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BEFORE THE NEW MEXICO PUBLIC REGULATION COMMISSION

IN THE MATTER OF THE APPLICATION OF TUMBLEWEED SOLAR, L.L.C. FOR LOCATION APPROVAL OF SOLAR GENERATION FACILITIES AND ASSOCIATED TRANSMISSION FACILITIES PURSUANT TO NMSA § 62-9-3; AND RIGHT-OF-WAY WIDTH DETERMINATION PURSUANT TO NMSA § 62-9-3.2	)	**Case No. 26-_____**

APPLICATION FOR LOCATION APPROVAL AND RIGHT-OF-WAY WIDTH DETERMINATION

Tumbleweed Solar, L.L.C. ("Tumbleweed" or "Applicant") hereby submits its Application and supporting testimonies and exhibits to the New Mexico Public Regulation Commission ("NMPRC" or "Commission") for the following regarding the proposed Tumbleweed Solar Project (the "Project"):

(1) pursuant to NMSA 1978, Section 62-9-3, for approval to locate up to 350 megawatts ("MW") of solar energy generation (the "Solar Generation Facilities") in Chaves County, New Mexico;

(2) pursuant to NMSA 1978, §62-9-3, approval to locate approximately 1,700 feet of 230 kV generation tie transmission line (the "Gen-Tie Line") and an associated collector substation ("Substation") (together, the "Transmission Facilities"); and

(3) pursuant to NMSA 1978, § 62-9-3.2 and to the extent required by law, determination that the 120-foot right-of-way ("ROW") width for the Gen-Tie Line is appropriate.

This Application provides a summary along with further details in accompanying testimonies and exhibits, regarding the Project, its location, compliance with the requirements of the Location Statute, NMSA 1978 Section 62-9-3, and the Commission's Location Control Rule,

17.9.592 NMAC, the determination of the appropriate ROW width for the Gen-Tie Line, and other matters related to this Application.

I. PROJECT BACKGROUND

A. The Applicant

The Applicant is Tumbleweed Solar, L.L.C., which is wholly owned by DESRI Renewables, Inc. ("DESRI"). DESRI is a leading renewable energy company that develops, owns, and operates utility-scale solar, wind, and battery storage projects throughout the United States. Since 2010, DESRI has worked closely with communities and partners to build a diversified portfolio across 24 states with over 10 GW of operating or under-construction generation capacity, including in New Mexico. Information about DESRI is available at https://desri.com/.

B. Project Location

The Tumbleweed Solar Project would be constructed on about 4,159 acres of private land located about 13 miles east of the City of Roswell in Chaves County, New Mexico. The 230 kV Gen-Tie Line would traverse about 1,700 feet of private lands within an approximately 120-foot wide ROW. An access road may be located on about 7.25 acres of State lands. Project location maps are in Exhibit MK-2 attached to the Direct Testimony of Meghan Knudsen. A legal description of the Project lands is provided in Exhibit MK-3. Representative photos of the Project area are in Exhibit MK-4.

The proposed location was selected for the Project due to its abundance of solar resource, the availability of suitable land for solar development, availability of interconnection capacity and proximity to the existing transmission grid, and interest from private landowners in hosting the Project on their land. The land area available for the Project is sufficient and provides micro-siting flexibility for an efficient and well-designed solar generation project of this capacity. Site control

has been obtained for all private lands, which are all under lease option for Project purposes. A lease application has been submitted to the New Mexico State Land Office ("NMSLO") for Project use of State lands for an access road, and coordination with the NMSLO is well advanced. Construction is projected to begin as early as Spring of 2028, with the goal of completing most construction activity by January 2030 and achieving commercial operation as early as May of 2030.

C. The Solar Generation Facilities

The Project will utilize photovoltaic ("PV") modules with tempered glass. To limit reflection, solar PV panels are constructed of dark, light-absorbing materials, and are designed to absorb as much light as possible to maximize efficiency. The solar panels are bifacial, meaning they are essentially double-sided. This allows for absorption of light that has been reflected off of the ground, increasing the overall yield. The majority of the Project area will be utilized for the Solar Facilities.

A linear axis tracking rack system allows the PV panels to track the solar resource throughout the day. The tracking maximizes production of electricity and optimizes the capacity value of the Project. The panels and tracking rack system are aligned in rows oriented north to south with the PV panels facing east toward the rising sun in the morning, parallel to the ground during mid-day, and then west toward the setting sun in the afternoon. The panels are rotated by a small motor that guides the panels. The tracking rack system is mounted on top of steel piles that are driven into the ground, without the need for excavation or concrete.

D. The Transmission Facilities

The Project would include a new Gen-Tie Line approximately 1,700 feet long that would interconnect the new Substation to Southwestern Public Service Company's ("SPS") existing 230

kV Chaves to Eddy County transmission line at SPS's proposed Bitter Lake Switchyard. The Gen-Tie Line is expected to entail up to about four braced line posts tangent structures, about 200 to 600 feet apart, each in a delta configuration on a single steel pole with a maximum height of 110 feet. The preliminary route of the Gen-Tie Line is represented on maps in Exhibit MK-2. The Gen-Tie Line will be located in a 120-foot wide ROW. Final design and micro-siting will determine final placement of these facilities within the 252-acre Analysis Area shown on the maps in Exhibit MK-2.

The Substation will be located in an approximately 5-acre area as shown on maps in Exhibit MK-2. The Substation will contain protection and control devices such as breakers and switches as well as power transformers to increase the voltage from the 34.5 kV collection system voltage to 230 kV for interconnection to the SPS transmission system.

As explained further in the Direct Testimony of Kevin Heglund, the proposed ROW width for the Gen-Tie Line is 120 feet. A conceptual one-line diagram showing the interconnection is provided in Exhibit MK-5. Consistent with our understanding of Commission Utility Division Staff's current preference, the conceptual one-line diagram is wet-stamped by a PE licensed in New Mexico.

F. Other Facilities

The Project will also include support facilities such as an operations and maintenance building, communications systems, site security, fencing, and access roads.

G. Protection Measures

The Project includes numerous Protection Measures described in Ms. Longstreet's Direct Testimony and the Environmental Report, Exhibit RL-2. A consolidated list of the Project's

Protection Measures is included in Exhibit MK-8 attached to Meghan Knudson's Direct Testimony.

II. THE SOLAR GENERATION FACILITIES AND THE TRANSMISSION FACILITIES SATISFY ALL OF THE REQUIREMENTS FOR THE REQUESTED LOCATION APPROVALS.

A. Location Control Requirements

The Location Statute requires prior approval by the Commission for construction within New Mexico of the following by any person:

(1) any plant designed for or capable of operation at a capacity of 300 MW or more for the generation of electricity for sale to the public within or without New Mexico, whether to not owned or operated by a public utility; and

(2) transmission lines and associated facilities designed for or capable of operations at a nominal voltage of 230 kV or more to be constructed in connection with and to transmit electricity from a new plant for which approval is required. This requirement applies to public utilities, independent transmission developers, and merchant generators.

NMSA 1978, § 63-9-3.B.

