons to whom copies of the statement are sent.

(J) Index.

(K) Appendices (if any).

Q: DOES THE ENVIRONMENTAL REPORT FOLLOW THAT FORMAT?

A: Yes.

Q: WHAT ENVIRONMENTAL VALUES DOES THE ENVIRONMENTAL REPORT ADDRESS REGARDING THE GEN-TIE SYSTEM?

A: The Environmental Report covers the environmental values identified in the Siting Statute and the Transmission Location Rule. According to the Section M of the Siting Statute, NMSA 1978, §62-9-3(M), the environmental values the Commission may consider in making its determination include:

(1) existing plans of the state, local government, and private entities for other developments at or in the vicinity of the proposed location;

(2) fish, wildlife and plant life;

(3) noise emission levels and interference with communication signals;

(4) the proposed availability of the location to the public for recreational purposes, consistent with safety considerations and regulations;

(5) existing scenic areas, historic, cultural or religious sites and structures or archaeological sites at or in the vicinity of the proposed location; and,

(6) additional factors that require consideration under applicable federal and state laws pertaining to the location.

Additionally, the Transmission Location Rule requires an application for location approval of a transmission line to include testimony demonstrating that the transmission line will not unduly impair important environmental values. Important environmental values include, but are not limited to, preservation of air and water quality, land uses, soils, flora and fauna, and water, mineral, socioeconomic, cultural, historic, religious, visual, geologic and geographic resources. Rule 17.9.592.10 NMAC.

Q: DOES THE ENVIRONMENTAL REPORT COVER ALL OF THE ENVIRONMENTAL VALUES IDENTIFIED IN THE SITING STATUTE AND TRANSMISSION LOCATION RULE?

A: Yes.

Q: DOES THE INFORMATION CONTAINED IN THE ENVIRONMENTAL REPORT AND THE STUDIES UPON WHICH IT IS BASED SUPPORT THE CONCLUSION THAT THE GEN-TIE SYSTEM WILL NOT UNDULY IMPAIR IMPORTANT ENVIRONMENTAL VALUES?

A: Yes. The Environmental Report demonstrates that no important environmental values will be unduly impaired.

III. THE CLINES CORNERS WIND FARM PROJECT COMPLIES WITH AIR AND WATER POLLUTION CONTROL STANDARDS

1. AIR POLLUTION CONTROL STANDARDS

Q. PLEASE CHARACTERIZE THE EXPECTED IMPACTS ON AIR QUALITY FROM THE CLINES CORNERS WIND FARM PROJECT, SPECIFICALLY THE CLINES CORNERS WIND FARM.

A. Development of the Clines Corners Wind Farm Project will have only short-term impacts on air quality during construction. The equipment used during construction will likely be powered with diesel or gasoline fuel. These fuels include pollutants such as nitrogen oxides, "NO_x"; carbon monoxide, "CO"; volatile organic compounds, "VOCs"; particulate matter, "PM"; small amounts of "SO_2"; and trace amounts of hazardous air pollutants. Construction contractors and their equipment will be required to comply with all applicable legal emissions standards.

Short-term fugitive dust during construction could arise from land-clearing, grading, excavation, and vehicle traffic on unpaved roads. The amount of fugitive dust will depend on the amount of vehicular traffic, construction activities, moisture content of the soil, and wind speeds. During dry periods with high winds, fugitive dust will be more prevalent than during wet periods with low winds. Dust suppression methods such as watering will be used in construction zones during dry periods to minimize fugitive dust impacts. During the construction period, emissions from combustion engines will be temporary. Fugitive dust will be limited to the construction area, transient and likely controlled with watering, so they will not significantly contribute to reduced air quality levels.

During operation, 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. Operation of the Clines Corners Wind Farm Project will result in long-term reduction of air pollutants that otherwise would be emitted by conventional power plants by supplanting some output from conventional power plants. Furthermore, the Gen-Tie System will facilitate the delivery of clean renewable energy that has the potential to displace carbon as well as other hazardous emissions in the Southwestern United States, as a result of displacing fossil-based fuel.

Q. IS THE CLINES CORNERS WIND FARM PROJECT WITHIN AN AREA THAT IS IN ATTAINMENT OF NATIONAL AND STATE AMBIENT AIR QUALITY STANDARDS?

A. Yes. The New Mexico Environment Department's Air Quality Bureau, which has authority over air quality in all areas of New Mexico except Bernalillo County and Tribal Lands, has confirmed that Torrance and Guadalupe Counties, New Mexico, where the Clines Corners Wind Farm Project will be located, are currently in attainment of all national and state ambient air quality standards.

Q. WILL THE CLINES CORNERS WIND FARM PROJECT REQUIRE AIR POLLUTION CONTROL PERMITS FOR CONSTRUCTION?

A. Yes. A general construction permit, pursuant to the New Mexico Air Quality Control Act ("NMAQCA"), will be required for dust suppression during construction, and, if applicable, for aggregate crushing for use in road construction. See NMSA 1978, §§74-2-1 et seq.

For the Clines Corners Wind Farm, a separate general construction permit, pursuant to the NMAQCA, will also apply (as necessary) for any on-site concrete batch plants for wind turbine foundations.

Q. WHEN ARE SUCH PERMITS TYPICALLY OBTAINED?

A. It is typical for the construction contractor to obtain such permits shortly before the start of construction. It is my understanding that the Applicant will provide copies of the permits to the Commission upon request before construction has commenced. This is consistent with how this same situation was addressed in the location permit application filed by the Corona Wind Companies and approved by the Commission.

2. WATER POLLUTION CONTROL STANDARDS

Q. PLEASE CHARACTERIZE THE EXPECTED IMPACTS ON WATER RESOURCES FROM THE CLINES CORNERS WIND FARM PROJECT.

A. Development of the Clines Corners Wind Farm will have only minimal impacts on water quality during construction and should have no long-term impacts on water quality during operations. If facilities in the Clines Corners Wind Farm are constructed in or near waters of the United States and avoidance is not possible, the Applicant will seek coverage for any unavoidable fill in such waters under the Nationwide Permit program administered by the U.S. Army Corps of Engineers ("USACE") under Section 404 of the Clean Water Act, 33 U.S.C. § 1344 ("Section 404"). In addition, the Clines Corners Wind Farm will be sited to avoid mapped floodplain areas, as shown in Exhibit 9 of the Environmental Report, Exhibit CK-2. Wind energy generation is inherently a nearly zero-water consumption technology. The only uses of water during operations are for bathroom facilities for operations and maintenance workers at the Operation & Maintenance building, plus occasional cleaning of wind turbine blades. A septic permit related to at the Operation & Maintenance building is expected to be obtained prior

to operations. During construction, water may be used to make concrete and to control dust on roads. The construction contractor will be required to obtain any necessary water permits. In the long term, wind energy generation will help conserve water compared to other sources of electric generation that have significant water use requirements.

Furthermore, development of the Clines Corners Gen-Tie System will have only minimal impacts on water quality during construction and should have no long-term impacts on water quality during operations. The Gen-Tie System facilities and structures will be sited to avoid placement in or near potential waters of the United States to the maximum extent practicable. Potential waters of the U.S. are shown generally on Exhibit 7 of the Environmental Report, Exhibit CK-2. In addition, the Gen-Tie System facilities will be sited to avoid mapped floodplain areas, as shown in Exhibit 9 of the Environmental Report, Exhibit CK-2. The topography of the Clines Corners Gen-Tie System Corridor is generally flat. Nevertheless, the Gen-Tie System facilities will be sited to avoid placement on steep slopes, which minimizes erosion and runoff into surface waters. Furthermore, the Clines Corners Wind Farm Project will implement a storm water management plan during construction to minimize the effects of storm water runoff in the event of significant rain events. During construction of the Gen-Tie System, water will be used to control dust on roads. The construction contractor for the Gen-Tie System will be required to obtain any necessary water permits.

Q. WHAT WATER POLLUTION CONTROL PERMITS WILL THE CLINES CORNERS WIND FARM PROJECT REQUIRE FOR CONSTRUCTION?

A. Prior to construction, the Applicant will obtain coverage under a National Pollution Discharge Elimination System ("NPDES") Construction General Permit ("CGP") from the United States Environmental Protection Agency pursuant to Section 402 of the Clean Water Act, 33 U.S.C. § 1342. The requirements of the CGP include, but are not limited to, the operator filing a Notice of Intent at least 14 days before commencing construction activities, preparing a Storm Water Pollution Prevention Plan that describes measures to control storm water discharge during construction, and implementation of standard erosion control measures and best management practices. The Clines Corners Wind Farm Project is not expected to adversely affect surface or groundwater at the site and does not require a permit under the New Mexico Water Quality Control Act other than a septic permit.

Q. WHEN ARE SUCH PERMITS TYPICALLY OBTAINED?

A. As with construction-phase air quality permits, coverage under the NPDES CGP is typically obtained just before construction, and a septic permit is obtained when bathroom facilities are installed. The Applicant will obtain NPDES coverage prior to start of construction. It is my understanding that the Applicant will commit to filing notification with the Commission of coverage under the NPDES CGP as obtained prior to construction. Again, this is the same process that was approved by the Commission in the application filed by the Corona Wind Companies.

Q. WHAT WATER POLLUTION CONTROL PERMITS WILL THE CLINES CORNERS WIND FARM PROJECT REQUIRE FOR OPERATIONS?

A. Transmission line facilities and wind energy generation facilities require almost no water for the generation and transmission of electricity. Accordingly, no water pollution control permits are needed for operations.

Q. IN SUMMARY, WILL THE CLINES CORNERS WIND FARM PROJECT BE IN COMPLIANCE WITH ALL APPLICABLE AIR AND WATER POLLUTION CONTROL STANDARDS?

A. Yes, the Clines Corners Wind Farm Project, including the Clines Corners Wind Farm, will be in compliance with all applicable air and water pollution control standards.

3. UNDUE IMPAIRMENT OF IMPORTANT ENVIRONMENTAL VALUES

Q. HAS THE APPLICANT EVALUATED THE GEN-TIE SYSTEM'S POTENTIAL IMPACTS ON THE FACTORS THE COMMISSION MAY CONSIDER IN DETERMINING WHETHER LOCATION OF A TRANSMISSION LINE WILL UNDULY IMPAIR IMPORTANT ENVIRONMENTAL VALUES?

A. Yes, there has been a comprehensive review of the factors identified in NMSA 1978, §62-9-3(M), the Transmission Location Rule, and additional factors, which include existing plans for development of the proposed location of the Gen-Tie System; impacts to fish, wildlife, and plant life; noise levels; interference with communication signals; availability for recreational purposes; scenic, historic, cultural or religious sites and structures or archeological sites; cemeteries and burials; schools; military activities; aviation; soils; minerals and mining; geologic and paleontological resources; roads; geographic resources; and hazardous materials. Each of these factors was evaluated, as a matter of good business practice, throughout the Clines Corners Wind Study Area, which includes both the Clines Corners Wind Farm and the Gen-Tie System Corridor. However, the focus of important environmental values in my testimony and in the Environmental Report is

on the Gen-Tie System which I understand is the proper subject matter of the Commission's jurisdiction over these environmental factors.

Q. HAS THE APPLICANT CONSIDERED THE PROPOSED WIND GENERATION FACILITY'S POTENTIAL IMPACTS ON THESE SAME FACTORS?

A. Yes, this review was performed throughout the Clines Corners Wind Study Area which includes both the generation and gen-tie facilities, even though my understanding is that the analysis of these environmental factors, other than air and water pollution control standards, for the generation facilities exceeds the requirements of the Siting Statute and the Location Rule and such analysis is only required for transmission lines associated with large capacity power plants.

Q. PLEASE SUMMARIZE YOUR FINDINGS WITH RESPECT TO EXISTING PLANS FOR OTHER DEVELOPMENTS AT THE CLINES CORNERS WIND FARM PROJECT SITE.

A. The Clines Corners Wind Farm and the Gen-Tie System Corridor are proposed to be located on private land owned by participating landowners, as well as possibly a limited amount of state trust land. It is my understanding that wind energy development, road/highway development and ranching operations constitute the planned development activities within the Clines Corners Wind Farm Project site. The Clines Corners Wind Farm Project represents the fruition of wind energy development plans. As noted below, the impact on ranching operations will at most be minimal. Regarding state trust lands, if needed, the Clines Corners Wind Farm Project represents additional long-term revenue for the State of New Mexico.

Q. PLEASE SUMMARIZE YOUR FINDINGS WITH RESPECT TO AIR QUALITY.

A. As I previously explained in my testimony, all required air permits will be obtained before construction, and the Clines Corners Wind Farm Project is not expected to adversely impact air quality. Specifically, the Gen-Tie System is anticipated to have *de minimus* impacts to air quality. More detailed discussion of air resources is provided in Sections 4.2 and 5.2 of the Environmental Report, Exhibit CK-2.

The Clines Corners Wind Farm is also anticipated to have *de minimus* impacts to air quality. Indeed, when operational, the Clines Corners Wind Farm Project is expected to improve air quality by displacing the need for conventional means of energy generation that have negative impacts to air quality.

Q. PLEASE SUMMARIZE YOUR FINDINGS WITH RESPECT TO WATER QUALITY AND WATER RESOURCES.

A. As I explained previously in my testimony, all required water quality permits will be obtained, if needed, and the Gen-Tie System is not expected to adversely impact water quality or water resources. Also, the Clines Corners Wind Farm is not anticipated to have material negative impacts to water quality. Indeed, when operational, the Clines Corners Wind Farm Project is anticipated to have significant positive benefits to water resources by displacing other water-intensive energy generation resources. Further discussion of water resources is provided in Sections 4.7 and 5.7 of the Environmental Report, Exhibit CK-2.

Q. PLEASE SUMMARIZE YOUR FINDINGS WITH RESPECT TO LAND USES.

A. Earlier in my testimony, I describe existing land uses and explain that the Clines Corners Wind Farm Project's facilities are expected to utilize only a small portion of the

approximately 39,580-acre Clines Corners Wind Study Area, leaving the vast majority of the land, which will not be utilized for project infrastructure, available for its existing land use, which is primarily agriculture. My understanding is that facilities will only be constructed on lands for which agreements have been reached with underlying landowners. Both the Gen-Tie System and the Clines Corners Wind Farm are generally consistent with the land use policies of the respective counties and to the extent necessary, will comply with the State Land Office leasing regulations for state trust lands that may be used by the Clines Corners Wind Farm Project. Further discussion of land uses is provided in Sections 4.12 and 5.12 of the Environmental Report, Exhibit CK-2.

Q. PLEASE SUMMARIZE YOUR EFFORTS TO AVOID AND MINIMIZE IMPACTS WITH RESPECT TO FLORA AND FAUNA ON THE CLINES CORNERS WIND FARM PROJECT'S SITE, SPECIFICALLY THE GEN-TIE SYSTEM.

A. Because of the relatively modest impacts of transmission lines to wildlife habitat and flora and fauna, the Gen-Tie System will not have material impacts to wildlife habitat, flora or fauna and the voluntary commitments and Best Management Practices ("BMP") incorporated and utilized by the Applicant provide additional safeguards for the protection of these resources. Protective measures that would be implemented to reduce potential negative flora and fauna resource impacts include those commitments described in Section 5.8 of the Environmental Report, Exhibit CK-2. These 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 and excavations 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 the Gen-Tie System 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 during the nesting season;

Bio-10: Designing transmission line facilities to conform with Avian Power Line Interaction Committee (APLIC) guidance in order to minimize electrocution and collision risk**;**

Bio-11: Micro-siting during engineering design to avoid sensitive biological resources;

Bio-12: Implementing setbacks from sensitive biological resources to protect species habitat and time critical periods (e.g., breeding season); and

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

A discussion of flora and fauna is also provided in Sections 4.8 and 5.8 of the Environmental Report, Exhibit CK-2. The Clines Corners Wind Farm Project has

implemented voluntary avoidance protocols from various biological resources, such as raptor nests.

The aforementioned voluntary commitments apply not only to the Gen-Tie System, but also to the Clines Corners Wind Farm. Due to the foregoing BMPs and siting methodology discussed in the Environmental Report and the Direct Testimony of Michael Kurnik, it is our belief that the Clines Corners Wind Farm Project will not have material negative impacts to sensitive flora and fauna.

Q. PLEASE SUMMARIZE YOUR FINDINGS WITH RESPECT TO POTENTIAL NOISE IMPACTS.

A. The 345-kV Gen-Tie System will not cause significant noise impacts within the Clines Corners Wind Study Area. The Clines Corners Gen-Tie System Corridor itself is sparsely populated and there are no significant concentrations of homes or other noise receptors. Furthermore, the Gen-Tie System will be located entirely on private property of participating landowners or on state trust lands. The Applicant has worked with (and will continue to work with during the siting process) participating landowners to assure appropriate setbacks of Gen-Tie System facilities from homes and other noise receptors.

Wind turbines, and substations facilities within the Clines Corners Wind Farm will be set back from homes and other important noise receptors in accordance with local ordinances and will be located entirely on participating landowner properties. The Applicant has sited turbines to minimize sound-level concerns at neighboring homes, as applicable. Further discussion of noise is provided in Sections 4.3 and 5.3 of the Environmental Report, Exhibit CK-2.

Q. PLEASE SUMMARIZE YOUR FINDINGS WITH RESPECT TO INTERFERENCE WITH COMMUNICATION SIGNALS.

A. Development and operation of the Gen-Tie System is not expected to interfere with or impair communication signals. The microwave beam paths identified across the Clines Corners Gen-Tie System Corridor, which are depicted in Exhibit 20 to Exhibit CK-2, have been incorporated into the preliminary Gen-Tie System layout and disruption to the signal will be avoided in the final layout. The Applicant conducted a review of coordinates at the north, south, east, and west points of the Clines Corners Gen-Tie System Corridor, with an expanded search to 35 miles from the edge of the Clines Corners Gen-Tie System Corridor endpoints. This review indicates that no microwave towers, antenna structure registration towers, or AM/FM/TV towers are present in the study area. The Applicant has contacted the National Telecommunications and Information Administration ("NTIA") to evaluate potential impacts to communications infrastructure and services within the Project area. In January 2019, the Applicant received a letter from NTIA stating that the agency does not anticipate harmful interference as a result of the Clines Corners Wind Farm Project. See Exhibit CK-3. Further discussion of communication signals is provided in Sections 4.14 and 5.14 of the Environmental Report, Exhibit CK-2.

Q. WILL THERE BE ANY IMPACTS ON RECREATIONAL USES?

A. No. The Gen-Tie System is not anticipated to impair recreational uses. The Clines Corners Gen-Tie System Corridor is primarily agricultural land used for grazing and cultivation and is not known to support major or organized recreational activities. However, landowners reserve the right to recreate on their properties, provided such recreation does

not interfere with the Clines Corners Wind Farm Project. In or near the Clines Corners Gen-Tie System Corridor, the primary recreational activity identified is occasional hunting. This activity is expected to continue throughout the Clines Corners Wind Study Area (inclusive of the Clines Corners Gen-Tie Corridor) during operation. The Applicant will work with landowners during the construction period to confirm that there are no undue safety risks to either construction crews or hunters. Furthermore, the Applicant has worked with Burns & McDonnell, to create wildlife worker training materials. These wildlife worker training materials worker training ensure that Project construction does not result in adverse impacts to the environmental resources. The previous discussion also applies to the Clines Corners Wind Farm as well. Further discussion of recreational use is provided in Sections 4.12 and 5.12 of the Environmental Report, Exhibit CK-2.

Q. WHAT VISUAL IMPACT WILL THE GEN-TIE SYSTEM HAVE?

A. Visual impacts from the Clines Corners Gen-Tie System, as discussed below, will be modest and consistent with the existing environment and it is my belief that the Gen-Tie System will not materially impair visual resources.

Topography within the Clines Corners Gen-Tie System Corridor is variable, including relatively flat grassland, gentle slopes, small ridgelines, canyons, hills, mesas, canyons, and steep slopes. Herbaceous/grassland cover types dominate the landscape, with shrub/scrub and evergreen forest vegetation communities covering smaller areas. The transmission line route intersects the U.S. Highway 285 right-of-way approximately 7 miles west of the Clines Corners Wind Farm. U.S. Highway 285 consists of a two-lane roadway in either direction (four lanes across in total) and a grassy center divide. Land use

within the Clines Corners Gen-Tie System Corridor is primarily open range livestock grazing. Pedernal Mountain (7,565 feet) sits approximately 10 miles north of the Clines Corners Gen-Tie System Corridor. Elevation within the Clines Corners Gen-Tie System Corridor ranges from 6,170 to 6,510 feet above mean sea level (see Exhibit 13 of the Environmental Report, Exhibit CK-2).

Torrance and Guadalupe Counties have low population densities, particularly within the Clines Corners Wind Study Area. Torrance County is a large and rather sparsely-populated county located in central New Mexico, southeast of the City of Albuquerque. Over 95 percent of the population resides in the western half of that County. Guadalupe County is the fifth-least populous county in New Mexico and has a total area of 3,032 square miles. There are several inhabitable residences within the Clines Corners Gen-Tie System Corridor and other scattered rural residences and small communities that are nearby. Travelers in proximity to the Clines Corners Gen-Tie System Corridor would include local or regional traffic along New Mexico State Route 3, U.S. Route 60, and U.S. Highway 285. Existing transmission lines (100 kV or above) in the vicinity of the Clines Corners Gen-Tie System Corridor include: the Willard to Duran 115 kV line, situated approximately 14 miles south of the Clines Corners Gen-Tie System Corridor; the Ba to Blackwater 345 kV line, situated approximately 10 miles north of the Clines Corners Gen-Tie System Corridor; and the proposed Corona to Guadalupe 500 kV line, situated approximately three miles to the east of the Clines Corners Gen-Tie System Corridor (Exhibit 14 of the Environmental Report, Exhibit CK-2).

No designated federal or state scenic routes or byways are in the vicinity of the Clines Corners Gen-Tie System Corridor (New Mexico Department of Transportation [NMDOT], 2015; Federal Highway Administration [FHWA], 2019) (see Exhibit 15 of the Environmental Report, Exhibit CK-2). The nearest scenic route is Historic Route 66, which is more than 20 miles north of the Clines Corners Gen-Tie System Corridor and, in any case, the transmission structures of the Gen-Tie System would not obstruct the view from any public road. Additionally, no national parks or state parks are in the vicinity of the Clines Corners Gen-Tie System Corridor. The closest national park is the Pecos National Historic Park, which is located approximately 50 miles north of the Clines Corners Gen-Tie System Corridor. The closest state park is Villanueva State Park, which is approximately 37 miles north from the Clines Corners Gen-Tie System Corridor. No known visually sensitive, cultural resource sites are in the vicinity of the Clines Corners Gen-Tie System Corridor. No known organized tourism activities are in or near the Clines Corners Gen-Tie System Corridor.

Q. WHAT IMPACT WILL THE GEN-TIE SYSTEM HAVE ON HISTORIC, CULTURAL, AND ARCHAEOLOGICAL RESOURCES?

A. Impacts to historical, cultural, and archaeological resources from the Clines Corners Gen-Tie System, if any, are expected to be *de minimus*. No historic archaeological resources are reported within the Clines Corners Gen-Tie System Corridor. Impacts to known locations of cultural resources are expected to be low because the transmission line facilities will be designed to avoid such locations. Cultural resource field surveys will be completed prior to any construction activity to reduce potential impacts from the transmission line facilities

to currently unidentified sites through micro-siting of structures. The Gen-Tie System will avoid impacts to historic, cultural, and archeological resources that are discovered during construction on both private and state land to the maximum extent practicable. The Applicant will implement an Unanticipated Discoveries Protocol which will properly address circumstances when there are unexpected discoveries of some environmental condition during construction. Further discussion of historic, cultural, and archeological resources is provided in Sections 4.9 and 5.9 of the Environmental Report, Exhibit CK-2. The foregoing avoidance strategies apply as well to the Clines Corners Wind Farm.

Q. WILL THE GEN-TIE SYSTEM IMPACT CEMETERIES OR BURIALS?

A. No. The New Mexico Cultural Resources Information System, the Church Index, Torrance, and Guadalupe counties Cemetery Index were used to identify religious structures and sites in the vicinity of the Gen-Tie System. See Exhibit 11 of the Environmental Report, Exhibit CK-2. No churches or known cemeteries are located in close proximity to the Gen-Tie System. However, there could be unidentified cemeteries associated with active or abandoned ranches within the footprint of the proposed Gen-Tie System. The Clines Corners Wind Farm Project will avoid identified and unidentified sites during construction as discussed in Sections 4.10 and 5.10 and Exhibit 11 of the Environmental Report, Exhibit CK-2. Further discussion of cemeteries and burials is provided in Sections 4.10 and 5.10 of the Environmental Report, Exhibit CK-2.

Q. WILL THE GEN-TIE SYSTEM IMPACT ANY SCHOOLS?

A. No. The Gen-Tie System will not physically impact schools. As shown on Exhibit 16 of the Environmental Report, Exhibit CK-2, no direct or indirect impacts to schools would

occur as a result of the construction, operation, and maintenance of the Gen-Tie System facilities. The Estancia Elementary/Middle/High School is located approximately 24 miles west of the Clines Corners Gen-Tie System Corridor boundary.

If the Clines Corners Wind Farm Project uses state trust lands, such use will contribute revenue to the state that is earmarked for the benefit of schools. Further, in the event that the Project utilizes industrial revenue bonds, payments-in-lieu-of-taxes associated with such bonds to be negotiated with counties and municipalities may provide long-term fiscal benefits to schools in the area. Such benefits are discussed in the prepared Direct Testimony of Dr. John Tysseling. Further discussion of schools is provided in Sections 4.12 and 5.12 of the Environmental Report, CK-2.

Q. WILL THE GEN-TIE SYSTEM IMPACT ANY RELIGIOUS SITE?

A. No. The Gen-Tie System will avoid impacts to existing religious buildings and known religious sites in the area. Further discussion of religious sites is provided in Sections 4.10 and 5.10 of the Environmental Report, Exhibit CK-2.

Q. WILL THE GEN-TIE SYSTEM CONFLICT WITH MILITARY ACTIVITIES?

A. No. The Gen-Tie System will not conflict with military activities. Further discussion of military activities is provided in Sections 4.19 and 5.19 of the Environmental Report, CK-2. The Applicant's consultants have communicated with local military bases and are working with them and the Department of Defense ("DoD") to address potential impacts on military activities in the area. The Applicant will continue to coordinate with DoD as necessary. See discussion in the next answer below.

Q. WILL THE GEN-TIE SYSTEM ADVERSELY AFFECT AVIATION?

A. No, it will not adversely affect civil or military aviation. No military bases occur within the Clines Corners Gen-Tie System Corridor, nor do military training routes intersect the Clines Corners Gen-Tie System Corridor (Exhibit 21 of the Environmental Report, CK-2). The Applicant will not seek a Determinations of No Hazard (DNH) from the Federal Aviation Administration ("FAA") for the Gen-Tie System, as the transmission structures will not be over 200 feet in height and the Clines Corners Gen-Tie System Corridor is located approximately 23 miles from the closest public airport. Based on the height of transmission line facilities and the location of military and civilian aviation resources, the transmission line facility construction, operation, and maintenance, within the Clines Corners Gen-Tie System Corridor will not impact military or civilian aviation activities. As discussed in the previous answer, the Applicant is working closely with local military bases and the DoD as well as the FAA to understand and address impacts to aviation. The Applicant filed FAA Form 7460-1 (Notice of Proposed Construction or Alteration) for proposed wind turbine sites, as required for structures over 200 feet tall, and received DNH (applications 2018-WTW-3186-OE though 2018-WTW-3377-OE) from the FAA. Turbines will be lit with FAA-compliant safety lighting in accordance with the turbine-specific recommendations of the FAA resulting from the 7460-1 process. Turbines will be lit no more than required by the FAA. Further discussion of aviation impacts is provided in Sections 4.19 and 5.19 of the Environmental Report, Exhibit CK-2.

Q. WILL THE GEN-TIE SYSTEM ADVERSELY AFFECT SOILS?

A. No. Soils in the Clines Corners Gen-Tie System Corridor, described in Exhibit 3 of the Environmental Report, Exhibit CK-2, are an important agricultural resource. The

"footprint" of the Clines Corners Wind Farm Project will cover only small portion of the land in the Clines Corners Gen-Tie System Corridor, leaving the remaining areas in their existing uses. In addition, topsoil removed during Project construction is planned to be stockpiled and replaced to the extent practicable, and erosion control BMP's will be employed during construction, all in compliance with the Clines Corners Wind Farm Project's Storm Water Pollution Prevention Plan. The Clines Corners Wind Farm Project's erosion control BMP's are consistent with East Torrance Soil and Water Conservation District Long Range Land Use Plan. The same discussion and conclusions apply to the Clines Corners Wind Farm. Further discussion of soils is provided in Sections 4.5 and 5.5 of the Environmental Report, Exhibit CK-2.

Q. WILL THE CLINES CORNERS GEN-TIE SYSTEM ADVERSELY AFFECT MINERALS OR MINING?

A. No. There are no identified active hydrocarbon or other minerals or mining facilities located within the Clines Corners Gen-Tie System Corridor, and impacts from the construction, operation, and maintenance of the transmission line facilities are not anticipated. Mining has historically been important to the economies of Torrance and Guadalupe Counties, but there are no major ongoing exploration activities known within the Project area (see Sections 4.4 and 5.4 of the Environmental Report, Exhibit CK-2).

Q. WILL THE GEN-TIE SYSTEM ADVERSELY AFFECT GEOLOGIC OR PALEONTOLOGICAL RESOURCES?

A. No. Geology in the Clines Corners Gen-Tie System Corridor is shown on Exhibit 3 of the Environmental Report, Exhibit CK-2. Gems, minerals, and rocks of interest may exist

in the Clines Corners Gen-Tie System Corridor just as they may exist in many parts of New Mexico. Paleontological finds have also occurred in many parts of New Mexico. While no paleontological resources are known to exist in the Clines Corners Gen-Tie System Corridor, in the event any are identified prior to construction, current or planned construction activity in the affected area will stop and the Applicant will notify and consult with appropriate authorities in accordance with the Unanticipated Discoveries Protocol. This same discussion also applies to the Clines Corners Wind Farm. Further discussion of geologic and paleontological resources is provided in Sections 4.4, 4.5, 4.6, 5.4, 5.5 and 5.6 of the Environmental Report, Exhibit CK-2.

Q. WILL THE CLINES CORNERS GEN-TIE SYSTEM ADVERSELY AFFECT ROADS?

A. Local roads are shown on Exhibit 16 of the Environmental Report, Exhibit CK-2. Prior to construction, the Applicant plans to negotiate and execute a road use agreement with Torrance and Guadalupe Counties. The road use agreement will identify the county roads that Clines Corners Wind Farm Project is allowed to use for heavy haul vehicles, mainly during construction. It will identify responsibilities for maintenance and upkeep of these county roads during and after construction, especially for wear and tear or damage caused by Clines Corners Wind Farm Project-related traffic. The agreement will establish traffic safety measures to confirm the safety of the driving public. The road use agreement will address dust mitigation measures on county roads resulting from construction traffic. The pre-construction conditions of county roads will be documented, prior to construction, typically by video recording, and Clines Corners will confirm that county roads are generally in the same or better condition upon completion. Financial security

will be proposed to confirm the Applicant's compliance with the agreement. Prior to the movement of any super-load trucks on other public roads, the Applicant will consult with any necessary state and federal transportation authorities and will obtain any required permits. Discussion of road use is provided in Sections 4.20 and 5.20 of the Environmental Report, Exhibit CK-2.

Q. WILL THE CLINES CORNERS GEN-TIE SYSTEM ADVERSELY AFFECT GEOGRAPHIC RESOURCES?

A. No. There are no national parks or state parks in the vicinity of the Clines Corners Gen-Tie System Corridor. The Pecos National Historical Park is approximately 50 miles north of the Gent-Tie System Corridor. The closest state park is Villanueva State Park, which is approximately 37 miles north from the Clines Corners Gen-Tie System Corridor. Transmission line facilities 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. The foregoing applies as well to the Clines Corners Wind Farm. A discussion of geographic resources is provided in Sections 4.18 and 5.18 of the Environmental Report, Exhibit CK-2.

Q. DOES THE APPLICANT EXPECT TO ENCOUNTER RADIOACTIVE WASTE OR RADIATION HAZARDS?

A. No. Transmission projects and wind generation projects do not generate or contain radioactive waste or radiation hazards, as noted in Sections 4.15 and 5.15 of the Environmental Report, Exhibit CK-2.

Q. DOES CLINES CORNERS EXPECT TO ENCOUNTER ASBESTOS OR OTHER MATERIALS THAT REQUIRE SPECIAL HANDLING?

A. No. The vast majority of the Clines Corners Gen-Tie System Corridor has never had any construction activity or structures or facilities that could have included asbestos or other materials that require special handling, so all or nearly all of the Clines Corners Wind Farm Project's related construction activity will be sited away from such materials. Prior to construction, the Applicant will perform a Phase 1 Environmental Screening Assessment to identify any hazardous materials, substances, or facilities in the Clines Corners Gen-Tie System Corridor, and any such items identified will be avoided. Further, in the unlikely event that there are hazardous materials or wastes that are present at the site and associated with the Clines Corners Wind Farm Project will be properly contained, and a spill response plan will be in place to confirm that, in the event of an accidental spill or leakage, there will be no contamination or transmission downstream. The same discussion applies to the Clines Corners Wind Farm. Discussion of hazardous materials is provided in Sections 4.16 and 5.16 of the Environmental Report, Exhibit CK-2.

Q. WHAT EFFORTS WILL THE APPLICANT MAKE TO PROTECT PUBLIC SAFETY AROUND THE CLINES CORNERS WIND FARM PROJECT?

A. Safety will remain a priority of the Clines Corners Wind Farm Project throughout construction, operation, and eventual decommissioning. The Applicant will comply with all manufacturer specifications and relevant OSHA requirements to confirm the safety of residents, employees, contractors, livestock, the public, and other users of the land.

Additionally, Torrance and Guadalupe County emergency responders and fire districts will be contacted to confirm appropriate plans are in place at the Clines Corners Wind Farm Project to quickly respond to any emergencies. The Applicant will communicate with Torrance and Guadalupe County fire departments in order to coordinate emergency response plans prior to the start of construction. The Applicant will work with the departments to confirm the safety of the firefighters, employees, landowners, neighbors, livestock, and other users of the land. Clines Corners Wind Farm Project employees and contractors will all participate in fire prevention/fighting training to confirm their preparedness and participation in fire protection. An annual firefighting practical examination will be completed onsite, including a live drill, to confirm that Clines Corners Wind Farm Project employees have maintained their training. This training will be offered to the local fire departments too. The Clines Corners Wind Farm will have emergency response plans in place to respond to various natural disasters, even though the Clines Corners Gen-Tie System Corridor generally is not considered to be a high-risk site. Within the Clines Corners Wind Farm, an electrical substation and transformer will be located inside locked fences or enclosures, and they will be clearly marked to show that energized electrical equipment is located inside. 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. Discussion of public safety is provided in Sections 4.17 and 5.17 of the Environmental Report, Exhibit CK-2.

Q. HAS THE APPLICANT IDENTIFIED PROTECTION MEASURES IT WILL IMPLEMENT TO AVOID AND MANAGE IMPACTS TO RESOURCES YOU REVIEWED ABOVE?

A. Yes. The measures the Applicant will implement are identified in Section 5 of the Environmental Report.

Q. WILL THE CLINES CORNERS WIND FARM PROJECT RESULT IN ENVIRONMENTAL BENEFITS?

A. Yes. To the extent that electric generation by the Clines Corners Wind Farm displaces generation from fossil-fuel fired resources such as coal and natural gas, the wind farm will result in reduced emissions of greenhouse gases and air pollutants, which will benefit the State of New Mexico. Renewable energy generation will also conserve scarce water resources and will not discharge water pollutants. The Clines Corners Wind Farm Project will use only a small portion of the land area, leaving the remaining land available for pre-existing uses such as agriculture, rangeland and wildlife habitat. Micro-siting of the transmission line facilities and wind turbines will avoid sensitive resources. Furthermore, development of the Clines Corners Gen-Tie System provides an electrical transmission link from the area's high-wind speed resources to the electric grid, which benefit should continue long into the future irrespective of the operational life of the Clines Corners Wind Farm Project.

IV. LAND USE, LAND OWNERSHIP, AND COMPLIANCE WITH LAND USE STATUTES AND ADMINISTRATIVE REGULATIONS

Q. PLEASE DESCRIBE THE EXISTING LAND OWNERSHIP AND LAND USES ON THE CLINES CORNERS WIND FARM PROJECT.

A. The Clines Corners Wind Farm site encompasses approximately 39,580 acres of entirely private land. In addition, the Gen-Tie System and the one-mile wide Clines Corners Gen-Tie Corridor is located on private land and also state trust lands. Over 98% of the Clines Corners Wind Farm Project is expected to consist of private land, and the rest may consist of state trust land, if necessary. If it is difficult to obtain the permission to utilize a limited amount of state lands, the Project can still be constructed entirely on private lands. No federal land is planned to be used. The Applicant is in the process of applying to the State Land Office for a real estate transmission easement for about 20 acres of state trust lands and does not expect to apply for additional real estate transmission easements of state trust lands. It is possible that additional private landowners may be incorporated into the Clines Corners Wind Study Area. The type of land ownership (private or state) is shown on Exhibit 19 of the Environmental Report, Exhibit CK-2. The current land use of the Clines Corners Gen-Tie System Corridor is predominantly agricultural, with a mix of grazing, cultivation, and dairies.

Q. WILL THESE USES CONTINUE FOLLOWING CONSTRUCTION OF THE CLINES CORNERS WIND FARM PROJECT?

A. Yes. When construction is complete, the Clines Corners Wind Farm Project facilities are expected to utilize a small portion of the overall Clines Corners Wind Study Area, thus leaving the remaining unutilized land available for its existing land uses. As discussed above, the Clines Corners Wind Farm Project will not interfere with land use in the vicinity of the Project. Furthermore, the Project will enhance the ability of landowners to continue to utilize their land for agriculture because the Applicant will make annual payments to

landowners that will be a new income stream independent of commodity prices, drought, and other factors that affect the economics of agriculture. In some cases, the extra income from the Clines Corners Wind Farm Project may enable landowners to reinvest in and continue their current agricultural practices.

Q. HAS THE APPLICANT SECURED LAND RIGHTS FOR THE CLINES CORNERS WIND FARM PROJECT FROM THE PRIVATE LANDOWNERS?

A. Yes. I am informed that the Applicant has executed land agreements for the privately-owned acreage. Land agreements provide the Applicant with the right to develop, construct, and operate wind facilities and transmission infrastructure. In addition, owners of land adjacent to or near the Clines Corners Wind Study Area may contact the Applicant in the future with an interest in signing a land agreement, and the Applicant intends to continue to entertain such inquiries. The location control approval, if granted by the Commission, is only intended to apply to land within the Clines Corners Wind Study Area that is currently or ultimately signed for Clines Corners Wind Farm Project use.

Q. DOES THE CLINES CORNERS WIND FARM PROJECT REQUIRE USE OF STATE LANDS?

A. The Gen-Tie System may cross state trust lands, depending on the ultimate route that is utilized after the environmental and site preparation information is finalized. An easement or right-of-way to cross these state lands would be needed from the New Mexico State Land Office ("SLO") for these portions of the transmission line facilities. If an easement or right-of-way is needed across state trust lands, the Applicant 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. In all cases, the Gen-Tie System would be located within the Clines Corners Gen-Tie System Corridor.

Q. WHAT LAND USE STATUTES AND ADMINISTRATIVE REGULATIONS APPLY TO THE CLINES CORNERS WIND FARM PROJECT?

A. Guadalupe County does not have any zoning regulations that apply to the transmission line facilities. As part of Torrance County's Goals and Objectives in the Torrance County Comprehensive Land Use Plan, the development of wind and solar generated power is encouraged in order to improve and expand Torrance County infrastructure to enhance the quality of life and support economic development. The Torrance County Zoning Ordinance encourages the development of businesses that harness wind energy. Special Use Districts for Wind Energy Facilities are allowed in Torrance County to foster the development of the county's wind power resources while preserving traditional land uses.

According to Torrance County's Zone Map, land within the Clines Corners Gen-Tie System Corridor is designated as "A – AGRICULTURAL (40 ACRE MINIMUM)", a rural land use designation for unincorporated areas of Torrance County that are not specifically designated in any other zone classifications. The land use within the Clines Corners Gen-Tie System Corridor has historically been rangeland/dry agriculture. This land use would continue as wind energy and ranching activities are compatible land uses.