The Location Statute provides that the Commission shall approve an application for location of a generating plant unless the Commission finds that the operations of the facilities will not be in compliance with "all applicable air and water pollution control standards existing;" provided that the Commission "shall not require compliance with performance standards other than those established by the agency of this state having jurisdiction over a particular pollution source." NMSA § 62-9-3.E. The New Mexico agency which has jurisdiction over air and water pollution is the New Mexico Environment Department ("NMED").

The Location Statute provides that the Commission shall approve an application for location of transmission lines unless the Commission finds that the location will unduly impair

important environmental values. NMSA § 62-9-3.F. In making this determination, the Commission may consider the following factors:

(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 archeological 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.

NMSA § 62-9-3.M.

The Location Statute also provides the Commission shall not approve a location control application that violates an existing state, county or municipal land use statutory or administrative regulation unless the Commission finds that the regulation is unreasonably restrictive. NMSA § 62-9-3.I.

The Location Statute further provides that the Commission shall approve an application for location of generating plant or transmission lines unless the Commission finds that the operation of the facilities will unduly impair power system reliability. NMSA §§ 62-9-3.E and F.

The Location Statute provides the Commission shall issue its order granting or denying a location application within six months from the date the application is filed. NMSA § 62-9-3.K. Failure to issue its order within six months is deemed to be approval of the application; provided that the Commission may extend the time for granting approval for a transmission line for up to an additional nine months upon finding that additional time is necessary to determine if the proposed location will unduly impair important environmental values. NMSA 62-9-3.L.

The Location Statute provides the Commission shall act upon an application "after a public hearing and upon notice as the commission may prescribe." NMSA 62-9-3.C. The statute also

provides that the Commission may approve an application without a formal hearing if no protest is filed within sixty days of the date that notice is given. NMSA § 62-9-3.K.

As explained more fully below and in the testimonies and exhibits that support this Application, the Project will comply with all applicable air and water pollution control standards and regulations and will not violate any existing state, county, or municipal land use statutory or administrative regulation; the Project will not unduly impair power system reliability; and the Transmission Facilities will not unduly impair important environmental values.

B. The Project Will Comply with All Applicable Air and Water Pollution Control Standards and Regulations.

The Project will comply with all applicable air and water pollution control standards and regulations. As explained below and in the Direct Testimony of Rebekah Longstreet and the Direct Testimony of Meghan Knudsen, the only permits required are for construction activities that are typically received shortly before the start of construction.

The Project may require an air quality General Construction Permit if it needs one or more on-site concrete batch plants for foundations, or for aggregate crushing for use in road construction. These are routine permits that are typically applied for and received immediately prior to construction by the construction company that will be selected in the future to build the Project. The Project proposes to implement the Dust Control Plan in Exhibit MK-12. Because the Project will be renewable energy generation, it will have no long-term adverse impacts to air quality.

The Project will require a National Pollution Discharge Elimination System ("NPDES") permit from the U.S. Environmental Protection Agency ("EPA") pursuant to Section 402 of the Clean Water Act, 33 U.S.C. § 1342. This construction-phase permit requires the control of storm water discharge from the Project site during construction, including implementation of standard

erosion control measures and best management practices. The Project will develop and implement a Storm Water Pollution Prevention Plan ("SWPPP"). Coverage under the NPDES Construction General Permit is typically obtained just prior to the start of construction by the construction company that will be selected in the future to build the Project. There are only a few limited aquatic features within the Project site that will be avoided to the maximum extent practicable. See Exhibit MK-6. Depending on final design and crossings, the Project will obtain any required permits from the U.S Army Corps of Engineers under the Clean Water Act. The Project will avoid impacts to surface waters during construction and will have no long-term impacts on water resources and water quality during operation.

C. The Project Will Not Violate Existing State, County, or Municipal Land Use Statutory or Administrative Regulations.

The Project will comply with all applicable land use requirements. The Project would be constructed on a total of about 4,167 acres of land comprising about 4,159 acres of private lands for the Solar and Transmission facilities, and about 7.25 acres of State lands for an access road. Land ownership status is shown on maps in Exhibit MK-2.

The Applicant has entered lease options with private landowners for the Project. Landowner affirmations are in Exhibit MK-7. Tumbleweed has applied to the NMSLO regarding use of about 7.25 acres of State land for an access road. The NMSLO application process is advancing and is expected to conclude by end of 2026. The Project will comply with NMSLO requirements.

The parcels of private land proposed to be used for the Project are within Chaves County, are currently designated for "Agriculture," and are currently used for grazing. Because solar generation is a permitted use in industrial zones, Tumbleweed applied to the County for a zone

change. The application is advancing and County approval is expected by end of 2026. Tumbleweed will comply with County requirements.

The Chaves County Soil and Water Conservation District ("Chaves SWCD") has not put in place any land use regulations, but has identified that its goal is to promote use of conservation practices and resource management methods to enhance watershed health and productivity.[1] The Project will comply with these objectives by implementing best management practices to control erosion and sedimentation on the Project site, including putting in place a SWPPP and conforming with the NPDES general permit. The Applicants reached out to the Chaves SWCD and coordinated with their Noxious Weed Manager regarding the proposed Weed Management Plan in Exhibit MK-11. The Chaves SWCD has not expressed any concerns about the Project.

D. Interconnection of the Project Will Not Unduly Impair Power System Reliability.

The Project will need to enter a Large Generator Interconnection Agreement ("LGIA") for interconnection of the proposed generation to the electric grid. As part of the process to obtain an LGIA, the Project interconnection will undergo a series of technical studies to ensure that interconnection will not cause system reliability to fall below the applicable standards or tolerances. This is the same process required for all new commercial-scale electricity generation facilities intending to interconnect to the existing transmission system.

E. The Transmission Facilities Will Not Unduly Impair Important Environment Values.

Tumbleweed has addressed the important environmental values identified in the Location Statute, NMSA 1978, § 62-9-3.M, and the Location Rule, 17.9.592 NMAC, which include existing plans for development of the proposed location; fish, wildlife and plant life; noise levels;

[1] *See* https://chavesswcd.com/about-us/.

interference with communication signals; availability for recreational purposes; scenic, historic, cultural or religious sites and structures or archeological sites; schools; military activities; aviation; soils; minerals and mining; geologic and paleontological resources; roads; geographic resources; hazardous materials; and public safety.

Part of this analysis was consideration of the numerous Protection Measures proposed by Tumbleweed to avoid and minimize impacts. The Protection Measures are listed in Exhibit MK-8 attached to Ms. Knudsen's Direct Testimony. Ms. Longstreet's Direct Testimony, supported by the Environmental Report in Exhibit RL-2, as well as the Direct Testimony of Amanda Hargrave, the Direct Testimony of Deborah Huntley, and the technical reports attached to their testimonies, review the environmental resources listed above and the proposed Protection Measures, and conclude that the Transmission Facilities are not expected to unduly impair important environmental values.

III. ADDITIONAL PROJECT BENEFITS.

The renewable energy generation will conserve scarce water resources and will not discharge pollutants. The Project will provide clean energy without use of substantial amounts of water, without hazardous chemicals or byproducts, and without production of CO2 or other greenhouse gases. The Project would positively impact the local economy through local investment, taxation, and lease payments while generating jobs in a new industry in the region. Ms. Longstreet's Direct Testimony and the Environmental Report in Exhibit RL-2 summarize the environmental and economic benefits the Project will provide.

The Project’s EPC contractors are anticipated to post for some positions locally to fill the positions necessary to complete construction of the Project. Examples include sub-contracting to

local contractors for gravel, fill, fencing, and civil work. The Project will comply with NMSA Section 62-13-16 regarding the hiring of apprentices.

IV. THE APPLICATION PROVIDES THE INFORMATION REQUIRED BY THE LOCATION RULE.

The Commission's Location Rule, 17.9.592 NMAC, specifies the contents of an application for location approval pursuant to the Location Control Statute. This Application and supporting testimonies and exhibits provide all the required information for Commission review.

The Location Rule, 17.9.592.9 NMAC, provides that the applicant must file an application supported by written direct testimony and supporting exhibits that contain the following for ***generating plants*** for which location approval is required:

A. a description of the large capacity plant, including but not limited to:
    1) a legal description of the property upon which the large capacity plant will be located;
    2) the size of the large capacity plant;
    3) fuel specifications including but not limited to, the type of fuel to be used; and
    4) a map showing the location of the large capacity plant;
B. identification of all applicable land use statutes and administrative regulations and proof of compliance or a statement of noncompliance with each;
C. identification of all applicable air and water pollution control standards and regulations and proof of compliance or a statement of noncompliance with each;
D. all written air and water quality authorizations necessary to begin construction of the large capacity plant;
E. all written air and water quality authorizations necessary to begin operation of the large capacity plant; if any such authorization cannot be obtained until after construction of the large capacity plant, proof of application for such authorization;
F. the expected date that the large capacity plant will be online;
G. proof that the application has been served on all local authorities in each county and township where the large capacity plant will be location, the New Mexico attorney general [now the New Mexico Department of Justice ("NMDOJ")], the New Mexico environment department, and the New Mexico state engineer;
H. any other information, including photographs, which the applicant wishes to submit in support of the application.

The Location Rule, 17.9.592.10 NMAC, provides that the application must be supported by written direct testimony and supporting exhibits that contain the following for ***transmission lines*** for which location approval is required:

A. a description of the transmission line including, but not limited to:
    1) the location of the transmission line;
    2) identification of the ownership of the land (such as private, Bureau of Land Management, U.S. Forest Service, State trust, etc.) the transmission line will cross and the number of feet the transmission line will cross over each owner's land;
    3) the total length of each transmission line in feet;
    4) a description of interconnection facilities;
    5) a map showing the location of the transmission line; and
    6) a schematic diagram showing the transmission line and the interconnection of the transmission line to the transmission grid;
B. identification of all applicable land use statutes and administrative regulations and proof of compliance or statement of noncompliance with each;
C. if required under NEPA, an environmental assessment prepared in connection with the transmission line;
D. if required under NEPA, an environmental impact statement and record of decision or a finding of no significant impact, prepared in connection with the transmission line;
E. 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;
F. all written federal, state, and local environmental authorizations necessary to begin construction of the transmission line;
G. all written federal, state, and local environmental authorizations necessary to begin operation of the transmission line; if any such authorization cannot be obtained until after construction of the transmission line, proof of application for such authorization;
H. 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;
I. the expected date that the transmission line will be online;
J. proof that the application has been served on all local authorities in each county and township where the transmission line will be located, the New Mexico attorney general [now the NMDOJ], the New Mexico environment department, and the New Mexico state engineer; and
K. any other information, including photographs, which the applicant wishes to submit in support of the application.

This Application and supporting testimonies and exhibits provide the information that is required by the Location Rule. Ms. Knudsen's Direct Testimony and exhibits describe the proposed Solar Generation Facilities and Transmission Facilities, and provide location maps, the legal description, and Project descriptions that include the size of the generating plant, the type of land ownership, the proposed Gen-Tie Line, a description of potential interconnection facilities, and a representative one-line diagram, all in compliance with Rules 17.9.592.9.A and 10.A NMAC.

Ms. Knudsen's Testimony explains that the Project has entered lease options with private landowners, will receive the necessary approval of the NMSLO for use of about 7.25 acres of State land for an access road, will obtain a zoning change from Chaves County, and the Chaves SWCD has no applicable land use regulations but the Project will coordinate with the Chaves SWCD regarding noxious weed management, all in compliance with 17.9.592.9.B and 10.B NMAC. The Direct Testimonies of Ms. Longstreet and Ms. Knudsen identify the air and water quality authorizations necessary to begin construction and operation of the facilities and explain that all of these are typically obtained prior to construction by the construction company that will be selected to build the Project, in compliance with Rules 17.9.592.9.C, D and E, and 10.F NMAC.

Ms. Longstreet's, Ms. Hargrave's, and Dr. Huntley's direct testimonies and accompanying exhibits demonstrate that the Transmission Facilities will not unduly impair important environmental values, including air and water quality, land uses, soils, flora, fauna, and water, mineral, socioeconomic, cultural, historic, religious, visual, geologic, and geographic resources, in compliance with Rule 17.9.592.10.G NMAC. An Environmental Report is attached to Ms. Longstreet's testimony in compliance with Rule 17.9.592.10.E NMAC. Ms. Knudsen's testimony provides the expected date that the Transmission Facilities will be online, in compliance with Rule

17.9.592.10.H NMAC. The supporting testimonies and exhibits include additional information that may assist the Commission.

Ms. Knudsen's Testimony verifies that the Application and supporting materials have been served on local authorities in Chaves County, the NMDOJ, the NMED, and the New Mexico State Engineer ("NMOSE"), in compliance with Rules 17.9.592.9.F and G, and 10.I NMAC. In addition, the Application and supporting materials have been served on the NMSLO and the Chaves SWCD. The Application and supporting testimonies and exhibits will be provided to and available in the public library in Roswell, which is the County Seat of Chaves County, and will be available on the Applicant's website at: https://www.tumbleweedsolar.com/.

V. ROW WIDTH DETERMINATION

New Mexico's ROW Width Statute, NMSA 1978, § 62-9-3.2.A, provides:

> Unless otherwise agreed to by the parties, no person shall begin the construction of any transmission line requiring a width for right of way of greater than one hundred feet without first obtaining from the commission a determination of the necessary right-of-way width to construct and maintain the transmission line. Construction does not include acquisition of rights of way, preparation of surveys or ordering of equipment.

The ROW Width Statute requires applications to contain, in writing, all information required for the Commission to make its determination, and to set forth the facts involved. NMSA 1978, § 62-9-3.2.C. The Statute also requires the applicant to cause notice of the time and place of hearing on the application to be given to any owner of "property to be taken" and to any person in actual occupancy of such property. Notice shall be given by first class mail at least 20 days before the time set for hearing, and the applicant shall file proof of notice on or before the hearing. NMSA 1978, § 62-9-3.2.D. The Statute further provides the Commission shall act upon the application, after public hearing, within six months of the date the application was filed, and failure to do so is deemed to be approval of the application. NMSA 1978, §§ 62-9-3.2.E and F.