Q. IN SUMMARY, WILL THE CLINES CORNERS WIND FARM PROJECT COMPLY WITH EXISTING STATE, COUNTY, OR MUNICIPAL LAND USE STATUTORY OR ADMINISTRATIVE REGULATION?

A. Yes. As demonstrated in my testimony and exhibits, both the Gen-Tie System and the Clines Corners Wind Farm will comply with applicable state and county land use statutes and administrative regulations. There are no municipal land use regulations that apply to the Clines Corners Wind Farm Project. Torrance County encourages the development of businesses that harness wind energy and has special use districts to foster the development of the County's wind power resources while preserving traditional land uses. On February 28, 2019, the Applicant submitted an application for a Torrance County Zoning Ordinance Amendment for Special Use District and Height Variance. The Applicant received a conditional recommendation to approve the application from the Torrance County Planning and Zoning Board on April 3, 2019. It is anticipated that final approval of the application will be received from Torrance County in June 2019. The SLO will apply its leasing regulations to issue the real estate transmission easement with which the Clines Corners Wind Farm Project will comply if a State Land lease is granted and utilized.

Q: DOES THIS CONCLUDE YOUR TESTIMONY?

A: Yes.

BEFORE THE NEW MEXICO PUBLIC REGULATION COMMISSION

IN THE MATTER OF THE APPLICATION FOR THE LOCATION OF THE CLINES CORNERS WIND FARM AND GEN-TIE SYSTEM IN TORRANCE AND GUADALUPE COUNTIES PURSUANT TO THE PUBLIC UTILITY ACT, NMSA 1978, §§62-9-3 AND 62-9-3.2	)	Case No. 19 -_____
CLINES CORNERS WIND FARM, LLC	)	
APPLICANT.	)	

EXHIBITS CK-1

CHRISTOPHER KNOPP

Project Manager

Chris has multiple years of experience with large-scale and small-scale utility projects as a certified California Environmental Quality Act (CEQA) consultant. He manages environmental compliance and permitting on major projects and leads project teams, including teams of technical subcontractors. Chris consults clients through all aspects of the CEQA and National Environmental Policy Act (NEPA) documentation process including, but not limited to, Environmental Impact Reports (EIR), Environmental Impact Statements (EIS), Initial Studies (IS), Mitigated Negative Declarations (MND), and Environmental Assessments (EA). He engages with renewable energy generation and power distribution development teams to identify constraints, manage siting and routing studies or assist in compliance with applicable regulations. His project experience also includes work on land planning and development projects throughout Southern California.

EDUCATION

- BA, Environmental Science, International Relations and Policy
  University of Wisconsin-Madison

REGISTRATIONS/TRAINING

- Certified CEQA Consultant, San Diego County, CA
- Association of Environmental Professionals, San Diego Chapter
- PSMJ Project Management - Certified
- The Sohagi Law Group CEQA Training

2 YEARS WITH BURNS & MCDONNELL

16 YEARS OF EXPERIENCE

He has extensive experience interfacing and negotiating with federal, state, and local agencies to obtain project approvals and permits. Whether it is certification of an environmental document, issuance of a regulatory permit, or sign-off on a mitigation requirement, Chris strives to attain client goals as expeditiously and efficiently as possible and get projects approved. He combines his responsiveness to client needs and ability to develop creative solutions in order to quickly and effectively solve problems and drive projects forward.

- Specializing in the identification of entitlements, permitting, environmental review, and regulation of renewable energy (photovoltaic, wind, geothermal) projects throughout the Pacific Southwest. Project experience has also included work on mixed-use development projects, transportation/utility corridors, linear improvements and land planning and development - including small to large-scale public transportation and federal agency projects located throughout Southern California.
- Focusing on consultation with public and private sector clients through project design, analytical analysis and regulatory recommendations regarding CEQA compliance and issue resolution.
- Has successfully led project applicants through the entitlement process while coordinating with internal engineers, technical staff, subconsultants, agency representatives and project proponents.

LeConte Energy Storage Project Supplemental EIR | Imperial County Planning and Development Services

Southern California Region, 2019

Project Manager. Leading project team of internal technical staff and subconsultants to develop environmental compliance document tiering off previously certified EIR. Working with applicant and agency staff to permit and approve energy storage facility on existing solar site. The project proposes to construct and operate an 85,000 square foot enclosure containing electrochemical batteries, inverters, related building and electrical control systems; and up to 1,300 feet of overhead 230 KV electric line, transformers, switches, relays, controls, and related equipment on approximately three acres-all entirely within the boundary of the existing Centinela Solar Energy site, which was approved by Imperial County under the previously certified 2011 Centinela Solar Energy Project Final EIR. The Project would have up to 125 MW of electrical interconnection

and transmission capacity and use battery energy storage technology to absorb and discharge electricity onto the San Diego Gas & Electric power grid. The Project's energy storage system would be similar in layout and appearance to a data center or "server farm" with rows of rack-mounted batteries housed inside one or more enclosures.

Western Spirit Transmission Line | Pattern Energy Group

New Mexico, 2019

Project Manager. Managing development of the Environmental Report in support of the transmission line. The Western Spirit Transmission Line consists of an approximate 140-mile transmission line, beginning near Corona, New Mexico in proximity to the Mesa Canyons Wind Farm, running northwest through Bernalillo, Valencia, Socorro, and Torrance counties to the western side of Albuquerque, where it will interconnect with the Public Service Company of New Mexico's (PNM) Rio Puerco Substation.

Northern Spirit Transmission Line | Pattern Energy Group

New Mexico, 2019

Project Manager. Managing development of the Environmental Report in support of the transmission line. The Northern Spirit Transmission is planned to be a 65-mile-long, 345-kilovolt (kV) transmission line that will carry renewable power from the Corona projects in central New Mexico north through the Avangrid El Cabo project and up to Clines Corner. The Project will be built within a new 125-foot-wide right-of-way (ROW). However, to allow for small modifications to the placement of transmission line towers, for access roads or other small changes, a 650-foot-wide corridor is being evaluated as part of the Environmental Report.

Corona Wind Projects | Pattern Energy Group

New Mexico, 2018-2019

Project Manager. Manager of the Environmental Report, local permitting and environmental compliance in support of a major transmission line and wind project under view by the New Mexico Public Regulation Commission. The project footprints spanned Torrance County, Lincoln County and Guadalupe County. Expert witness to the New Mexico Public Regulation Commission on behalf of the applicant providing environmental reporting and permitting support. Interfaced and negotiated with county staff through the entitlement process. The Corona Winds Project consists of a 1,950 MW to 2,200 MW nameplate capacity wind power facility. The Corona Gen-Tie System consists of approximately 80 miles of transmission line within the approximately 300,000-acre Corona Wind Project area. The Corona Wind Companies are proposing to locate in Lincoln, Torrance, and Guadalupe Counties, New Mexico, approximately 80 miles of transmission line and related substation facilities with possible configurations of 345-kV AC lines and ROW.

NCPA Solar Project 1, Site Screening | Northern California Power Agency

Northern California Region, 2018

Environmental Lead. Conducting environmental review and screening of ten potential solar development sites in Northern California. Burns & McDonnell is providing full project management and subject matter expertise services to lead and conduct the NCPA Solar Project through each of the following sub-phases: Site Selection: For participants with multiple potential sites and who need assistance in selecting the "best" site(s), the objective of site selection is to quickly identify the site(s) which appear to be the most viable and may best meet their generation requirements and project objectives. Some sites require CEQA preliminary review. Site Screening (Go/No-Go): Burns & McDonnell is conducting a high-level fatal flaw evaluation of each potential site to enable participants to decide which sites are worthy of further development. Plan Development (Only viable and participant-approved sites will proceed with the Project at this point): Burns & McDonnell is performing the necessary due diligence and describing the site characteristics and specifications in sufficient detail to minimize project unknowns, and to thus minimize the potential provider's cost of risk.

CHRISTOPHER KNOPP

(continued)

Wright Solar Project | Solairedirect North America

Southern California Region, 2017

Project Manager. Conducted environmental permitting review of the project to determine if additional permits/approvals were required to file for Merced County building permits, as part of the independent acquisition Due Diligence pursuant to potential acquisition transaction conveying 100% ownership of the development assets. The permit review described key obligations or actions needed to address any identified open items. Existing permits and/or approvals were reviewed to identify issues/conditions that could impact project schedule or costs in relation to compliance for the construction period and operations. Consulted with the Merced County departments including but not limited to the Planning Department, Department of Public Works, Fire, Health, and Building Divisions. Burns & McDonnell to develop a matrix that included key actions needed to address any identified open items as well as any issues/conditions that could impact the project schedule or costs in relation to compliance for the construction period and operations identified from existing permits and/or approvals.

Ontario Milliken Landfill Solar Project | PV Navigator

Southern California Region, 2017

Project Manager. Responsible for developing a project permit matrix based on a desktop analysis using publicly available information and reports, GIS research, the project lease agreement, power purchase agreement, and IFC. The matrix indicated the required permits and corresponding permitting authority, separated by critical and non-critical for project energization. Burns & McDonnell provided this independent analysis of the permits required to energize and operate the 3MW project.

Blythe Mesa Solar EIR and EA | Renewable Resources Group*

Southern California Region, 2012-2015

Project Manager. Responsible for overseeing the preparation of the joint EIR and EA (CEQA and NEPA). POWER was the third-party contractor for the Renewable Resources Group, Riverside County, and the BLM California Desert District, to prepare a joint EIR and EA document for this 485 MW photovoltaic solar project. In addition to the PV solar panels, the project will include up to three substations, up to two O&M buildings and an approximate 4.8-mile, 230 kV transmission line. The 485-megawatt photovoltaic facility will be constructed in Riverside County and will produce enough renewable energy to power more than 145,000 homes in California and is one of the largest renewable energy projects approved by the BLM.

SolarGen 2 Solar Power Project | Imperial County Planning and Development Services*

Southern California Region, 2011-2012

Project Manager. In charge of consultant team working directly with Imperial County Planning and Development Services staff, the applicant and associated sub-consultants in the development and publication of the Solar Gen 2 Solar Project. The controversial project consisted of three solar composite parcels (totaling 150 MW) that were submitted as separate Conditional Use Permits (CUP) approved by Imperial County for use as solar power plants. The EIR evaluated all three composite parcels as a single project located on site locations used for agricultural purposes totaling 1,451 acres near Calipatria, CA. Managed the project team to successfully respond to public concerns. This project signified the first photovoltaic (PV) solar EIR approved by both the Imperial County Planning Commission and Board of Supervisors.

CHRISTOPHER KNOPP

(continued)

Ormat Imperial Valley Solar PV Projects | Ormat Nevada Inc.*

Southern California Region, 2011

Project Manager. Responsible for assisting ORMAT with the identification of entitlements and environmental review of four PV power plants at separate locations predominantly located on former and current agricultural lands within Imperial Valley. Managed the permitting task on these projects and acted as an extension of ORMAT's permitting staff. Provided ORMAT with regular updates and status reports on the progress of the permitting task and notified ORMAT regarding challenges to the permitting process and recommendations to overcome these challenges. Prepared the CUP application packages for the project sites accompanied by technical studies. Worked with ORMAT's engineer to develop a complete and detailed project description per County of Imperial requirements, as well as coordinated with the County regarding the CEQA process in order to minimize the level of CEQA documentation required. Managed technical staff in support of the CUP application package. Worked with Imperial County Planning and Development Services staff to develop Heber PV Solar Array Project MND. This is the first solar PV project for ORMAT. The project has since been approved for construction by the County of Imperial.

Cluster I Solar Power Project | Imperial County Planning and Development Services*

Southern California Region, 2010-2011

Project Manager. In charge of consultant team working directly with Imperial County Planning and Development Services staff, the applicant and associated subconsultants in the development and publication of the Cluster I Solar Power EIR and Final EIR. The project consisted of three solar composite parcels (totaling 275 MW) that were submitted as separate CUPs approved by Imperial County for use as solar power plants. The project included the installation of approximately 2.2 million solar panels across 1,731 acres. Successfully addressed numerous concerns raised by the public on behalf of the County and applicant. This project signified the second PV solar EIR approved by both the Imperial County Planning Commission and Board of Supervisors.

Calipatria Solar Farm II | Imperial County Planning Development Services*

Southern California Region, 2010

Project Manager of consultant team working directly with Imperial County Planning and Development Services staff, the applicant and associated subconsultants in the development and publication of the Calipatria Solar Farm II MND. The project was planned as a 49.9 MW PV solar power plant comprised of 400,000 solar panels on approximately 561 acres of agricultural fields. The MND document was completed on a fast track basis under the projected budget.

Desert Sunlight Solar Project BLM Support Services | The Bureau of Land Management*

California, 2011

Senior Technical Analyst. Responsible for assisting in the facilitation of multiple public scoping meetings after the release of the environmental document for public review. Provided support in responding to public comments received on the EIS. The project consisted of a solar PV energy generating facility with a total capacity of 550 MW to be located on federal lands managed by the BLM approximately six miles north of the community of Desert Center, in Riverside County.

86 MW Altamont Wind Farms 2018 CUP Extension Supplemental EIR | Altawinds, Inc*

California, 2015-2016

Project Manager. Responsible for leading internal technical team and working with Alameda County staff planners and Altamont Winds in the development of the Supplemental EIR document. The applicant requested modification of existing

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(continued)

Conditional Use Permits (CUPs) to modify the timeline to permanently cease operation of existing wind turbines in the Altamont Pass Wind Resource Area (APWRA), remove a predetermined percentage of turbines on a specified, phased schedule, and replace certain mitigation measures of the previous Final EIR with new mitigation measures. The project allowed continued operation of the existing turbines producing 85.8 MW on the existing wind energy facility site through October 2018. The Supplemental EIR tiered off of the previous July 2013 Final EIR and relied on the Programmatic EIR for APWRA. Project facilities consisted of 828 wind turbines on concrete foundations, plus support facilities, occupying approximately 155 acres.

Summit Wind Repowering Project CEQA Checklist Document | Altamont Winds, Inc*

California, 2016

Project Manager. Responsible for leading internal technical team and working with Alameda County staff planners and Altamont Winds in the development of a CEQA checklist document that tiers off of the County's October 2014 *Final Program EIR for the Altamont Pass Wind Resource Area.* The project would repower the decommissioned site of an existing wind energy facility comprising 484 existing wind turbines generators and foundations on the site. Up to 29 new wind turbines would be installed, representing a net reduction of 455 turbines and foundations at the site. The project would continue transmitting energy from the site to the regional power grid and would maximize renewable energy production by replacing the aging infrastructure with newer, more efficient wind turbines (known as Repowering). To construct and operate the project, the applicant had to comply with a number of federal, state, and local environmental regulatory requirements.

Sunrise Powerlink Project | San Diego Gas & Electric Company*

California, 2005

Technical Analyst. Responsible for working with San Diego Gas & Electric Company (SDG&E) to provide technical assistance and review services with obtaining Notices to Proceed (NTP) for the Sunrise Powerlink Project from the California Public Utilities Commission (CPUC) during the pre-construction planning phase. Helped team with the acquisition of specific NTP requests from the CPUC that were required before approval was authorized for construction of each project segment. Assisted SDG&E team to complete the submittal of NTP packages to the CPUC, prioritized the NTPs and responded to the CPUC related questions and comments. The 120-mile long 230/500 kilovolt power line will bring 1,000 megawatts of power from the Imperial Valley to San Diego County to support future growth of the San Diego region and its economic benefits to the region will measure on the order of $100 million per year.

Helix Water District Homelands Tank Replacement | Helix Water District*

California, 2009

Project Manager. Responsible for managing the preparation of environmental studies and prepared an IS/MND for the demolition of the existing reinforced concrete Helix Homelands water storage tank. The project involved construction of a new higher capacity tank at the same location and improvement of an access road and replacement of a cast-iron pipeline. Worked closely with the District to ensure that the CEQA documentation met the project's schedule and complied with regulations pertinent to the project location.

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Manzanita Wind Generation Project | San Diego Gas & Electric Company*

California, 2004

Senior Technical Analyst. Responsible for providing management support on the project in the preparation of the Proponent's Environmental Assessment (PEA) and feasibility and environmental constraints studies to assess the viability of developing a wind energy project on the Manzanita Reservation at the crest of the Tecate Divide.

Temecula Regional Hospital Supplemental EIR | City of Temecula Development Services*

California, 2007

Project Manager. Responsible for supervising the production of the Supplemental EIR (SEIR) to augment the Temecula Regional Hospital EIR pursuant to a Judgment and Peremptory Writ of Mandate issued by the Riverside County Superior Court. Acted as technical consultant to the City of Temecula and general project team. Supervised staff and monitored work performance during the production of the SEIR and ensured that the final report was properly completed on schedule. The SEIR met an aggressive schedule that was mandated by a Writ of Mandates from the Riverside County Superior Court in response to litigation filed by Citizens Against Noise and Traffic and the California's Nursing Association. The hospital's development was anticipated to provide superior, easily accessible emergency medical services within the City of Temecula.

Temecula Regional Hospital Supplemental EIR – Addendum | City of Temecula Development Services*

California, 2007

Project Manager. Responsible for preparing the addendum document to the previously certified (2008) SEIR for the Temecula Regional Hospital. The proposed modified hospital project reduced the number of hospital beds in the first phases of construction and reconfigured various areas. The hospital's development was vital to provide superior, easily accessible emergency medical services within the City of Temecula.

Sweetwater Authority Richard Reynolds Desalination Plant Expansion CEQA/NEPA | Sweetwater Authority*

California, 2007-2008

Project Manager. Responsible managing the internal technical team and working closely with Sweetwater Authority personnel to coordinate the development of the Initial Study and EIR/EA. To the satisfaction of Sweetwater Authority, ensured timely production and review of the environmental documents, which ultimately allowed the project to stay on track and adhere to a critical schedule required in order to obtain vital federal funding. The Phase 2 expansion involved increasing the desalination potable water production to 10 mgd by augmenting facility operations to include four additional groundwater wells, additional pipelines, additional reverse osmosis treatment trains and appurtenances within the existing desalination building.

Sweetwater Authority Main Replacement Project | Sweetwater Authority*

California, 2008

Project Manager. Responsible for working closely with Sweetwater Authority personnel and internal staff to coordinate and manage development of the IS/MND for the replacement of a main 36-inch pipeline leading from the Sweetwater Dam. Managed the consulting team that provided technical expertise through a biological resource report, jurisdictional delineation, cultural resource study, air quality/greenhouse gas (GHG) assessment, and noise assessment. The Sweetwater Dam provides a valuable water supply for the Chula Vista area.

CHRISTOPHER KNOPP

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Riverside County Regional Medical Center Nursing and Allied Health Education Building | Riverside County Economic Development*

California, 2009

Project Manager. Responsible for working with the Riverside County Economic Development Agency to coordinate and manage development of the IS/MND for the Nursing and Allied Health Education Building that is proposed as a three-story structure with approximately 34,749 square feet.

Canyon Hills Specific Plan Amendment No. 3 EIR - Addendum | City of Lake Elsinor*

City of Lake Elsinore, California, 2009

Project Manager. Responsible for managing and prepared an EIR Addendum for the Canyon Hills Specific Plan Amendment No. 3. Worked closely and coordinated with City of Lake Elsinore staff, traffic consultants and civil engineers in preparation of the addendum document. The EIR Addendum analyzed environmental impacts associated with Specific Plan Amendment No. 3.

Old Town Specific Plan EIR | City of Temecula Development Services*

California, 2007-2008

Project Manager. Responsible for managing the preparation of an amendment to the Old Town Specific Plan. The amendment involved incorporation of form-based code principles to more clearly define development regulations, to better facilitate pedestrian friendly development through building placement and streetscapes, and to encourage mixed-use development within the Old Town Temecula area. The proposed project also resulted in the annexation of approximately 8.5 acres into and the removal of approximately 2.3 acres from the Specific Plan.

Ben Clark Training Center EIR – Addendum | Riverside County Facilities Management Department*

California, 2008

Project Manager. Responsible for working with the Riverside County Facilities Management Department on the CEQA environmental documentation for the Ben Clark Public Safety Training Center project located within an unincorporated portion of Riverside County. The project site was partially developed and subject of the Ben Clark Public Safety Training Center Master Plan and certified Final EIR. Managed and contributed towards preparation of the Addendum for the construction of the Sheriff and Fire Department's portion of the Ben Clark Public Safety Training Center. The Addendum analyzed project entitlement history, the current project description, a comparative analysis of environmental findings between the certified Final EIR (including all previous Addendums), and the current project description for all pertinent factors and topical CEQA sections.

Fletcher Jones Mercedes-Benz Dealership Supplemental EIR | City of Temecula Development Services*

California, 2008

Project Manager. Responsible for supervising the associate team and contributed towards the preparation of the SEIR for the Fletcher Jones Mercedes-Benz Dealership of Temecula. The proposed project, located immediately east of Interstate 15 and north of Winchester Road, consisted of a two-story Mercedes-Benz automobile dealership showroom building, auto service facility, car wash facility, private street, and associated parking on the 13.97-acre site. The proposed project was designed to meet Leadership in Energy and Environmental Design (LEED) green building rating

system certification requirements.

Splash Canyon Waterpark EIR | City of Temecula Development Services*

California, 2008

Project Manager. Responsible for managing and contributing towards the preparation of the EIR for the Splash Canyon Water Park of Temecula. The proposed project consisted of the site development and construction of a 13,000-square foot waterpark on 15 acres. The EIR for this controversial project meticulously analyzed impacts related to traffic, aesthetics, noise and public services and utilities in response to numerous concerns voiced from surrounding residential areas.

Crafton Hills Reservoir Enlargement Project Supplemental EIR | California Department of Water Resources*

California, 2009

Deputy Project Manager. Responsible for managing and contributing towards the preparation of the SEIR for the Crafton Hills Reservoir Enlargement Project. The project enlarged the reservoir to increase the capacity from 85 to 225 acre-feet.

Walnut Street Housing EA | City of Bellflower Community Development Department*

California, 2007

Project Manager. Responsible for managing the preparation of technical studies including biological, cultural and historic resources, air quality and noise assessments in accordance with HUD's NEPA guidelines for preparation of the environmental assessment. The project proposed demolition of an existing hotel to be replaced by an attached multi-family building comprised of six, three-story live/work artist town-home-style lofts. By preparing technical studies in support of the environmental assessment, the City of Bellflower could move forward with establishing vital housing to those in need.

Colton Palms Demolition | City of Colton Economic Development Department*

California, 2007

Project Manager. Responsible for assembling a project team and established work assignments while ensuring that technical work conformed to the contract stipulations and requirements of applicable administrative, statutory and case law. Provided regular communication between the client and subconsultants and served as technical consultant and resource to staff, directing and advising staff on matters related to approach and implementation of the technical analysis. The project involved the demolition of nine three-story apartment buildings totaling 92,013 square feet, and four separate buildings within the complex. Demolition of the vacant buildings was the first major step to redeveloping this high-profile area in the City of Colton.

East Branch Enlargement Project | California Department of Water Resources*

California, 2009

Senior Technical Analyst. Responsible for working with internal staff to develop a detailed analysis on impacts as a result of the project on Public Services and Utilities. Helped prepare an EIR for East Branch Enlargement project – the enlargement of 100 miles of the California Aqueduct from the Tehachapi split through the Antelope Valley and Mojave River Basin to

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Silverwood Reservoir. Helped conduct technical studies to complete the EIR and negotiated permit requirements and the restoration plan with resource agencies including the USACE, RWQCB, and USFWS.

Joint-Use Emergency Operations Readiness Center and Amory Facility | California Army National Guard

Southern California Region, 2016-2017

Project manager. Responsible for overseeing the preparation of the Initial Study/Mitigated Negative Declaration (IS/MND) for a new single-story Joint-Use Emergency Operations Readiness Center and Armory Facility at the Joint Force Training Base - Los Alamitos in the city of Los Alamitos. The new facility will be permanent construction, with a total gross square footage of approximately 32,000 sf; including 2,000 sf of storage, parking and civil improvements on approximately 5 acres of previously developed land. The proposed project facility will be designed as a LEED Silver facility and serve as a joint-use, multi-function, emergency operations center and educational instruction facility that will be utilized by both California Office of Emergency Services (CalOES) and US Army Special Operations Division (SOD). Chris worked with internal technical staff and team of subconsultants to develop the environmental documentation in compliance with CEQA requirements.

Transmission Line Rating & Remediation Program | SCE*

Southern California Region, 2015-2016

Project Manager. Directed environmental technical team, and daily project activities. Oversaw the development of a Strategic Execution Plan (SEP) to achieve NERC transmission ratings compliance. This outlined the approach, scope of work, resources, schedules, and costs associated with remediating 262 circuits with 10,136 discrepancies. Managed the environmental technical team that reviewed the designated remediation plan and discrepancies for each circuit in relation to potential resource permitting and CPUC licensing requirements.

EMF Basic and Detailed Field Management Plan Developments | SCE*

Southern California Region, 2016

Project Manager. Worked with the Program Manager of the Corporate Health and Safety Team to direct his project delivery, SCADA, and analytical services team to prepare multiple basic and detailed Field Management Plans (FMPs). These FMPS are being used to document SCE projects and illustrate how they will use the California Public Utilities Commission's (CPUC) "no-cost and low-cost" measures to mitigate Electric & Magnetic Fields generated by generation, transmission, and distribution systems throughout the Edison territory. The FMP is required by SCE to be completed prior to any construction activities, posting the Notice of Proposed Construction, or preparing an Advice Letter to the CPUC. This are enabling SCE to be consistent with the CPUC EMF policy and with the direction of leading national and international health agencies. Furthermore, the FMPs comply with SCE's EMF Design Guidelines as well as all applicable national and state safety standards for new electric facilities.

San Dieguito Lagoon Restoration Project | SCE*

San Diego, CA, 2002-2006

Project Manager. Responsible for managing and coordinating the processing of permits required to implement the restoration of the San Dieguito Lagoon proposed by Southern California Edison (SCE). Extensive project-related research and lead author of the Final Restoration Plan detailing the proposed restoration effort, frequently referenced by resource agency officials during the permitting process. Represented SCE during negotiations with local jurisdictions and resource

agency representatives. Presented to local community planning groups on behalf of the project and consulted regularly with the contractor to address various construction phase issues and major permit amendments.

Major permits included: 401 Certification; Report of Waste Discharge; Streambed Alteration Agreement; Coastal Development Permits from CCC and City of Del Mar; 404 Permit; Section 7 Consultations; Conditional Letter of Map Revision; Encroachment Permits from Caltrans, City of Del Mar, North County Transit District, and 22nd District Agricultural Association; City of San Diego Site Development Permit; City of Del Mar Conditional Use Permit; and City of Del Mar Design Review Permit. Gaining permit approval for the project was one of the last essential components to enable restoration and rejuvenation of a lagoon that will serve as a thriving fish hatchery, a refuge for migratory waterfowl and as an open space for recreational opportunities for local and regional communities alike.

Truckhaven Three-Dimensional Seismic Survey Project | Ormat Nevada, Inc.*

Southern California Region, 2015-2016

Project Manager. Responsible for leading a required pre-project survey team of archaeological, biological (wildlife and plant), paleontological, and tribal monitoring crews in advance of the three-dimensional seismic project. Chris managed the technical survey team and worked with Ormat staff during the consultations with the California State Parks-Ocotillo Wells District and U.S. Department of the Interior, Bureau of Land Management (BLM) to develop the associated technical work plans for each survey crew prior to the commencement of the survey. The project consisted of a three-dimensional (3D) geophysical data acquisition seismic project on a 26-mile block of land located just southwest of Salton City in Imperial County, California. The purpose of the seismic project was to evaluate potential subsurface geothermal resources located at the north end of the U.S. Department of the Interior, Bureau of Land Management (BLM) Truckhaven Geothermal Lease Area (TGLA), and to allow Ormat to locate geothermal test wells at the most ideal locations.

Santa Margarita Annexation | City of Temecula Development Services, City of Santa Margarita*

Santa Margarita, CA, 2008-2009

Project Manager. Responsible for fast-tracking the revision of an existing Draft EIR prepared by another consultant. The project consisted of a new notice of preparation and Draft EIR document/process for the proposed annexation of the Santa Margarita area. The project evaluated by the EIR specifically included an amendment to the City's General Plan to create land use designations, a change in zoning, a sphere of influence boundary adjustment, and the actual annexation by the Riverside County Local Agency Formation Commission. Managed and contributed towards fast tracking the preparation and processing of the EIR to the satisfaction of the City in limited time. Worked intimately with numerous City staff, City attorneys and City consultants to obtain pertinent key information from various technical studies required to support the CEQA documentation effort.

Buckeye Partners L.P. | Sacramento Dike Wall Project

Northern California Region, 2018

Project Manager of technical team to conduct environmental permitting review of the project to determine permits/approvals required to file with City of West Sacramento for project construction. Developed permitting matrix and assessment of required permits/approvals upon consulting with City staff, site analysis and consultation with in-house engineering team. The project includes construction of a retaining wall to protect and contain the west area of the tank site from the existing road.

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Kinder Morgan | Chico Biodiesel Blending Project, Erosion and Sediment Control Plan

Northern California Region, 2017

Project Manager. Oversaw the project team in order to administer stormwater support services in the development of an Erosion and Sediment Control Plan required by the City of Chico, in lieu of a Stormwater Pollution Prevention Plan. The Erosion and Sediment Control Plan was consistent with the requirements found in the City of Chico Storm Water Management Program. Managed the project team to develop the plan, ensure proper installation of Best Management Practices and interface with Kinder Morgan staff during the seasonal rains.

Kinder Morgan | LS-8 SR4/I-680 Interchange Widening Project Storm Water Pollution Prevention Plan

Southern California Region, 2018

Project Manager. Oversaw the project team in order to administer stormwater support services in the development of a Stormwater Pollution Prevention Plan and determination of a Rainfall Erosivity Waiver. The Stormwater Pollution Prevention Plan was consistent with the requirements found in the City of Martinez Storm Water Management Program. Managed the project team to develop the plan, ensure proper installation of Best Management Practices and interface with Kinder Morgan staff during the seasonal rains.

San Diego Fuel Committee | San Diego Fuel Facility

Southern California Region, 2018

Project Manager. Managed the internal technical team to complete a CEQA Environmental Sensitivity Analysis and Categorical Exemption, NEPA due diligence and Categorical Exemption, California Coastal Commission permitting support, and Federal Aviation Administration Form 7460-1 assistance on the project. The project consisted of three 1,146,320-gallon welded steel jet fuel storage tanks, concrete containment dike walls, pipe supports and foundations, steel pads and an underground drainage structure. The project would raise the volume of jet fuel storage capacity at San Diego International Airport to a 6-day fuel supply.

**denotes experience prior to joining Burns & McDonnell*

BEFORE THE NEW MEXICO PUBLIC REGULATION COMMISSION

IN THE MATTER OF THE APPLICATION FOR THE LOCATION OF THE CLINES CORNERS WIND FARM AND GEN-TIE SYSTEM IN TORRANCE AND GUADALUPE COUNTIES PURSUANT TO THE PUBLIC UTILITY ACT, NMSA 1978, §§62-9-3 AND 62-9-3.2	)	Case No. 19 -_____
CLINES CORNERS WIND FARM, LLC	)	
APPLICANT.	)	

EXHIBITS CK-2

Clines Corners Wind Farm Project Environmental Report

Clines Corners Wind Farm, LLC

Clines Corners Wind Farm Project
Project No. 115159

Final
5/7/2019

Exhibit CK-2

Clines Corners Wind Farm Project Environmental Report

prepared for

Clines Corners Wind Farm, LLC
Clines Corners Wind Farm Project
New Mexico

Project No. 115159

Final
5/7/2019

prepared by

Burns & McDonnell Engineering Company, Inc.
La Jolla, California

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LIST OF ABBREVIATIONS

Abbreviation	Term/Phrase/Name
AC	alternating current
ACSR	aluminum conductor Steel reinforced
ACSS	aluminum conductor steel supported
APLIC	Avian Power Line Interaction Committee
BCI	Bat Conservation International
BCR	Bird Conservation Region
BGEPA	Bald and Golden Eagle Protection Act
BISON-M	Biota Information System
BMPs	Best Management Practices
Burns & McDonnell	Burns & McDonnell Engineering Company, Inc.
CDBG	Community Development Block Grant
CFR	Code of Federal Regulations
CO	Carbon dioxide
DNH	Determination of No Hazard
EPA	U.S. Environmental Protection Agency
ER	Environmental Report
ESA	Endangered Species Act
ETZ	extraterritorial zone
ETZA	Extraterritorial Zoning Authority
ETZC	Extraterritorial Zoning Commission
FAA	Federal Aviation Administration

Abbreviation	Term/Phrase/Name
FHWA	Federal Highway Administration
GAP	USGS Gap Analysis Program
GLO	General Land Office
GRT	Gross Receipts Tax
IBA	Important Bird Areas
IPaC	Information, Planning, and Consultation System
IRB's	Industrial Revenue Bonds
kcmil	Thousand Circular Mil
kV	kilovolt
MBTA	Migratory Bird Treaty Act
MW	megawatt
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-SWQB	New Mexico Environment Department Surface Water Quality Bureau
NO_x	Carbon monoxide
NWI	National Wetlands Inventory
NWP	Nationwide Permit

Abbreviation	Term/Phrase/Name
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
PM	particulate matter
PM	Particulate matter
PPA	Power Purchase Agreements
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	USDA Soil Survey Geographic
SWCD	Soil and Water Conservation District
SWPPP	Stormwater Pollution Prevention Plan
UDP	Unanticipated Discovery Protocol
UDP	Unanticipated Discovery Protocol
USGS	U.S. Geological Survey
VOCs	Volatile organic compounds
WMP	Water Management Plan
WOTUS	Waters of the U.S.

1.0 SUMMARY

This report responds to the requirement of the New Mexico Public Regulation Commission (the Commission) for a report, in the form provided in 40 C.F.R. Section 1502.10, for location of transmission lines of 230 kilovolt (kV) or greater associated with a large-capacity power plants capable of 300 megawatts (MW) or more of generation that do not require an Environmental Assessment or Environmental Impact Statement pursuant to the National Environmental Policy Act. The New Mexico location control statute, NMSA 1978, Section 62-9-3.E states that the Commission is required to approve an application for the location of generating plants capable of 300 MW or more unless it finds such facilities will not comply with applicable air and water pollution control standards and regulations. Moreover, NMSA 1978, Section 62-9-3F provides that the Commission shall approve the location of the transmission line unless the Commission finds that the location will unduly impair important environmental values.

Clines Corners Wind Farm, LLC (Applicant), which is owned by a joint venture between Orion Renewable Energy Group, LLC and MAP Renewable Energy, is proposing to locate a transmission line and related substation facilities in Torrance and Guadalupe counties, New Mexico. These electrical facilities are anticipated to be 345-kV alternating current (AC) lines (Clines Corners Gen-Tie System, or Gen-Tie System) and the associated right-of-way (ROW), which interconnect up to approximately 480 MW of wind-generated electricity from the proposed Clines Corners Wind Farm Project (Clines Corners Wind Farm Project or Project) to a proposed new 345-kV merchant transmission line [Western Spirit] and switchyard, located in the vicinity of the existing El Cabo Wind Farm project (Point of Interconnection). The proposed gen-tie line will be 345-kV and would have enough capacity to accommodate all proposed phases of the Project. It will originate at a Project substation and head in a westerly direction across private land for approximately 18.72 miles, depending on final location. The gen-tie line crosses the U.S. Highway 285 ROW and continues in a westerly direction to the Point of Interconnection on state lands. Discussions with the New Mexico Department of Transportation (NMDOT) for the use of the highway ROW are ongoing and an application for such use will be submitted [to NMDOT]. The Clines Corners Gen-Tie System will require a ROW width of approximately 150 feet across private land for which Applicant has obtained. Applicant is requesting a ROW width determination pursuant to NMSA 1978, §62-9-3.2 to the extent such approval may be required by law.

The Clines Corners Wind Farm will be located on approximately 39,580 acres of private land in Torrance and Guadalupe counties. As planned, the Clines Corners Wind Farm will likely consist of wind turbines having a rated nameplate capacity between 2 and 4.2 MW split between the two counties. The Applicant

will determine the final number of wind turbines planned for each county following engineering analysis and micro siting to avoid or mitigate any unforeseen or unanticipated issues. The Clines Corners Wind Farm is expected to generate approximately 2,000,000 MWh per year of clean, renewable energy. The Applicant will determine the final number and location of wind turbines later in the development process following engineering analysis and micro siting, with the Applicant providing final numbers and locations to the Counties in which the development will occur.

In addition to wind turbines, there will be one or more Operations and Maintenance (O&M) buildings, underground (and if required by localized terrain, overhead) power collection lines, one Project substation with electrical transforming capabilities (dependent on final electrical design), service access roads, up to 4 permanent meteorological monitoring (MET) towers, and related facilities and equipment.

Collection lines of 34.5-kV will connect each of the turbines in the Clines Corners Wind Farm to a newly proposed substation, which will be located within the area where the Clines Corners Wind Farm will be constructed (Clines Corners Wind Farm). The collection lines are expected to be buried underground unless local conditions make burial impracticable. Although information about the Clines Corners Wind Farm, as a whole, is discussed herein, the subject of this Environmental Report (ER) is the Clines Corners Gen-Tie System Corridor. The Clines Corners Gen-Tie System Corridor consists of a 1-mile-wide corridor inclusive of the 150-foot gen-tie line ROW.

Project construction and start of commercial operations is planned for as early as 2020. Additional phases of the Project may be constructed, and would have a 2021 or later commercial operations timeline. The Clines Corners Wind Farm is designed to generate electricity for approximately 30 years, with the possibility to extend energy generation beyond this period.

This ER addresses the affected environment (existing condition) for the environmental values provided in New Mexico Statutes Annotated (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). 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 Clines Corners Wind Study Area (Exhibit 1), which consists of the Clines Corners Gen-Tie

System Corridor (inclusive of the step-up substation and switchyard) and Clines Corners Wind Farm. The analysis is based off of field surveys of the proposed Project site and vicinity as well as desktop reviews of publicly available information gathered from a variety of data sources. The environmental consequences (potential impacts) for the resources identified above were addressed to determine whether the proposed transmission line, step-up substation and switchyard (collectively, Gen-Tie System) would "unduly impair important environmental values," as provided in NMSA 1978, Section 62-9-3.F. Impact evaluations for each resource are discussed in the context of the Clines Corners Gen-Tie System Corridor alongside Best Management Practices (BMPs) that can help manage impacts.

2.0 INTRODUCTION AND PURPOSE AND NEED

The Applicant is proposing to locate in Torrance County, New Mexico, approximately 18.72 miles of 345-kV transmission line, related facilities and ROW (Exhibit 1). Although information about the Clines Corners Wind Farm as a whole is discussed herein to provide overall project context, the New Mexico statutes only require evaluation of the Clines Corners Gen-Tie System. The following terms used in this report are defined as follows:

2.1 Purpose and Need

The purpose and need of the Clines Corners Gen-Tie System is to connect the Clines Corners Wind Farm to the Point of Interconnection. The proposed gen-tie line will be 345-kV and would have enough capacity to accommodate all proposed phases of the Project.

The Applicant's objective is to increase transmission capacity for renewable energy. The wind resource in New Mexico is one of the strongest and most abundant in the country. New Mexico, however, lacks adequate transmission infrastructure to bring the resource to western markets. The proposed Clines Corners Gen-Tie System is necessary to address the lack of transmission segments with available transfer capacity in New Mexico to deliver a high-demand renewable resource to western markets. The Clines Corners Gen-Tie System would transmit electricity to market generated by renewable energy facilities that are or would be located in east-central New Mexico. The Applicant's objectives for the proposed Clines Corners Gen-Tie System include the following:

- improve access to renewable energy at a competitive cost by facilitating the transfer of up to 480 MW of renewable power from east-central New Mexico to markets with increasing demands;
- provide a cost-efficient, practicable, and reliable interconnection that facilitates the transfer of wind- and/or solar-generated electricity;
- assist in satisfying the growing consumer demand for renewable energy; and,
- provide safe and efficient transmission infrastructure consistent with electric service reliability pursuant to prudent utility practice.

The Clines Corners Gen-Tie System is being constructed in connection with the generation of renewable energy within Torrance and Guadalupe counties in the State of New Mexico. This is consistent with the 2015 "New Mexico Energy Policy & Implementation Plan" published by the Governor's office.