As explained in the Direct Testimony of Kevin Heglund, the ROW Width proposed for the Gen-Tie Line to comply with electrical and safety codes (with a minimum of two structures) and to provide logistical space for construction and operations activities is 120 feet. This ROW is conservatively wide, allowing for micro-siting of structures.

The private landowners have entered lease options for use of their land for the Project, and specifically for the ROW for the Transmission Facilities. These landowners have provided affirmations that they agree to the 120-foot ROW Width. See Exhibit MK-7. Tumbleweed is coordinating with the NMSLO on a requested lease and ROW agreement for an access road on 7.25 acres of State lands, and coordination is well advanced. No lands for the Gen-Tie Line ROW will be "taken" without landowner agreement. Nevertheless, in an abundance of caution and to the extent required by law, the Applicant requests Commission approval of the 120-foot ROW Width for avoidance of doubt and in light of prior Commission ROW width approvals.

VI. NOTICE AND PROCEDURAL MATTERS

As required by Commission Rules 17.9.592.10.J and 17.9.592.13 NMAC, copies of this Application and supporting testimonies and exhibits will be provided to local authorities in Chaves County, the NMDOJ, the NMED, and the NMOSE. The Application and supporting testimonies and exhibits will also be provided to the Chaves SWCD, the NMSLO, landowners in the Analysis Area, and several members of Commission Staff, and will be available in the public library in Roswell, which is the county seat of Chaves County.

In addition, attached to this Application as Attachment 1 is a Proposed Notice, in the Commission's current format, which the Applicant will, upon approval and order of the Commission, publish in a newspaper of general circulation in Chaves County. Following issuance of the official Notice, Tumbleweed will mail it by first class mail to the landowners in the

Transmission Facilities Analysis Area to notify them of the time and place for the hearing at least 20 days before the time set for hearing, pursuant to NMSA 1978, Section 62-9-3.2(D). The Application and supporting materials will be posted on the Applicant's website at https://www.tumbleweedsolar.com/.

VII. TESTIMONIES

In support of this Application, the Applicant accompanies its Application with the following testimonies and attached exhibits:

Witness	**Subjects**
Meghan Knudsen	Overview of Project and Applicant, introduction of witnesses, summary of compliance with application requirements as provided in applicable laws and regulations.
Rebekah Longstreet	The Environmental Report and important environmental values.
Amanda Hargrave	Biological and water resources and important environmental values regarding biological and water resources.
Deborah Huntley	Cultural resources and important environmental values regarding cultural resources.
Kevin Heglund	Gen-Tie Line ROW width.

VIII. SERVICE TO APPLICANT

The Applicant respectfully requests to be served with copies of all notices, pleadings, correspondence, and discovery requests, responses and objections made by any party in this proceeding. Service should be made as follows:

Joan Drake jdrake@modrall.com
Susan Miller susan.miller@modrall.com
Meghan Knudsen Meghan.knudsen@desri.com
Witter Swanson witter.swanson@desri.com
Maia Alberts maia.alberts@desri.com

IX. CONCLUSION

This Application and supporting materials demonstrate that the Solar Generation Facilities and the Transmission Facilities meet all applicable requirements for location approval pursuant to NMSA 1978, § 62-9-3, and the ROW Width of 120 feet is appropriate pursuant to NMSA 1979, § 62-9-3.2 to the extent required by law. The Project will be in compliance with all applicable existing air and water pollution control standards and regulations; the location of the Transmission Facilities will not unduly impair important environmental values; and the location of the Project will not violate any existing federal, tribal, state, county, or municipal land use statutory or administrative regulation. The Project will provide environmental and economic benefits, and will not impair system reliability. The ROW Width of 120 feet is adequate to comply with National Electrical and Safety Codes and will provide for micro-siting and construction and operational logistics.

WHEREFORE, for the foregoing reasons, the Applicant respectfully requests (1) the Commission issue its initial order so that publication of notice may proceed; (2) grant this Application for location approval of the Solar Generation Facilities and the Transmission Facilities pursuant to NMSA 1978, § 62-9-3; (3) approve the ROW Width pursuant to NMSA 1978, § 62-9-3.2 to the extent required by law; and (4) grant such other relief as may be deemed necessary and appropriate.

DATED October 16, 2026.

Respectfully submitted,

MODRALL, SPERLING, ROEHL, HARRIS & SISK, P.A.

By: */s/ Joan E. Drake*

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NEW MEXICO
PUBLIC REGULATION COMMISSION

COMMISSIONERS
GABRIEL AGUILERA
GREG NIBERT
PATRICK O'CONNELL

Attachment A
Proposed Form of
NOTICE

On October 16, 2026, Tumbleweed Solar, L.L.C. filed an application with the New Mexico Public Regulation Commission requesting (1) location approval of the Tumbleweed Solar Project and associated Transmission Facilities, pursuant to NMSA 1978, Section 62-9-3; and (2) right-of-way width determination pursuant to NMSA 1978, Section 62-9-3.2.

The Project would use solar generators to generate up to 350 MW of electricity, and would include a 230 kV overhead generation tie transmission line approximately 1,700 feet long within a 120-foot wide right-of-way, and a collector substation. The Project would be located on private lands, with an access road on state lands situated about 13 miles east of the City of Roswell in Chaves County, New Mexico.

NO ACTION IS REQUIRED UNLESS YOU WANT TO PARTICIPATE IN THE PUBLIC HEARING OR COMMENT ON THE PROCEEDINGS.

The Application and other filings in this case are available at the Commission's website under "Case Lookup E-docket" at https://www.prc.nm.gov/case-lookup-e-docket/, by referencing Case No._____, and on Tumbleweed Solar's website, https://www.tumbleweedsolar.com/.

PUBLIC HEARING

A public hearing will be held beginning at 9:00 a.m. on_____**, 2027**, and continuing as needed through _____**, 2027**, to hear and receive testimony, exhibits, and legal arguments about the Application. The public hearing will take place via the Zoom platform.

Members of the public can watch the hearing via a livestream on the Commission's YouTube channel and its website, https://www.prc.nm.gov/public-hearings/.

If you wish to participate in the hearing as a party to this case you must file a motion for leave to intervene, pursuant to 1.2.2.23 NMAC on or before _____. Anyone filing pleadings, documents or testimony in this case will serve a copy on all parties and the Commission Staff. Filings must also be sent to Hearing Examiner at _____. The Commission's Rules of Procedure, found at 1.2.2 NMAC, shall apply to this case except as modified by order of the Commission or Hearing Examiner. The rules of procedure and other NMPRC rules are available online at the New Mexico Compilation Commission at https://nmonesource.com/nmos/en/nav.do and at the State Records Center and Archives at https://srca.nm.gov/nmac-home/nmac-titles/.

THESE ARE NOT ALL THE DEADLINES IN THIS MATTER, AND PARTIES AND POTENTIAL INTERVENORS ARE ADVISED TO READ THE COMPLETE PROCEDURAL ORDER ISSUED ON_____, AT https://www.prc.nm.gov/case-lookup-e-docket/.

Anyone filing pleadings, documents, or testimony in this case shall comply with the Commission's electronic filing policy. Filings must be in PDF format and be Optical Character Recognition ("OCR") enabled. Filings must include an electronic signature and be sent to the Record Management Bureau's email address, prc.records@prc.nm.gov, within regular business hours (8:00 a.m. to 5:00 p.m. MT) of the due date in order to be considered timely filed. Anyone whose testimony is filed in this case must attend the public hearing and submit to examination under oath unless otherwise determined by the hearing examiners.

PUBLIC COMMENT

If you are interested in the case but do not wish to become a party, you may make written or oral comments as allowed by Rule 1.2.2.23(F) NMAC. Public oral comments are not taken at the evidentiary hearing because they are not evidence, but they are reviewed and considered by Commission staff. You may send written comments before the

Commission takes final action by sending the comment, which must specifically reference Case No. _____, to prc.records@prc.nm.gov, or Commission Records Management Bureau, P.O. Box 1269, Santa Fe, NM 87504. The Commission may be reached by telephone at 1-888-427-5772 if there are questions about how to submit written comments. Alternatively, oral comments may be taken at public comment hearing if one is scheduled by the Commission. If a public comment hearing is scheduled, the date, time and location will be provided. Public comment is also welcome during Commission open meetings. The open meetings schedule is available on the Commission website at www.prc.nm.gov/nmprc-open-meeting-agenda/.

IF YOU ARE AN INDIVIDUAL WITH A DISABILITY WHO IS IN NEED OF A READER, AMPLIFIER, QUALIFIED SIGN LANGUAGE INTERPRETER, OR ANY OTHER FORM OF AUXILIARY AID OR SERVICE TO ATTEND OR PARTICIPATE IN THE HEARING. OR FOR A SUMMARY OR OTHER TYPE OF ACCESSIBLE FORMAT OF PUBLIC DOCUMENTS, PLEASE CONTACT THE DIRECTOR OF ADMINISTRATIVE SERVICES OF THE COMMISSION AT (505) 827-8019 AS SOON AS POSSIBLE PRIOR TO THE HEARING.

Any person who desires more information about this case may contact the Commission by phone at (505) 827-4084 or 1-888-427-5772 or by email at Ryan.Jimenez@prc.nm.gov.

BEFORE THE NEW MEXICO PUBLIC REGULATION COMMISSION

IN THE MATTER OF THE APPLICATION OF TUMBLEWEED SOLAR, L.L.C. FOR LOCATION APPROVAL OF SOLAR GENERATION FACILITIES AND ASSOCIATED TRANSMISSION FACILITIES PURSUANT TO NMSA § 62-9-3; –AND RIGHT-OF-WAY WIDTH DETERMINATION PURSUANT TO NMSA § 62-9-3.2	))))))))	**Case No. 26-_____**

DIRECT TESTIMONY

OF

MEGHAN KNUDSEN

ON BEHALF OF

TUMBLEWEED SOLAR, L.L.C.

OCTOBER 16, 2026

NMPRC Case No. 26-_____-UT
Direct Testimony of Meghan Knudsen

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Attachments:

Exhibit MK-1: Resume of Meghan Knudsen
Exhibit MK-2: Project Location Maps
Exhibit MK-3: Legal Description
Exhibit MK-4: Representative Photos
Exhibit MK-5: One Line Diagram of Interconnection (wet stamped)
Exhibit MK-6: Surface Water Resources
Exhibit MK-7: Private Landowner Affirmations
Exhibit MK-8: Protection Measures
Exhibit MK-9: Hazardous Materials and Waste Management Plan
Exhibit MK-10: Unanticipated Discoveries Plan for Cultural Resources and Human Remains
Exhibit MK-11: Noxious Weed Management and Revegetation Plan
Exhibit MK-12: Fugitive Dust Control Plan

Verification of Meghan Knudsen

I. WITNESS INTRODUCTION.

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS

A. My name is Meghan Knudsen. My business address is 575 Fifth Avenue, 24th Floor, New York, NY 10017.

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

A. I am employed by DESRI Project Management Services, L.L.C. as Director of Development.

Q. PLEASE DESCRIBE YOUR PROFESSIONAL EXPERIENCE AND EDUCATIONAL BACKGROUND.

A. I have a B.S. degree in Environmental Economics and Management from the University of Georgia. I have over nine years of experience leading solar and battery storage projects from site origination through permitting, interconnection, financial close, and construction. My expertise includes permitting before local authorities, negotiation of complex real estate and tax agreements, interconnection filings, and project pricing. I am experienced in project development, including siting, permitting, and engagement with state agencies. My resume is attached as Exhibit MK-1.

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

A. I am testifying on behalf of the Applicant, Tumbleweed Solar, L.L.C. ("Tumbleweed" or "Applicant").

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. My testimony supports Tumbleweed's Application for location approval pursuant to NMSA Section 62-9-3 by the New Mexico Public Regulation Commission

("NMPRC" or "Commission") and right-of-way width determination pursuant to NMSA Section 62-9-3.2. My testimony provides an overview of the Tumbleweed Solar Project ("Project"), describes the proposed facilities, identifies the Commission approvals requested in the Application, and summarizes the Project's compliance with statutory and regulatory requirements.

Q. WHAT SUBJECTS DO OTHER WITNESSES ADDRESS?

A. The Direct Testimony of Rebekah Longstreet addresses important environmental values and sponsors the Environmental Report attached to her testimony as Exhibit RL-2. The Direct Testimony of Amanda Hargrave addresses biological resources and water resources, and sponsors the Natural Resources Report attached to her testimony as Exhibit AH-2. The Direct Testimony of Deborah Huntley addresses cultural resources and sponsors the Cultural Resources Inventory Report attached to her testimony as Exhibit DH-2. The Direct Testimony of Kevin Heglund addresses transmission right-of-way ("ROW") width requirements and sponsors a technical report attached to his testimony as Exhibit KH-2.

Q. HAVE YOU TESTIFIED PREVIOUSLY BEFORE ANY REGULATORY AUTHORITIES?

A. No.

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

A. I sponsor Exhibits MK-1 through MK-12, listed in the table of contents to this testimony.

Q. WERE EXHIBITS MK-1 THROUGH MK-12 PREPARED OR COMPILED BY YOU OR UNDER YOUR DIRECT SUPERVISION AND CONTROL?

A. Exhibits MK-1 through MK-12 were prepared or compiled by me or under my direct supervision and control.

Q. ARE EXHIBITS MK-1 THROUGH MK-12 TRUE AND CORRECT COPIES OF THE DOCUMENTS YOU HAVE DESCRIBED IN YOUR TESTIMONY?

A. Yes.

II. THE APPLICANT

Q. PLEASE IDENTIFY THE APPLICANT.

A. The Applicant, Tumbleweed Solar, L.L.C., is wholly-owned by DESRI Renewables, Inc. ("DESRI").[1] DESRI is a leading renewable energy company that develops, owns, and operates utility-scale solar, wind, and battery storage projects throughout the United States. Since 2010, DESRI has worked closely with communities and partners to build a diversified portfolio across 24 states with over 10 GW of operating or under-construction generation capacity, including in New Mexico. DESRI has a deep understanding of the regional solar market, with over 1 GW of operating solar projects in the Southwestern U.S., including the 300 MW Arroyo solar and storage project in McKinley County, NM and 130 MW Carne solar and storage project in Luna County; over 1 GW of development-stage and in-construction solar projects in Texas and New Mexico; and key experience working with battery energy storage systems ("BESS").