2.2 Decisions to be Made

The New Mexico location statute, NMSA 1978, Section 62-9-3.F provides the New Mexico Public Regulatory Commission shall approve the location of the transmission line unless the Commission finds that the location will unduly impair important environmental values. This report 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

Applicant is proposing to construct an overhead 345-kV transmission line to connect the Clines Corners Wind Farm to a proposed new 345-kV merchant transmission line [Western Spirit], to be located within the Clines Corners Gen-Tie System Corridor. The final transmission line route will be determined with respect to several factors, such as, the final turbine layout, siting of the step-up substation and switchyard 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 proposed action is to construct, operate, and maintain a new 345-kV transmission line located on the centerline within the Clines Corners Gen-Tie System Corridor. It is anticipated that there will be approximately 18.72 miles of 345-kV transmission line along with the related substation facilities that would transport electricity generated at the Clines Corners Wind Farm to a proposed new 345-kV merchant transmission line [Western Spirit]. The proposed action also includes construction, operation, and maintenance of the required step-up substation. The step-up substation would convert lower voltage (34.5-kV) electricity generated at the Clines Corners Wind Farm and increase it to higher voltage electricity (345-kV) for interconnection to the transmission line. A switchyard located at or adjacent to the substation will also be constructed.

3.2.1 Transmission Line

Electricity generated by the wind turbines would be gathered via buried electrical collection system lines (unless localized terrain requires such cables to be above ground) that will be charged at 34.5-kV. The collection system circuits would be gathered at one of the Clines Corners Wind Farm step-up substation where the voltage would be increased from 34.5-kV to 345-kV via large power transformers. The Clines Corners Wind Farm step-up substation would be connected to each other via a 345-kV transmission line that would connect to a proposed new 345-kV merchant transmission line [Western Spirit]. The substation, which would likely be approximately five to 10 acres in size, would consist of electrical switches, circuit breakers, step-up transformers, meters, and related equipment that transforms the collection system voltage from 34.5 kV to 345-kV. The transmission line 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 ROW width of approximately 150 feet. The Applicant is actively

pursuing several options for delivering energy generated by the Project to the electrical grid. These include two interconnection requests filed with PNM which PNM is currently studying:

- IA-PNM-2017-16: 480 MW of wind energy
- IA-PNM-2017-17: 100 MW of battery storage

Power generated by the Project will be carried by the gen-tie line from Project substation across privately-owned land. The gen-tie line crosses the U.S. Highway 285 right-of-way and continues in a westerly direction to the Point of Interconnection.

3.2.1.1 Structures

The proposed 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 feet above the existing ground, depending on terrain and span length.

Structures spans would typically be 600 to 1,300 feet 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 feet, 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 1272-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 feet, 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 feet

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 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

The step-up substation 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. While the exact location of the substation will be determined after micrositing of Project facilities, it will be located within the area where the Clines Corners Wind Farm will be constructed and be connected to power collection lines which are located underground or, if required by localized terrain, overhead. The principal function of the substation is to increase the voltage from the collector system (34.5-kV) to the voltage of the transmission line (345-kV), which would transport the electricity of the proposed Clines Corners Wind Farm to the Point of Interconnection. The step-up substation would be located within a fenced area with barbed wire at the top for security purposes. The fence would be designed in accordance with industry standards to provide safety and security. The 345-kV gen-tie line will carry the electricity from the Project substation to U.S. Highway 285 in a westerly direction to the Point of Interconnection.

3.2.3 Right-of-Way Acquisition

ROW width for the transmission line would be 150 feet (75 feet each side of the transmission line). A 150-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 substation. Some public road upgrades may be necessary and will be negotiated through the Torrance or Guadalupe County Roads Maintenance Departments and private landowners. Transmission line facilities on private lands would be obtained as private easements or ROWs.

3.2.4 Access Roads

The Clines Corners Gen-Tie System 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 proposed 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.

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.

3.2.5 Laydown / Material Staging Areas

Temporary laydown material staging areas would be required to temporarily store materials and equipment and to assemble structures for the duration of construction of the Clines Corners Gen-Tie System. These areas will be established within or near the Project area. They will also be used as parking and storage areas for construction vehicles and construction employees' personal vehicles, and as storage areas for construction equipment. Typically, there is one staging area for each wind turbine string and approximately three to five larger central staging areas within or near the Project area.

The staging areas would be up to 300 feet by 300 feet in size and located at level areas in close proximity to existing roads within the area. 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. Construction staging areas will be developed by grading and compacting the subsoil. Approximately 8 inches of base substrate (e.g., gravel, crushed rock, etc) would then be installed to create a level working yard. Electric and communication lines would be brought in from distribution poles to allow connection with construction trailers, as necessary. Upon completion of construction, utilities and

gravel would be removed from staging areas that do not overlap with the Project facilities, and the staging areas would be restored to substantially pre-construction contours and conditions. The staging areas would be revegetated and reclaimed after completion of the Clines Corners Gen-Tie System.

3.2.6 Construction Activities

The proposed Clines Corners Gen-Tie System will use standard construction and operation procedures used for other transmission projects in the western United States. Project construction will be managed by qualified internal and external personnel to minimize disruption to the local community. Using data collected for the Project site such as geotechnical information, environmental conditions, and site topography, the Applicant will develop a set of site-specific construction specifications for various components of the Project. The design specifications will comply with construction standards established by the following industry practice groups:

- American Concrete Institute
- Institute for Electrical and Electronic Engineers
- National Electric Code
- National Fire Protection Agency
- Construction Standards Institute

The Project engineering team will ensure that all aspects of the Project design specifications, as well as actual onsite construction, comply with applicable Federal, State, and County rules and regulations. The Project owner or contractor will communicate with County enforcement officers in order to assure that all aspects of Project construction are properly communicated and understood.

It is estimated that the Project will bring approximately 214 peak construction jobs. and will occur most commonly during daylight hours. There will be approximately 20 new permanent jobs for the duration of the operations phase. The construction of the Gen-Tie is expected to take approximately 12-18 months, depending on the results of interconnection studies, final design and adverse weather conditions. Construction and start of commercial operations of the Project are planned for as early as 2020. Additional phases of the Project are currently being planned and are expected to have a 2021 or later construction and commercial operations timeline. The Project is designed to generate electricity for approximately 30 years, with the possibility to extend energy generation beyond this period.

3.2.6.1 Sequence of Activities

Following issuance of all necessary permits, the construction of the Clines Corners Gen-Tie System 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; (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 Clines Corners Gen-Tie System 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 Clines Corners Gen-Tie System would generally be located in close proximity to many public roads in order to facilitate access the ROW, to the extent practicable. All construction traffic (including vehicle, equipment, and crane) would be limited to designated roads and within construction corridors and staging areas 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. This may involve clearing vegetation and crushing vegetation for overland travel. For transport roadways, clearing is typically conducted to establish an approximately 40 ft corridor centered on the road alignment. Clearing would be conducted by mechanical means, using heavy equipment to remove debris in the corridors. Clearing activities would prepare the areas for road construction, collection system trenching, and crane walking. 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.

The Project site would be accessed from U.S. Highway 285 and the Berlier Ranch Road from which new private access site roads would be constructed, thereby minimizing traffic impacts on local roads. The

northern portion of the wind farm located in Torrance County will be accessible from Guadalupe County roads (e.g., Ojo Road, Mesa de Leon Road, and Highland Road). A Driveway Access Permit from the New Mexico Department of Transportation (NMDOT) would be obtained as required for access points from state roads. These driveway access points would be designed and constructed in accordance with NMDOT standards and guidelines. New access roads on private land, and improvements to existing roads (if any) with the approval of applicable road authorities, would be designed under the direction of a licensed engineer. All new private access roads would be constructed and maintained in accordance with appropriate standards. Care would be taken during design and construction of access roads to minimize potential erosion and ground disturbance, and to avoid sensitive resources and unsuitable areas.

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.

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

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 is 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.

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 Substation and Switchyard

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

At the conclusion of the construction phase of the Project, areas that have been cleared and that do not contain permanent structures or facilities would be revegetated with a native seed mix. This will assist in reducing erosion and promoting a return to the site's natural condition. Restored areas would include road edges, crane paths, temporary roads, and staging areas. This process would generally involve the following sequence of activities:

- Removal of gravel or other temporary fill
- Decompaction of compacted subsoils using a deep ripper
- Re-establishing pre-construction contours to the extent practicable
- Disking and removal of stones following the spreading of topsoil (as applicable)
- Seeding with a native seed mix

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. At the final conclusion of construction and restoration, silt fences and temporary sediment and erosion control measures would be removed as necessary.

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.

3.2.7 Operation and Maintenance

Operation and maintenance of the Clines Corners Wind Farm is anticipated to include the following.

3.2.7.1 Operation

After the constructed Gen-Tie has been energized, land uses compatible with safety regulations and activities associated with operations and maintenance (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 Gen-Tie. 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 Gen-Tie ROW would be grounded to prevent electrical shock and to meet NESC requirements.

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. U.S. Highway, State, and county road use and crossings in Torrance or Guadalupe Counties may be required and would be coordinated with the appropriate jurisdictions, including New Mexico Department of Transportation and the Torrance or Guadalupe County Roads Maintenance Department. Final engineering design would determine specific road crossing requirements (see additional discussion in Section 5.20).

3.2.8 Decommissioning

Decommissioning of the Clines Corners Wind Farm will involve removal of all wind facilities. The Applicant will take appropriate measures to restore the development area to its pre-existing conditions. The Applicant's 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 Project site. 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 feet 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 the Applicant and no longer in use will be cleaned and removed from the Project site.
- **Substation**: The substation will be cleared, cleaned and removed from the Project site and any liquids, greases, etc. contained in the substation 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 feet below the grade of the land affected. The Applicant 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 Project site. The Applicant may request that the O & M building be assigned to a new owner.
- **Restoration of property.** To the extent reasonably practicable, the Clines Corners Winds Project site will be returned to pre-existing conditions. The Applicant 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; 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 Clines Corners Gen-Tie System Corridor as well as the Clines Corners Wind Farm. The Clines Corners Wind Farm is shown in Exhibit 2 alongside the Clines Corners Gen-Tie System Corridor. Final siting of transmission facilities will depend upon the results of 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 150-foot ROW of the transmission line and associated facilities, including areas of interconnection and access roads for maintenance or operation of the line and is called the Clines Corners Gen-Tie System Corridor. This area is shown in Exhibit 2. In an effort to provide additional context, this section also presents the existing conditions of resources that could potentially be affected by the wind generation systems.[1] This area of consideration is called the Clines Corners Wind Farm and is also shown in Exhibit 2.

1 Note that, to the extent that resource avoidance (e.g., cultural, wetland resources) drives micro-siting outside of the transmission corridor, such changes would still remain within the Clines Corners Wind Farm.

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 Guadalupe counties; the Clines Corners Gen-Tie System Corridor; and the Clines Corners Wind Farm.

- New Mexico Environmental Department. Air Quality Bureau, Air Monitoring Network. Accessed March 2019 from https://www.env.nm.gov/air-quality/air-monitoring-network-2/.
- U.S. Environmental Protection Agency (EPA) in New Mexico. Accessed March 2019 from https://www.epa.gov/nm.

4.2.2 Current Conditions and Trends, Regional Overview – Clines Corners Gen-Tie System Corridor

Air quality in Torrance and Guadalupe counties in which the Clines Corners Gen-Tie System Corridor is located is generally considered very good. For all criteria pollutants, the counties are in attainment. New Mexico Environmental Department (NMED), Air Quality Bureau reports Torrance and Guadalupe counties are in attainment of all national and state ambient air quality standards. The counties' attainment status is reflective of low population density and land use dominated by agriculture. Torrance and Guadalupe counties are below national and New Mexico state averages reported to EPA (EPA, 2019) for air quality index scores, levels of ozone, and levels of particulate matter, all of which are indicative of good regional air quality above the national and state averages.

4.2.3 Current Conditions and Trends, Regional Overview – Clines Corners Wind Farm

No unique air quality conditions are known to occur within the Clines Corners Wind Farm. Air quality conditions within the Clines Corners Wind Farm would be similar to what is described above for Torrance and Guadalupe counties based on low population density and land use in the areas.

4.3 Noise

4.3.1 Data Sources

The following data sources were reviewed to assess the existing noise conditions of Torrance and Guadalupe counties; the Clines Corners Gen-Tie System Corridor; and the Clines Corners Wind Farm.

- U.S. Census Bureau, *Quick Facts*. Accessed March 2019 from https://www.census.gov/quickfacts/fact/table/US/PST045217.

- Comprehensive Land Use Plan for Torrance County, New Mexico. (July 29, 2003).

4.3.2 Current Conditions and Trends, Regional Overview – Clines Corners Gen-Tie System Corridor

Torrance and Guadalupe counties are rural counties located in in central New Mexico with population density below the state and national averages. The counties generally have relatively low ambient noise levels due to the rural setting. Noise in the Clines Corners Gen-Tie System Corridor 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 aircraft within the airspace.

4.3.3 Current Conditions and Trends, Regional Overview – Clines Corners Wind Farm

No unique noise is known to occur within the Clines Corners Wind Farm. Noise within the Clines Corners Wind Farm would be similar to what is described above for the Clines Corners Gen-Tie System Corridor, based on low population density and land uses present in the area.

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 Guadalupe counties; the Clines Corners Gen-Tie System Corridor; and the Clines Corners Wind Farm.

- Broadhead, R.F. 1997. Subsurface geology and oil and gas potential of the Estancia Basin, New Mexico. *New Mexico Bureau of Geology and Mineral Resources Bulletin 157*, 54p. Socorro, New Mexico.
- *The Drillings*. 2019. Guadalupe and Torrance Counties, New Mexico. Accessed March 2019 from https://thedrillings.com/usa/new-mexico/.
- USDA Soil Survey Geographic (SSURGO) Database for New Mexico (2019). Accessed March 2019 from http://apps.cei.psu.edu/soiltool/.

4.4.2 Current Conditions and Trends, Regional Overview – Clines Corners Gen-Tie System Corridor

The Clines Corners Gen-Tie System Corridor 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 river sediments. The bedrock itself is mostly Permian aged sedimentary rock that had been deposited in the ocean on a continental shelf. Please refer to Exhibit 3 for a summary of soils and Exhibit 6 for a summary of the parent material in the in the Clines Corners Gen-Tie System Corridor. The parent material underlaying the Clines Corners Gen-Tie System Corridor is show below in Table 4-1.There are no identified hydrocarbon extraction activities or mines located along the transmission line (The Drillings 2019). In Torrance County there are 397 exploration leases, none of which are active leases (The Drillings 2019). Torrance County has had 2,464 registered mines extracting iron, potassium, uranium, barium and silver and only 23 mines are currently active (The Drillings 2019). Please refer to Exhibit 4 for a summary of oil and gas wells, and Exhibit 5 for a mineral resources map summary.

Table 4-1: Clines Corners Gen-Tie System Corridor Parent Material

Parent Material	Acres
alluvium derived from igneous and sedimentary rock	3,065
alluvium derived from igneous, metamorphic and sedimentary rock	3,974
alluvium derived from limestone	459
alluvium derived from metamorphic and sedimentary rock	607
alluvium derived from sedimentary rock	272
eolian deposits derived from metamorphic and sedimentary rock	337
eolian deposits derived from sedimentary rock over alluvium derived from igneous, metamorphic and sedimentary rock	1,024
lacustrine deposits derived from sedimentary rock	52
residuum weathered from sandstone	1,530
**Total Acreage does not include any Unknown parent material areas occurring within the Project Area*	

Source: USDA Soil Survey Geographic (SSURGO) Database for New Mexico (2019)

4.4.3 Current Conditions and Trends, Regional Overview – Clines Corners Wind Farm

Geological conditions for the Clines Corners Wind Farm are similar to those as previously described for the Clines Corners Gen-Tie System Corridor. Please refer to Exhibit 3 for a summary of soils and Exhibit 6 for a summary of the parent material in the in the Clines Corners Wind Farm.

There are currently 817 oil/natural gas leases in Guadalupe County on BLM administered lands (The Drillings 2019). Most of these leases are to support exploration drilling projects for hydrocarbons; however, there are no major oil and natural gas basins in the county. Guadalupe County has 4,194 oil and natural gas leases (The Drillings 2019). There are currently no major exploration activities within the Clines Corners Wind Farm (Exhibit 4).

Mining has always been important to the economies of both Torrance and Guadalupe counties, but due to many of the mineral deposits being limited or the extraction process too expensive, all mines within the Clines Corners Wind Farm have been shut down. Guadalupe County has had 48 registered mining claims extracting copper, calcium, uranium, gypsum and gemstones, all of these mines however are closed (The Drillings 2019). It is to be noted that the areas around the abandoned mines may contain contaminated soils originating from extraction and processing activities (Exhibit 5). The parent material underlaying the Clines Corners Wind Farm is show below in Table 4-2.

Table 4-2: Clines Corners Wind Farm Parent Material

Parent Material	Acres
alluvium derived from igneous and sedimentary rock	5,557
alluvium derived from igneous, metamorphic and sedimentary rock	404
alluvium derived from limestone	576
alluvium derived from metamorphic and sedimentary rock	6,579
colluvium and slope alluvium derived from redbed sandstone and shale	65
eolian and slope alluvium derived from redbed sandstone and shale	2,822
eolian deposits derived from metamorphic and sedimentary rock	1,603
eolian deposits derived from sedimentary rock over alluvium derived from igneous, metamorphic and sedimentary rock	841
eolian material, colluvium, residuum, and slope alluvium derived from sandstone and shale	2,807
eolian material, colluvium, slope alluvium and residuum derived from sandstone and shale	6,313
eolian materials and slope alluvium derived from limestone, sandstone, and shale	9,151
eolian materials, slope alluvium and residuum derived from sandstone	554
residuum weathered from sandstone	896
slope alluvium derived from limestone, sandstone, and shale	1,500
**Total Acreage does not include any Unknown parent material areas occurring within the Project Area*	

Source: USDA Soil Survey Geographic (SSURGO) Database for New Mexico (2019)

4.5 Soil Resources

4.5.1 Data Sources

The following data source was reviewed to assess the existing soil resources of Torrance and Guadalupe counties; the Clines Corners Gen-Tie System Corridor; and the Clines Corners Wind Farm.

- USDA Soil Survey Geographic (SSURGO) Database for New Mexico (2019). Accessed March 2019 from http://apps.cei.psu.edu/soiltool/.

4.5.2 Current Conditions and Trends, Regional Overview – Clines Corners Gen-Tie System Corridor

Table 4-3 summarizes the existing soil resources located within the Clines Corners Gen-Tie System Corridor. For a visual representation of the soils locations within the Clines Corners Gen-Tie System Corridor, refer to Exhibit 3.

Table 4-3: Clines Corners Gen-Tie System Corridor Soil Coverage Types

Soil Type	Acres
Bernal-Travessilla fine sandy loams	1,529.6
Chilton-La Fonda complex, 1 to 9 percent slopes	971.7
Clovis loam, 0 to 5 percent slopes	161.4
Clovis soils, 0 to 5 percent slopes, eroded	4.4
Clovis-Dean loams, 0 to 5 percent slopes	477.5
Caliche pit	21.9
Dean loam, 1 to 9 percent slopes	853.6
Hagerman fine sandy loam, 1 to 5 percent slopes	63.9
Hagerman-Dean complex, 1 to 5 percent slopes	544.7
Harvey-Dean loams, 1 to 9 percent slopes	344.0
La Fonda loam, 1 to 9 percent slopes	272.3
La Fonda-Alicia loams, 1 to 9 percent slopes	0.1
La Fonda-Rock outcrop complex	458.9
Laporte-Rock outcrop complex	458.7
Pastura loam, 1 to 9 percent slopes	336.7
Penistaja fine sandy loam, 1 to 6 percent slopes	1,024.1
Playas	51.8
Prewitt and Manzano soils	252.8
Rock land	228.5

Rock outcrop-Pinon-La Fonda complex	15.8
Tapia loam, 0 to 5 percent slopes	1,661.0
Tapia-Dean loams, 0 to 5 percent slopes	2,312.7
**Total Acreage does not include any Unknown parent material areas occurring within the Wind Farm*	

Source: USDA Soil Survey Geographic (SSURGO) Database for New Mexico (2019)

4.5.3 Current Conditions and Trends, Regional Overview – Clines Corners Wind Farm

Table 4-4 summarize the existing soil resources located within the Clines Corners Wind Farm of each county. For a visual representation of the soils locations within the Clines Corners Wind Farm, refer to Exhibit 3.

Table 4-4: Clines Corners Wind Farm Soil Coverage Types

Soil Type	Acres
Alicia loam, 1 to 6 percent slopes	19
Badland	73.7
Bernal-Travessilla fine sandy loams	895.6
Clovis loam, 0 to 5 percent slopes	627.6
Clovis and scholle soils	2,957.3
Dean loam, 1 to 9 percent slopes	602.4
Hagerman fine sandy loam, 1 to 5 percent slopes	2,292
Hagerman-Dean complex, 1 to 5 percent slopes	3,863.2
Harvey-Dean loams, 1 to 9 percent slopes	551.3
Ignacio fine sandy loam, 1 to 5 percent slopes	423
Kim-Pastura-Tapia loams	0
Kim-Pinon-Witt loams	1.2
Laporte-Rock outcrop complex	576.3
Pastura loam, 1 to 9 percent slopes	1,603.1
Penistaja fine sandy loam, 1 to 6 percent slopes	841.2
Prewitt and Manzano soils	799.5
Steep rock land	34.3
Tapia-Dean loams, 0 to 5 percent slopes	404.1
Playas	30.9
Regnier-Rock outcrop-Lacoca complex, 30 to 80 percent slopes	64.5
Manzano loam, 0 to 2 percent slopes, rarely flooded	1,500
Clovis fine sandy loam, 0 to 3 percent slopes	2,822.4
Harvey-Darvey complex, 1 to 5 percent slopes	800.6
Travessilla-Rock outcrop complex, 30 to 75 percent slopes	6,312.6

Soil Type	Acres
Travessilla-Hagerman-Rock outcrop complex, 1 to 15 percent slopes	2807
Clovis loam, 0 to 3 percent slopes	606.8
Palma loamy fine sand, 1 to 5 percent slopes	305.1
Clovis-Pastura association, 0 to 3 percent slopes	58
Pastura-Harvey association, 0 to 8 percent slopes	3,161.5
Pastura loam, 0 to 5 percent slopes	564.7
Palma fine sandy loam, 0 to 5 percent slopes	449.9
Flugle loamy fine sand, 1 to 5 percent slopes	2,592
Bond-Hagerman complex, 1 to 10 percent slopes	553.9
La Fonda-Palma fine sandy loams, 5 to 15 percent slopes	612.3
**Total Acreage does not include any Unknown parent material areas occurring within the Wind Farm*	

Source: USDA Soil Survey Geographic (SSURGO) Database for New Mexico (2019)

4.6 Paleontological Resources

4.6.1 Data Sources

The following data sources were reviewed to assess paleontological resources of Torrance and Guadalupe counties; the Clines Corners Gen-Tie System Corridor; and the Clines Corners Wind Farm.

- Anderson, O.J., Jones, G.E., and Green, G.N. 1997. *Geological map of New Mexico: U.S. Geological Survey Open-file Report 97-52*. Accessed March 2019 from http://pubs.er.usgs.gov/publications/ofr9752.
- Lucas, S.G., 1993. The Chinle Group: revised stratigraphy and biochronology of Upper Triassic Nonmarine strata in the western United States. *Museum of Northern Arizona Bulletin, v. 59*, p. 27-50.

4.6.2 Current Conditions and Trends, Regional Overview – Clines Corners Gen-Tie System Corridor

No formal paleontological work has been completed in the Clines Corners Gen-Tie System Corridor. The oldest geology in the area consists of Permian deposits of the San Andreas Formation, Glorieta sandstone, and Artesia Group, all of which would have a low probability for the presence of paleontological deposits. These formations are from the Permian Period (298.9 – 252.17 my). Since that period, the original deposits sandstone and limestone have metamorphosed into dolomite and other types of rocks that are called *textually mature*; fossils have not survived that metamorphosis. The only fossils that are recovered from the Permian are either in very fine silts or in now-coal formations; neither of which are found in this

area of New Mexico. The San Andreas Formation consists of deposits of limestone that create a karst landscape, which could contain potholes and caves. The caves and potholes within karst landscapes in similar areas of New Mexico have been known to contain bones of megafauna from the Pleistocene; however, any discoveries which may occur during construction would be managed through an Unanticipated Discovery Protocol (UDP).

The Santa Rosa Formation of the Chile Group and Garita Creek, Trujillo, Bull Canyon, and Redonda Formations of the Upper Chinle Group. These formations date form the Triassic Period and consist primarily of siltstones and mudstones with lenses of sandstone and conglomerate with thickness of approximately 161 meters. These formations are fossiliferous consisting of finds of archosaurs, crocodilians, and dinosauriforms. While no fossils have been recorded within the project area, the geological formations do indicate there is a low-to-moderate possibility that formations containing fossils could be present. Any discoveries which may occur during construction would be managed through an Unanticipated Discovery Protocol (UDP).

4.6.3 Current Conditions and Trends, Regional Overview – Clines Corners Wind Farm

The potential for paleontological resources in the Clines Corners Wind Farm is similar to that of the Clines Corners Gen-Tie System Corridor.

4.7 Water Resources

4.7.1 Data Sources

The following data sources were reviewed to assess the existing water resources of Torrance and Guadalupe counties; the Clines Corners Gen-Tie System Corridor; and the Clines Corners Wind Farm.

- 2011 National Land Cover Database (NLCD). Homer, C.G., Dewitz, J.A., Yang, L., Jin, S., Danielson, P., Xian, G., Coulston, J., Herold, N.D., Wickham, J.D., and Megown, K., 2015, *Completion of the 2011 National Land Cover Database for the conterminous United States-Representing a decade of land cover change information*. *Photogrammetric Engineering and Remote Sensing*, v. 81, no. 5, p. 345-354
- Anderson, O.J., Jones, G.E., and Green, G.N. 1997. *Geological map of New Mexico: U.S. Geological Survey Open-file Report 97-52*. Accessed March 2019 from http://pubs.er.usgs.gov/publications/ofr9752.

- Biota Information System of New Mexico (BISON-M). 2019. Report County Federal/State Species Status for Torrance and Guadalupe Counties. New Mexico Department of Game and Fish (NMDGF), Santa Fe, New Mexico. Data query last accessed online March 2019. Homepage: http://www.bison-m.org; County species lists and species accounts available online from at: http://www.bison-m.org/reports.aspx?rtype=9
- FEMA Flood Map Service Center. Accessed March 2019 from https://msc.fema.gov/portal/search.
- New Mexico Crucial Habitat Assessment Tool (NM CHAT). 2019. Crucial Habitat Data: New Mexico Habitat Information Extracted from Spatial Data. NMCHAT, Santa Fe, New Mexico. Accessed March 2019. Available online: http://nmchat.org/data-download.html
- New Mexico Department of Game and Fish (NMDGF). 2012. Threatened and Endangered Species of New Mexico, 2012 Biennial Review. New Mexico Department of Game and Fish Conservation Services Division 2012 Biennial Review and Recommendation. October 1, 2012. Available online at: http://www.wildlife.state.nm.us/download/conservation/threatened-endangered-species/biennial-reviews/2012-Biennial-Review-Executive_Summary_and_Full_Text.pdf
- U.S. Department of Agriculture Natural Resources Conservation Service (NRCS). *Eastern Estancia Watershed (HUC8 13050002).* Accessed March 2019 from https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs144p2_068018.pdf
- U.S. Department of Agriculture Natural Resources Conservation Service (NRCS). *Pintada Arroyo Watershed (HUC8 13060002).* Accessed March 2019 from https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs144p2_068018.pdf
- U.S. Environmental Protection Agency (EPA) in New Mexico. Retrieved March 2019 from https://www.epa.gov/nm.
- U.S. Fish and Wildlife Service (USFWS). 2008. Birds of Conservation Concern 2008. March 2019. Division of Migratory Bird Management. Arlington, Virginia. Available online: https://www.fws.gov/migratorybirds/pdf/grants/BirdsofConservationConcern2008.pdf
- USFWS National Wetlands Inventory (NWI) Data Mapper Accessed March 2019 from https://www.fws.gov/wetlands/data/mapper.html.
- USGS National Hydrography Dataset (NHD) Accessed March 2019 from https://nhd.usgs.gov/tools.html.
- West Inc. (2014). Tier 1 Site Evaluation for the Clines Corners Area of Potential Wind Energy Development.

- West Inc. (2018a). Tier 2 Site Characterization Study Clines Corners Wind Resource Area Guadalupe, San Miguel, and Torrance Counties, Mew Mexico

4.7.2 Current Conditions and Trends, Regional Overview – Clines Corners Gen-Tie System Corridor

The combined Clines Corners Gen-Tie System Corridor and Clines Corners Wind Farm encompasses approximately 50,400 acres of private land within the Southwestern Tablelands and Arizona/New Mexico Mountains Level III Ecoregions (U.S. Environmental Protection Agency, 2019), located within Torrance and Guadalupe Counties. Landcover/vegetation types are primarily a mix of herbaceous/grasslands and shrub/scrub. 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*). Common vegetation of the Arizona/New Mexico Mountain ecoregion includes ponderosa pine (*P. ponderosa*), junipers, oaks (*Q. spp*), and yuccas (*Yucca spp*).

A review of the 2011 NLCD (NLCD, 2011; Homer et al., 2015) identified the following major cover types in the Clines Corners Gen-Tie System Corridor: Grassland/Herbaceous 90.52 percent, Shrub/Scrub 8.63 percent, Developed, Open Space .73 percent, Developed, Low Intensity 0.02 percent, Barren Land Rocks, Sand, Clay .07 percent, and Evergreen Forest .03 percent. Table 4-5 below summarizes the NLCD cover types in the Clines Corners Gen-Tie System Corridor.

The Clines Corners Wind Farm is situated in various watersheds throughout the area of development (Exhibit 7). Specifically, development would occur within the Eastern Estancia Watershed (HUC 13050002) and the Pintada Arroyo Watershed (HUC 1306002) (U.S. Geological Survey 2019). The Eastern Estancia Watershed is located in the ancient pluvial lake depression of Lake Estancia (now the Estancia Basin) in the Basin and Range physiographic (NRCS 2019). The western boundary passes close to Cedarville, Eshelman Road east of Culebra and the Perdernal Hills (NRCS 2019). The northern edge of the hydrologic unit is bounded by Perdernal Hills, Lobo Hill, and just east of Canero (NRCS 2019). The eastern edge roughly follows State Highway 54 from Duran to Corona and terminates at Rough Mountain (NRCS 2019). The NHD identifies 657 miles (1,041 km) of water courses in the Eastern Estancia River Watershed. The majority of these courses typically flow intermittently in summer months during periods associated with high intensity convective thunderstorms (NRCS 2019). The Pintada Arroyo watershed lies in the Pecos River Section of the Great Plains Province. Geologically, the bedrock consists of Permian and Triassic aged sedimentary rocks (NRCS 2019). The arroyo is generally dry during most times of the year, and acts as a drainageway during significant precipitation events (NRCS 2019). The arroyo eventually joins with the Pecos River (NRCS 2019).

Surface water features in the vicinity of the Clines Corners Gen-Tie System Corridor include ephemeral drainages and stream channels. Table 4-5 summarizes the NLCD types within the Clines Corners Gen-Tie System Corridor.

Table 4-5: National Land Cover Database Type Clines Corners Gen-Tie System Corridor Acreage

Shape	Area (Acres)	Percent
Barren Land Rocks, Sand, Clay	9	0.07%
Developed, Open Space	88	0.73%
Developed, Low Intensity	2	0.02%
Evergreen Forest	4	0.03%
Shrub/Scrub	1,039	8.63%
Grassland/Herbaceous	10,904	90.52%
Total	**12,046**	**100%**

Source: 2011 National Land Cover Database (NLCD)

Wetlands, playa lakes, floodplains, and streams were inventoried for the Clines Corners Gen-Tie System Corridor. The NWI data documented 41.4 acres of wetlands within the Clines Corners Gen-Tie System Corridor (Table 4-6). The NWI identified wetlands included two wetland types: freshwater emergent wetland, and freshwater pond (Exhibit 8). The Clines Corners Gen-Tie System Corridor has 28-miles of mostly unnamed intermittent or ephemeral stream features and no perennial steams (data from NHD).

The Clines Corners Gen-Tie System Corridor is part of the Southeastern Plains which slope gradually eastward and southeastward. This part of these eastern plains lies within the Pecos River 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, possible 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.

Playa lakes are shallow, clay-lined ephemeral rainwater basins occurring throughout the Great Plains ecoregion. There are estimated to be over 4,000 playa lakes in eastern New Mexico, however, no playa lakes occur within the Clines Corners Gen-Tie System Corridor or Clines Corners Wind Farm (PLJV 2016). The Clines Corners Gen-Tie System Corridor is within an unmapped area, no FEMA floodplains are mapped in this area (FEMA 2019) (Exhibit 9).

Table 4-6: Clines Corners Gen-Tie System Corridor Wetland Table Based on the U.S. Fish and Wildlife Service National Wetland Inventory Data

Wetland Type	Sum of Acres	Percentage
Freshwater Emergent Wetland	38.8	93.7%
Freshwater Pond	2.6	6.3%
Total	**41.4**	**100%**

Source: USFWS NWI Data Mapper (2019c)

4.7.3 Current Conditions and Trends, Regional Overview – Clines Corners Wind Farm

The Clines Corners Wind Farm includes the water resource features similar to those described above for the Clines Corners Gen-Tie System Corridor. The Clines Corners Wind Farm has 201.9 acres of NWI wetlands, 92 miles of mostly unnamed intermittent or ephemeral streams (Table 4-7). No FEMA mapped floodplains are in this area (FEMA, 2019). With the exception of the seasonal riverine systems, most of the wetlands are small man-made stock ponds and/or natural seeps/springs, all of which are likely to be non-connected systems and not considered waters of the US (WEST, 2018a).

Table 4-7: Clines Corners Wind Farm Wetland Table Based on the U.S. Fish and Wildlife Service National Wetland Inventory Data

Wetland Type	Sum of Acres	Percentage
Freshwater Emergent Wetland	40.6	20.1%
Freshwater Pond	26.2	13.0%
Riverine	135.1	66.9%
Total	**201.9**	**100%**

Source: USFWS NWI Data Mapper (2019c)

The Clines Corners Wind Farm includes many of the habitat and ecoregion features similar to those described above for the Clines Corners Gen-Tie System Corridor; however, with the inclusion of the Upper Pecos Watershed (HUC 13060003). The Upper Pecos Watershed is located east-central New Mexico. It covers 2,690,883 total acres (10,890 sq. km). Portions of the Upper Pecos watershed extend into Chavez, DeBaca, Guadalupe, Lincoln, Quay, Roosevelt, and Torrance counties (NRCS 2019). The

NHD identifies 4,123 miles (6,635 km) of water courses in the Upper Pecos River Watershed. The majority of these courses typically flow intermittently in summer months during periods associated with high intensity convective thunderstorms (NRCS 2019). A review of the 2011 NLCD (NLCD, 2011; Homer et al., 2015) identified the following major cover types in the Clines Corners Wind Farm: Grassland/Herbaceous 71.7 percent, Shrub/Scrub 27.5 percent, Barren Land Rocks, Sand, Clay .01 percent, and Evergreen Forest .08 percent. Table 4-8.

Table 4-8: National Land Cover Data Summary for the Clines Corners Wind Farm

Land Cover	Acres	Percentage
Barren Land Rock, Sand, Clay	2.7	>0.01%
Evergreen Forest	332.3	0.8%
Grassland/Herbaceous	28,511.1	71.7%
Shrub/Scrub	10,961.7	27.5%
Total	**39,807.8**	**100%**

Source: 2011 National Land Cover Database (NLCD)

4.8 Flora and Fauna

4.8.1 Data Sources

The following data sources (based on the 2014, 2015, 2016 and 2018 WEST reports) were reviewed to assess the existing biological resources of Torrance and Guadalupe counties; the Clines Corners Gen-Tie System Corridor; and the Clines Corners Wind Farm. The reports consist of field surveys of the proposed Project site and vicinity as well as desktop reviews of publicly available information gathered from a variety of data sources.

- 2011 National Land Cover Database (NLCD) Data Downloads. Accessed March 2019 from https://www.mrlc.gov/nlcd2011.php.
- eBird, an online database of bird distribution and abundance. Accessed March 2019 from https://ebird.org/.
- New Mexico Crucial Habitat Assessment Tool (NM CHAT). Accessed March 2019 from http://nmchat.org/data.html.
- New Mexico Department of Game and Fish (NMDGF) Biota Information System (BISON-M)
- Playa Lakes Joint Venture (PLJV) Maps of Probable Playas Accessed March 2019 from https://pljv.org/for-habitat-partners/maps-and-data/maps-of-probable-playas/.
- Southern Great Plains Crucial Habitat Assessment Tool (SGP CHAT) Accessed March 2019 from https://kars.ku.edu/geodata/maps/sgpchat/.

- The National Audubon Society (Audubon) Important Bird Areas (IBA) Accessed March 2019 from http://www.audubon.org/important-bird-areas.
- U.S. Fish and Wildlife Service (USFWS). (2019a). *Environmental Conservation Online System Species Profiles*. Retrieved March 2019 from https://www.fws.gov/southeast/conservation-tools/environmental-conservation-online-system/.
- U.S. Fish and Wildlife Service (USFWS). (2019b). *Information, Planning, and Consultation System (IPaC)*. Retrieved March 2019 from https://ecos.fws.gov/ipac/.
- U.S. Fish and Wildlife Service (USFWS). (2019c). National Wetlands Inventory (NWI). *Data Mapper*. Retrieved March 2019 from https://www.fws.gov/wetlands/data/mapper.html.
- U.S. Fish and Wildlife Service (USFWS). (2019d). *Species by County Report. Environmental Conservation Online Service (ECOS)*. Retrieved March 2019 from https://ecos.fws.gov/ecp0/reports/species-by-current-range-county?fips=35027.
- U.S. Geologic Survey (USGS). (2019a). *Gap Analysis Program (GAP) Protected Areas of the U.S. Database.* Retrieved March 2019 from https://gapanalysis.usgs.gov/padus/.
- U.S. Geologic Survey (USGS). (2019b). *National Hydrography Dataset (NHD)*. Retrieved March 2019 from https://nhd.usgs.gov/tools.html.
- West Inc. (2014). *Tier 1 Site Evaluation for the Clines Corners Area of Potential Wind Energy Development*.
- West Inc. (2015). *Clines Corners – 2015 Golden Eagle Nest Survey.*
- West Inc. (2016a). *Clines Corners – 2016 Golden Eagle Nest Survey.*
- West Inc. (2016b). *Baseline Avian Use Study for the Clines Corner Wind Resource Area Torrance and Guadalupe Counties, New Mexico – Year 1 Report June 2015-May2016*
- West Inc. (2018a). *Tier 2 Site Characterization Study Clines Corners Wind Resource Area Guadalupe, San Miguel, and Torrance Counties, Mew Mexico*
- West Inc. (2018b). *Clines Corners – 2018 Golden Eagle Nest Survey.*

4.8.2 Current Conditions and Trends, Regional Overview – Clines Corners Gen-Tie System Corridor

The NM CHAT is a habitat classification system for crucial habitat using a relative, six-level prioritization scheme, where 1 represents areas most crucial and 6 represents areas least crucial. The NM CHAT identified that the overall area of development (including both the Clines Corners Gen-Tie System Corridor and Clines Corners Wind Project Farm) is designated as Rank 6 for Wildlife Corridors for the cougar (*Puma concolor*), which is defined as areas that are not designated as critical habitats (NM CHAT 2019). Approximately 97 percent of the overall area was either Rank 3 or Rank 4, 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 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 Clines Corners Gent-Tie System Corridor or Clines Corners Wind Farm. 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 Clines Corners Gent-Tie System Corridor or Clines Corners Wind Farm, restricted mobility and small population size;
- **Not likely** – outside the species known range and suitable habitat appears absent within the Clines Corners Gent-Tie System Corridor or Clines Corners Wind Farm; however, due to the species mobility and population size, species may occur within the Clines Corners Gent-Tie System Corridor or Clines Corners Wind Farm 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 Clines Corners Gent-Tie System Corridor or Clines Corners Wind Farm; and
- **Occurs** – records of species occurrence within the Clines Corners Gent-Tie System Corridor or Clines Corners Wind Farm based on USFWS/WDFW 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

According to the USFWS Information for Planning and Consultation (IPaC) service, two species under the Endangered Species Act (ESA), the Mexican spotted owl (*Strix occidentalis lucida)* and Southwestern willow flycatcher *(Empidonax traillii extimus),* may potentially occur in Clines Corners Gen-Tie System Corridor, (USFWS, 2019b). The Southwestern willow flycatcher is listed as federally endangered, and the Mexican spotted owl is listed as federally threatened. These species are listed by the USFWS IPaC service as "potentially affected by activities in this location" of the Gen-Tie System Corridor. However, as shown in Table 4-9, suitable habitat for these species does not occur within the Gen-Tie System Corridor.

Table 4-9: Federally Listed Species with potential to occur in Clines Corners Gen-Tie System Corridor

Common Name	Scientific Name	Federal Status[a]	Likelihood of Occurrence
Birds			
Mexican spotted owl	*Strix occidentalis lucida*	T	**Not Likely.** Project does not contain old-growth, mature forest habitat. Designated critical habitat for the owl is approximately 42 miles from the western end of the line.
Southwestern willow flycatcher	*Empidonax traillii extimus*	E	**Not Likely.** Project does not appear to contain suitable riparian breeding habitat; some potential for species to migrate through Project.

Source: USFWS, 2019a
(a) E=Endangered, T=Threatened, C = Candidate, EXPN = Experimental Population

4.8.2.2 State-listed Species

State-listed endangered or threatened wildlife species with potential to occur within the Clines Corners Gen-tie System Corridor are shown in Table 4-10 below. These species include four birds: southwestern willow flycatcher (*Empidonax traillii extimus*), bald eagle (*Haliaeetus leucocephalus*), Baird's sparrow (*Ammodramus bairdii*), peregrine falcon (*Falco peregrinus* and Arctic subspecies *F. p. tundrius*).

Table 4-10: State Listed Species with potential to occur in Clines Corners Gen-Tie System Corridor

Common Name	Scientific Name	State Status[a]	Likelihood of Occurrence
Birds			
Baird's Sparrow	*Ammodramus bairdii*	T	**Possible.** Species may occur in the Project during migration; Project is outside species' breeding range.
Bald Eagle	*Haliaeetus leucocephallus*	T	**Likely.** Species likely to occur within the Project as occasional winter visitor.
Peregrine Falcon	*Falco peregrinus*	T	**Likely.** Peregrine likely to occur in Project as occasional year-round resident and migrant.
Southwestern willow flycatcher	*Empidonax traillii extimus*	E	**Not Likely.** Project does not appear to contain suitable riparian breeding habitat; some potential for species to migrate through Project.

Source: USFWS, 2019a
(a) E=Endangered, T=Threatened, C = Candidate, EXPN = Experimental Population

4.8.2.3 Birds

Passerines, raptors, waterfowl, and waterbirds likely migrate through the Clines Corners Gen-Tie System Corridor. Grassland and cropland provide stopover habitat during migration or during post breeding dispersal and may attract a broad suite of birds. Waterfowl and waterbirds (including shorebirds) would primarily be attracted to the small emergent wetlands and open water as stopover habitat during migration, although these resources comprise less than 1 percent of the Clines Corners Wind Farm.

The Baird's sparrow (*Ammodramus bairdii*) 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. While the Gen-Tie System Corridor is outside of the breeding range of the species, it does fall within the migratory pathway of Baird's sparrow and there is at least some potential for the species to occur within the Gen-Tie System Corridor area during migration.

4.8.2.3.1 Bald Eagle

Bald eagles *(Haliaeetus leucocephallus)* are state-listed as threatened and protected under the Bald and Golden Eagle Protection Act (BGEPA). Bald eagles are known to occur in New Mexico year-round, with larger densities during both spring and fall migration and during the winter (eBird, 2019). Bald eagles are uncommon breeders in New Mexico, with no more than five active breeding sites documented during a breeding season since a confirmed bald eagle nest was documented in 1979 (NMDGF, 2009). The bald eagle is a state-threatened species in New Mexico. Bald eagles typically nest in forested areas or mature trees adjacent (usually within 1.2 mi [1.9 km]) to waterbodies large enough to provide foraging opportunities (Buehler 2000). There is no suitable nesting or key foraging habitat for bald eagles within the Clines Corners Gen-Tie Corridor. Bald eagle movements through the Clines Corners Gen-Tie Corridor are possible during migration and during winter but not likely during the breeding season (WEST, 2018a).

4.8.2.3.2 Raptors

The peregrine falcon *(Falco peregrinus)*, a state-threatened species, is one of the largest falcons in North America. Peregrine falcons are associated with habitats from sea level to 13,000 ft (4,000 m), including plains, grasslands, shrublands, forests, and deserts (WEST, 2018a). Peregrine falcons show little preference for specific ecological communities, but their hunting behavior makes them most adapted to open or partially wooded habitats (WEST, 2018a). In New Mexico, the species may nest in cliffs and hunt in a variety of woodland, grassland, and shrub/scrub habitats. The Clines Corners Gen-Tie System Corridor and Wind Farm appears to contain suitable foraging habitat and cliffs within the surrounding

area provide potential nesting habitat. There is potential for peregrine falcons to occur within the Clines Corners Gen-Tie System Corridor and Wind Farm any time of year.

4.8.2.3.3 Bats

Fourteen bat species in New Mexico have ranges in the vicinity of and overlapping the Clines Corners Gen-Tie System Corridor and Wind Farm (WEST, 2018a). Six of these species of bats have been found as fatalities at wind energy facilities (WEST, 2018a). The six species are big brown bat (*Eptesicus fuscus*), hoary bat (*Lasiurus cinereus*), silver-haired bat (*Lasionycteris noctivagans*), Mexican free-tailed bat (*Tadarida brasiliensis*), big free-tailed bat (*Nyctinomops macrotus*), and canyon bat (*Parastellus hesperus*: BCI 2015). None of these species are listed as threatened, endangered, or a candidate for listing by the USFWS or NMDGF (WEST, 2018a).

Potential roosting habitat within the Clines Corners Gen-Tie System Corridor and Wind Farm is found primarily in the form of trees and man-made structures; however, these habitats are limited in the Clines Corners Gen-Tie System Corridor and Wind Farm. No known bat colonies were identified as occurring in the Clines Corners Gen-Tie System Corridor and Wind Farm.

Bats generally forage over water and other open spaces, such as agricultural fields, grasslands, streams, and wetlands/ponds. Insects often concentrate over wet areas associated with wetlands and streams, which may in turn concentrate foraging bats. Within the Clines Corners Gen-Tie System Corridor and Wind Farm, bat use is likely to be greater in areas around ponds and other water sources within the Clines Corners Gen-Tie System Corridor and Wind Farm when these areas have some available water, as bats would likely concentrate around these features to forage and drink. Although bats may also forage throughout the drier grasslands and shrublands within the Clines Corners Gen-Tie System Corridor and Wind Farm, they are likely to do so at much lower densities.

4.8.3 Current Conditions and Trends, Regional Overview – Clines Corners Wind Farm

No protected wildlife refuges, wildlife areas, or other conservation areas were found within, adjacent to, or within approximately 10 miles of the Clines Corners Wind Farm (WEST, 2018a). The Clines Corners Wind Farm lies between two large Audubon Important Bird Areas (IBA; Audubon 2018). The 335,269-acre Estancia Valley IBA lies approximately 30 miles to the west of the Clines Corners Wind Farm, and the 955,224-acre Clovis Playas IBA lies approximately 45 miles to the east of the Clines Corners Wind Farm (WEST, 2018a). Santa Rosa Lake State Park is approximately 15 miles east of the Clines Corners Wind Farm, and the Las Vegas National Wildlife Refuge lies approximately 30 miles north of the Clines

Corners Wind Farm (WEST, 2018a). Aside from potential water sources (e.g., ponds), no other obvious areas of potential wildlife congregation occur in the Clines Corners Wind Farm (e.g., caves, extensive cliff systems) (WEST, 2018a). The pinyon-juniper woodlands in and around the Clines Corners Wind Farm have some potential to harbor some species of tree-roosting bats, relative to non-forested areas (WEST, 2018a). Additionally, pinyon-juniper woodlands can attract large wintering flocks of migratory birds, such as pinyon jays (*Gymnorhinus cyanocephalus*) (WEST, 2018a).

Based on interpretation of aerial imagery, the Clines Corners Wind Farm has previously been subjected to some fragmentation, primarily in the form of transmission lines, livestock fencing, and low-use ranch roads (WEST, 2014). The is Clines Corners Wind Farm bisected by Interstate 40 in the northern section which may somewhat limit animal movements to the south (WEST, 2014). However, the species utilizing the Clines Corners Wind Farm are not likely to be species of fragmentation concern (WEST, 2014).

4.8.3.1 Federally Listed Species

The Clines Corners Wind Farm includes four animals and two plant species that are either federally listed or candidate species an additional five federally listed species (two birds, one mammal and two plants) from those noted in section 4.8.2.1 for the Clines Corners Gen-Tie System Corridor. The Clines Corners Wind Farm adds Piping plover (*Charadrius melodus)*, Southwestern willow flycatcher (*Empidonax traillii extimus*), New Mexico meadow jumping mouse (*Zapus hudsonius luteus*), Pecos sunflower (*Helianthus paradoxus*) and Wright's marsh thistle (*Cirsium wrightii*) based on the IPaC report. There is a possibility for the Pecos sunflower and the Wright's marsh thistle to occur within the Clines Corners Wind Farm; the four additional bird and one mammal species are considered unlikely to be present due to the lack of suitable habitat (Table 4-11).

Table 4-11: Federally Listed Species in Clines Corners Wind Farm

Common Name	Scientific Name	Federal Status[a]	Likelihood of Occurrence
Birds			
Mexican Spotted Owl	*Strix occidentalis lucida*	T	**Not Likely.** Project does not contain old-growth, mature forest habitat. Designated critical habitat for the owl is approximately 60 miles from the western side of the Project
Piping Plover	*Charadrius melodus*	T	**Not Likely.** Project is not likely to contain suitable sandy habitat.

Common Name	Scientific Name	Federal Status[a]	Likelihood of Occurrence
Southwestern Willow Flycatcher	*Empidonax traillii extimus*	E	**Not Likely.** Project does not appear to contain suitable riparian breeding habitat; some potential for species to migrate through Project.
Mammals			
New Mexico Meadow Jumping Mouse	*Zapus hudsonius luteus*	E	**Not likely.** Project is not likely to include dense riparian, riverine, lacustrine, or otherwise suitable habitat.
Plants			
Pecos Sunflower	*Helianthus paradoxus*	T	**Possible.** Suitable habitat may be present. Designated critical habitat is approximately 30 miles east of the Project.
Wright's Marsh Thistle	*Cirsium wrightii*	C	**Possible.** Suitable habitat may be present.

Source: USFWS, 2019d
(a) E=Endangered, T=Threatened, C=Candidate

4.8.3.2 State-listed Species

State-listed endangered or threatened wildlife species in Torrance and Guadalupe counties in which the Clines Corners Wind Farm is located (BISON-M, 2019), are shown in Table 4-12. These species include nine birds: southwestern willow flycatcher (*Empidonax traillii extimus*), bald eagle (*Haliaeetus leucocephallus*), Baird's sparrow (*Ammodramus bairdii*), peregrine falcon (*Falco peregrinus*), common black hawk (*Buteogallus anthracinus),* gray vireo (*Vireo vicinior*), least tern (*Sternula antillarum*), Neotropic Cormorant (*Cphalacrocorax brasilianus*), Piping Plover (*Charadrius melodus*). One mammal is listed: Least Shrew (*Cryptotis parvus*). Three species are listed: Bigscale Logperch (*Percina macrolepida*), Suckermouth Minnow (*Phenacobius mirabilis*), and Mexican tetra (*Astyanax mexicanus*).

Table 4-12: State Listed Wildlife Species in Clines Corners Wind Farm

Common Name	Scientific Name	State Status[a]	Likelihood of Occurrence
Birds			
Baird's Sparrow	*Ammodramus bairdii*	T	**Possible.** Species may occur in the Project during migration; Project is outside species' breeding range.
Bald Eagle	*Haliaeetus leucocephallus*	T	**Likely.** Species likely to occur within the Project as occasional winter visitor.

Common Name	Scientific Name	State Status[a]	Likelihood of Occurrence
Common Black Hawk	*Buteogallus anthracinus*	T	**Not Likely.** Project is not likely to contain suitable riparian woodland habitat.
Gray Vireo	*Vireo vicinior*	T	**Possible.** Species may occur in the Project as summer resident or migrant.
Least Tern	*Sternula antillarum*	E	**Not Likely.** Project is not likely to contain suitable sandy habitat.
Neotropic Cormorant	*Cphalacrocorax brasilianus*	T	**Not Likely.** Project does not contain suitable open water habitat.
Peregrine Falcon	*Falco peregrinus*	T	**Likely.** Peregrine likely to occur in Project as occasional year-round resident and migrant.
Piping Plover	*Charadrius melodus*	T	**Not Likely.** Project is not likely to contain suitable sandy habitat.
Southwestern Willow Flycatcher	*Empidonax traillii extimus*	E	**Not Likely.** Project does not appear to contain suitable riparian breeding habitat; some potential for species to migrate through Project.
Mammals			
Least Shrew	*Cryptotis parvus*	T	**Possible.** Species is rare, but suitable mesic habitat may occur in the Project.
Fish			
Bigscale Logperch	*Percina macrolepida*	T	**Not Likely.** Perennial water bodies appear to be absent from the Project.
Suckermouth Minnow	*Phenacobius mirabilis*	T	**Not Likely.** Perennial water bodies appear to be absent from the Project.
Mexican Tetra	*Astyanax mexicanus*	T	**Not Likely.** Perennial water bodies appear to be absent from the Project.

Source: BISON-M, 2019
(a) E=Endangered, T=Threatened

4.8.3.3 Plants

Three federal special-status plant species are known to occur in Guadalupe, San Miguel, and/or Torrance counties. Two of these species have the potential to occur within the Clines Corners Wind Farm. Pecos sunflower (*Helianthus paradoxus*) is federally threatened and Wright's marsh thistle (*Cirsium wrightii*) is a federal candidate species. Potential habitat for both the Pecos sunflower and Wright's marsh thistle is generally restricted to wet, alkaline soils in spring seeps and marshy edges of streams and ponds at elevations of 1,130-2,600 m (3,450-8,500 ft). No critical habitat has been designated in the Clines Corners Wind Farm. However, critical habitat for the pecos sunflower is located near the eastern edge of the Clines Corners Wind Farm in Guadalupe County.

4.8.3.4 Mammals

Although a rare species, suitable mesic habitat for the Least shrew (*Cryptotis parvus)* may occur in the Project. The least shrew is an inhabitant of grasslands where it utilizes the surface runways of cotton rats (*Sigmodon*) and other grassland rodents. It seldom occurs in forests but occasional individuals have been found under logs and leaf litter in moist, forested areas. The breeding season extends from early March to late November.

4.8.3.5 Bats

An assessment of bats occurring within the Clines Corners Wind Farm would be similar to the discussion applicable to the Clines Corner Gen-Tie Corridor.

4.8.3.6 Birds

Similar to the Clines Corners Gen-Tie System Corridor, passerines, raptors, waterfowl, and waterbirds likely migrate through the Clines Corners Wind Farm. When full, the complex of small ponds throughout the Clines Corners Wind Farm may attract migrating waterfowl, waterbirds, and raptors. Harvested crops are rare in the Clines Corners Wind Farm. A Breeding Bird Survey routes near the Clines Corners Wind Farm is shown on Exhibit 10.

Similar to the Clines Corners Gen-Tie System Corridor, the Baird's sparrow (*Ammodramus bairdii)* may occur in the Clines Corners Wind Farm during migration; however, the Project is outside species' breeding range.

The gray vireo is a state-threatened species in New Mexico, and is known to nest in the western and central portion of the state. In New Mexico, gray vireos occupy desert scrub, mixed juniper or pinyon pine and oak scrub associations, and chaparral, in hot, arid mountains and high plains scrubland (WEST, 2018a). They winter on the southern half of the Baja Peninsula as well as the northwestern edge of Mexico. Gray Vireos are short-distance migrants, withdrawing completely from most of their breeding range by early autumn and returning in early spring (WEST, 2018a). Suitable habitat is present, occurring primarily within the central and northern portions of the Clines Corners Wind Farm; therefore, there is potential for this species to be present during the nesting season (WEST, 2018a).

4.8.3.6.1 Bald Eagle

Bald eagle use of the Clines Corners Wind Farm is expected to be low with any use primarily occurring during the winter or spring/fall migration. The potential for bald eagles to nest within the Clines Corners Wind Farm is very low, as the area does not contain, nor is it located in close proximity to, any major

bodies of open water, the primary habitat for this species in all seasons (WEST, 2018a). While bald eagles are most commonly known to forage near large, open lakes, reservoirs, and rivers, the species may also forage over the woodlands, open grasslands, and livestock ponds in the Clines Corners Wind Farm where it may take advantage of secondary food sources, such as carrion, waterfowl, or other small to medium-sized animals (WEST, 2018a).

4.8.3.6.2 Golden Eagle

Golden eagles (*Aquila chrysaetos*) also are protected under BGEPA and are known to occur in New Mexico year-round (eBird, 2019). The Clines Corners Wind Farm contains several suitable breeding habitats (e.g., cliffs, large trees) for golden eagles. Similar to the Clines Corners Gen-Tie System Corridor, the Clines Corners Wind Farm contains suitable habitat for foraging, including grasslands. Accordance with USFWS Guidelines, "Tier 3" aerial raptor and eagle nest surveys were performed by WEST in February 2014, April 2015, May 2016, and February 2018. These surveys covered the Project area and a 10-mile buffer, totaling approximately 1,882 square miles. Results of the 4 years of nest surveys included 19 large stick nests potentially suitable for use by golden eagles. None of these surveys identified any nests which were occupied by either bald or golden eagles. Observed golden eagle use was very low compared to other areas in Western states with operating wind energy facilities, for which pre-construction eagle use data is publicly available. In accordance with USFWS Guidelines, "Tier 3" eagle and avian use surveys were conducted by WEST for one full year, from June 2015 to May 2016. Two golden eagles were observed during these surveys, resulting in only one minute of identified "eagle risk". No bald eagles were observed. Again, observed golden eagle use was very low compared to other areas in Western states with operating wind energy facilities, for which pre-construction eagle use data is publicly available. In addition, a second full year of large bird / eagle use surveys began in November 2018 and are expected to continue until October 2019.

4.8.3.6.3 Raptors

Similar the Gen-Tie System Corridor, the Peregrine falcon (*Falco peregrinus)* is likely to occur in Project as occasional year-round resident and migrant. Based on a search of BISON-M, as well as published range maps, 13 diurnal raptor species may occur in the Clines Corners Wind Farm and eight of these may breed in the area, using trees, cliffs, rock outcrops, and human-made structures (e.g., power poles) as nesting sites (WEST, 2018a). Additionally, seven species of owls have the potential to occur within the Clines Corners Wind Farm during all or part of the year and turkey vultures (*Cathartes aura*) are likely to occur within the Clines Corners Wind Farm during summer and migration periods (WEST, 2018a).

Diurnal raptors occur in most areas with the potential for wind energy development and have shown susceptibility to the potentially adverse impacts of such development (WEST, 2018a). Like eagles, other species of diurnal raptors spend large portions of time flying at heights where they may be exposed to risk of collision with commercial wind turbine blades (WEST, 2018a). Raptors are expected to be present in the Clines Corners Wind Farm year-round, with species varying by season. The hilly topography in some portions of the Clines Corners Wind Farm may create localized updrafts that raptors can use to soar while hunting or moving through the area. Raptors prey on small mammals, other birds, and reptiles that occur in the grassland and shrub/scrub vegetation communities in the region. The Clines Corners Wind Farm is not expected to receive concentrated raptor migration activity because it is not located near any coastlines or mountain ridgelines, which are two land forms known to concentrate migrating raptors (WEST, 2018a).

4.9 Cultural Historic and Archaeological Resources

4.9.1 Prehistoric Cultural

4.9.1.1 Data Sources

The following data sources were reviewed to assess the prehistoric cultural, historic, and archeological resources of Torrance and Guadalupe counties, the Clines Corners Wind Project Farm, and the Clines Corners Gen-Tie System Corridor.

- New Mexico Cultural Resource Information System (NMCRIS). Accessed March 22, 2019 from https://nmcris.dca.state.nm.us.
- Bureau of Land Management General Land Office plats. Accessed March 22, 2019 from https://glorecords.blm.gov/.
- Anderson, O.J., Jones, G.E., and Green, G.N. 1997. *Geological map of New Mexico: U.S. Geological Survey Open-file Report 97-52*. Accessed March 22, 2019 from http://pubs.er.usgs.gov/publications/ofr9752.

4.9.1.2 Current Conditions and Trends, Regional Overview - Clines Corners Gen-Tie System Corridor

The proposed Clines Corners Gen-Tie System Corridor crosses the route of two previously conducted linear projects. No prehistoric or historic cultural resources sites are reported within the footprint of the proposed Clines Corners Gen-Tie System Corridor.

4.9.1.3 Current Conditions and Trends, Regional Overview - Clines Corners Wind Farm

In general, little archaeological work has been conducted within the Clines Corners Wind Farm Project Area; a total of 6 prehistoric sites have been previously recorded. Most of the previous survey projects have been conducted for brush management areas with limited access roads. There is a project noted that was conducted in 1933 to 1935 that recorded most of the sites within the northern portions of the Wind Project Farm. The reason for this project is unknown, as there are currently no records of the project within NMCRIS. Approximately 5 percent of the proposed Clines Corners Wind Farm has been surveyed within the last 10 years.

Most prehistoric sites that have been recorded are associated with Jornada-Mogollon culture or with the Southern Archaic culture. The soil and geology studies of the Cline Corners Wind Farm Project indicate that undocumented cultural materials may be located within the Clines Corners Wind Project Farm, particularly around the major drainages and their tributaries.

4.9.2 Historic Cultural Resources

4.9.2.1 Data Sources

- New Mexico Cultural Resource Information System (NMCRIS). (2019). Retrieved March 2019 from https://nmcris.dca.state.nm.us.
- U.S. Geologic Survey (USGS). (2019c). *The National Map*. Retrieved March 2019 from https://nationalmap.gov/.

4.9.2.2 Current Conditions and Trends, Regional Overview – Clines Corners Gen-Tie System Corridor

Along the proposed Clines Corners Gen-Tie System Corridor, no historic sites have been recorded.

4.9.2.3 Current Conditions and Trends, Regional Overview – Clines Corners Wind Farm

There have been 2 historic sites which have been recorded throughout the Clines Corners Wind Project Farm, these primarily consist of ruins of structures associated with ranching activities. No area historic research activities have been conducted within the Clines Corners Wind Project Farm, and as such, none of the structures have been researched for their contributions of the historical development of the local area.

Data obtained from the available General Land Office (GLO) plats for the area indicates that the Clines Corners Wind Project Farm was originally surveyed between 1883 and 1879. The majority of objects identified from the plats are unnamed trails and roads. Neither the GLO plats or the USGS maps identified any abandoned historic-aged towns (ghost towns) or ranches.

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 Torrance and Guadalupe counties; the Clines Corners Gen-Tie System Corridor; and the Clines Corners Wind Project Farm.

- New Mexico Cultural Resources Information System. Accessed March 2019 from https://nmcris.dca.state.nm.us/NMCRISt/Security/SignIn.aspx.
- American Cemeteries. (2019a). *Cemeteries of Guadalupe County*. Retrieved March 2019 from http://www.americancemeteries.org/new-mexico/guadalupe-county.
- American Cemeteries. (2019b). *Cemeteries of Torrance County*. Retrieved March 2019 from http://www.americancemeteries.org/new-mexico/torrance-county.
- American Cemeteries. (2019c). *Churches of Guadalupe County*. Retrieved March 2019 from https://newmexico.hometownlocator.com/features/cultural,class,church,scfips,350019.cfm.
- American Cemeteries. (2019d). *Churches of Torrance County*. Retrieved March 2019 from https://newmexico.hometownlocator.com/features/cultural,class,church,scfips,35057.cfm.

4.10.2 Current Conditions and Trends, Regional Overview – Clines Corners Gen-Tie System Corridor

None of the churches or known cemeteries are located near the Gen-Tie System Corridor. Unidentified formal and informal cemeteries associated with active and abandoned ranches could be within the footprint of the proposed Clines Corners Gen-Tie System Corridor.

4.10.3 Current Conditions and Trends, Regional Overview – Clines Corners Wind Farm

The Clines Corners Wind Project Farm contains two small hamlets with very small populations. However, within the Clines Corners Wind Project Farm, no active churches are identified.

No cemeteries are identified within the Clines Corners Wind Project Farm. Unidentified formal and informal cemeteries associated with the active and abandoned ranches could be throughout the Clines Corners Wind Project Farm (Exhibit 11).

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 Torrance and Guadalupe counties; the Clines Corners Gen-Tie System Corridor; and the Clines Corners Wind Farm:

- Environmental Protection Agency Ecoregions. Accessed March 2019 from https://www.epa.gov/eco-research/ecoregions.
- Souder, Miller and Associates (2019). *Application for Torrance County Zoning Ordinance Amendment for Special Use District & Height Variance: Clines Corners Wind Farm Project*

4.11.2 Overview

The combined Clines Corners Gen-Tie System Corridor and Clines Corners Wind Farm encompasses approximately 50,400 acres of private land within the Southwestern Tablelands and Arizona/New Mexico Mountains Level III Ecoregions (U.S. Environmental Protection Agency, 2019), located within Torrance and Guadalupe Counties. This combined area is generally bounded by the northern extent of 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. The combined Clines Corners Gen-Tie System Corridor and Clines Corners Wind Farm is located in a rural area on private land and one state lands section at the Point of Interconnection, with limited visual impact to surrounding properties. Non-private lands within the region of the combined area include portions of the Mountainair District of the Cibola National Forest (approximately 35 miles to the southwest), Smokey Bear District of the Lincoln National Forest (approximately 80 miles to the south), State Trust Lands administered by the New Mexico State Land Office, and Bureau of Land Management (BLM) lands (Exhibit 12).

According to the U.S. Environmental Protection Agency Ecoregions (2019), the Arizona/New Mexico Mountains ecoregions:

> *…are distinguished from neighboring mountainous ecoregions by their lower elevations and an associated vegetation indicative of drier, warmer environments, due in part to the region's more southerly location. Forests of spruce, fir, and Douglas-fir, common in the Southern Rockies and*

> *the Wasatch and Uinta Mountains, are only found in limited areas at the highest elevations in this region. Chaparral is common at lower elevations in some areas, pinyon-juniper and oak woodlands occur at lower and middle elevations, and the higher elevations are mostly covered with open to dense ponderosa pine forests. These mountains are the northern extent of some Mexican plant and animal species. Surrounded by deserts or grasslands, these mountains in Arizona and New Mexico can be considered biogeographical islands.*

In addition, the U.S. Environmental Protection Agency Ecoregions (2019) put forth the following description for the southwestern Tablelands*:*

> *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.*

Existing transmission lines (100 kV or above) in the vicinity include: the Willard to Duran 115 kV line, situated approximately 14 miles south; the Ba to Blackwater 345 kV line, situated approximately 10 miles north; and the proposed Corona to Guadalupe 500 kV line, situated approximately three miles to the east (Exhibit 14).

4.11.3 Current Conditions and Trends, Regional Overview – Clines Corners Gen-Tie System Corridor

Topography within the Clines Corners Gen-Tie System Corridor is variable, including relatively flat grassland, gentle slopes, small ridgelines, canyons, hills, mesas, canyons, and steep slopes. Herbaceous/grassland cover types dominate the landscape, with shrub/scrub and evergreen forest vegetation communities covering smaller areas of the Clines Corners Wind Farm. The transmission line route intersects the U.S. Highway 285 right-of-way approximately 7 miles west of the Wind Farm. U.S. Highway 285 consists of a two-lane roadway in either direction (four lanes across in total) inclusive of a grassy center divide. Land use within the Clines Corners Gen-Tie System Corridor is primarily open range livestock grazing. Pedernal Mountain (7,565 feet) sits approximately 10 miles north of the Clines Corners Gen-Tie System Corridor. Elevation within the Clines Corners Gen-Tie System Corridor ranges from 6,170 to 6,510 feet above mean sea level (see Exhibit 13).

Torrance and Guadalupe counties all have low population densities. Torrance County is a large and rather sparsely populated county located in central New Mexico, southeast of the City of Albuquerque. Over 95 percent of the population resides in the western half of the County. Guadalupe County is the fifth-least populous county in New Mexico and has a total area of 3,032 square miles. Several inhabitable residences are within the Clines Corners Gen-Tie System Corridor, and other scattered rural residences and small

communities are nearby. Travelers in proximity to the Clines Corners Gen-Tie System Corridor would include local or regional traffic along New Mexico State Route 3, U.S. Route 60, and U.S. Highway 285. The existing El Cabo Wind Farm 345-kV gen-tie line and the proposed Western Spirit 345-kV transmission line are located in the vicinity of the Clines Corners Gen-Tie System Corridor.

No designated federal or state scenic routes or byways are in the vicinity of the Clines Corners Gen-Tie System Corridor (New Mexico Department of Transportation [NMDOT], 2015; Federal Highway Administration [FHWA], 2019) (see Exhibit 15). The nearest scenic route is Historic Route 66, which is more than 20 miles north of the Clines Corners Gen-Tie System Corridor. Additionally, no national parks or state parks are in the vicinity of the Clines Corners Gen-Tie System Corridor. The closest national park is Gran Quivera National Monument, which is approximately 39 miles southwest of the Clines Corners Gen-Tie System Corridor. The closest state park is Villanueva State Park, which is approximately 37 miles north from the Clines Corners Gen-Tie System Corridor. No known visually sensitive, cultural resource sites are in the vicinity of the Clines Corners Gen-Tie System Corridor. No known organized tourism activities are in or near the Clines Corners Gen-Tie System Corridor.

4.11.4 Current Conditions and Trends, Regional Overview – Clines Corners Wind Farm

The existing visual and scenic resources previously described for the Clines Corners Gen-Tie System Corridor are similar for the Clines Corners Wind Farm. Topography is generally slightly rolling and is broken by seasonal/intermittent drainages, which generally drain the Clines Corner Wind Farm to the east. The closest travelers in proximity to the Clines Corners Wind Farm would include local or regional traffic along New Mexico State Route 3 and U.S Route 60. Elevation within the Clines Corners Wind Farm ranges from 5,420 to 6,410 feet above mean sea level. Currently, there are no existing transmission lines (100-kV or above) in the vicinity of the Clines Corners Wind Farm. Historic Route 66 is located approximately 5 miles from the north border of the Clines Corners Wind Farm.

The closest national park is Pecos National Historic Park, which is approximately 43 miles northwest of the Clines Corners Wind Farm. The closest state park is Villanueva State Park, which is approximately 23 miles north from the Clines Corners Wind Farm. No known visually sensitive, cultural resource sites are in the vicinity of the Clines Corners Wind Farm. The Anton Chico National District boundary is located approximately three miles to the northeast of the Clines Corners Wind Farm Are; however, the sensitive historic sites associated with this national district are approximately 20 miles from the Clines Corners Wind Farm. No known organized tourism activities are in or near the Clines Corners Wind Farm.

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 Torrance and Guadalupe counties; the Clines Corners Gen-Tie System Corridor; and the Clines Corners Wind Farm.

- 2011 National Land Cover Database (NLCD). (2019). *Data Downloads*. Retrieved March 2019 from https://www.mrlc.gov/nlcd2011.php.
- The National Map (USGS, 2019)
- Torrance County Comprehensive Plan (July 2003)
- Torrance County Zoning Ordinance (revised 2016)

4.12.2 Current Conditions and Trends, Regional Overview – Clines Corners Gen-Tie System Corridor

4.12.2.1 Torrance County

Torrance County is a large and rather sparsely-populated county (15,534 people) located in central New Mexico, southeast of the City of Albuquerque. Over 95 percent of the population resides in the western half of the County. Farming and ranching have been the traditional economic activities of the County but are diminishing as the population grows in the Estancia Valley. Today, there are growing sectors of non-agricultural commerce and business. Most of the agricultural products that are produced in the area where the Clines Corners Wind Farm will be developed come from Torrance County, but given the rural character of the three counties, agricultural businesses still play a large role in all three counties. Much of the County is situated within the "commuter shed" of the Albuquerque metropolitan region and is therefore growing in scattered residential subdivisions and housing developments.

Various jurisdictions and special territories within the County boundaries include five incorporated municipalities, significant lands held in state and federal ownership, and a small area within the Isleta Indian Reservation. Also, there are all or portions of four Mexican Land Grants in the county. The principal transportation structure in Torrance County is comprised 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.

The community of Edgewood contains the largest population within Torrance County and is located approximately 40 miles north of the Clines Corners Gen-Tie System Corridor. The community of Encino is the closest populated area, roughly 2 miles south of the Clines Corners Gen-Tie System Corridor (from the edge of the Clines Corners Gen-Tie System Corridor to the edge of the municipality). Several other small towns are scattered throughout the county. Major state and federal properties in the county include Manzano Mountains State Park, Gallinas National Forest, Cibola National Forest, and scattered U.S. Bureau of Land Management parcels (Exhibit 18 and Exhibit 19). No military bases are located in the county. 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. Lastly, the expansive, but semi-arid rangelands throughout the county have attracted a ranching livelihood for a small but dispersed segment of the population.

The Torrance County Comprehensive Plan (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. It establishes a basis for regulations and programs necessary to manage current and future land development within the jurisdiction of Torrance County. The Comprehensive Plan 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 this Comprehensive Plan is subject to the policy directives and actions of the Board of County Commissioners as deemed appropriate.

In accordance with the Torrance County Comprehensive Plan, the Torrance County Zoning Ordinance (revised 2016), establishes comprehensive zoning regulations for the unincorporated areas of Torrance County. 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 Estancia Elementary/Middle/High School serves approximately 890 students and covers grades pre-kindergarten through 12th grade. The school is located approximately 24 miles west of the Clines Corners Gen-Tie System Corridor boundary

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

Torrance County has natural and scenic resources. The "Laguna de Perro" and surrounding salt lakes are historically and culturally valuable to Torrance County.

4.12.3 Current Conditions and Trends, Regional Overview – Clines Corners Wind Farm

The existing conditions previously identified for the Clines Corners Gen-Tie System Corridor for land use in areas within Torrance County also apply for the Clines Corners Wind Farm. However, the Clines Corners Wind Farm also encompasses lands within the Guadalupe County.

4.12.3.1 Guadalupe County

Guadalupe County is the fifth-least populous county in New Mexico and has a total area of 3,032 square miles. It is located in the northeastern quadrant of New Mexico and is a rural, minority-majority county with a population of 4,426. Agriculture is of great economic importance to the entire county as its' location and natural resources have, historically, allowed communities to be built around both large and small cattle and sheep operations. Torrance County is located to the west and Lincoln County to the southwest. Major state and federal lands include Santa Rosa Lake State Park, Sumner Lake State Park, and scattered U.S. Bureau of Land Management parcels (Exhibit 19).

The county government of Guadalupe is found in the county seat of Santa Rosa. Land use regulations within Guadalupe County are governed by New Mexico state rules and regulations. The largest town in proximity to the Clines Corners Wind Farm is the town of Vaughn, located approximately 5 miles southeast. No military bases are located in the county. The Vaughn Elementary/High School serves approximately 90 students and covers grades pre-kindergarten through 12th grade. The school is located approximately 11.5 miles southeast of the Clines Corners Gen-Tie System Corridor boundary. The City of Santa Rosa has 15 separate lakes and streams and 4 city parks. Numerous fishing opportunities are available at almost all of the city parks and along the Pecos River.

4.13 Socioeconomics

4.13.1 Data Sources

The following data source was reviewed to assess the existing socioeconomic conditions of Torrance and Guadalupe Counties; the Clines Corners Gen-Tie System Corridor; and the Clines Corners Wind Farm.

- Tysseling, John C. (2019). *Report on the Economic and Fiscal Impact of the Clines Corners Wind Farm Project*

4.13.2 Current Conditions and Trends, Regional Overview – Clines Corners Gen-Tie System Corridor and Wind Farm

The Clines Corners Gen-Tie System Corridor and Wind Farm are located within Torrance and Guadalupe counties which comprise the socioeconomic Project area. These counties cover a diverse geographical area, ranging from high plains to tree covered mountains. Guadalupe County is the smaller of the two counties by geographical area, and also has roughly a quarter of the population of Torrance County (reflecting 22 percent of the total Project area population). Torrance County has the larger population and geographic area (although only by approximately 300 square miles). Torrance County also has the greater population density of the two counties. An overview of the area's population demographics is shown in Table 4-13.

Generally stated, the Project area has a higher concentration of its population which is fifty years old and older than is demonstrated in the age cohorts of New Mexico as a whole, and an aging workforce relative to the remainder of the State. The Project area as a whole comprises 0.96% of New Mexico's population and has been experiencing a steady population decrease over the past seven years (Tysseling, 2019).

Table 4-13: Project Area Counties (2017 Population Figures)

County	Population	Geographic Area (Square Miles)	Population Density Average (people/square mile)
Guadalupe	4,426	3,032	1.4
Torrance	15,534	3,346	4.6
Total	**19,960**	**6,378**	**3.1**

Source: Report on the Economic and Fiscal Impact of the Clines Corners Wind Project (Tysseling, 2019)

The Project area has an unemployment rate of 8.1%, which is somewhat higher than the unemployment rate in the State (5.9%). The Project area comprised 0.76% of the total New Mexico labor force in 2017. The US Bureau of Labor Statistics 2017 total wages and salaries report for covered employment in the Project area provides an estimated average annual compensation of $32,911 per employee. The New Mexico statewide average compensation is $43,538 per year, revealing that reported wages and salaries in the Project area are approximately 76% of the State average. Additionally, the US Census Bureau estimates a per capita income of $16,862 for the Project area, as compared with $25,257 for the state of New Mexico (Bureau of Labor Statistics, Quarterly Census of Employment and Wages 2017 Annual

Averages). The largely rural, sparsely populated Project area's dominant land use is focused on agricultural business enterprises (particularly ranching), but the dominant economic activities (measured by reported employment and output) are related to retail trade, public administration, and construction (Tysseling, 2019).

Private firms comprise about 76% of the business entities in the Project area. However, this data excludes agricultural employment, which is recognized to be a significant component of the rural economy in the Project area. Due to the population and predominantly rural nature of the counties' land area, most of the establishments in the Project area are quite small, with a limited number of employees. Excluding the agricultural sectors, the statistics suggest that the Project area's economy is largely driven by retail; accommodation and food services; public administration; and construction. These four sectors comprise almost three-quarters of the Project area's total annual employment by industry (Tysseling, 2019).

Agriculture – ranching in particular – forms a significant component of the economy in the Project area. Most of the agricultural products that are produced in the Project area come from Torrance County, but given the rural character of the counties and the predominance of ranching activities throughout the Project area, agricultural businesses still play a large role in both counties. Table 4-14 represents an agricultural profile for the Project area; the table does not include forestry data, as this data was not included in the 2007 and 2012 censuses (Tysseling, 2019).

Table 4-14: 2012 and 2007 New Mexico Project Area Farm Demographics

2012 and 2007 Farm Demographics					
	2012	2007	Average Farm Size (acres)	2012	2007
Number of Farms	961	819		3,792	4,324
2012 Market Value of Agricultural Products Sold ($ millions)					
Crops		Livestock and Poultry		Total	
$23.72		$52.51		$76.23	
31.12%		68.88%			
2012 Values of Sales by Commodity Group ($ millions)					
Cattle & Calves	Grains, Oilseeds, Dry Beans, and Dry Peas	Other Crops	Vegetables, Melons, Potatoes, and Sweet Potatoes	Fruits, tree nuts, and berries	
$41.85	$9.99	$0.25	$0.07	$0.05	

Source: Report on the Economic and Fiscal Impact of the Clines Corners Wind Project (Tysseling, 2019)

As noted in Table 4-14, the trend for the time period between 2007 and 2012 indicates an increase in the number of farms within the Project area. Between 2007 and 2012, the number of farms increased 17%. Due to the sizable increase in the number of farms, combined with the decrease in the average farm size, it appears that a relatively small amount of additional acreage was brought into production and a number of the farms were divided up. In 2012, there was reported to be almost 3.4 million acres in agricultural production in the Project area (approximately 5,312 square miles, representing 83% of the total Project area) (Tysseling, 2019).