[1] Until March 2025, DESRI was known as D.E. Shaw Renewables Investments.

Additionally, construction activities are well underway for DESRI's 150 MW Santa Teresa solar and storage project in Doña Ana County and 270 MW solar + 180 MW storage MW Foxtail Flats and Four Mile Mesa project in San Juan County.

Q. ARE EITHER DESRI OR TUMBLEWEED CURRENTLY A PUBLIC UTILITY OR EXPECTED TO OPERATE AS A PUBLIC UTILITY IN NEW MEXICO?

A. No.

III. REQUESTED APPROVALS

Q. PLEASE IDENTIFY THE APPROVALS THE APPLICANT REQUESTS IN THIS PROCEEDING?

A. The Applicant requests the following approvals from the Commission:

(1) pursuant to NMSA 1978, Section 62-9-3, for approval to locate up to 350 megawatts ("MW") of solar energy generation (the "Solar Facilities") on about 4,159 acres of private land located approximately 13 miles east of the City of Roswell in an unincorporated portion of Chaves County, New Mexico;

(2) pursuant to NMSA 1978, Section 62-9-3, approval to locate a new up to 1,700-foot long 230 kV generation tie transmission line (the "Gen-Tie Line") and associated collector substation (the "Substation") (together, the "Transmission Facilities") to connect the Solar Facilities to Southwestern Public Service Company's ("SPS") existing 230 kV Chaves to Eddy County transmission line at Southwestern Public Service Company's ("SPS") proposed Bitter Lake Switchyard; and

(3) pursuant to NMSA 1978, Section 62-9-3.2 and to the extent required by law, determination that the 120-foot right-of-way ("ROW") width for the Gen-Tie Line is appropriate.

Q. IS COMMISSION APPROVAL WITHOUT A HEARING REQUESTED?

A. The Applicants will comply with the established Commission process to obtain the requested approvals. If no objection to the location of the facilities is filed, then the Applicant would request vacation of the hearing regarding the requested location approvals, pursuant to NMSA 1978, Section 62-9-3.K, in order to expedite the regulatory process and proceed as quickly as possible with construction. To the extent that ROW width determination is not needed, a hearing on ROW width would not be needed.

IV. THE PROJECT

Q. PLEASE DESCRIBE THE PROJECT IN GENERAL.

A. The Project is an up to 350 MW solar photovoltaic ("PV") energy generation facility, the Project's proposed Substation, and an up to 1,700-foot long Gen-Tie Line within a 120-foot wide ROW. The Gen-Tie Line would interconnect the Solar Facilities to SPS's existing 230 kV Chaves to Eddy transmission line at SPS's proposed Bitter Lake Switchyard. The Project location is shown on maps in Exhibit MK-2.

Q. PLEASE DESCRIBE THE PROPOSED LOCATION OF THE PROJECT.

A. The Project will be located about 13 miles east of the City of Roswell in an unincorporated portion of Chaves County primarily on private land that is currently used for grazing. The Solar Facilities and Transmission Facilities together would

be constructed on about 4,159 acres of private land. An access road may be located on about 7.25 acres of State lands. The Project location was selected based on the availability of interconnection capacity, the suitability of the property for solar generation, and interest from private landowners in hosting the Project on their lands.

Project location maps are shown in Exhibit MK-2. A legal description of the Project property is provided in Exhibit MK-3. Representative photos of the Project area are in Exhibit MK-4.

Q. PLEASE DESCRIBE GENERALLY HOW THE FACILITIES WILL FUNCTION.

A. The process of solar energy generation begins with solar panels converting energy from the sun into direct current ("DC") electrical power. A series of panels will be electrically connected to an inverter via cabling. The inverters will convert the DC power from the panels to alternating current ("AC") power. A transformer located at the inverter will step up low AC voltage from the inverter to a medium voltage of 34.5 kV, which allows for longer distance transport of the electricity. From the inverters, electrical cables are routed to the Substation that houses a main power transformer that steps up the power from 34.5 kV to the higher voltage required to inject the power onto the grid. From the Substation, the electricity will be carried on the Gen-Tie Line to utility infrastructure at the Point of Interconnection ("POI") at the Bitter Lake Switchyard for injection onto the utility-owned transmission infrastructure for delivery to the greater electric grid.

Q. PLEASE DESCRIBE THE SOLAR GENERATION FACILITIES.

A. The Project will utilize photovoltaic ("PV") modules with tempered glass. To limit reflection, solar PV panels are constructed of dark, light-absorbing materials, and are designed to absorb as much light as possible to maximize efficiency. The solar panels are bifacial, meaning they are essentially double-sided. This allows for absorption of light that has been reflected off of the ground, increasing the overall yield. The majority of the Project area will be utilized for the Solar Facilities.

A linear axis tracking rack system allows the PV panels to track the solar resource throughout the day. The tracking maximizes production of electricity and optimizes the capacity value of the Project. The panels and tracking rack system are aligned in rows oriented north to south with the PV panels facing east toward the rising sun in the morning, parallel to the ground during mid-day, and then west toward the setting sun in the afternoon. The panels are rotated by a small motor that guides the panels. The tracking rack system is mounted on top of steel piles that are driven into the ground, without the need for excavation or concrete.

Q. PLEASE DESCRIBE THE TRANSMISSION FACILITIES.

A. The Project would include a new Gen-Tie Line approximately 1,700 feet long that would interconnect the new Tumbleweed Substation to SPS's existing 230 kV Chaves to Eddy County transmission line at SPS's proposed Bitter Lake Switchyard. The Gen-Tie Line is expected to entail up to four braced line posts tangent structures, each in a delta configuration on a single steel pole with a maximum height of 110 feet, spaced 200 to 600 feet apart. The preliminary route of the Gen-Tie Line is represented on maps in Exhibit MK-2. The Gen-Tie Line will be located in a 120-foot wide ROW. Final design and micro-siting will

determine final placement of these facilities within the Analysis Area shown on the maps in Exhibit MK-2.

The Substation will be located in an approximately 5-acre area as shown on maps in Exhibit MK-2. The Substation will contain protection and control devices such as breakers and switches as well as power transformers to increase the voltage from the 34.5 kV collection system voltage to 230 kV for interconnection to the SPS transmission system. The area within the Substation will be graveled to minimize vegetation growth in the area and reduce fire risk. The Substation will be enclosed by a chain-link fence topped with barbed wire strand, as is required by code and for safety and security.

As explained further in the Direct Testimony of Kevin Heglund, the proposed ROW width for the Gen-Tie Line is 120 feet. A conceptual one-line diagram showing the interconnection is provided in Exhibit MK-5. Consistent with our understanding of Commission Utility Division Staff's current preference, the conceptual one-line diagram is wet-stamped by a PE licensed in New Mexico.