The mixture of agricultural products sold for the Project area is reflected in Table 4-14 and reveals a heavy concentration of cattle and calf production, followed by the production of grains, oilseeds, dry beans, and dry peas. The production of crops in the Project area contributed nearly $23.7 million to its economy, including vegetables, melons, potatoes, and sweet potatoes; horses, ponies, mules, burros and donkeys, and other crops (Tysseling, 2019).

The role of agriculture in the Project area's economy is best reflected in comparing the reported $76.2 million agricultural production to the $311.5 million of reported Taxable Gross Receipts [New Mexico Taxation and Revenue Department RP-80 Monthly Report. Note also that agricultural production activities are largely excluded from Goss Receipts Tax (GRT) liability]. It is clear that agriculture is a significant foundation of the Project area economy, however, the previously identified non-agricultural sectors provide for the dominant employment and income in the regional economy (Tysseling, 2019).

The Project area had over $22.8 million in GRT collections in Fiscal Year 2018, providing 0.58% of the total GRT collections in the State. The economic sector reporting the highest levels of GRT in the Project area is the Construction sector, with revenues from the sales in this sector constituting 28% of the GRT collections. This is followed by Retail Trade at 27% and the Other Industries which boast a combined 29% of the total GRT. Construction representing 28% of the GRT and 10% of the employment in the Project area highlights the potential for growth in this industry during the development of the Clines Corners Wind Project. Additional employment may be provided by the ready supply of construction firms and workers from the larger population centers surrounding the Project area (GRT is reported based on the location where the economic activities occur, and employment is reported based on place of residence.) (Tysseling, 2019).

4.14 Communication Signals

4.14.1 Data Sources

The following data sources were reviewed to assess the existing communication signals of Torrance and Guadalupe counties; the Clines Corners Gen-Tie System Corridor; and the Clines Corners Wind Farm.

- Comsearch. (2018a). Wind Power GeoPlanner Communication Tower Study Clines Corners Wind Farm, New Mexico.
- Comsearch. (2018b). Wind Power GeoPlanner Land Mobile & Emergency Services Report Clines Corners Wind Farm, New Mexico.
- Comsearch. (2018c). Wind Power GeoPlanner Microwave Study Clines Corners Wind Farm, New Mexico.
- FCCinfo; based on publicly available data from the Federal Communication Commission. Accessed on March 2019 from http://www.fccinfo.com/disclaimerphp.

4.14.2 Current Conditions and Trends, Regional Overview – Clines Corners Gen-Tie System Corridor

Torrance County is a rural county in central New Mexico with population densities below the state and national averages. A review of coordinates at the north, south, east, and west points of the Clines Corners Gen-Tie System Corridor, with an expanded search to 35 miles from the edge of the Clines Corners Gen-Tie System Corridor endpoints boundary, indicates that 614 microwave towers, 141 antenna structure registration towers, and 13 AM/FM/TV towers are present (Exhibit 20). A review of communication structures within the Clines Corners Gen-Tie System Corridor (Table 4-15) identified one active private tower and one active Antenna Structure Registration (ASR) tower.

Table 4-15: Communication Structures within Clines corners Gen-Tie System Corridor

Classification	Call Sign/Registration	Type	Status
Private Tower	**Call Sign:** WPMA939	**Radio Service:** Industrial/ Business Pool, Conventional	Active Private Communication
Private Tower	**Call Sign:** WQCI213	**Radio Service:** PW-Public Safety Pool, Conventional	Active Private Communication
Private Tower	**Call Sign:** KNCR504	**Radio Service:** Other Industrial/Land Transportation, 806-821/851-855 MHz, Conv.	Cancelled

Classification	Call Sign/Registration	Type	Status
Private Tower	**Call Sign:** WPMF985	**Radio Service:** Industrial/ Business Pool, Conventional	Cancelled
Microwave Tower	**Call Sign:** WGY785	**Radio Service:** Microwave Industrial/Business Pool	Cancelled
Microwave Tower	**Call Sign:** WGY786	**Radio Service:** Microwave Industrial/Business Pool	Cancelled
Microwave Tower	**Call Sign:** WGY790	**Radio Service:** Microwave Industrial/Business Pool	Cancelled
Antenna Structure Registration Tower	**Registration Number:** 1054506	Free-standing or Guyed Structure used for Communication	Active

Source: Federal Communications Commission (2019)

4.14.3 Current Conditions and Trends, Regional Overview – Clines Corners Wind Farm

In November 2018, the Applicant commissioned a Communications Tower Study to identify communications towers as well as Federal Communications Commission (FCC) – licensed communications antennas that exist in the Project area. The study results will direct the wind turbine layout for the purpose of minimizing communication service disruptions to existing tower users. Information about the locations of communications towers and antennas in the Project area were derived from a variety of sources, including the FCC's ASR database, Universal Licensing System (ULS), national and regional tower owner databases, and local planning and zoning boards. The data was imported into GIS software and the structures mapped in the Project area.

The study found that one tower structure with a communication antenna is located within the Project area. While the tower structure is not registered with the FCC, the land mobile antenna is licensed. The appropriate setback distance of wind turbines from the land mobile antenna is based on FCC interference emission limits of electrical devices in the land mobile and mobile phone frequency bands.

4.14.3.1 Communication Tower

A communication tower study was performed by Comsearch (2018a) in Torrance and Guadalupe Counties, New Mexico to identify the tower structures as well as FCC-licensed communication antennas

that exist in the Clines Corners Wind Farm. One tower structure and one communication antenna were identified within the Clines Corners Wind Farm. The structure found is not registered with the FCC and contains one licensed land mobile antenna. Detailed information about the tower structure and communication antenna is provided below in Table 4-16 and Table 4-17 including location coordinates, structure height above ground level, and owner- operator name.

Table 4-16: Summary of Tower Structures

Tower ID	ASR Number	Owner	Structure Height AGL (m)	Latitude (NAD83)	Longitude (NAD83)
Tower001	none	unknown	>40.0	34.64811111	-105.341389

Source: Comsearch (2018a)

Table 4-17: Summary Communication Antenna

Tower ID	Callsign	Service Type	Licensee	Structure Height AGL (m)	Latitude (NAD83)	Longitude (NAD83)
Tower001	KAI387	Land Mobile	BNSF Railway Co.	>40.0	34.64811111	-105.341389

Source: Comsearch (2018a)

4.14.3.2 Microwave

In 2018, Comsearch conducted a microwave obstruction analysis; a microwave database review, which contains all non-government licensed, proposed and applied paths from 0.9 - 23 GHz. Comsearch determined all microwave paths that intersect the Clines Corners Wind Farm. Comsearch identified no microwave paths in the Clines Corners Wind Farm.

4.14.3.3 Land Mobile and Emergency Services

An assessment of the emergency services in the Clines Corners Wind Farm project area was performed by Comsearch (2018b) to identify potential impact from the planned turbines. Comsearch evaluated the registered frequencies for the following types of first responder entities: police, fire, emergency medical services, emergency management, hospitals, public works, transportation and other state, county, and municipal agencies. Comsearch also identified all industrial and business land mobile radio (LMR) systems and commercial E911 operators within the proposed wind energy facility boundaries. The Comsearch land mobile and emergency services incumbent data was derived from the FCC's Universal Licensing System (ULS) and the FCC's Public Safety & Homeland Security bureau. Comsearch identified both site-based licenses as well as regional area-wide licenses designated for public safety use.

4.14.3.3.1 Site-Based Licenses

One site-based license in the Clines Corners Wind Farm is identified in Table 4-18 below.

Table 4-18: Land Mobile and Emergency Services Sites Wind Farm

ID	Call Sign	Frequency Band (MHz)	Licensee	Antenna Height AGL (m)	Latitude (NAD83)	Longitude (NAD83)	Distance to Center of Project (km)
1	KAI387	150-174	BNSF Railway Co.	40.0	34.648111	-105.341389	11.15

Source: Comsearch (2018b)

4.14.3.3.2 Area-Wide Licenses

The regional area-wide licenses were compiled from FCC data sources and identified for each county intersected by the wind energy project area. The Clines Corners Wind Farm spans Torrance and Guadalupe Counties, New Mexico, part of Public Safety Region #29, which contains all the counties in New Mexico. The regional public safety operations are overseen by the entities listed below.

- Philip Salazar
  Chairperson, Public Safety Region #29
  email: philsalazar251@yahoo.com

- James Maxon
  Vice Chairperson
  email: jmaxon@sandovalcountynm.gov

- Tom Reese Janca
  Secretary
  Chief Communications Engineer
  Catron County
  phone: 575-533-6617
  email: greenlion@halfwavelength.co

The chairperson for Region #29 serves as the representatives for all public safety entities in the area and is responsible for coordinating current and future public safety use in the wireless spectrum. In the bands licensed by the FCC for area-wide first responders, which include 220 MHz, 700 MHz, 800 MHz and 4.9 GHz, as well as the traditional Part 90 public safety pool of frequencies, sixteen licenses were found for the State of New Mexico and one each for the Counties of Torrance and Guadalupe (Table 4-19). These area-wide licenses are designated for mobile use only.

Table 4-19: Regional Licenses

ID	Licensee	Area of Operation	Frequency Band (MHz)
1	Albuquerque, City of	Statewide: New Mexico	45-470
2	Albuquerque Mountain Rescue Council	Statewide: New Mexico	150-174
3	American National Red Cross	Statewide: New Mexico	25-50
4	Cibola Search and Rescue	Statewide: New Mexico	150-174
5	De Baca, County of	Statewide: New Mexico	0-10
6	Guadalupe, County of	Countywide: Guadalupe	150-174
7	McKinley County Search and Rescue	Statewide: New Mexico	150-174
8	Mountain Canine Corps	Statewide: New Mexico	150-174
9	National Ski Patrol System, Inc.	Statewide: New Mexico	150-174
10	New Mexico, State of	Statewide: New Mexico	0-10, 25-50, 150-174, 450-470, 2450-2500, 4940-4990
11	New Mexico Search and Rescue Council	Statewide: New Mexico	150-174, 450-470
12	San Miguel Search and Rescue	Statewide: New Mexico	150-174
13	Sandia Search Dogs	Statewide: New Mexico	150-174
14	Sandoval, County of	Statewide: New Mexico	450-470
15	Sangre De Cristo Search and Rescue Del Norte, Inc.	Statewide: New Mexico	150-174
16	Santa Fe Sar Group	Statewide: New Mexico	150-174
17	Taos Search and Rescue	Statewide: New Mexico	150-174
18	Torrance, County of	Countywide: Torrance	150-174, 450-470

Source: Comsearch (2018b)

4.14.3.3.3 E911 Operators

Wireless operators are granted area-wide licenses from the FCC to deploy their cellular networks, which often include handsets with E911 capabilities. Since mobile phone market boundaries differ from service to service, we disaggregated the carriers' licensed areas down to the county level. Comsearch identified the type of service for each carrier in Guadalupe and Torrance Counties, New Mexico in Table (Table 4-20).

Table 4-20: Mobile Phone Carriers in Area of Interest with E911 Service

Mobile Phone Carrier	Service	
	Guadalupe County, New Mexico	Torrance County, New Mexico
AT&T	AWS, Cellular, PCS, WCS, 700 MHz	AWS, Cellular, PCS, WCS, 700 MHz
Atlantic Tele-Network	700 MHz	-
DISH Network	AWS, 700 MHz	AWS, 700 MHz
Sprint	PCS	PCS
T-Mobile	AWS, PCS	AWS, PCS, 700 MHz
Verizon	AWS, Cellular, PCS, 700 MHz	AWS, Cellular, PCS, 700 MHz

Source: Comsearch (2018b)

4.15 Radioactive Waste and Radiation Hazards

Electric transmission line and substation infrastructure do not generate or contain radioactive waste or radiation hazards. The transmission line facilities 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 Clines Corners Gen-Tie System Corridor. Chapter 5, Section 5.16 describes potential hazardous materials associated with construction, operation, and maintenance of a transmission line, substation, and switchyard as well as protection measures to reduce impacts from hazardous materials.

4.17 Safety

The Clines Corners Gen-Tie System Corridor does not contain any known safety concerns. Chapter 5, Section 5.17 describes potential safety concerns associated with construction, operation, and maintain of a transmission line, substation, and switchyard 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 Torrance and Guadalupe counties; the Clines Corners Gen-Tie System Corridor; and the Clines Corners Wind Farm.

- 2011 National Land Cover Database (NLCD). (2019). *Data Downloads*. Retrieved March 2019 from https://www.mrlc.gov/nlcd2011.php.
- National Park Service Physiographic Provinces (NPS, 2019)
- U.S. Geologic Survey (USGS). (2019c). *The National Map*. Retrieved Month 2019 from https://nationalmap.gov/.

4.18.2 Current Conditions and Trends, Regional Overview – Clines Corners Gen-Tie System Corridor

The area where the Clines Corners Wind Farm will be developed is located within the Great Plains physiographic province (NPS, 2019). 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 feet, decreasing to 2,000 feet. 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 Clines Corners Wind Farm or the Clines Corners Gen-Tie System Corridor. No national parks or state parks are in the vicinity of the Clines Corners Gen-Tie System Corridor. The closest national park is Gran Quivera National Monument, which is approximately 39 miles southwest of the Clines Corners Gen-Tie System Corridor. The closest state park is Villanueva State Park, which is approximately 37 miles north from the Clines Corners Gen-Tie System Corridor.

4.18.3 Current Conditions and Trends, Regional Overview – Clines Corners Wind Farm

The geographic resources within the Clines Corners Wind Farm are similar to those described for the Gen-Tie System Corridor. However, a total of 6 prehistoric sites have been previously recorded in the Clines Corners Wind Farm. The Anton Chico National District boundary is located approximately three miles to the northeast of the Clines Corners Wind Farm. The closest national park is Pecos National Historic Park, which is approximately 43 miles northwest of the Clines Corners Wind Farm. The closest state park is Villanueva State Park, which is approximately 23 miles north from the Clines Corners Wind Farm.

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 Torrance and Guadalupe counties; the Clines Corners Gen-Tie System Corridor; and the Clines Corners Wind Farm.

- VFR Map 2019, Digital Aviation, LLC (http://vfrmap.com/tos.html)
- New Mexico Military Bases Map 2019 (https://militarybases.com/new-mexico/)

4.19.2 Current Conditions and Trends, Regional Overview – Clines Corners Gen-Tie System Corridor

No military bases occur within the Clines Corners Gen-Tie System Corridor; nor do military training routes intersect the Clines Corners Gen-Tie System Corridor (Exhibit 21). The Applicant has received a Determination of No Hazard (DNH) from the FAA (applications 2018-WTW-3186-OE though 2018-WTW-3377-OE) for the Project turbines; however, the Applicant will not seek a DNH from the FAA for the transmission line, as structures will not be over 200 feet (transmission line structures of this height are very unlikely for the Clines Corners Wind Farm).

4.19.3 Current Conditions and Trends, Regional Overview – Clines Corners Wind Farm

No military bases occur within the Clines Corners Wind Farm. Exhibit 21 identifies military training routes that intersect the Clines Corners Wind Farm, occurring within the southern portion of development. The Applicant has received a DNH from the FAA (applications 2018-WTW-3186-OE though 2018-WTW-3377-OE) for the Project turbines; however, the Applicant will not seek a DNH from the FAA for the transmission line, as structures will not be over 200 feet (transmission line structures of this height are very unlikely for the Clines Corners Wind Farm).

4.20 Roads

4.20.1 Data Sources

The following data sources were reviewed to assess the road conditions of Torrance and Guadalupe counties; the Clines Corners Gen-Tie System Corridor; and the Clines Corners Wind Farm.

- New Mexico Department of Transportation (NMDOT)

4.20.2 Current Conditions and Trends, Regional Overview – Clines Corners Gen-Tie System Corridor

Torrance County is a rural county in central New Mexico with a sparse network of state, county, and private roads within the area where the Clines Corners Wind Farm will be developed. The Applicant will work with NMDOT and the Torrance County Road Maintenance Departments to determine current road conditions for construction access prior to the start of any construction. Travelers in proximity to the Clines Corners Gen-Tie System Corridor would include local or regional traffic along New Mexico State Route 3, U.S. Route 60, and U.S. Highway 285.

4.20.3 Current Conditions and Trends, Regional Overview – Clines Corners Wind Farm

Torrance and Guadalupe counties are rural counties in central New Mexico with a sparse network of state, county, and private roads within the area where the Clines Corners Wind Farm will be developed. The Applicant will work with NMDOT and the Torrance and Guadalupe County Road Maintenance Departments to determine current road conditions for construction access prior to the start of any construction. The closest travelers in proximity to the Clines Corners Wind Farm would include local or regional traffic along New Mexico State Route 3 and U.S Route 60.

5.0 ENVIRONMENTAL EFFECTS

5.1 Introduction

This chapter addresses whether the proposed Clines Corners Gen-Tie System Corridor, step-up substation and switchyard (collectively, the Gen-Tie System) would "unduly impair important environmental values," as provided in NMSA 1978, Section 62-9-3F. Potential consequences, or impacts, on the environment that could result from the location of the proposed transmission line facilities are described, including construction, operation, and maintenance activities. Each of the resource areas provided in NMSA 1978 Section 62-9-3M, Commission Rule 17.9.592.10 NMAC is addressed, as well as additional resource areas identified by Staff. These are: air resources; noise; geology and mineral resources; soil resources; water resources; flora and fauna resources; 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. Impact evaluations for each resource are discussed below in the context of the Clines Corners Gen-Tie System Corridor together with BMPs that can help manage impacts.

Implementation of the proposed transmission line facilities could affect the existing condition of the environment. Effects can occur directly or indirectly within the Clines Corners Gen-Tie System Corridor. Direct effects are those that occur through direct or immediate interaction of the proposed transmission line facilities with environmental components. Indirect effects are those that are somewhat distant from the 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 Gen-Tie (approximately 30 years) were considered long-term impacts. Permanent impacts are those that would be anticipated to remain for the life of the Gen-Tie and beyond.

For each resource area review below, this report: describes the potential ground disturbance and environmental effects that may occur due to the transmission line facilities; identifies the protection measures that Applicant proposes to avoid and minimize impacts; and summarizes the potential for the transmission line facilities to result in undue impairment of important environmental values.

5.2 Air Resources

5.2.1 Impact Assessment Methods

Assessment of impacts to air resources from the transmission line facilities construction, operation, and maintenance within the Clines Corners Gen-Tie System Corridor 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 Clines Corners Gen-Tie System Corridor

5.2.2.1 Construction

The large equipment used during construction would likely be powered with diesel or gasoline. These combustibles include pollutants such as nitrogen oxides (NO_x), carbon monoxide (CO), volatile organic compounds (VOCs), particulate matter (PM), small amounts of SO_2, and trace amounts of hazardous air pollutants. Construction contractors and their equipment would be required to comply with all emissions standards. If onsite concrete (a batch plant) is required for transmission line facility construction, the proper state and county location and air quality permitting would be obtained by the Applicant prior to construction. Therefore, air quality impacts associated with construction of the transmission line facilities would primarily be limited to fugitive dust.

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.

As the fugitive dust emissions and emissions from combustion engines would be temporary (limited to the construction period), limited to the construction area, and transient and likely controlled with watering, these sources would not significantly contribute to reduced air quality levels in the Clines Corners Gen-Tie System Corridor.

5.2.2.2 Operations and Maintenance

During operation of the transmission line facilities, 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 the transmission line facilities.

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 right-of-way 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 the transmission line facilities, as well as the protection measures detailed above, it is not expected that the proposed location of the transmission line facilities would unduly impair air resources.

5.3 Noise

5.3.1 Impact Assessment Methods

Assessment of impacts to noise conditions from the transmission line facility construction, operation, and maintenance within the Clines Corners Gen-Tie System Corridor of consideration 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 Clines Corners Gen-Tie System Corridor

The existing noise levels in the Clines Corners Gen-Tie System Corridor within rural parts of Torrance and Guadalupe counties is relatively low. The primary existing sources of noise in the Clines Corners Gen-Tie System Corridor are traffic along local county roads and some agricultural machinery. Localized noise associated with equipment operation during construction and maintenance activities would increase local noise levels in the Clines Corners Gen-Tie System Corridor. Noise impacts from construction of transmission line facilities would be localized, short term, and temporary, and all applicable state and local noise regulations would be complied with. After construction, operating noise from the transmission line facilities would be greatly reduced and cause negligible impacts.

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) 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, short term impacts, compliance with regulated noise limits during operation, negligible impacts during operation, as well as the protection measures detailed above, it is not expected that the proposed location of the transmission line facilities would unduly impair noise.

5.4 Geology and Mineral Resources

5.4.1 Impact Assessment Methods

Assessment of impacts to geological and paleontological resources from transmission line facilities construction, operation, and maintenance within the Clines Corners Gen-Tie System Corridor follows the impact assessment methodology described in Section 5.1 above and is discussed below.

5.4.2 Impacts Specific to the Clines Corners Gen-Tie System Corridor

There are no identified operational hydrocarbon facilities or unique geological features located within the Clines Corners Gen-Tie System Corridor, and impacts from the construction, operation, and maintenance of the transmission line facilities are not anticipated. There are no known faults or landslide areas in the

Clines Corners Gen-Tie System Corridor, and, therefore, impacts from the construction, operation, and maintenance of the transmission line 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 landslides in the Clines Corners Gen-Tie System Corridor.

5.4.4 Conclusion

Due to no unique geological features, faults, or landslides; the types of bedrock in the area; and the proposed activities for the transmission line facilities, it is not expected that the proposed location of the transmission line facilities would unduly impair geological sites.

5.5 Soil Resources

5.5.1 Impact Assessment Methods

Assessment of impacts to soil resources from the transmission line facilities from construction, operation, and maintenance within the Clines Corners Gen-Tie System Corridor 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 permanent soil would be lost due to the permanent footprint of transmission line facilities.

5.5.2 Impacts Specific to the Clines Corners Gen-Tie System Corridor

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 Clines Corners Gen-Tie System Corridor 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 the transmission line facility operations would consist of soil disturbances necessary to maintain the transmission line facilities 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 transmission

line facilities 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 Environmental Protection Agency 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 transmission line facilities would result in minor long-term loss of that acreage to other productive soil uses. The total permanent footprint of transmission line facilities would range from approximately 15 to 30 acres inside the Clines Corners Gen-Tie System Corridor, equaling less than one-tenth of 1 percent of the Clines Corners Gen-Tie System Corridor.

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. The Applicant will replace soil in reverse order, to help preserve topsoil.

Soil-3: The Applicant 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 about of permanent soil loss as well as the protection detailed above, it is not expected that the proposed location of the transmission line facilities would unduly impair soil resources.

5.6 Paleontological Resources

5.6.1 Impact Assessment Methods

Assessment of impacts to paleontological resources from transmission line facilities construction, operation, and maintenance within the Clines Corners Gen-Tie System Corridor follows the impact assessment methodology described in Section 5.1 above and is discussed below.

5.6.2 Impacts Specific to the Clines Corners Gen-Tie System Corridor

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 Permian deposits of the San Andreas Formation, Glorieta sandstone, and Artesia Group, all of which would have a low probability for the presence of paleontological deposits and the Triassic deposits of the Chinle and the Upper Chinle Groups, which would have a low to moderate probability for the presence of paleontological deposits. 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 Clines Corners Gen-Tie System Corridor. 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 finds.

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 transmission line facilities would unduly impair paleontological sites.

5.7 Water Resources

5.7.1 Methods and Impact Types

Assessment of impacts to water resources from transmission line facilities construction, operation, and maintenance within the Clines Corners Gen-Tie System Corridor 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 Clines Corners Gen-Tie System Corridor

5.7.2.1 Surface Water

The potential sources of surface water resource impacts from the transmission line facilities 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 in the Clines Corners Gen-Tie System Corridor, low impacts to surface water are anticipated from the transmission line facilities.

In addition to soil-disturbance activities, impacts to surface waters may include stream crossings by transmission line facilities 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 from the transmission line facilities

based on the low number of streams in the Clines Corners Gen-Tie System Corridor and the ability to avoid stream resources through aerial spanning.

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 transmission line facilities, 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. Transmission line facilities 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 transmission line facilities would affect groundwater to any extent. Any impacts to groundwater would be low impacts for short duration and consist mainly of temporary sedimentation. Excavations for transmission line facilities 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.

No water wells would be drilled for the transmission line facilities. All water used for construction (e.g., dust control or concrete production) would come from existing offsite sources, which would be identified and secured prior to construction.

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. As described above in Section 4.7, the NWI data documented 41.4 acres of wetlands within the

Clines Corners Gen-Tie System Corridor (Table 4-6). The NWI identified wetlands included two wetland types: freshwater emergent wetland, and freshwater pond (Exhibit 8). The Clines Corners Gen-Tie System Corridor has 28-miles of mostly unnamed intermittent or ephemeral stream features and no perennial steams (data from NHD).

The potential wetlands identified by NWI and PLJV would be verified in the field and inventoried and/or delineated to determine the actual locations of wetlands prior to construction of the transmission line facilities. This information would be provided to the design team so direct impact to wetlands can be avoided. All wetlands would be avoided or spanned by the transmission line to avoid direct impacts. The Project substation and switchyard would not be located in wetlands or playas. Work areas and wire pulling and tensioning sites would be sited to avoid wetlands to the extent practicable. 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 the transmission line facilities 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 a Nationwide Permit (NWP)

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 Clines Corners Gen-Tie System Corridor, planned avoidance of water resources by transmission line facilities, and the protection measures detailed above, it is not expected that the proposed location of the transmission line facilities would unduly impair water resources.

5.8 Flora and Fauna

5.8.1 Methods and Impact Types

Assessment of impacts to biological resources (flora and fauna) from the transmission line facility construction, operation, and maintenance within the Clines Corners Gen-Tie System Corridor 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.

5.8.2 Impacts Specific to the Clines Corners Gen-Tie System Corridor

The Clines Corners Gen-Tie System Corridor is dominated by open grassland grazing. Plant and wildlife species adapted to shortgrass lands are present within the Clines Corners Gen-Tie System Corridor.

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. The Applicant would work to minimize potential habitat fragmentation by paralleling transmission line facilities with existing linear features (e.g., road and existing transmission lines) and avoid paralleling water features (such as streams or wetlands) when feasible. 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 of 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. Potential impacts of this type would likely be low and isolated to an individual. 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.

5.8.2.1 Federally and State Listed Species

Two animal species (Mexican spotted owl and the southern willow flycatcher) federally listed under the ESA may potentially occur in the Clines Corners Gen-Tie System Corridor. The southwestern willow flycatcher is unlikely to occur within the Clines Corners Wind Farm due to the absence of suitable habitat. The Gen-Tie Corridor does not contain old-growth, mature forest habitat. Designated critical habitat for the owl is approximately 42 miles from the western end of the line.

A total of four state-listed endangered or threatened wildlife species are identified for the area where the transmission line will be developed and described above. Of these four species, bald eagle, Baird's sparrow, and peregrine falcon may occur in the Clines Corners Gen-Tie System Corridor as migrants, but suitable habitat is not present. The Clines Corners Gen-Tie System Corridor 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, the Applicant 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 transmission line facilities in the Clines Corners Gen-Tie System Corridor.

5.8.2.2 Raptors, Eagles, and Birds

Raptor, eagle, and migratory bird species are known to use the Clines Corners Gen-Tie System Corridor for breeding, foraging, and migration (WEST, 2018). If transmission line facility 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. The Applicant proposes 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 the Applicant and/or construction activities would occur outside of breeding seasons for MBTA protected species. Furthermore, in accordance with the BGEPA, the Applicant would avoid placing transmission line facilities 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.

Transmission line facilities 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. Potential water resources are limited to scattered playa lakes, stock ponds, and ephemeral 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 Clines Corners Gen-Tie System Corridor. Collision risks to cranes would only apply during wet periods during the spring and fall migration as migrating birds may descend or ascend to access stopover habitats.

The Applicant would follow Avian Power Line Interaction Committee (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 feet). 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, the Applicant 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 and excavations 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 risk, 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 Clines Corners Gen-Tie System Corridor; as well as the protection measures detailed above, it is not expected that the proposed location of the transmission line facilities would unduly impair biological resources.

5.9 Cultural, Historic, and Archaeological 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 Wind Project Farm, would, as a whole, avoid or minimize impacts to environmental resources. Although studies have been conducted on the Clines Corners Wind Project Farm, 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.

The amount of ground that could be disturbed as a result of the transmission line facilities was estimated based on the typical design characteristics of this 345-kV line. Short-term disturbance estimates included

structure work areas for the staging and installation of the 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 the transmission line facilities.

5.9.1 Methods and Impact Types

Assessment of impacts to cultural, historic, and archaeological resources from transmission line facilities construction, operation, and maintenance within the Clines Corners Gen-Tie System Corridor 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 cultural, historic, and archaeological resources. Cultural resources surveys would be completed for all areas of anticipated ground disturbance for the Clines Corners Gen-Tie System Corridor prior to any ground disturbance on public as well as private property.

5.9.2 Impacts Specific to the Clines Corners Gen-Tie System Corridor

No historic archaeological resources are reported with the Clines Corners Gen-Tie System Corridor. Impacts to known locations of cultural resources would be low because the transmission line facilities are intended to be designed around these areas. Cultural resource field surveys would be completed prior to any construction activity to reduce potential impacts from the transmission line facilities to unlocated sites. Any discoveries which may occur during construction would be managed through an Unanticipated Discovery Protocol (UDP).

5.9.3 Protection Measures

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

Cul-1: The Transmission Line Areas will be designed to avoid known sites.

Cul-2: Cultural surveys in known areas of ground disturbance for the final transmission line facilities 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 transmission line facilities would not unduly 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 resources from transmission line facilities construction, operation, and maintenance within the Clines Corners Gen-Tie System Corridor 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 Clines Corners Gen-Tie System Corridor

Within the Clines Corners Gen-Tie System Corridor, there are no known churches or cemeteries. No impacts to known locations of religious resources are expected to occur because religious resources may be avoided by the transmission line facilities. Cultural resource field surveys would be completed prior to any construction activity to reduce potential impacts from the transmission line facilities. Siting of transmission line facilities 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 facilities from construction activities include:

Rel-1: Avoid known sites.

5.10.4 Conclusion

Because there are no known churches or cemeteries within the Clines Corners Gen-Tie System Corridor and given the Project's commitment to the protection measure detailed above, no impacts are anticipated

to religious resources. It is not expected that the proposed location of the transmission lines facilities would unduly 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 Wind Project Farm, would, as a whole, avoid or minimize impacts to environmental resources. Although studies have been conducted on the Clines Corners Wind Farm, 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 the transmission line facilities.

Based on the compatibility of the transmission line facilities with the current land uses within the Clines Corners Gen-Tie System Corridor; impacts to land uses from location of the transmission line facilities would be largely temporary and limited in area during construction; and the large majority of the Clines Corners Gen-Tie System Corridor would remain in its pre-existing use, as well as the protection measures detailed above, it is not expected that the proposed location of the transmission line facilities would unduly 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 would occur as a result of the construction, operation, and maintenance of the transmission line it is not expected that the proposed location of the transmission line facilities would unduly impair school or recreation resources.

5.11.1 Methods and Impact Types

Assessment of impacts to visual and scenic resources from the transmission line facility construction, operation, and maintenance within the Clines Corners Gen-Tie System Corridor follows the impact assessment methodology described in Chapter 5.1 above and is discussed below. Construction, operation, maintenance of the transmission line facilities would introduce new features into the visual landscape of the Clines Corners Gen-Tie System Corridor. The transmission line facilities were evaluated to determine whether the following types of impacts would occur:

- Proximity of the transmission line and/or structures 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 Clines Corners Gen-Tie System Corridor

New transmission structures, conductors, substation components, and cleared ROW areas would change the visual characteristics in the vicinity and the viewshed of the transmission line facilities. However, the transmission line facilities would not differ from other transmission lines and substations in the vicinity. For residences located near the transmission line and residents traveling area roads in the Clines Corners Gen-Tie System Corridor, a new man-made feature would be present in the landscape. Residents of homes along the line 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 to the line would be highly dependent on the orientation of the line to the home (in front, behind, alongside), any screening between the home and the line (trees, topography), distance, other visual components (existing lines, radio towers), and the general sensitivity of the occupants to the transmission line facilities.

Visual impacts resulting from the construction and operation of the proposed substation is anticipated to have similar impacts associated with the construction and operation of the proposed transmission line. A 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 Clines Corners Gen-Tie System Corridor (New Mexico Department of Transportation [NMDOT], 2015; Federal Highway Administration [FHWA], 2019) (see Exhibit 15). The nearest scenic route is Historic Route 66, which is more than 20 miles north of the Clines Corners Gen-Tie System Corridor. Therefore, the transmission line is sufficiently far from this 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 Clines Corners Gen-Tie System Corridor. The closest national park is Gran Quivera National Monument, which is approximately 39 miles southwest of the Clines Corners Gen-Tie System Corridor. The closest state park is Villanueva State Park, which is approximately 37 miles north from the Clines Corners Gen-Tie System Corridor. No known visually sensitive, cultural resource sites are in the vicinity of the Clines Corners Gen-Tie System Corridor. No known organized tourism activities are in or near the Clines Corners Gen-Tie System Corridor.

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 feet in height within the 150-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 right-of-way 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 transmission line facilities would unduly 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 the transmission line facility construction, operation, and maintenance within the Clines Corners Gen-Tie System Corridor 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. Transmission line facilities tend to restrict certain activities but may or may not change the land use. Construction, operation, and maintenance of the transmission line facilities 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 transmission line facilities were 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 Clines Corners Gen-Tie System Corridor

5.12.2.1 Agricultural Land Use Impacts

The lands crossed by the transmission line facilities 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 transmission structures and any associated guy wires. Structures would be approximately 3 to 5 feet in diameter at ground level depending on the type of structure. The permanent footprint of transmission line structures would be removed from production, and structures would present obstacles that would need to be avoided. The Applicant would work with landowners to reduce impacts to irrigation facilities. However, overall, the transmission line 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 along the transmission line for constructing and maintaining the line. The landowner would maintain ownership of the property and continue to pay taxes on the property, but the Applicant would acquire rights allowing construction, operation, and maintenance of the transmission line in exchange for a monetary payment to the landowner. The agreement between the landowner and the Applicant 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 transmission line, approximately would be one or two temporary laydown areas for construction material and equipment would be necessary for the duration of construction. These laydown areas each would be approximately 300 feet by 300 feet 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 the transmission line facilities.

One step-up substation and an adjacent switchyard would also be constructed. Construction would take place on up to approximately 20 acres of land for the 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

Guadalupe County does not have any zoning regulations that apply to the transmission line facilities. As part of Torrance County's Goals and Objectives in the Torrance County Comprehensive Land Use Plan, 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. The Torrance County Zoning Ordinance encourages the development of businesses that harness wind energy. Special Use Districts for Wind Energy Facilities are to foster the development of the county's wind power resources while preserving traditional land uses.

According to Torrance County's Zone Map (10/13/2009), land within the Clines Corners Gen-Tie System Corridor is designated as "A – AGRICULTURAL (40 ACRE MINIMUM)" (Torrance County Zoning Ordinance RPR-223, revised May 11, 2016), a rural land use designation for unincorporated areas of Torrance County that are not specifically designated in any other zone classifications. The land use within the Clines Corners Gen-Tie System Corridor has historically been rangeland/dry agriculture; this land use would continue into the future as wind energy and ranching activities are compatible land uses.

5.12.2.3 Public Lands

The transmission line facilities may cross state trust lands, depending on the final route. An easement to cross these state lands would be needed from the New Mexico State Land Office (SLO) for these portions of the transmission line facilities at the Point of Interconnection. If an easement is needed across state trust lands, the Applicant 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. An application has been submitted to the SLO for lands within the Clines Corners Gen-Tie System Corridor at the Point of Interconnection, including the Clines Corners Gen-Tie System Corridor, and as of the submittal of this application, it is in process.

5.12.2.4 Schools

No direct or indirect impacts to schools would occur as a result of the construction, operation, and maintenance of the transmission line facilities. The Estancia Elementary/Middle/High School is located approximately 24 miles west of the Clines Corners Gen-Tie System Corridor boundary. Siting of transmission line facilities 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 the transmission line facilities. There are no parks and recreational areas in close proximity to the Clines Corners Gen-Tie System Corridor. 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 the transmission line facilities with the current land uses within the Clines Corners Gen-Tie System Corridor, impacts to land uses from location of the transmission line facilities would be largely temporary and limited in area during construction. The large majority of the Clines Corners Gen-Tie System Corridor 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 transmission line facilities would unduly 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 the transmission line, it is not expected that the proposed location of the transmission line facilities would unduly impair school or recreation resources.

5.13 Socioeconomics

5.13.1 Impact Assessment Methods

Assessment of impacts to socioeconomic resources from the transmission line facility construction, operation, and maintenance within the Clines Corners Gen-Tie System Corridor 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 the Clines Corners Wind Farm 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 the Clines Corners Wind Farm.
- 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 Clines Corners Gen-Tie System Corridor

The development of the Clines Corners Wind Project represents a significant commitment of resources in the New Mexico economy. While other, larger projects are also in development at the present, the addition of approximately 480 MW of wind generation is significant, compared to the current statewide total installed capacity of about 1,732 MW. Through the Project, the Applicant will invest a total of about $589 million in clean, renewable energy generation in New Mexico (Tysseling, 2019).

Once operational, the Project will create stable, reliable employment and revenue streams for the local economies that will not suffer from the volatility associated with traditional energy resource developments in New Mexico. The Project will also directly benefit the land owners on the land that it covers, providing a reliable stream of revenue from the land. This additional revenue has the potential to create conditions that allow for land owners to remain in the ranching business, when in its absence, it might not remain profitable (Tysseling, 2019).

The Clines Corners Wind Project will produce a direct economic impact over 30 years of approximately $485 million. When taking into consideration indirect and induced impacts, the regional economy can be expected to realize approximately $748 million in increased economic activities associated with the Project's development. Viewed from the perspective of a present value return on the economic development activities, the capital investment in the Clines Corners Wind Project facilities will generate nearly $313 million in new direct economic benefits, and with consideration of the indirect and induced economic impacts these benefits have a present value of $485 million in new economic activities.

It is important to understand that these economic benefits are earned to the regional economy — not the developers of the Project. The developers' return on investment is internal to the economics of the Project's operations, while the economic benefits reported here are external to the Project's owners (Tysseling, 2019).

The employment impacts are expected to be significant. The Clines Corners Wind Project will create an estimated 214 peak FTE during its development, with an estimated 75 of those employing local resources providing additional payroll income of approximately $59.9 million (Tysseling, 2019).

Of the total capital expenditures during the Development Phase of the Clines Corners Wind Project, it is estimated that $130 million in contracts will flow to local construction service providers. Once construction is completed and operations commence, the Project is expected to result in the employment of up to 20 full-time personnel with total operating costs of approximately $10.5 million per year.

The land lease, easement, and royalty agreements with the private landowners for the Clines Corners Wind Project will provide additional income between approximately $500,000 during the Development Period, and $1.3 million per year on average during the Operational Period (Tysseling, 2019).

GRT revenues will be increased as a result of the construction activities by $1.3 million for the construction of the Project. Fiscal impacts associated with payments in lieu of property taxes will be made by the developers to several municipal and school district beneficiaries in an average amount of $1.6 million annually (Tysseling, 2019).

In sum, the direct local economic impacts of the Clines Corners Wind Project during the Development Period are anticipated to be approximately $131 million, with direct, indirect and induced (multiplier) impacts suggesting a total impact of $209 million from the development of the Project. Once operational, the Clines Corners Wind Project should generate an annual direct economic impact of approximately $11.8 million, and when economic multipliers are considered, the annual impact from the Clines Corners Wind Project operation can be estimated to be approximately $18 million (Tysseling, 2019).

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 Clines Corners Wind Farm 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. Aside from the technology, innovation and capital investments developed in conjunction with the Clines Corners Wind Farm, 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 Clines Corners Wind Farm, 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 Clines Corners Wind Farm 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 the transmission line facility construction, operation, and maintenance, within the Clines Corners Gen-Tie System Corridor 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 Clines Corners Gen-Tie System Corridor

A review of communication structures within the Clines Corners Gen-Tie System Corridor (Table 4-15) identified one active private tower and one active antenna structure registration tower. The transmission line facilities are planned to avoid beam paths. Siting of transmission line facilities would be completed outside of existing, known fresnel zones and would avoid inference with communication pathways. The transmission line facilities would avoid AM and FM station towers to the extent practicable if new tower facilities are developed.

In addition, the Applicant has consulted with the National Telecommunications and Information Administration (NTIA) to evaluate potential impacts to communications infrastructure and services within the Project area. In January 2019, the Applicant received a letter from NTIA stating that the agency does not anticipate harmful interference as a result of the Project.

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: The Applicant 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 by transmission line facilities to the extent practicable; therefore, it is not expected that the proposed location of the transmission line facilities would unduly 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. The transmission line facilities 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, from the transmission line facility construction, operation, and maintenance, within the Clines Corners Gen-Tie System Corridor follows the impact assessment methodology described in Chapter 5.1 above and is discussed below. Accidental spill of hazardous materials could occur with the construction, operation, and maintenance of transmission line facilities. These hazards are described in more detail below.

5.16.2 Impacts Specific to the Clines Corners Gen-Tie System Corridor

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 the Applicant 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 transmission line facilities would unduly impair important environmental resources from hazardous materials.

5.17 Safety

5.17.1 Impact Assessment Methods

Assessment of impacts to safety, from the transmission line facility construction, operation, and maintenance, within the Clines Corners Gen-Tie System Corridor follows the impact assessment methodology described in Chapter 5.1 above and is discussed below. Safety concerns can arise from transmission line facility construction, operation, and maintenance. These concerns are described in more detail below.

5.17.2 Impacts Specific to the Clines Corners Gen-Tie System Corridor

The Applicant 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, the Applicant's safety plan would have procedures in place to address most safety situations. The Applicant will comply with all manufacturer specifications and relevant

OSHA requirements to ensure the safety of residents, employees, contractors, livestock, the public, and other users of the land.

Construction of the transmission line facilities could cause wildfire ignition. Operation and maintenance activities (e.g., welding, vehicle ignition), and the presence of energized transmission line facilities (e.g., arc ignition) could also cause wildfire ignition. The Applicant and/or its 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, Torrance and Guadalupe County emergency responders and fire districts will be contacted to ensure appropriate plans are in place at the Clines Corners Wind Farm to quickly respond to any emergencies. The Applicant will work with the departments to ensure the safety of the firefighters, Clines Corners Wind Farm employees, landowners, neighbors, livestock, and other users of the land. The Clines Corners Wind Farm will have emergency response plans in place to respond to various natural disasters, even though the Clines Corners Gen-Tie System Corridor generally is not considered to be a high-risk site. An annual emergency response drill, which local responders will be invited to participate, will be completed onsite, to test the Clines Corners Wind Farm emergency response

Within the Clines Corners Wind Farm, safety risks will be reduced as electrical the substation 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, the Applicant will man a 24/7 monitoring center will monitor the substation and turbines. There will be signage on the substation fences with the 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: The Applicant and its 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 limited to, shovels, buckets, and fire extinguishers.

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

Safe-4: The Applicant and/or its 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: The Applicant 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 transmission line facilities would unduly 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 the transmission line facility construction, operation, and maintenance within the Clines Corners Gen-Tie System Corridor 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 transmission line facilities were 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 Clines Corners Gen-Tie System Corridor

As discussed in Section 5.11, there are no national parks or state parks in the vicinity of the Clines Corners Gen-Tie System Corridor. The closest national park is Gran Quivera National Monument, which is approximately 39 miles southwest of the Clines Corners Gen-Tie System Corridor. The closest state park is Villanueva State Park, which is approximately 37 miles north from the Clines Corners Gen-Tie System Corridor. Transmission line facilities 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.

As discussed in Section 5.9, no prehistoric or historic cultural resources sites are reported within the footprint of the proposed Clines Corners Gen-Tie System Corridor. However, cultural resource field surveys would be completed prior to any construction activity to reduce potential impacts from the transmission line facilities 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 transmission line facilities to the extent practicable; therefore, it is not expected that the proposed location of the transmission line facilities would unduly impair geographic resources.

5.19 Military Activities and Aviation

5.19.1 Impact Assessment Methods

Assessment of impacts to military and aviation activities, from the transmission line facility construction, operation, and maintenance, within the Clines Corners Gen-Tie System Corridor 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 Clines Corners Gen-Tie System Corridor

No military bases occur within the Clines Corners Gen-Tie System Corridor; nor do military training routes intersect the Clines Corners Gen-Tie System Corridor. The Applicant has received a DNH from the FAA (applications 2018-WTW-3186-OE though 2018-WTW-3377-OE) for the Project turbines; however, the Applicant will not seek a DNH from the FAA for the transmission line, as structures will not be over 200 feet (transmission line structures of this height are very unlikely for the Clines Corners Wind Farm). Based on the height of transmission line facilities and the location of military and aviation resources, the transmission line facility construction, operation, and maintenance, within the Clines Corners Gen-Tie System Corridor 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

Impacts to military activities and aviation resources would be avoided by transmission line facilities to the extent practicable; therefore, it is not expected that the proposed location of the transmission line facilities would unduly impair military activities and aviation resources.

5.20 Roads

5.20.1 Impact Assessment Methods

Assessment of impacts to roads from the transmission line facilities from construction, operation, and maintenance within the Clines Corners Gen-Tie System Corridor follows the impact assessment

methodology described in 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 Clines Corners Gen-Tie System Corridor

Potential impacts for roads would be greatest during construction of transmission line facilities. Construction equipment and increased traffic have the potential to degrade existing road conditions. The Applicant 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 transmission line facilities construction is occurring that day or week. Low impacts to roads in the Clines Corners Gen-Tie System Corridor are anticipated based on localized, short term impacts, and the Applicant's 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 the Applicant will develop a road use agreement with NMDOT and Torrance, and Guadalupe 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 the Applicant's commitments to return roads used for construction to pre-construction conditions, well as the protection measures detailed above, it is not expected that the proposed location of the transmission line facilities would unduly impair roads.

5.21 Additional Protection Measures

The Applicant proposes to implement the following protection measures in addition to the above-mentioned protection measures identified for each of the resource areas provided in NMSA 1978 Section 62-9-3M, Commission Rule 17.9.592.10 NMAC. These additional protection measures are identified as follows:

Additional Protection Measure 1: The Applicant's contractor shall implement a hazard communication program for any onsite hazardous materials to include training, labeling and

posting of Material Safety Data Sheets ("MSDS"). Fuels and petroleum-based products shall be stored in approved containers and away from excavated areas. Waste motor oil, hydraulic fluid and liquid gear lube shall be stored in approved containers in isolated areas and removed to an authorized disposal facility monthly and in accordance with regulations of the New Mexico Environment Department ("NMED"). All equipment using hydraulic hoses and cylinders shall be inspected at least daily for leaks. Any equipment found to have petroleum leaks that cannot be repaired immediately shall be removed from service and replaced.

Additional Protection Measure 2: The Applicant's construction crews shall have proper training, there will be spill kits on site, and any leaking equipment shall be repaired immediately as detailed in a Spill Prevention, Control, and Countermeasures ("SPCC") Plan. In the event contaminants are released, in addition to the requirements outlined in the environmental report, the Applicant shall adhere to the notification policies contained in 20.6.2.1203 NMAC.

Additional Protection Measure 3: Construction could lead to the inadvertent excavation of asbestos- containing pipes, or soils contaminated with asbestos fines/fragments. In the event such fragments/soils are excavated, the Applicant shall analyze such fragments/ soils by Polarized Light Microscopy, or a more accurate method, and if the fragments/ soils exceed more than 1% asbestos, the asbestos waste will be disposed of by an approved commercial hauler in accordance with New Mexico Solid Waste Rules.

Additional Protection Measure 4: The Applicant shall comply with Sections 401 and 404 of the Clean Water Act ("CWA") and obtain all necessary permits. All impacts shall be evaluated against the requirements of the U.S. Army Corps of Engineers for nationwide permit number 12 and number 51, as applicable.

Additional Protection Measure 5: Prior to commencement of construction activities, the Applicant shall develop a Storm Water Pollution Prevention Plan ("SWPPP") and obtain coverage under a National Pollution Discharge Elimination System ("NPDES") Construction General Permit from the U.S. Environmental Protection Agency ("EPA") pursuant to Section 402 of the Clean Water Act, 33 U.S.C. § 1342.

Additional Protection Measure 6: Any new water wells drilled or diversions of existing water rights in the Clines Corners Wind Farm for the Project shall be appropriately permitted with the New Mexico Office of the State Engineer, and with the agreement of the water rights holder.

Additional Protection Measure 7: Construction activities in areas within ½ mile of non-participating residents shall be conducted during daylight hours, generally between 6:00 a.m. and 8:00 p.m., unless necessary due to weather, safety, or schedule constraints. Non-participants are defined as landowners in the Clines Corners Wind Farm who do not have a contractual agreement with the Applicant. If required, nighttime construction will be allowed but shall not exceed two consecutive nights for that residential area.

Additional Protection Measure 8: The Applicant shall minimize, as is practicable, all construction related earthwork activities required to complete the Project including excavation, cutting, scraping, scarifying, grading, cutting and filling. Wet suppression techniques or dust palliatives shall be used, as appropriate, to control airborne fugitive dust in construction areas, along the utility right of way ("ROW"), and on temporary haul roads and access roads. The Applicant shall post and enforce a speed limit of 25 miles per hour on all unpaved private access roads in the Clines Corners Wind Farm for use by the Applicant's employees or its contractors. Construction personnel shall be provided training in dust suppression best practices for construction operations, in particular during the dry season and high wind events. The ROW shall be maintained free of construction debris and litter.

Additional Protection Measure 9: Compressor engines for generators and associated equipment used for the Project shall be compliant with the air emissions standards of the New Source Performance Standards ("NSPS") found at 40 CFR Part 60 subparts IIII and JJJJ for spark ignition and compression ignition engines, respectively, as applicable. Pre-NSPS generators and associated equipment not meeting applicable NSPS air emissions standards shall not be used for the Project. At least 90 days prior to the use of any diesel, natural gas or propane fired generator engine(s). The Applicant or its representative shall apply for either a general construction permit ("GCP") or a Part 72 air quality construction permit, as applicable, pursuant to the New Mexico Air Quality Control Act NMSA 1978, §§ 74-2-1- et seq., and 20.7.72 NMAC, Construction Permits.

Additional Protection Measure 10: Crushing and screening plants and their associated equipment shall be compliant with the air pollution emissions standards of 40 CFR 60 Subpart 000 NSPS for Non-Metallic Mineral Processing Plants, as applicable. Pre-NSPS crushing and screening plants and associated equipment not meeting applicable emissions standards shall not be used for the Project. At least 90 days prior to the use of crushing and screening plants and associated equipment, the Applicant or its representative shall apply for either a GCP or a Part 72

air quality construction permit, as applicable, pursuant to the New Mexico Air Quality Control Act NMSA 1978, §§ 74-2-1- et seq., and 20.7.72 NMAC, Construction Permits. Any crushing and screening plant previously permitted at a different location by the New Mexico Environment Department ("NMED") and is seeking to relocate to provide services to the Project shall apply for applicable relocation approvals at least 90-days in advance.

Additional Protection Measure 11: At least 90 days prior to the use of concrete batch plants and associated equipment, the Applicant or its authorized representative shall apply for either a GCP or a Part 72 air quality construction permit, as applicable, pursuant to the New Mexico Air Quality Control Act NMSA 1978, §§ 74-2-1- et seq., and 20.7.72 NMAC, Construction Permits. Any concrete batch plant that was previously permitted by the NMED at a different location in the state and is seeking to relocate to provide services to the Project shall apply for relocation approval, if applicable, at least 90-days prior to use.

Additional Protection Measure 12: To reduce fuel burn and air pollutant emissions due to excessive idling, the Applicant shall require contractors and subcontractors to implement an idle-timing monitoring and idle-reduction program that may include written policies, training, supervisory reminders for personnel, telematics, idle limiters or shutdown devices. Idling time of equipment or trucks shall not exceed five (5) minutes, unless idling is necessary for proper operations, health, or safety including, but not limited to, drilling, trenching and hoisting activities.

Additional Protection Measure 13: All wetlands, ponds, playas and ephemeral drainages shall be avoided or spanned by the Gen-Tie System, where practicable. No substations or switchyards shall be placed in wetlands or playas. To the extent practicable, staging areas, laydown yards, wire pulling, tensioning sites and other work areas shall use existing disturbed areas, sited in proximity to existing roads, where practicable, and also sited to avoid ponds, wetlands, playas and ephemeral drainages. Where wetlands cannot be avoided, matting or other temporary measures shall be implemented to minimize impacts.

Additional Protection Measure 14: In areas of soil disturbance that are in proximity to wetlands, ponds, playas and ephemeral drainages, certified weed-free wattles, bale barriers or silt fencing, as appropriate, shall be placed as erosion and sediment control measures, or as provided in the SWPPP. Such areas shall be reseeded and reclaimed immediately upon completion of construction. Reseeding shall use native grasses, shrubs or forbs. Reseeded areas which have not

become established by the end of the growing season and which pose erosion concerns shall be assessed, and appropriate erosion controls implemented.

Additional Protection Measure 15: No wind turbines, substations or switchyards shall be located in areas mapped as a 100-year floodplain by the Federal Emergency Management Agency ("FEMA"). Collection lines, cables and access roads shall be designed to minimally intersect the floodplain and shall not change the base flood elevation or otherwise affect the floodplain. The placement of poles and structures for overhead collection shall minimally intersect the flood plain without affecting the base flood elevation. If practicable, at the end of construction, underground collection cable trenches shall be reclaimed to pre-existing contours without affecting the floodplain.

Additional Protection Measure 16: To the extent practicable, access roads shall be designed to be at right angles to streams, and the hydrology flow of stream courses shall not be changed. The Applicant shall implement appropriate erosion control measures in areas with slopes, as provided in the SWPPP. Temporary access roads shall be designed following existing landform contours, where practicable, and revegetated with native or similar grasses, shrubs or forbs. Where ground disturbance is significant, the soil surface shall be loosened, reseeded and cross drains installed for erosion control.

Additional Protection Measure 17: If sanitary sewer systems do not already exist at the Project locations where service is needed, the Applicant or its representative shall apply for liquid waste disposal (septic) systems permits from the NMED pursuant to 20.7.3 NMAC, as applicable. Applications for liquid waste disposal permits shall be submitted to the NMED at least ninety days (90) prior to the system installation date(s). In the event any proposed discharges to ground water equal or exceed five thousand (5,000) gallons per day, the Applicant shall apply for ground water discharge permit(s) at least one hundred and eighty (180) days prior to the system installation date(s).

Additional Protection Measure 18: The Applicant shall perform preconstruction surveys of raptor, eagle and other migratory bird habitat and all existing nests shall be preserved, if practicable, or relocated if necessary. Where practicable, gen-tie lines, turbines and associated facilities shall not be located near active nests. During construction, the Applicant shall establish protection buffers around any active nests identified during the preconstruction survey. Active

nests shall not be relocated until the New Mexico Department of Game and Fish ("NMDGF") has been consulted and given approval for the relocation.

Additional Protection Measure 19: The Applicant shall follow the NMDGF "Guidelines and Recommendations for Burrowing Owl Surveys and Mitigation." Per the NMDGF Guidelines, occupied burrows shall not be disturbed from March 1 through August 1 and prairie dogs, other burrowing animals, and their burrows will not be disturbed or destroyed within the owl avoidance areas. Preconstruction nest-season surveys shall be conducted in conformance with the Migratory Bird Treaty Act ("MBTA").

Additional Protection Measure 20: To protect the Northern Mexican Gartersnake, the Applicant will use the smallest mesh size possible (<0.5 inches) for erosion-control efforts in areas near their habitat.

Additional Protection Measure 21: To minimize avian collision risk, the Applicant shall install bird diverters on all overhead shield wires and guy wires of the Gen-Tie System that are located in proximity to playa lakes, ponds and ephemeral drainages that could be inundated during the wet seasons.

Additional Protection Measure 22: The Applicant shall conduct surveys for the endangered Kuenzler hedgehog cactus prior to any ground disturbance activities. Any plants that cannot be avoided should be conserved by relocating them within the existing ROW and outside any areas of ongoing disturbance, or otherwise as directed by NMDGF.

Additional Protection Measure 23: Prior to commencement of construction, the Applicant shall conduct consultations with the NMDGF regarding the locations where the Project may impact the Kuenzler hedgehog cactus, Mexican spotted owl and the Northern aplomado falcon and implement protective measures recommended by NMDGF.

Additional Protection Measure 24: Prior to commencement of construction, crews shall be given proper training in identifying cultural, ecological, archeological and paleontological resources that may be expected within the area. Additionally, construction crews shall be trained in an unanticipated discoveries plan, or an equivalent.

Additional Protection Measure 25: To reduce visual and aesthetic impacts on the ROW, where practicable, the Applicant shall leave plants and shrubs smaller than 8 feet in height within the 180- foot-wide ROW. As to it relates to any federal or state highway or any trail located on

federal or state public lands as currently defined as a scenic byway or trail by the New Mexico Department of Transportation ("NMDOT") or the Federal Highway Administration pursuant to 23 U.S. Code §162, no turbines, gen-tie lines, or associated facilities shall be placed in a location that would block the view of a major portion of a scenic vista or byway, as viewed from a public road, park, trail or open space.

Additional Protection Measure 26: Beginning 90-days from the date the Commission issues a final order granting approval for the Project, and ending when the Project and Gen-Tie System become operational, the Applicant shall file quarterly compliance reports with the Commission (1) identifying progress made with respect to any phase of the Project and the applicable terms and conditions included in the Order, (2) reporting any deviations from the terms and conditions, reasons for the deviation and alternative measures implemented, and (3) providing notice of the date the Project becomes operational.

Additional Protection Measure 27: The Applicant shall file copies of all construction permits received for this Project and Gen-Tie System in this docket within two weeks of receipt.

Additional Protection Measure 28: The Applicant shall file a notice of the date(s) that this Project and Gen-Tie System are placed into service in this docket.

6.0 CONSULTATION AND COORDINATION

The following individuals and materials have contributed to the preparation of Applicant's ER for the Gen-Tie, substation, and switchyard.

6.1 List of Preparers and Reviewers

6.1.1 Clines Corners Wind Farm, LLC

- Michael Kurnik, Project Development Manager
- Carla Najjar, Special Counsel
- Dan Najjar, Special Counsel

6.1.2 Burns & McDonnell

- Paul Callahan, Project Principal
- Chris Knopp, Project Manager
- Bob Rowe, Senior Archeologist
- Tiffany McCarthick, Geographic Integration Systems Specialist
- Ryann Williams, Geographic Integration Systems Specialist

6.2 Technical Reports Contributing to the Environmental Report

- Comsearch. (2018a). *Wind Power GeoPlanner Communication Tower Study Clines Corners Wind Farm, New Mexico.*
- Comsearch. (2018b). *Wind Power GeoPlanner Land Mobile & Emergency Services Report Clines Corners Wind Farm, New Mexico.*
- Comsearch. (2018c). *Wind Power GeoPlanner Microwave Study Clines Corners Wind Farm, New Mexico.*
- Souder, Miller and Associates (2019). *Application for Torrance County Zoning Ordinance Amendment for Special Use District & Height Variance: Clines Corners Wind Farm Project*
- Tysseling, John C. (2019). *Report on the Economic and Fiscal Impact of the Clines Corners Wind Farm Project*
- West Inc. (2014). Tier 1 Site Evaluation for the Clines Corners Area of Potential Wind Energy Development.
- West Inc. (2015). *Clines Corners – 2015 Golden Eagle Nest Survey*.
- West Inc. (2016). *Clines Corners – 2016 Golden Eagle Nest Survey*.

- West Inc. (2018a). *Tier 2 Site Characterization Study Clines Corners Wind Resource Area Guadalupe, San Miguel, and Torrance Counties, Mew Mexico*
- West Inc. (2018b). *Clines Corners – 2018 Golden Eagle Nest Survey*.

6.3 Recipients of the Environmental Report

- Torrance/Guadalupe County Board of County Commissioners
- Torrance/Guadalupe County Manager
- Torrance/Guadalupe County Road Superintendent
- Estancia Elementary/Middle/High School
- Vaughn Elementary/High School
- New Mexico Environment Department
- New Mexico State Engineer
- New Mexico Attorney General
- New Mexico State Land Office

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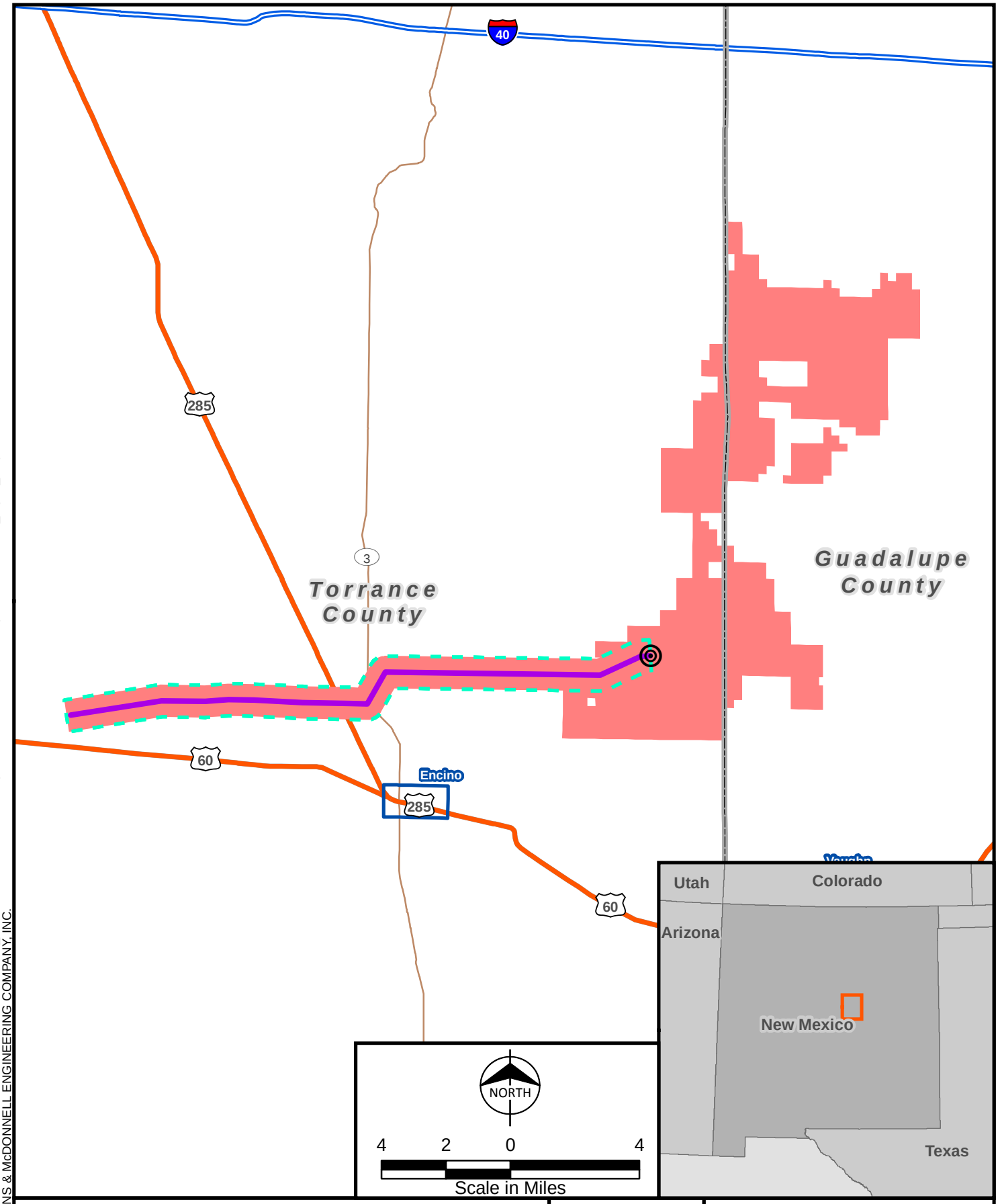
8.0 INDEX

APPENDIX 1 - EXHIBITS

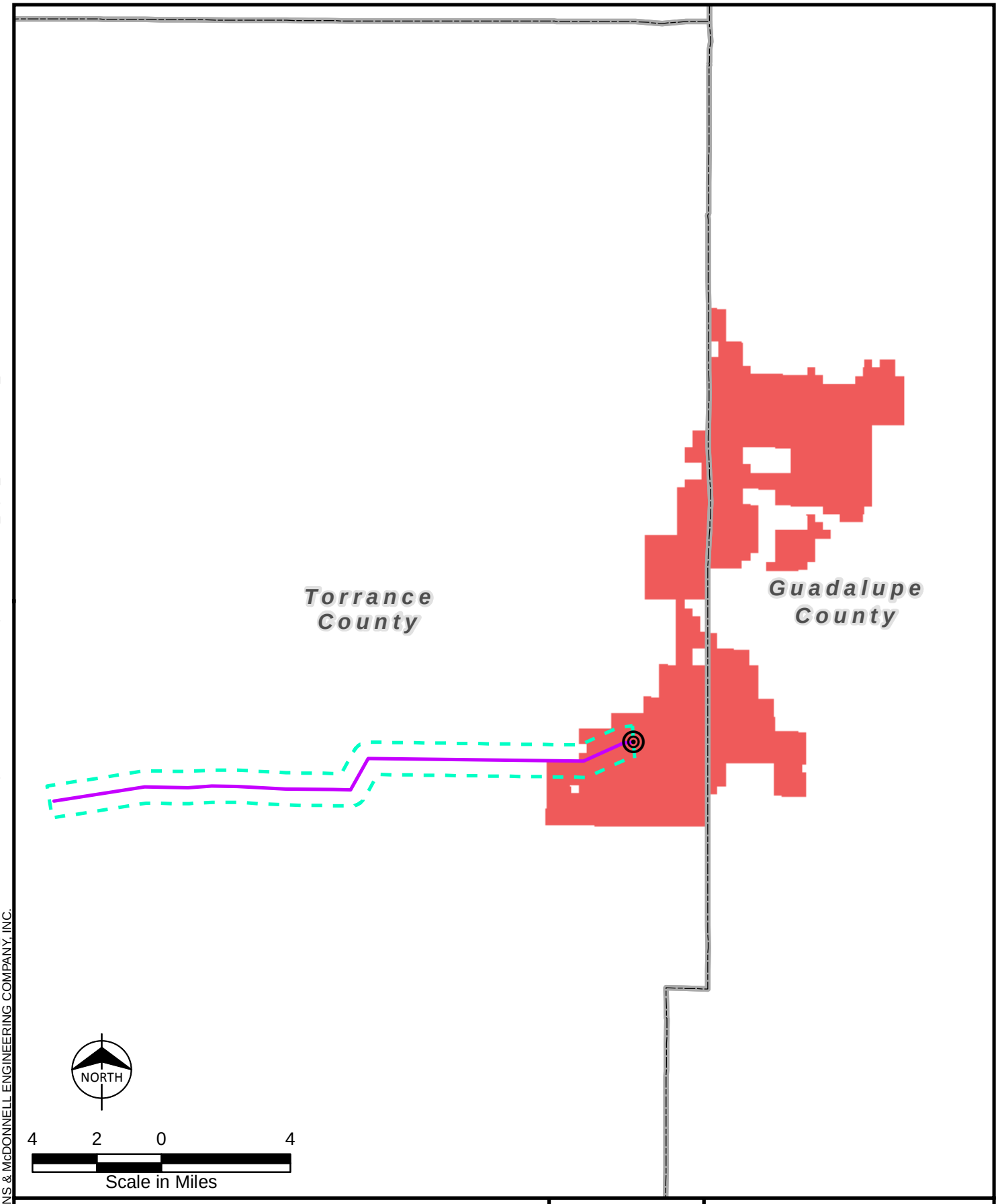


BURNS McDONNELL

Exhibit 1
Project Area
Clines Corners
Wind Farm Project
Guadalupe and Torrance
Counties, NM

Source: Esri, Orion, and Burns & McDonnell Engineering Company, Inc.

Issued: 5/7/2019



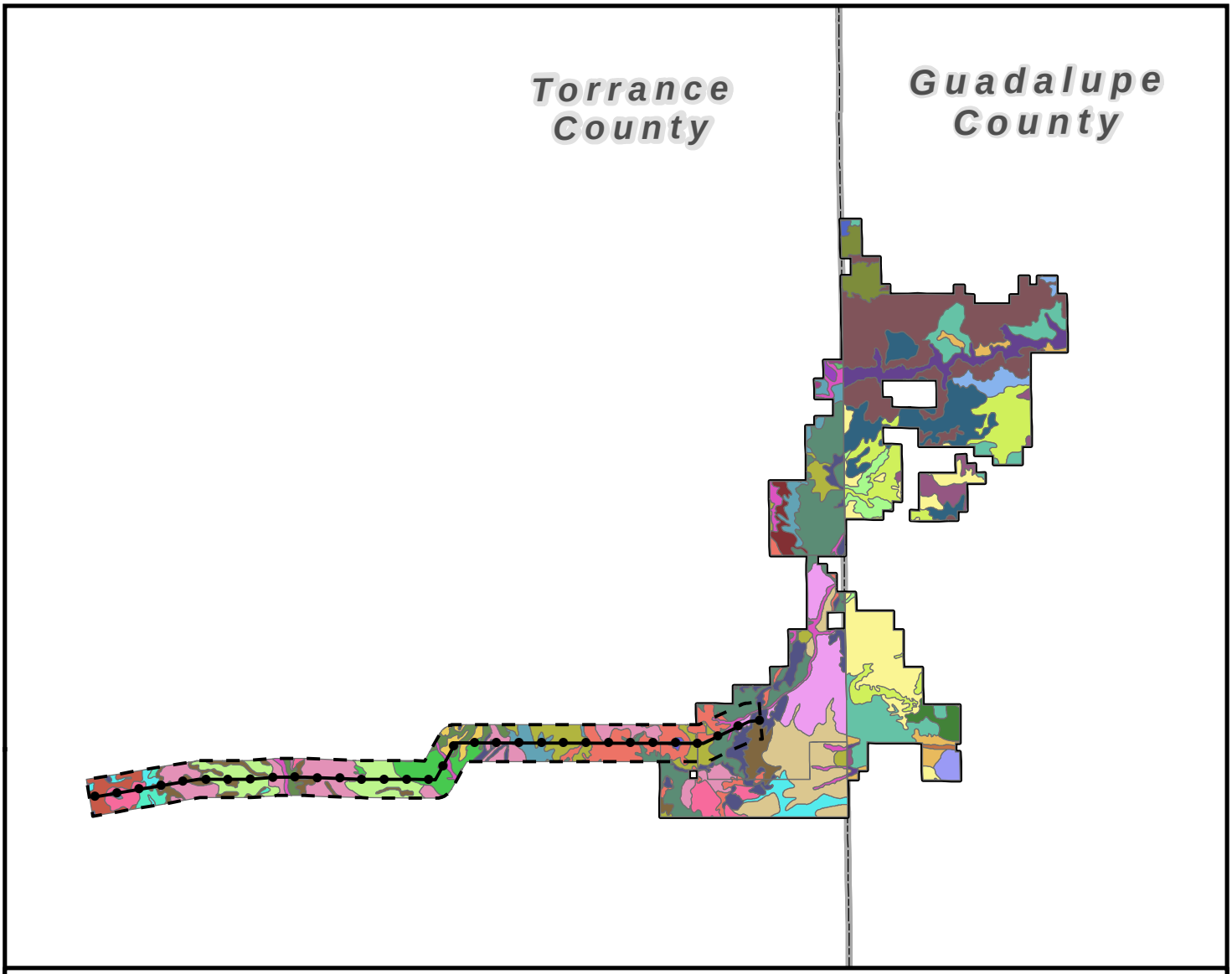
Substation
Clines Corners Wind Farm
Clines Corners Gen-Tie System Corridor
Gen-Tie Line
County Boundary

BURNS McDONNELL

Exhibit 2
Assessment Area
Clines Corners
Wind Farm Project
Guadalupe and Torrance
Counties, NM

Source: Esri, Orion, and Burns & McDonnell Engineering Company, Inc.

Issued: 5/7/2019



Soil Name

- Alicia loam, 1 to 6 percent slopes
- Badland
- Bernal-Travessilla fine sandy loams
- Bond-Hagerman complex, 1 to 10 percent slopes
- Caliche pit
- Chilton-La Fonda complex, 1 to 9 percent slopes
- Clovis and scholle soils
- Clovis fine sandy loam, 0 to 3 percent slopes
- Clovis loam, 0 to 3 percent slopes
- Clovis loam, 0 to 5 percent slopes
- Clovis soils, 0 to 5 percent slopes, eroded
- Clovis-Dean loams, 0 to 5 percent slopes
- Clovis-Pastura association, 0 to 3 percent slopes
- Dean loam, 1 to 9 percent slopes
- Flugle loamy fine sand, 1 to 5 percent slopes
- Hagerman fine sandy loam, 1 to 5 percent slopes
- Hagerman-Dean complex, 1 to 5 percent slopes
- Harvey-Darvey complex, 1 to 5 percent slopes
- Harvey-Dean loams, 1 to 9 percent slopes
- Ignacio fine sandy loam, 1 to 5 percent slopes
- Kim-Pastura-Tapia loams
- Kim-Pinon-Witt loams
- La Fonda loam, 1 to 9 percent slopes
- La Fonda-Alicia loams, 1 to 9 percent slopes
- La Fonda-Palma fine sandy loams, 5 to 15 percent slopes
- La Fonda-Rock outcrop complex
- Laporte-Rock outcrop complex
- Manzano loam, 0 to 2 percent slopes, rarely flooded
- Palma fine sandy loam, 0 to 5 percent slopes
- Palma loamy fine sand, 1 to 5 percent slopes
- Pastura loam, 0 to 5 percent slopes
- Pastura loam, 1 to 9 percent slopes
- Pastura-Harvey association, 0 to 8 percent slopes
- Penistaja fine sandy loam, 1 to 6 percent slopes
- Playas
- Prewitt and Manzano soils
- Regnier-Rock outcrop-Lacoca complex, 30 to 80 percent slopes
- Rock land
- Rock outcrop-Pinon-La Fonda complex
- Steep rock land
- Tapia loam, 0 to 5 percent slopes
- Tapia-Dean loams, 0 to 5 percent slopes
- Travessilla-Hagerman-Rock outcrop complex, 1 to 15 percent slopes
- Travessilla-Rock outcrop complex, 30 to 75 percent slopes

- Clines Corners Wind Farm
- Clines Corners Gen-Tie System Corridor
- Gen-Tie Line
- County Boundary

NORTH

3.5 1.75 0 3.5

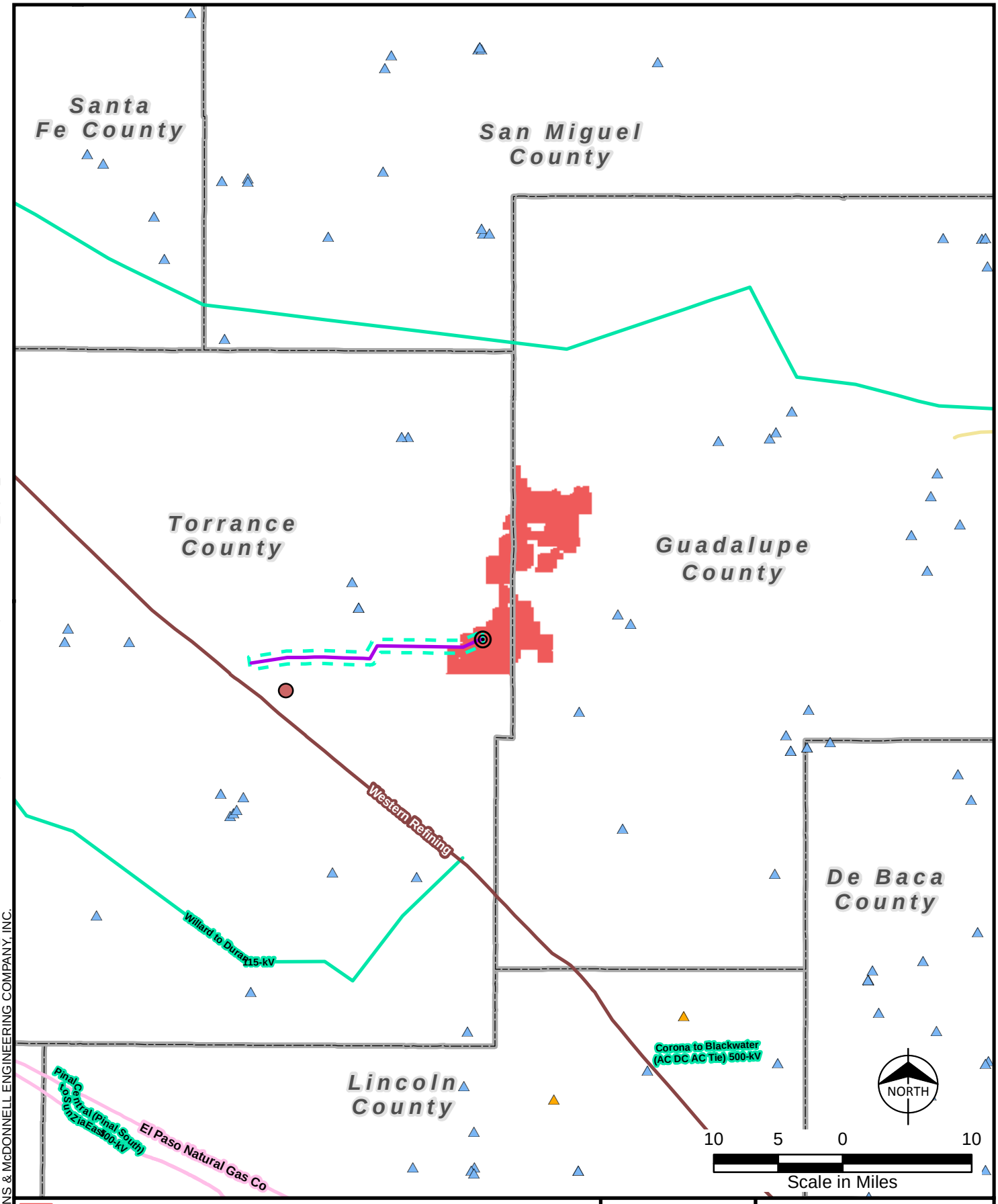
Scale in Miles

BURNS McDONNELL

Exhibit 3
Soils Summary
Clines Corners
Wind Farm Project
Guadalupe and Torrance
Counties, NM

Source: Esri, SSURGO Soils Databases, Orion, and Burns & McDonnell Engineering Company, Inc.

Issued: 5/7/2019



Clines Corners Wind Farm
Substation
Gen-Tie Line
Clines Corners Gen-Tie System Corridor
Transmission Line (<100-kV)
Under 100 kV
Major Oil Pipeline
In Service Natural Gas Pipeline
Natural Gas Flow
Mineral Mine
Well Status
Cancelled
Plugged

BURNS McDONNELL

Exhibit 4
Oil & Gas Well Summary
Clines Corners
Wind Farm Project
Guadalupe and Torrance
Counties, NM

Path: Z:\Resources\Backpaths\Clients\DEN\ENS\OrionRenwENR115159_ClinesCorners\Studies\Geospatial\DataFiles\ArcDocs\Report\ClinesCorner_Fig04_OilGasWell.mxd tmccarthick 5/7/2019

Source: Esri, Oil Conservation Division (OCD), Ventyx/Energy Velocity, Orion, and Burns & McDonnell Engineering Company, Inc.