Q. PLEASE DESCRIBE OTHER PROJECT FACILITIES.

A. Other Project facilities include access roads, laydown yards, the operations and maintenance ("O&M") building and parking, a weather station, a Supervisory Control and Data Acquisition ("SCADA") system, fencing, and lighting. Permanent gravel private access roads will be necessary to facilitate the operations and maintenance of the facility. Access roads typically range in width from 16 to 20 feet and would look no different than a standard driveway or gravel road. Main site

access would consist of a 26 foot wide road to accommodate equipment delivery vehicles with a large turning radius.

The Project will use temporary laydown yards that will serve as a parking area for construction personnel and staging area for equipment prior to installation. These generally consist of installed gravel pad areas that allow for more efficient construction and staging and that can be removed following construction.

Some onsite storage and operations space for maintenance equipment, temporary workspace for onsite employees, and for spare parts may be necessary. This could range from a pole barn-like structure or shed, to a double-wide trailer, or potentially a few storage containers near a facility entrance. DESRI relies on many third-party contractors and subcontractors for operations and maintenance needs. DESRI is constantly evaluating its portfolio to determine what onsite O&M infrastructure is necessary, and the need for O&M space for this Project is subject to further evaluation.

In order to monitor the Project for available sunlight, wind, and other weather events, and make adjustments to equipment as needed, the Project will include small weather stations sited within or nearby the solar array. Weather stations are no taller than 20 feet and, due to their small size, are anticipated to be imperceptible among other solar infrastructure.

The Project will use a SCADA system, which allows for remote control and monitoring of the status and operation of the Project. The monitoring system provides status views of electrical and mechanical data, operation and fault data, meteorological data, and grid station data.

For security, the Project will be enclosed by a security fence. Fence height and type are designed to meet National Electric Safety Code ("NESC") requirements. Access to the Project area will be through lockable gates, and security cameras will be located throughout the Project. An electronic security system or lock-boxes with keys will be utilized at Project entrances for emergency services, and signage will meet NESC requirements.

Minimal lighting will be used for the Project. Lighting will be used on an as-needed basis for safety and security purposes at locations such as the Project entrances, the Substation, and inverters. All lighting will be shielded and down-lit, and would be switch- as well as motion-activated.

Q. IS THE PROPOSED LOCATION SUITABLE FOR SOLAR FACILITIES OF THIS SIZE?

A. Yes. The proposed location was selected for the Project due to its abundance of solar resource, the availability of suitable land for solar development, availability of interconnection capacity and proximity to the existing transmission grid, and interest from private landowners in hosting the Project on their land.

Q. IS THE PROPOSED LOCATION OF THE GEN-TIE LINE AND SUBSTATION SUITABLE FOR THESE TRANSMISSION FACILITIES?

A. Yes. The private land on which the short 1,700-foot Gen-Tie Line between the Substation and SPS Switchyard is already under lease option with landowners and is disturbed due to livestock grazing.

Q. WHAT IS THE TIMEFRAME FOR CONSTRUCTION OF THE PROJECT?

A. Construction is projected to begin as early as Spring of 2028, with the goal of completing most construction activity by January 2030 and achieving commercial operation as early as May of 2030.

Q. HOW WILL DECOMMISSIONING OF THE PROJECT BE HANDLED AT THE END OF PROJECT LIFE?

A. Following its useful life, the Project will be decommissioned and the land can be returned to its pre-construction state. Decommissioning will proceed in accordance with a plan approved by Chaves County. Landowners may request infrastructure such as access roads be left in place for their personal use. Decommissioning activities are expected to be completed within 12 months after the end of useful life.

V. COMPLIANCE WITH THE LOCATION STATUTE

Q. WHAT IS YOUR UNDERSTANDING OF THE REQUIREMENTS OF THE LOCATION CONTROL STATUTE FOR COMMISSION APPROVAL OF GENERATING PLANTS AND TRANSMISSION FACILITIES?

A. I understand that Section 62-9-3.E of the Location Statute provides that the Commission shall approve an application for location of a generating plant unless the Commission finds that the operations of the facilities will not be in compliance with all applicable air and water pollution control standards existing and established by the agency having jurisdiction over a particular pollution source. In this case, that agency is the New Mexico Environment Department ("NMED").

Section 62-9-3.F of the Location Statute provides that the Commission shall approve an application for the location of the transmission lines (defined to include transmission lines designed for or capable of operation at 230 kV and associated

facilities) unless the Commission finds that the location will unduly impair important environmental values.

Section 62-9-3.G of the Location Statute also provides the Commission shall not approve a location control application for generating plants or transmission lines that violate an existing state, county, or municipal land use statutory or administrative regulation.

Sections 62-9-3.E and F of the Location Statute provide that the Commission shall approve the location of generating plants or transmission lines unless it finds that the operations will unduly impair power system reliability.

Q. DOES THE PROJECT COMPLY WITH THE REQUIREMENTS OF THE LOCATION STATUTE?

A. Yes. As I explain further below, I believe the Project complies with all of the requirements for location approval of the Solar Facilities and the Transmission Facilities.

A. <u>The Project Will Comply With Air Pollution Control Standards</u>.

Q. WILL THE PROJECT COMPLY WITH AIR POLLUTION CONTROL STANDARDS?

A. Yes. As explained in the Direct Testimony of Rebekah Longstreet, the Project will have only minimal, short-term impacts on air quality during construction. The only air emissions will be from construction vehicle and equipment, possible aggregate crushing for access roads and possible concrete batch plants for foundations, and fugitive dust from driving on roads. The Project will implement a Dust Control Plan during construction. See Exhibit MK-12. All applicable and required permits will

be obtained from NMED, and the Project will follow applicable air quality regulations.

Q. WHAT AIR POLLUTION CONTROL PERMITS WILL THE PROJECT REQUIRE?

A. If aggregate crushing needs to occur at the Project site for use in road construction or an on-site concrete batch plant is needed, then Tumbleweed or its contractors would obtain a general construction permit pursuant to the New Mexico Air Quality Control Act. *See* NMSA 1978, §§ 74-2-1 *et seq*. As a renewable energy generation project, the operation of the facilities will not result in emissions of greenhouse gases or other pollutants, and therefore operation of the facilities requires no air pollution control permits.

Q. WHEN ARE SUCH CONSTRUCTION-PHASE PERMITS TYPICALLY OBTAINED?

A. It is typical for the construction contractor to acquire such routine permits shortly prior to the start of construction.

B. <u>The Project Will Comply With Water Pollution Control Standards</u>

Q. WILL THE PROJECT COMPLY WITH WATER POLLUTION CONTROL STANDARDS?

A. Yes. There are a few limited aquatic features within the Project site that will be avoided to the maximum extent practicable. See Exhibit MK-6. Depending on final design and crossings, the Project will obtain any required permits from the U.S Army Corps of Engineers under the Clean Water Act. The Project will implement a storm water pollution prevention plan ("SWPPP") during construction in order to

minimize the effects of storm water runoff in the event of significant rain or runoff events. There are no FEMA-mapped flood hazard areas within the Project area.