Issued: 5/7/2019

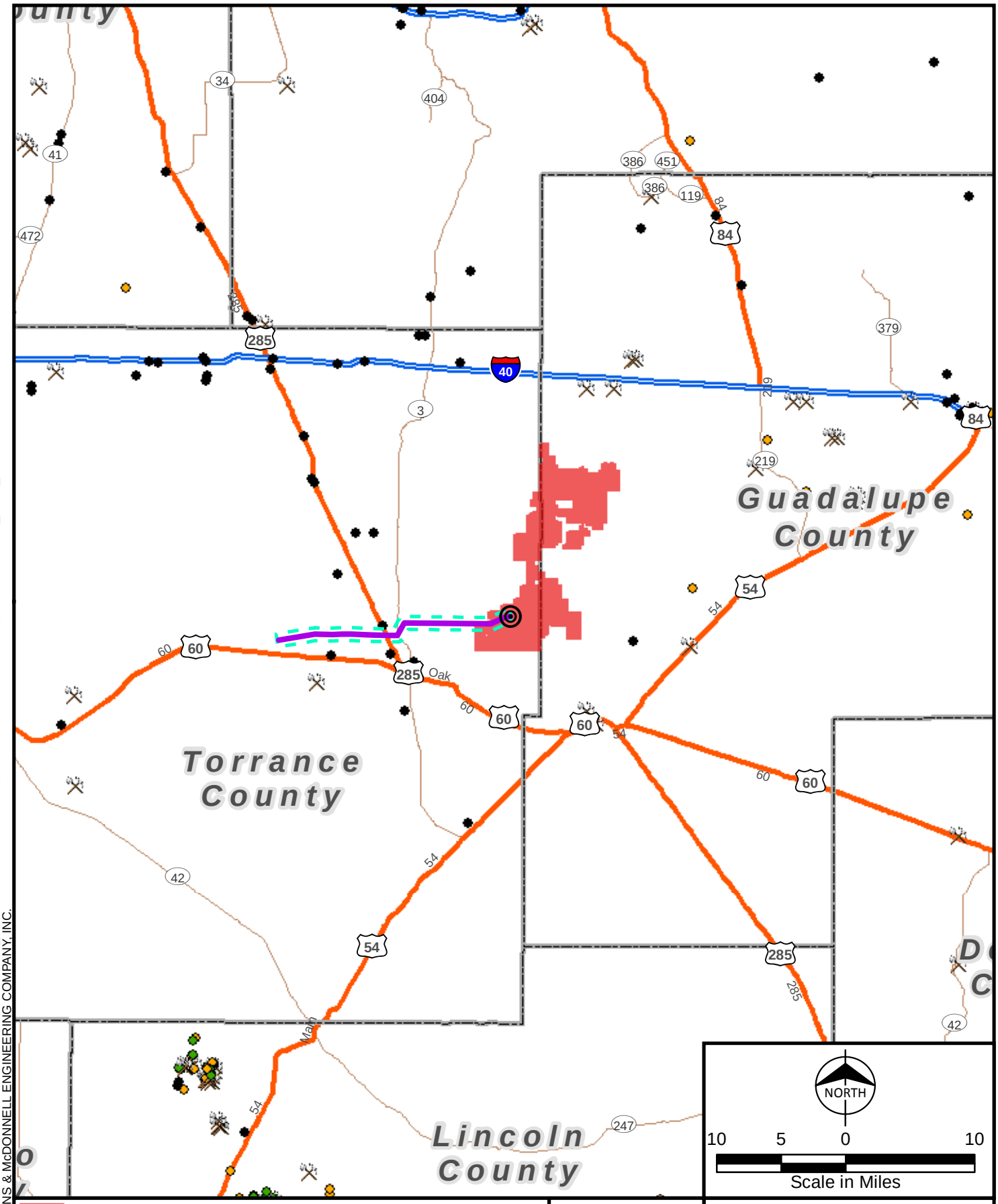


Exhibit 5
Mineral Resources Map
Clines Corners
Wind Farm Project
Guadalupe and Torrance
Counties, NM

BURNS McDONNELL

Source: Esri, USGS-Mineral Resources Data System (MRDS), Orion , and Burns & McDonnell Engineering Company, Inc.

Issued: 5/7/2019

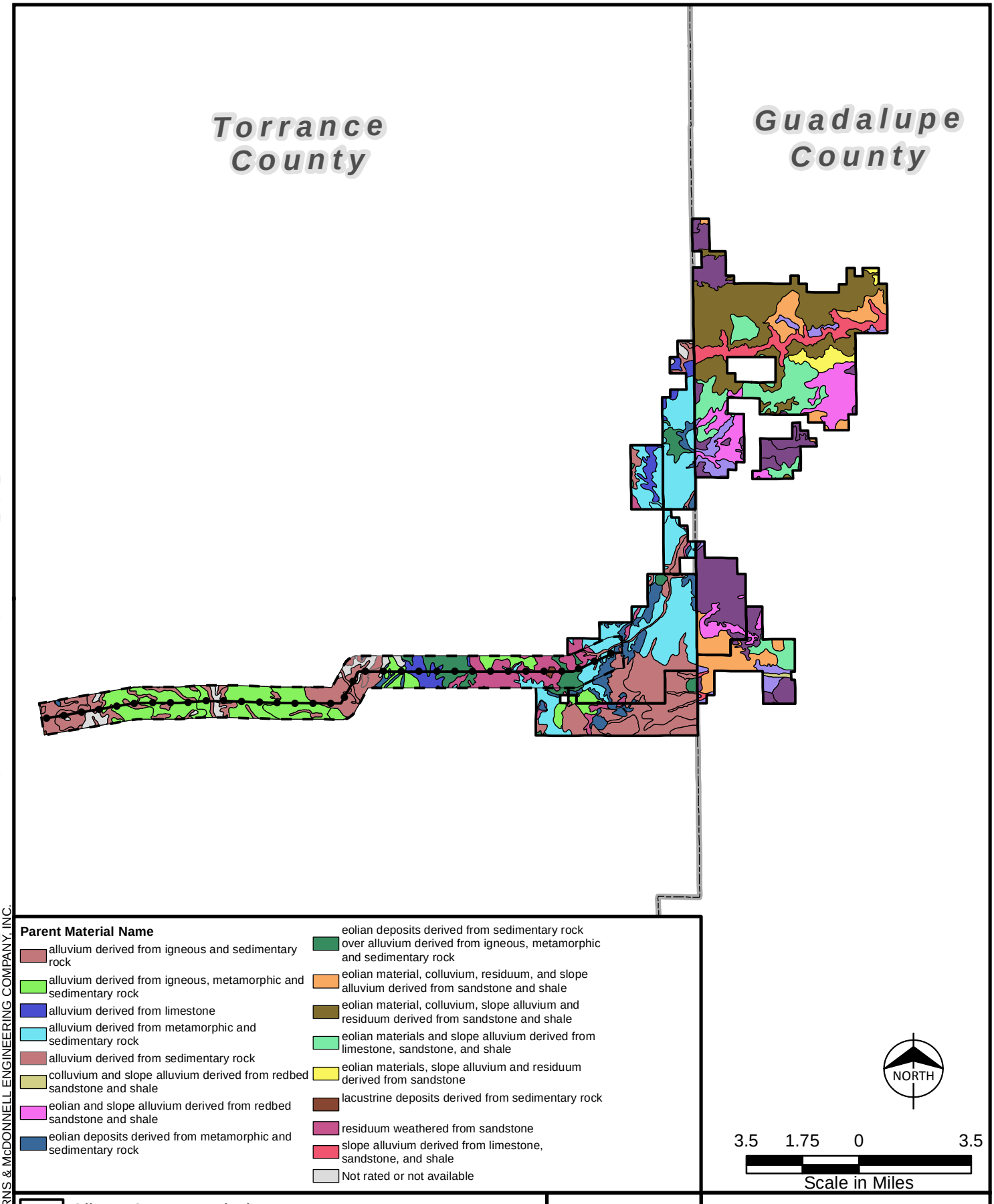
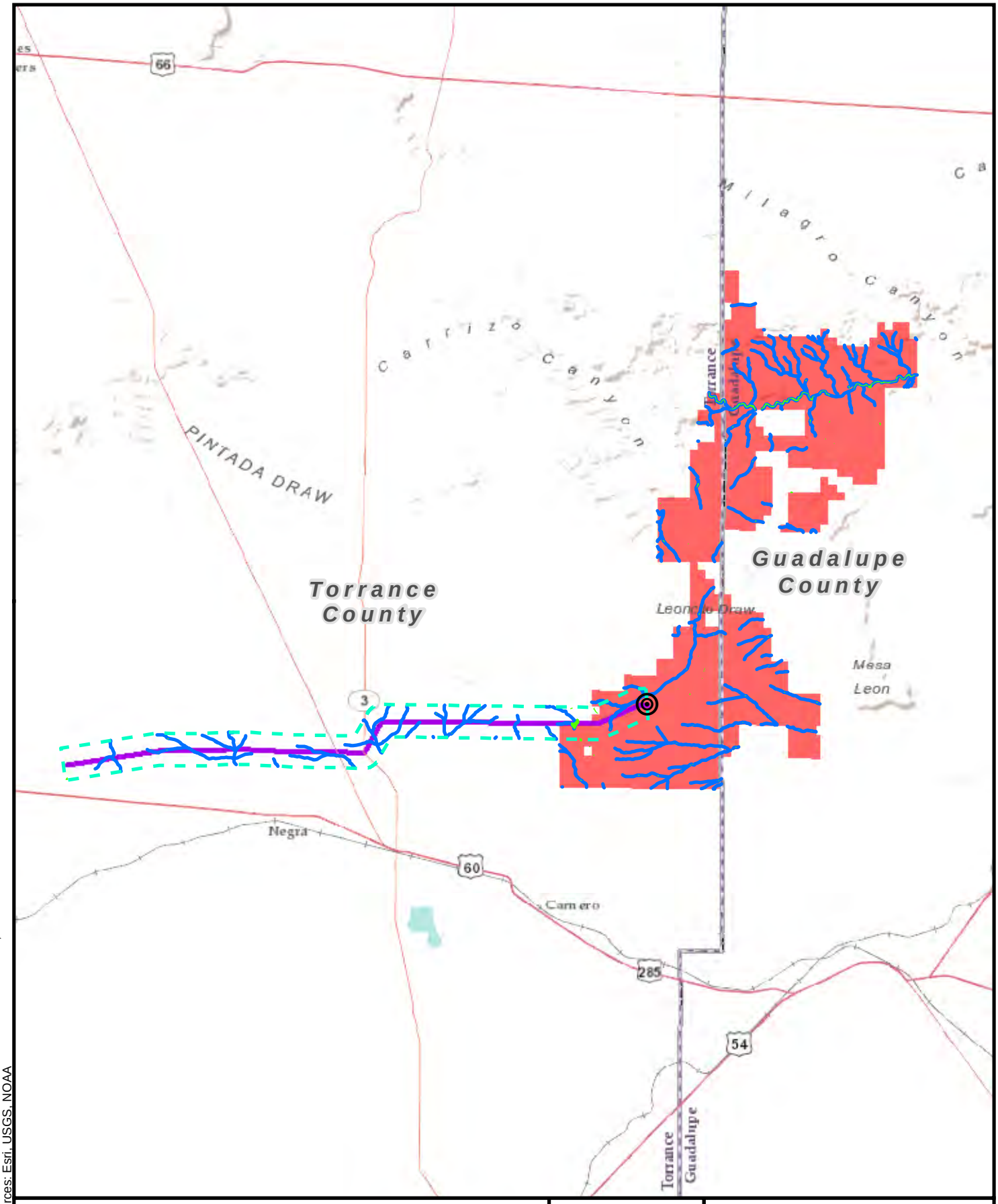


Exhibit 6
Parent Material
Clines Corners
Wind Farm Project
Guadalupe and Torrance
Counties, NM

Source: Esri, SSURGO Soils Databases, Orion, and Burns & McDonnell Engineering Company, Inc.

Issued: 5/7/2019



Substation
Clines Corners Wind Farm
Gen-tie Line
Clines Corners Gen-Tie System
County Boundary
NHD Flowline
NWI Wetlands

NORTH

3.5 1.75 0 3.5

Scale in Miles

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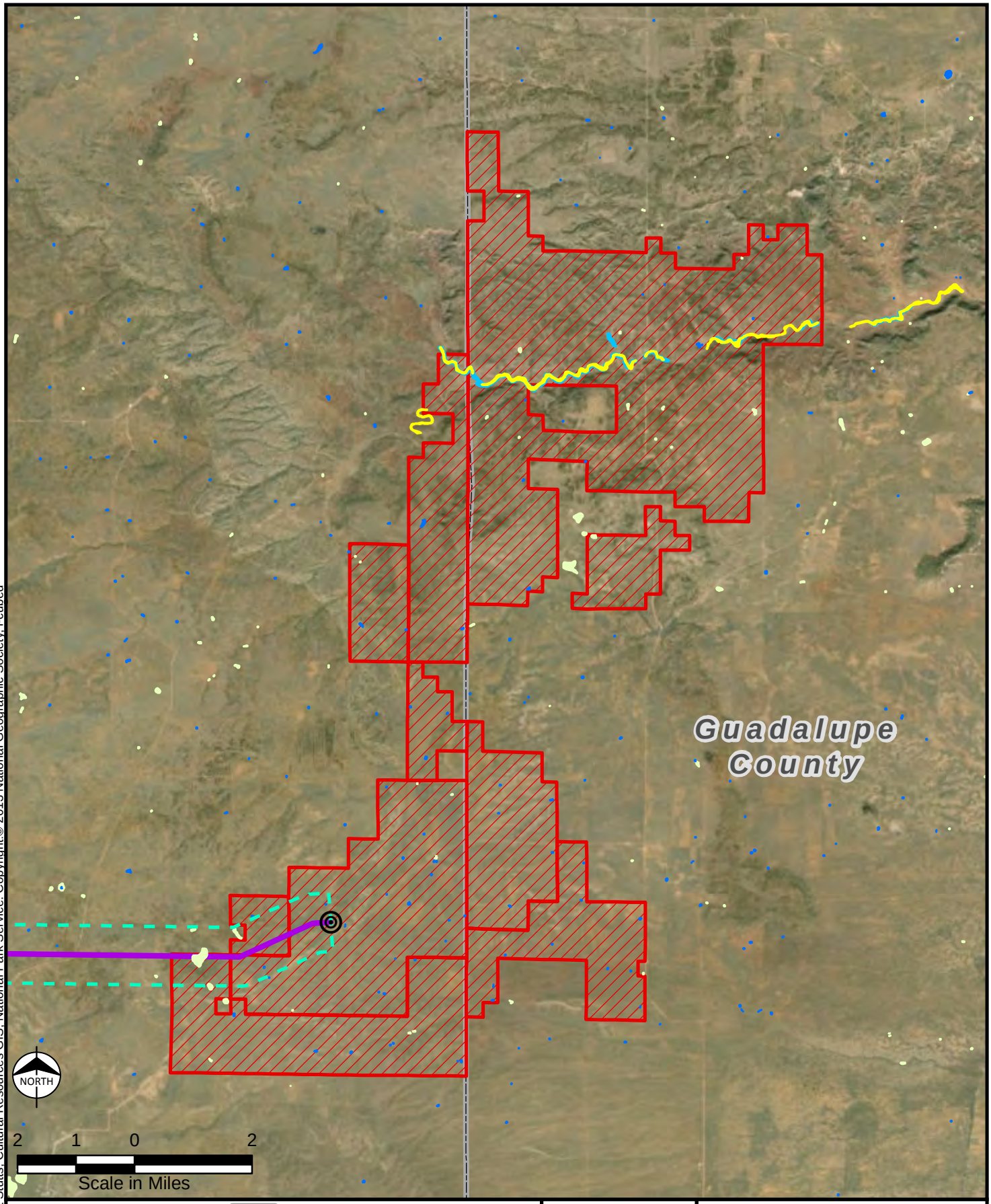
Exhibit 7
Surface Waters
Clines Corners
Wind Farm Project
Guadalupe and Torrance
Counties, NM

Issued: 5/7/2019

Source: Esri, USGS-National Hydrography Dataset (NHD), USFWS-National Wetland Inventory (NWI),Orion, Ventyx/Energy Velocity, and Burns & McDonnell Engineering Company, Inc.



Substation
Clines Corners Wind Farm
Gen-Tie Line
Clines Corners Gen-Tie System Corridor
County Boundary
Freshwater Emergent Wetland
Freshwater Pond
Riverine

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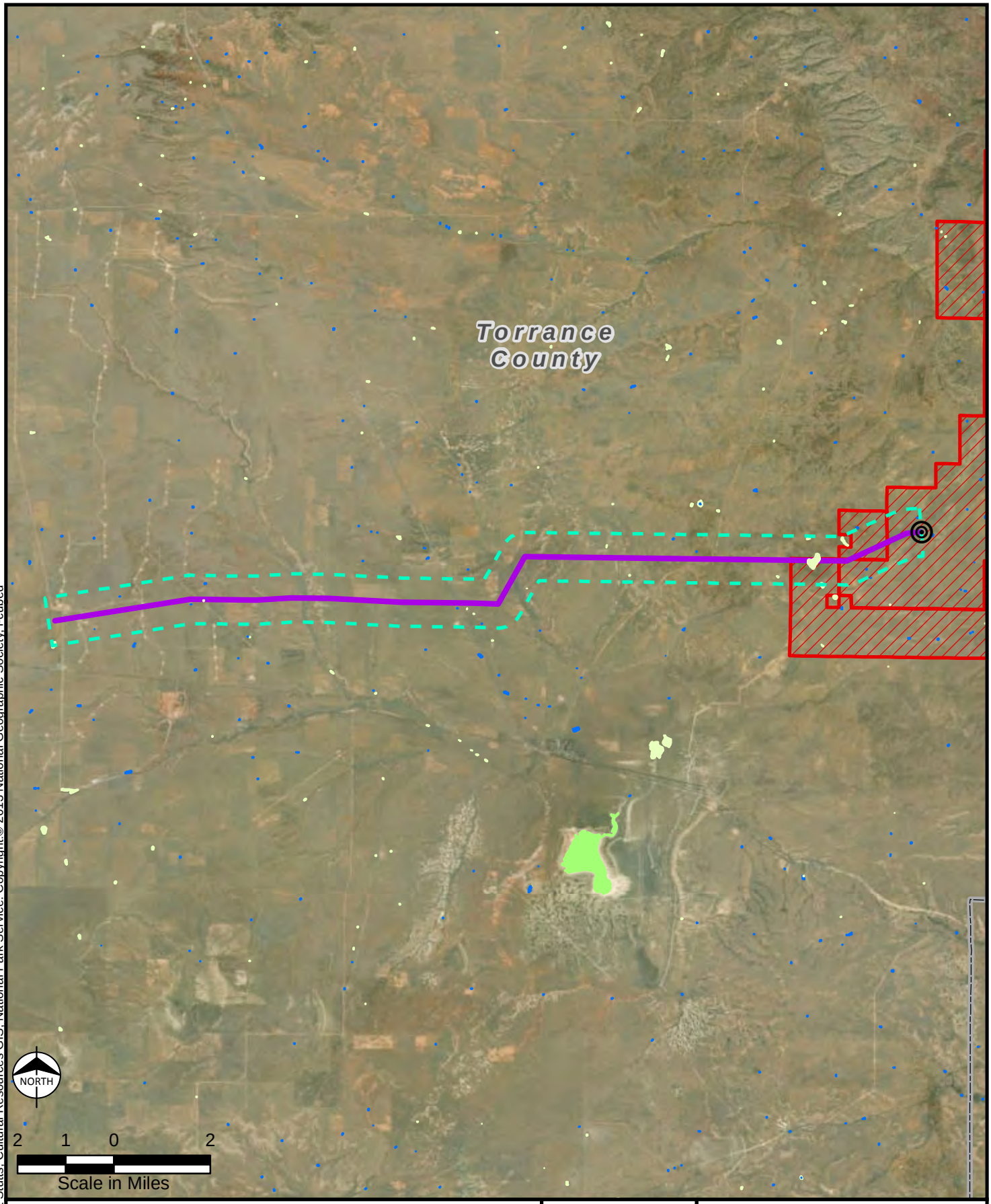
Exhibit 8
NWI Map
Clines Corners
Wind Farm Project
Guadalupe and Torrance
Counties, NM
Page 1 of 2

Source: Esri, USFWS-National Wetland Inventory (NWI), USGS-National Hydrography Dataset (NHD), Playa Lakes Joint Venture, Orion, and Burns & McDonnell Engineering Company, Inc.

Issued: 5/7/2019



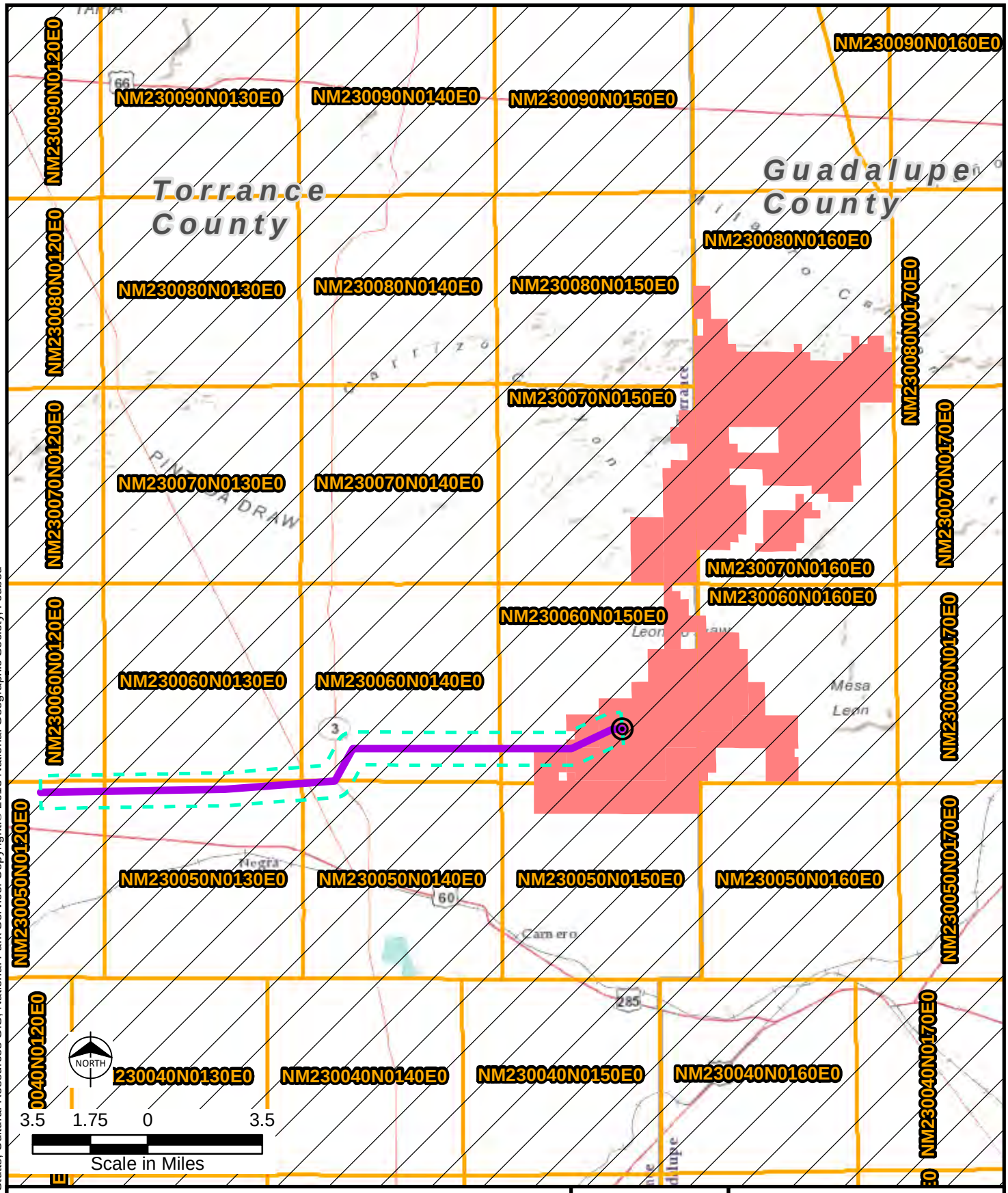
Substation
Clines Corners Wind Farm
Gen-Tie Line
Clines Corners Gen-Tie System Corridor
County Boundary
Freshwater Emergent Wetland
Freshwater Pond
Lake
Riverine

BURNS McDONNELL

Exhibit 8
NWI Map
Clines Corners
Wind Farm Project
Guadalupe and Torrance
Counties, NM
Page 2 of 2

Source: Esri, USFWS-National Wetland Inventory (NWI), USGS-National Hydrography Dataset (NHD), Playa Lakes Joint Venture, Orion, and Burns & McDonnell Engineering Company, Inc.

Issued: 5/7/2019



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Source: Esri, FEMA, Orion, and Burns & McDonnell Engineering Company, Inc.

Issued: 4/30/2019

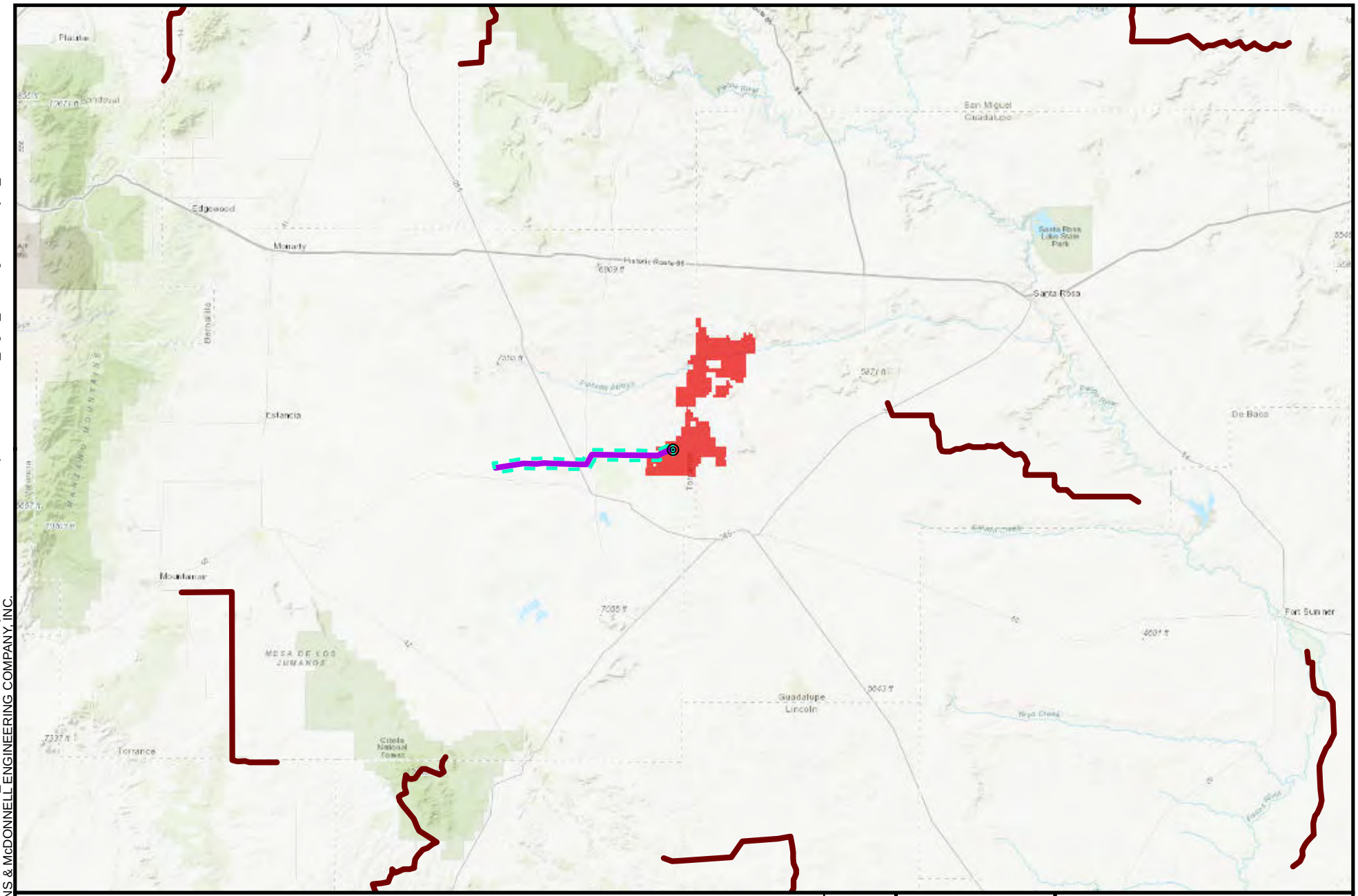
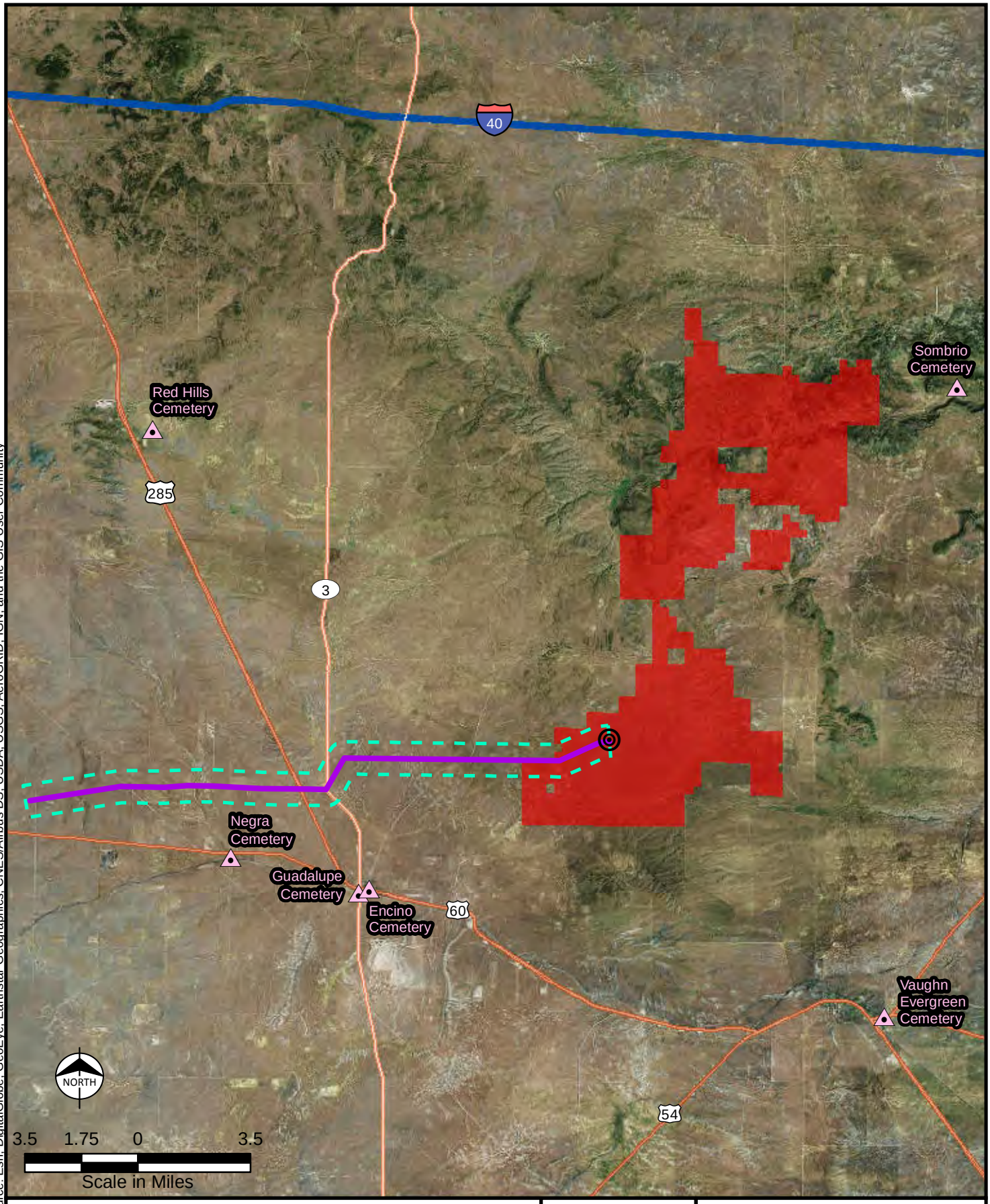


Exhibit 10
Breeding Bird Survey Routes
Phase 1 Clines Corners
Wind Farm Project
Guadalupe and Torrance
Counties, NM

Path: Z:\Clients\ENS\OrionRenwENR\115159_ClinesCorners\Studies\Geospatial\DataFiles\ArcDocs\Report\ClinesCorner_Fig10_BreedingBirdSurveyRt_v2.mxd tmccarthick 5/7/2019

Source: Esri, Breeding Bird Survey, Orion, and Burns & McDonnell Engineering Company, Inc.

Issued: 5/7/2019



Substation
Cemetery
Clines Corners Wind Farm
Gen-Tie Line
Clines Corners Gen-Tie System Corridor
Major Highways
Highways
Major Roads

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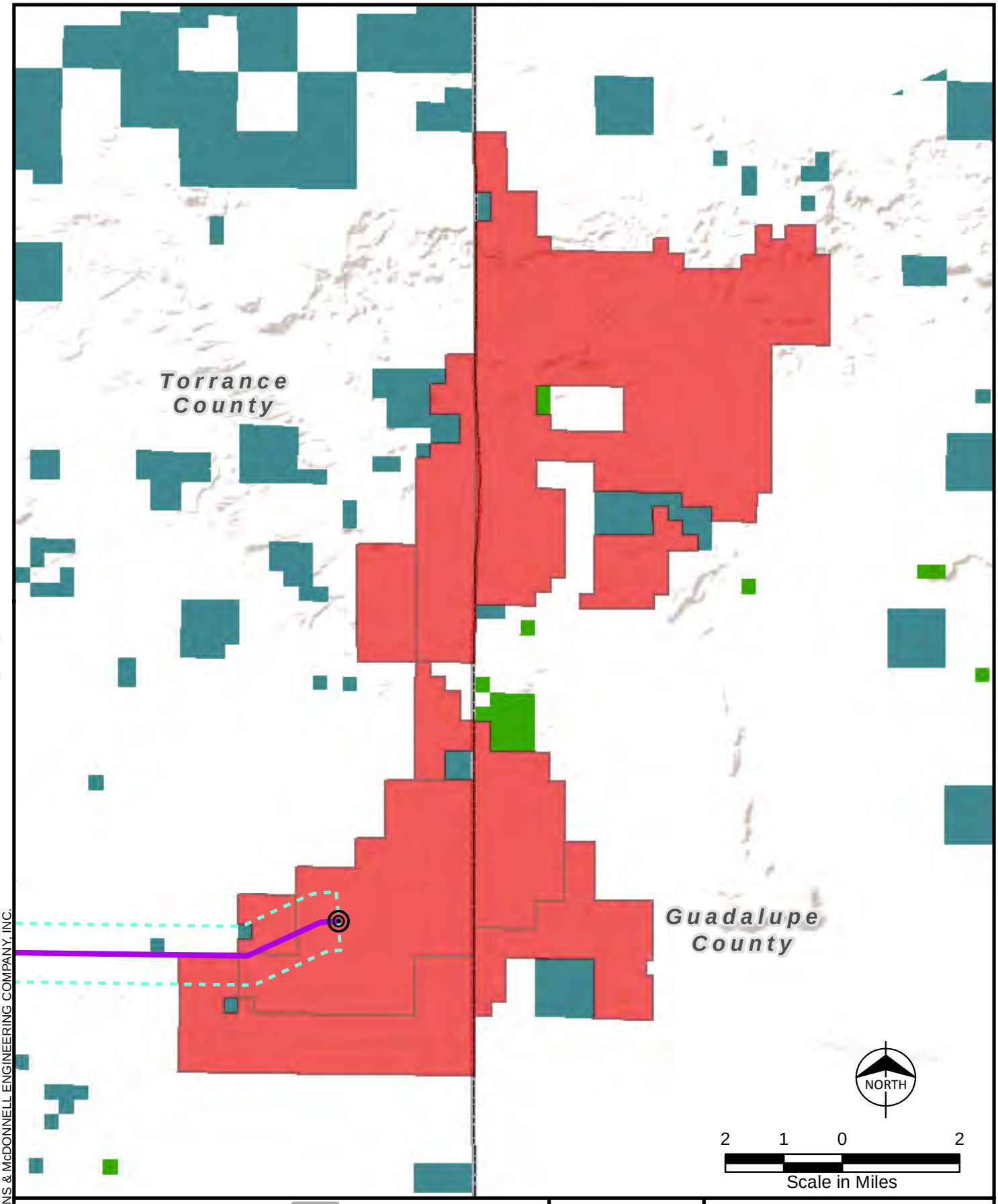
Exhibit 11
Cemeteries
Clines Corners
Wind Farm Project
Guadalupe and Torrance
Counties, NM

Source: Esri, USGNIS, Orion, and Burns & McDonnell Engineering Company, Inc.

Issued: 5/7/2019



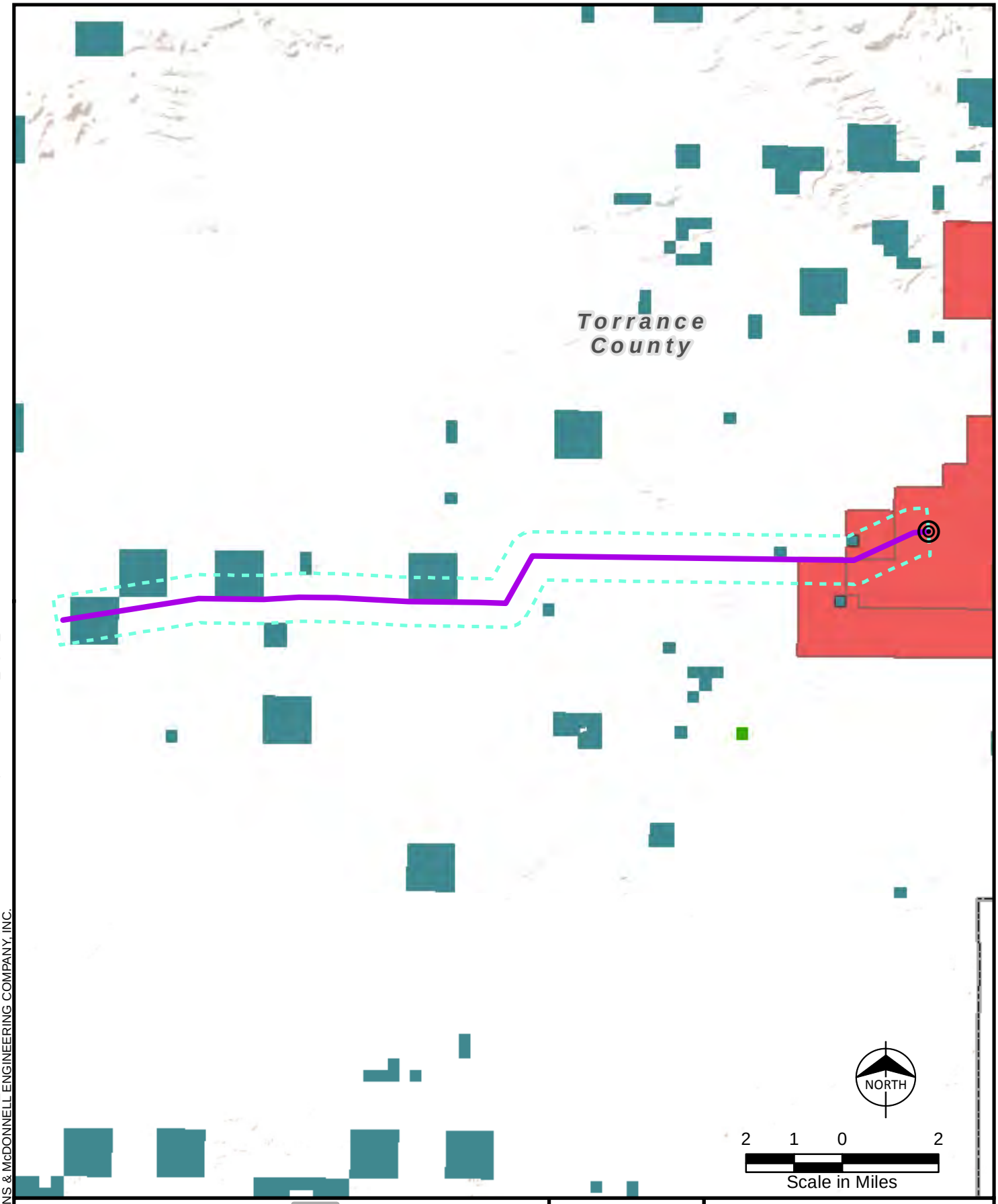
Substation
Clines Corners Wind Farm
Gen-Tie Line
Clines Corners Gen-Tie System Corridor
County Boundary
National Public Lands
State Resource Management Area

BURNS McDONNELL

Exhibit 12
Easement Map
Clines Corner
Wind Farm Project
Guadalupe andTorrance
Counties, NM
Page 1 of 2

Source: Esri, PADUS V1.4, Orion, and Burns & McDonnell Engineering Company, Inc.

Issued: 5/7/2019



Substation
Clines Corners Wind Farm
Gen-Tie Line
Clines Corners Gen-Tie System Corridor
County Boundary
National Public Lands
State Resource Management Area

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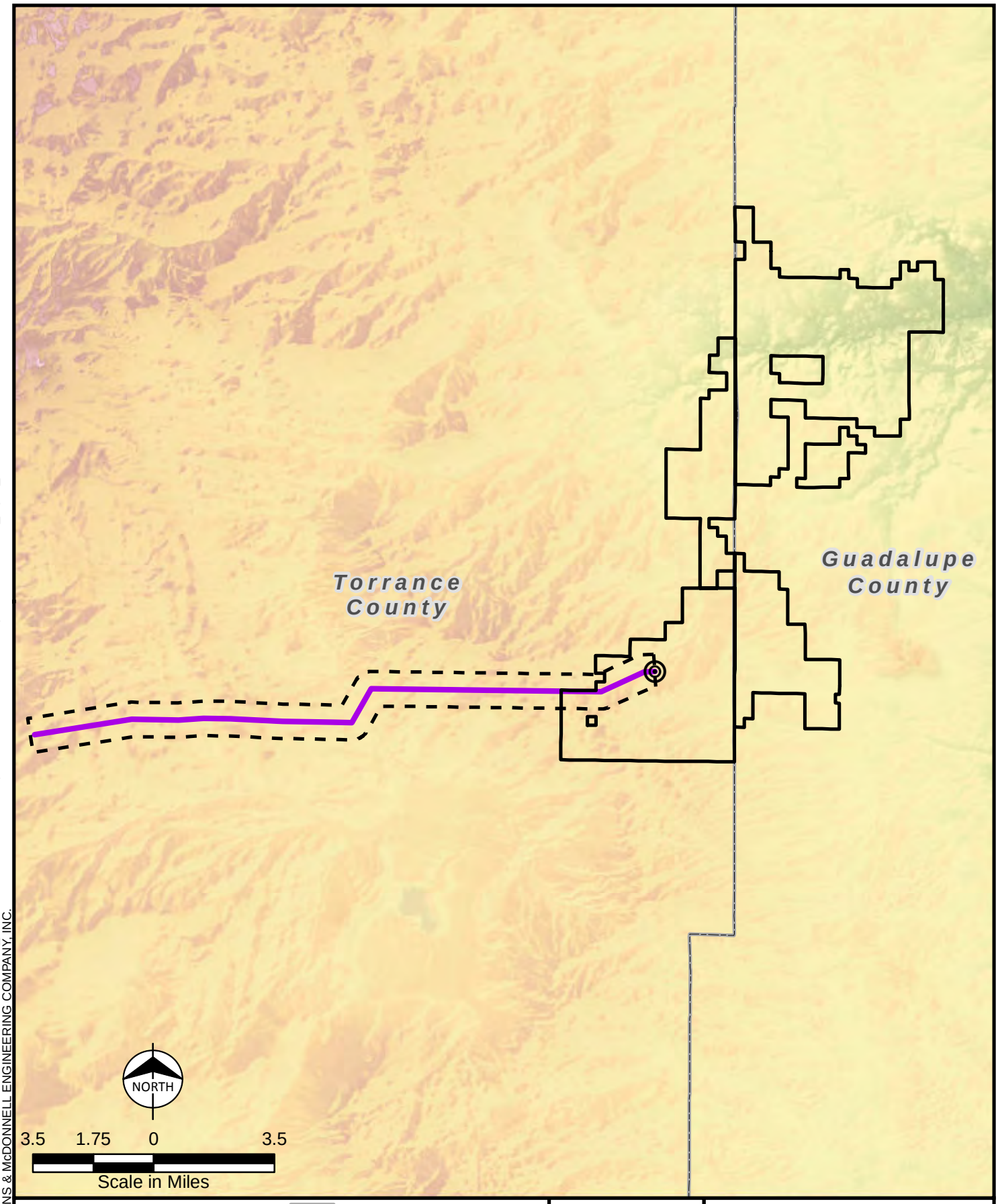
Exhibit 12
Easement Map
Clines Corner
Wind Farm Project
Guadalupe andTorrance
Counties, NM
Page 2 of 2

Source: Esri, PADUS V1.4, Orion, and Burns & McDonnell Engineering Company, Inc.

Issued: 5/7/2019



Substation
Wind Farm Area
Gen-Tie Line
Clines Corners Gen-Tie Sytem Corridor
County Boundary
Elevation Range
8632 ft
3724 ft

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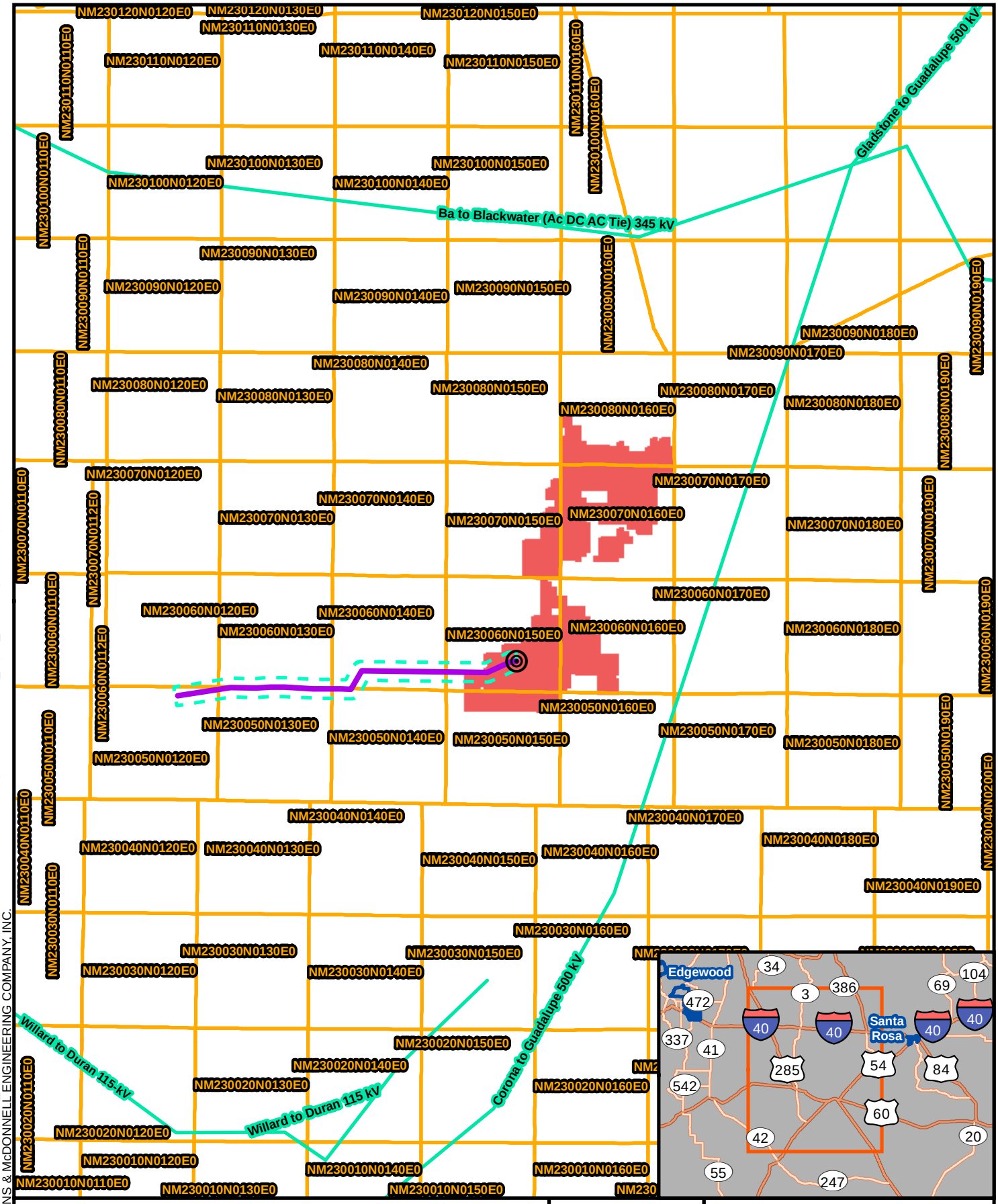
Exhibit 13
Elevation Map
Clines Corners
Wind Farm Project
Guadalupe and Torrance
Counties, NM

Source: Esri, USGS, Orion, and Burns & McDonnell Engineering Company, Inc.

Issued: 5/7/2019



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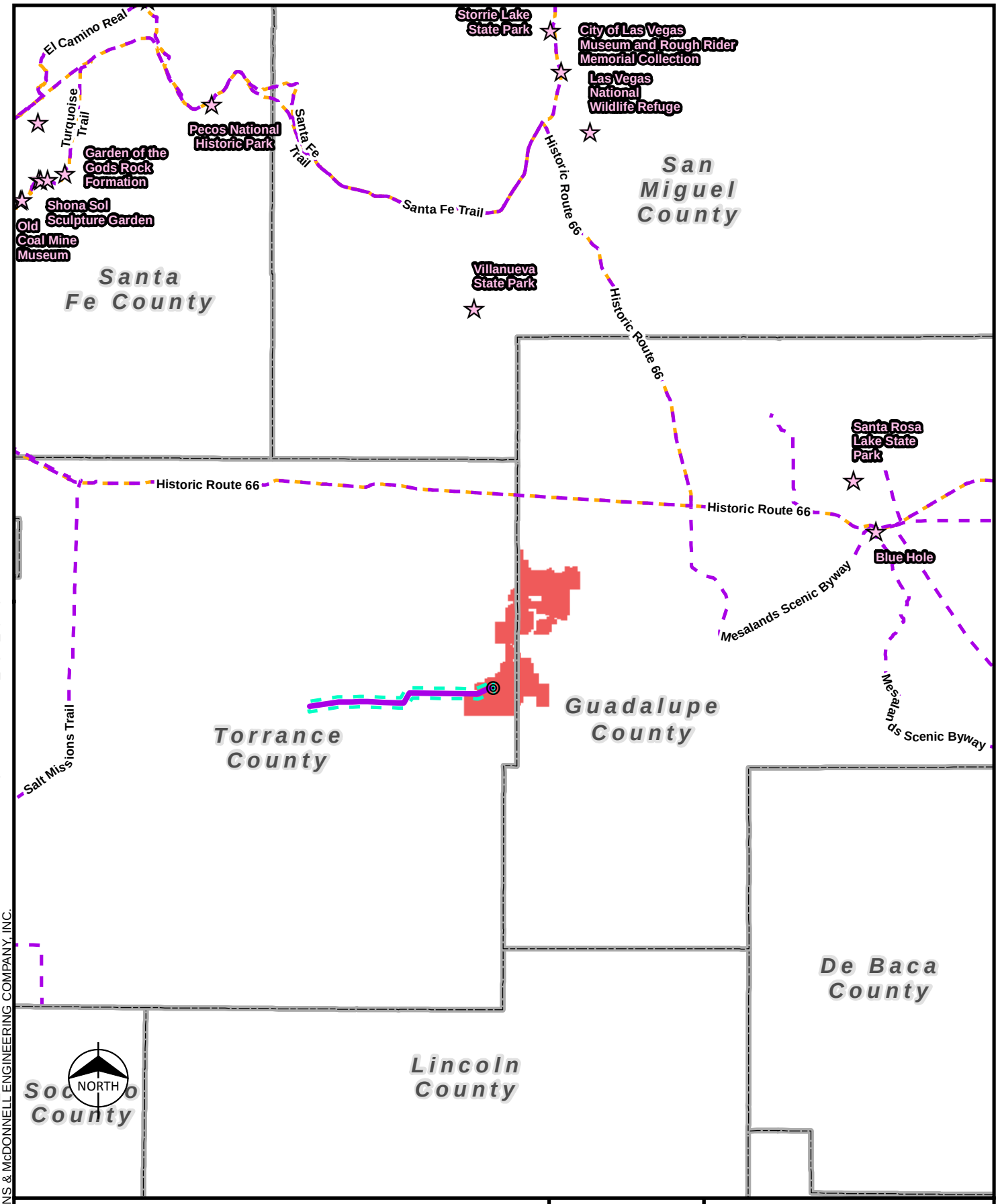
Source: Esri, Census, Orion, Ventyx/Energy Velocity, and Burns & McDonnell Engineering Company, Inc.

Issued: 5/7/2019



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Source: Esri, Federal Highway Administration,Orion, and Burns & McDonnell Engineering Company, Inc.

Issued: 5/7/2019

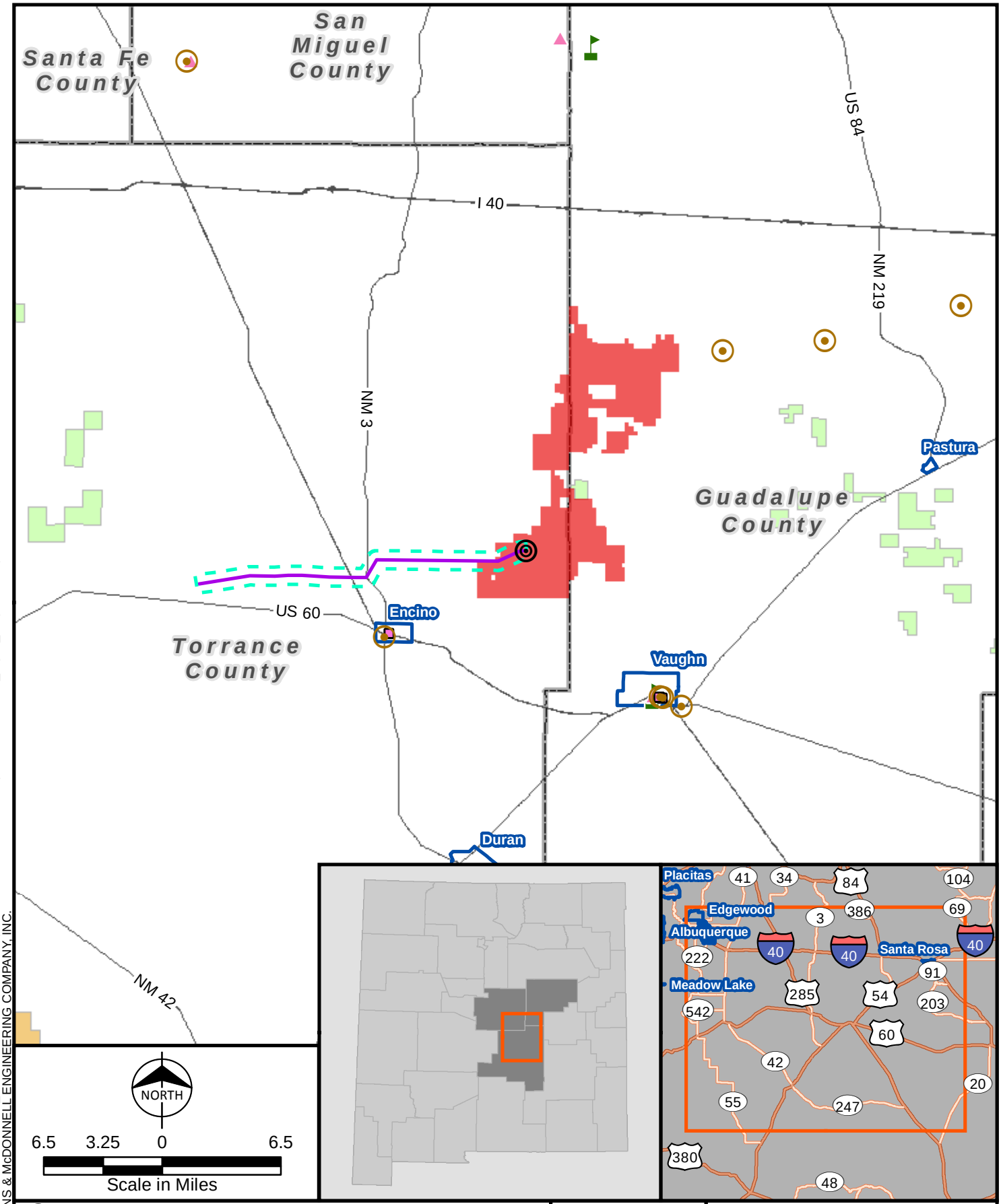

Exhibit 16
Project Vicinity
Clines Corners
Wind Farm Project
Guadalupe and Torrance
Counties, NM

Path: Z:\Clients\ENS\OrionRenwENR\115159_ClinesComers\Studies\GeospatialDataFiles\ArcDocs\Report\ClinesCorner_Fig16_ProjectVicinity.mxd tmccarthick 5/7/2019

Source: Esri, Census, Orion, and Burns & McDonnell Engineering Company, Inc.

Issued: 5/7/2019

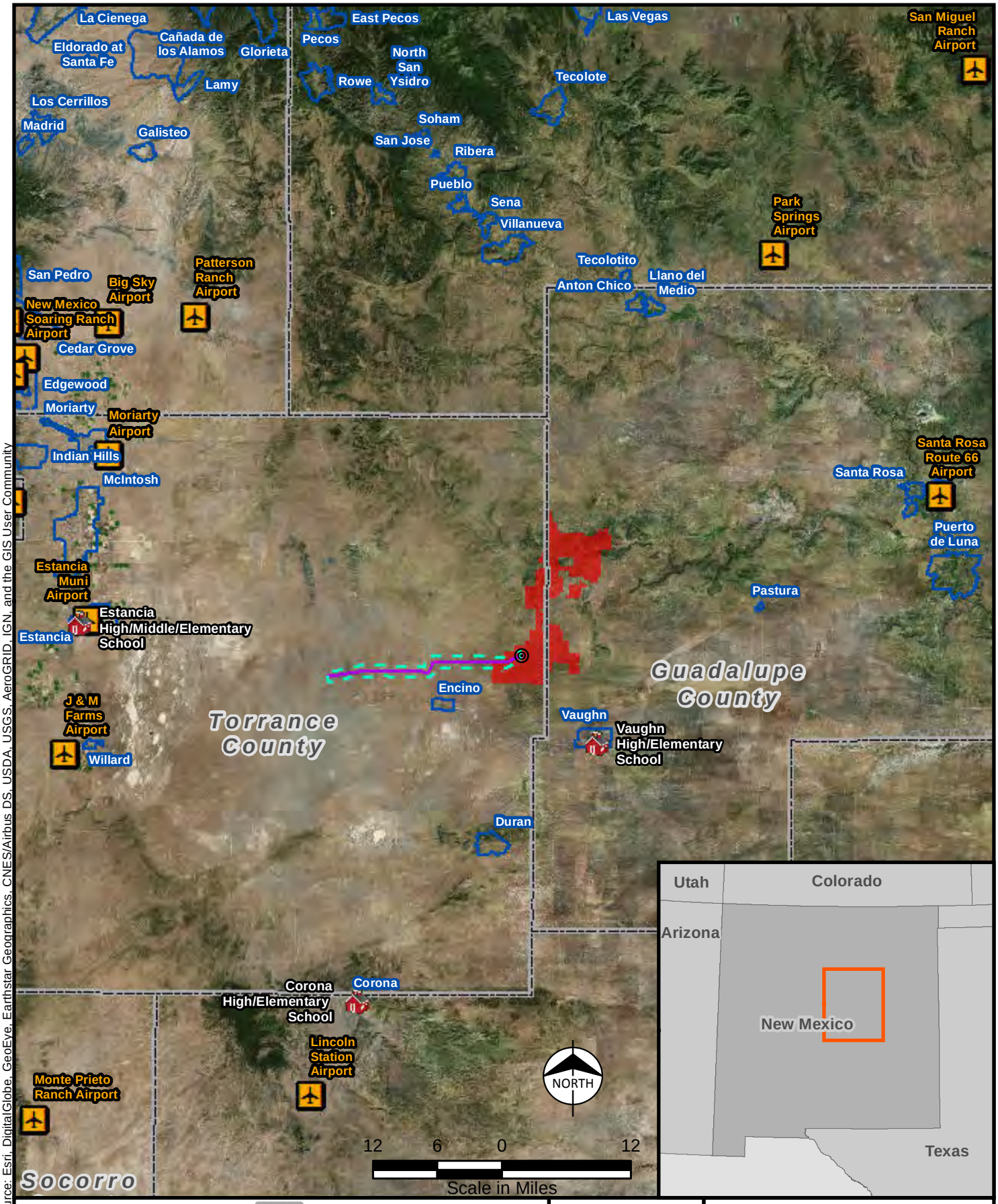

Exhibit 17
General Vicinity Map
Clines Corners
Wind Farm Project
Guadalupe and Torrance
Counties, NM

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Source: Esri, Orion, Ventyx/Energy Velocity, and Burns & McDonnell Engineering Company, Inc.

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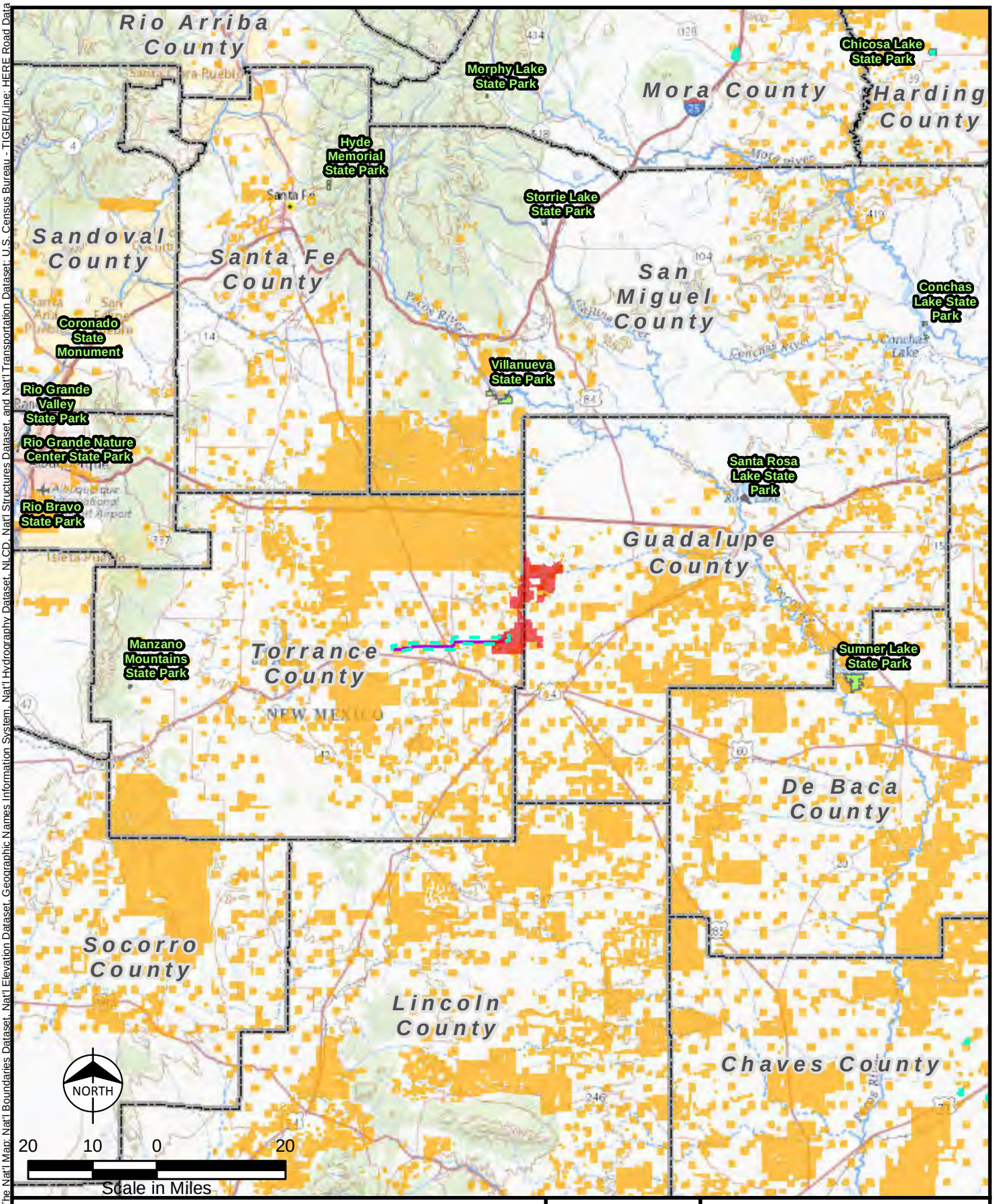

Clines Corners Wind Farm
Gen-Tie Line
Clines Corners Gen-Tie System Corridor
New Mexico State Park
County Boundary
Saline Lake
State Land

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Exhibit 18
State Parks
Clines Corners
Wind Farm Project
Guadalupe and Torrance
Counties, NM

Source: Esri, Earth Data Analysis Center (EDAC), Playa Lakes Venture, State Land Office, Orion, and Burns & McDonnell Engineering Company, Inc.

Issued: 5/7/2019

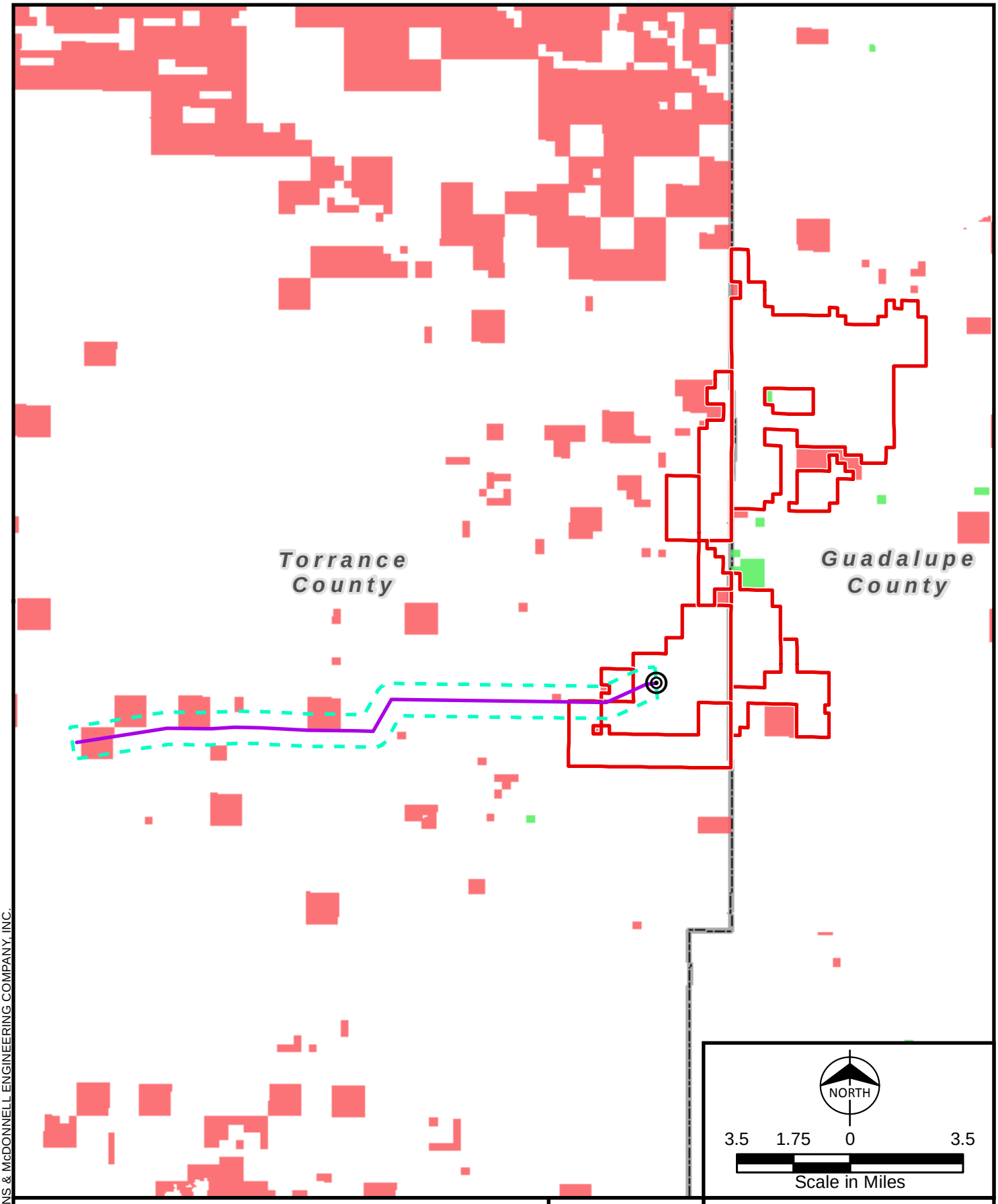

Exhibit 19
GAP Analysis Program
Clines Corners
Wind Farm Project
Guadalupe and Torrance
Counties, NM

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Source: Esri, PADUS V1.4, Orion, and Burns & McDonnell Engineering Company, Inc.

Issued: 5/7/2019

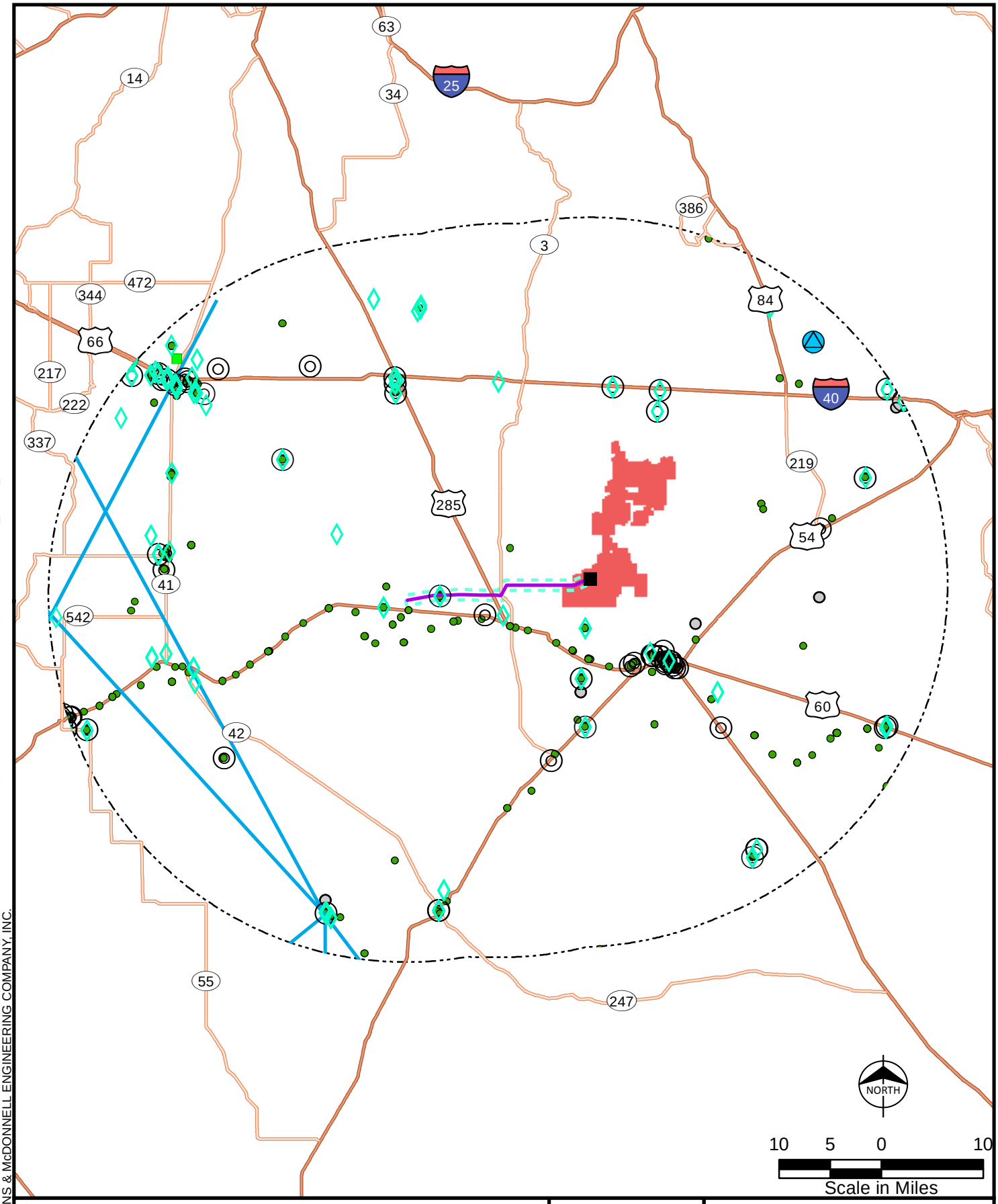

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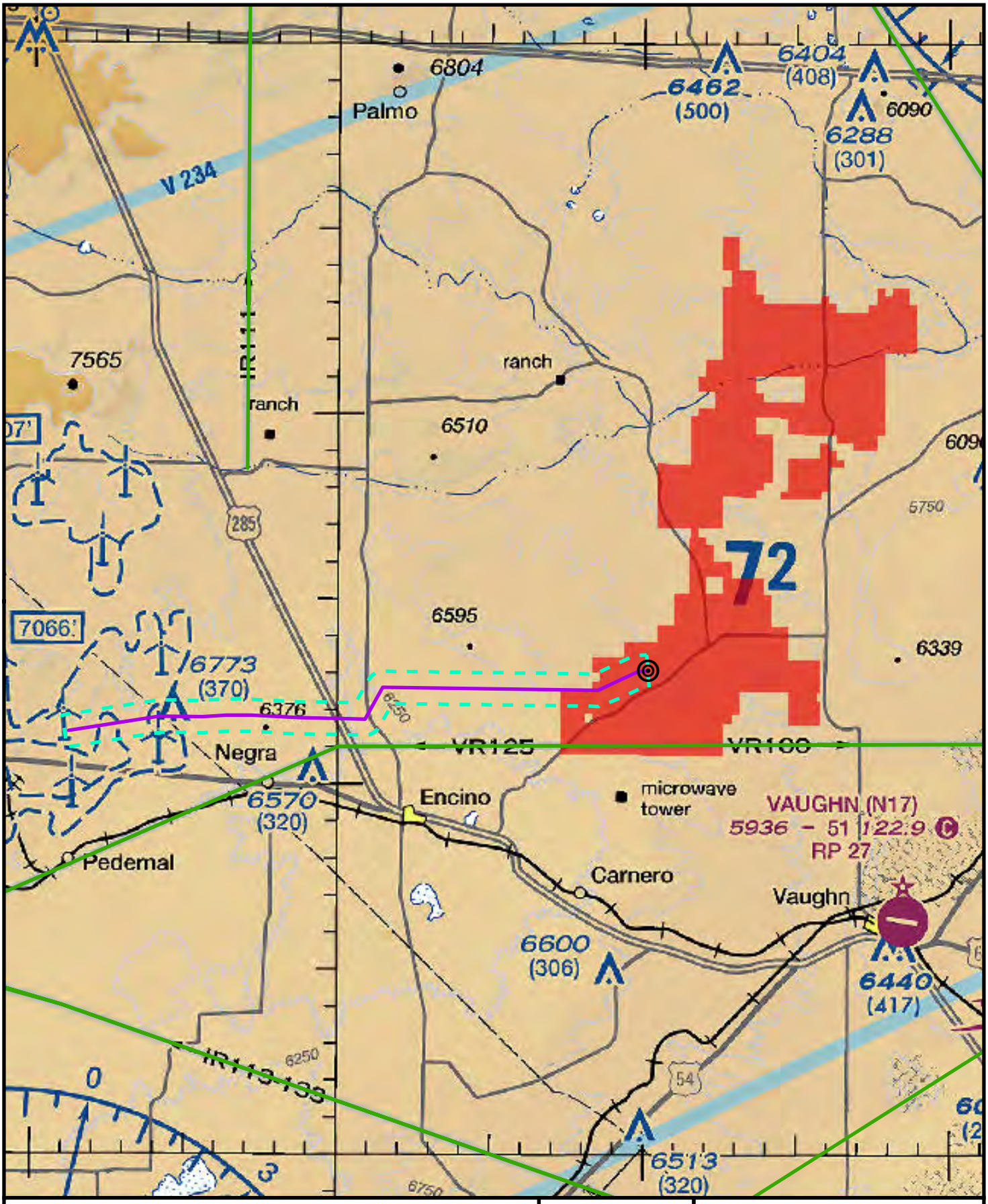
Exhibit 20
Communications Map
Clines Corners
Wind Farm Project
Guadalupe and Torrance
Counties, NM

Source: Esri, Census, Orion, LLC., FCC, and Burns & McDonnell Engineering Company, Inc.

Issued: 5/7/2019



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Service Layer Credits:

Source: Esri, Orion, FAA, and Burns & McDonnell Engineering Company, Inc.

Issued: 5/7/2019

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4225 Executive Square, Suite 500
La Jolla, CA 92037
O 816-320-2920
F 714-256-1764
www.burnsmcd.com

BEFORE THE NEW MEXICO PUBLIC REGULATION COMMISSION

IN THE MATTER OF THE APPLICATION FOR THE LOCATION OF THE CLINES CORNERS WIND FARM AND GEN-TIE SYSTEM IN TORRANCE AND GUADALUPE COUNTIES PURSUANT TO THE PUBLIC UTILITY ACT, NMSA 1978, §§62-9-3 AND 62-9-3.2	)	**Case No. 19 -_____**
CLINES CORNERS WIND FARM, LLC	)	
APPLICANT.	)	

EXHIBITS CK-3

UNITED STATES DEPARTMENT OF COMMERCE
National Telecommunications and Information Administration
Washington, D.C. 20230

Mr. Kornel Rozsavolgyi
Wind Resource Manager
Orion Renewable Energy Group
155 Grand Avenue, Suite 706
Oakland, CA 94612

Re: Clines Corners Project: Torrance & Guadalupe Counties, NM

Dear Mr. Rozsavolgyi:

In response to your request on October 3, 2018, the National Telecommunications and Information Administration provided to the federal agencies represented in the Interdepartment Radio Advisory Committee (IRAC) the plans for the Clines Corners Wind Farm, located in Torrance and Guadalupe Counties, New Mexico.

After a 45+ day period of review, no agencies had issues with turbine placement in this area.

While the IRAC agencies did not identify any concerns regarding radio frequency blockage, this does not eliminate the need for the wind energy facilities to meet any other requirements specified by law related to these agencies. For example, this review by the IRAC does not eliminate any need that may exist to coordinate with the Federal Aviation Administration concerning flight obstruction.

Thank you for the opportunity to review these proposals.

Sincerely,

John R. McFall
Digitally signed by John R. McFall
Date: 2018.12.11 09:56:38 -05'00'

John R. McFall
Deputy Chief, Spectrum Services Division
Office of Spectrum Management

BEFORE THE NEW MEXICO PUBLIC REGULATION COMMISSION

IN THE MATTER OF THE APPLICATION FOR THE LOCATION OF THE CLINES CORNERS WIND FARM AND GEN-TIE SYSTEM IN TORRANCE AND GUADALUPE COUNTIES PURSUANT TO THE PUBLIC UTILITY ACT, NMSA 1978, §§62-9-3 AND 62-9-3.2	)	Case No. 19 -_____
CLINES CORNERS WIND FARM, LLC	)	
APPLICANT.	)	

AFFIDAVIT OF CHRISTOPHER KNOPP

BEFORE THE NEW MEXICO PUBLIC REGULATION COMMISSION

IN THE MATTER OF THE APPLICATION FOR THE LOCATION OF THE CLINES CORNERS WIND FARM AND GEN-TIE SYSTEM IN TORRANCE AND GUADALUPE COUNTIES PURSUANT TO THE PUBLIC UTILITY ACT, NMSA 1978, §§62-9-3 AND 62-9-3.2	)	**Case No. 19 -_____**
CLINES CORNERS WIND FARM, LLC	)	
APPLICANT.	)	

AFFIDAVIT OF CHRISTOPHER J. KNOPP

STATE OF CALIFORNIA)
) ss.
COUNTY OF SAN DIEGO)

I have read the foregoing Direct Testimony, and it is true and accurate based on my own knowledge and belief.

Christopher J. Knopp

SUBSCRIBED and sworn to me before this 07 of May 2019.

NOTARY PUBLIC

PHITSAMAI NORAPHAT
Commission # 2122495
Notary Public - California
San Diego County
My Comm. Expires Aug 7, 2019

My Commission Expires.