Q. WHAT WATER POLLUTION CONTROL PERMITS WILL THE PROJECT REQUIRE?

A. Prior to construction, Tumbleweed or its contractor will obtain coverage under a National Pollutant Discharge Elimination System ("NPDES") Construction General Permit ("CGP") from the U.S. Environmental Protection Agency ("EPA") pursuant to Section 402 of the Clean Water Act, 33 U.S.C. Section 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 SWPPP that describes measures to control storm water discharge during construction, and the implementation of standard erosion control measures and best management practices. Solar energy generation facilities only require water to occasionally clean modules during the operation and generation of electricity and therefore no water pollution control permits are needed for operation.

Q. WHEN ARE SUCH CONSTRUCTION-PHASE PERMITS TYPICALLY OBTAINED?

A. As with construction-phase air quality permits, coverage under the NPDES Construction General Permit is typically obtained just prior to construction. Tumbleweed or its contractor will implement a SWPPP and obtain NPDES coverage prior to start of construction.

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

A. Yes, the Tumbleweed Project will comply with all applicable air and water pollution control standards.

C. The Project Will Comply With Applicable Land Use Statutes and Administrative Regulations

Q. PLEASE DESCRIBE THE EXISTING OWNERSHIP OF THE PROJECT LANDS.

A. The Project would be constructed on a total of about 4,167 acres of land comprising about 4,159 acres of private lands for the Solar and Transmission facilities, and about 7.25 acres of State lands for an access road crossing. Land ownership status is shown on maps in Exhibit MK-2.

Q. HAVE LAND RIGHTS FOR THE PROJECT BEEN SECURED FROM THE PRIVATE LANDOWNER?

A. Yes. A lease option has been obtained with private landowners for the Solar and Transmission Facilities. Affirmations by the private landowners are attached in Exhibit MK-7.

Q. DOES THE PROJECT REQUIRE APPROVAL FROM THE FEDERAL GOVERNMENT?

A. No.

Q. DOES THE PROJECT REQUIRE APPROVAL FROM THE STATE LAND OFFICE?

A. Tumbleweed has applied to the NMSLO regarding use of 7.25 acres of State land for an access road crossing. The NMSLO application process is advancing and is expected to conclude by end of 2026.

Q. DOES THE PROJECT REQUIRE LAND USE APPROVALS FROM THE COUNTY OR OTHER LOCAL ENTITY?

A. Yes. The parcels of private land proposed to be used for the Project are within Chaves County, are currently designated for "Agriculture," and are currently used for grazing. Because solar generation is a permitted use in industrial zones, Tumbleweed applied to the County for a zone change. The application is advancing and County approval is expected by end of 2026.

The Chaves County Soil and Water Conservation District ("Chaves SWCD") has not put in place any land use regulations, but has identified that its goal is to promote use of conservation practices and resource management methods to enhance watershed health and productivity.[2] The Project will comply with these objectives by implementing best management practices to control erosion and sedimentation on the Project site, including putting in place a SWPPP and conforming with the NPDES general permit. The Applicants reached out to the Chaves SWCD, and coordinated with their Noxious Weed Manager regarding the proposed Noxious Weed Management and Revegetation Plan in Exhibit MK-12. The Chaves SWCD has not expressed any concerns about the Project.

Q. DOES THE PROJECT REQUIRE LAND USE APPROVALS FROM MUNICIPALITIES?

[2] *See* https://chavesswcd.com/about-us/.

A. No. The Project area is in a remote location outside the extraterritorial jurisdiction of any municipality.

Q. IN SUMMARY, WILL THE PROJECT VIOLATE ANY EXISTING FEDERAL, STATE, COUNTY, OR MUNICIPAL LAND USE STATUTORY OR ADMINISTRATIVE REGULATION?

A. No. The Tumbleweed Project will not violate any existing federal, state, county, or municipal land use regulations.

D. The Project Will Not Unduly Impair Power System Reliability

Q. WILL THE PROJECT IMPAIR RELIABILITY OF THE TRANSMISSION SYSTEM?

A. No. The Project has applied for interconnection to SPS's Chaves to Eddy County transmission line and is in the midst of advanced studies that will ultimately result in a Large Generator Interconnection Agreement ("LGIA") for interconnection of the proposed generation. As part of the process to obtain an LGIA, the Project interconnection is undergoing a series of technical studies to ensure that interconnection will not cause system reliability to fall below the applicable standards or tolerances. This is the same process required for all new commercial-scale electricity generation facilities intending to interconnect to the existing transmission system.

E. The Transmission Facilities Will Not Unduly Impair Important Environmental Values.

Q. HAS THE APPLICANT EVALUATED THE TRANSMISSION FACILITIES' POTENTIAL IMPACTS ON THE FACTORS THE COMMISSION MAY CONSIDER IN DETERMINING WHETHER

LOCATION OF A TRANMISSION LINE WILL UNDULY IMPAIR IMPORTANT ENVIRONMENTAL VALUES?

A. Yes, we have reviewed the factors provided in the Location Statue, NMSA 1978, § 62-9-3.M, and the Location Rule, 17.9.592 NMAC, which include existing plans for development of the proposed location; 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; schools; military activities; aviation; soils; minerals and mining; geologic and paleontological resources; roads; geographic resources; hazardous materials; and public safety. The Direct Testimony of Rebekah Longstreet, the Direct Testimony of Amanda Hargrave, and the Direct Testimony of Deborah Huntley review and summarize the findings regarding these resources, and the Environmental Report, Natural Resources Report, and Cultural Resources Report, attached to these testimonies as Exhibits RL-2, AH-2, and DH-2, provide further detail on these resource areas.

Q. PLEASE SUMMARIZE YOUR FINDINGS WITH RESPECT TO EXISTING PLANS FOR OTHER DEVELOPMENTS AT OR NEAR THE PROJECT SITE.

A. Our investigation indicated there are currently no plans for other developments at or near the Project site. The site is currently undeveloped and used for grazing.

Q. PLEASE SUMMARIZE THE FINDINGS WITH RESPECT TO IMPORTANT ENVIRONMENTAL VALUES.

A. The Direct Testimony of Rebekah Longstreet and the Environmental Report included in Exhibit RL-2 review the environmental resources listed above and conclude that the Transmission Facilities will not unduly impair important environmental values. The Direct Testimony of Amanda Hargrave and the Natural Resources Report in Exhibit AH-2 address biological and water resources, and conclude that the Transmission Facilities will not unduly impair important environmental values regarding biological resources or water resources. The Direct Testimony of Deborah Huntley and the Cultural Resources Report in Exhibit DH-2 address cultural resources, and conclude that the Transmission Facilities will not unduly impair important environmental values regarding cultural resources.

Q. HAS THE APPLICANT IDENTIFIED PROTECTION MEASURES TO AVOID AND MANAGE POTENTIAL IMPACTS?

A. Yes. The Protection Measures that Tumbleweed proposes to implement are identified in Exhibit MK-8, and are also listed in Appendix A of the Environmental Report, Exhibit RL-2. These Protection Measures are identified and discussed in the Environmental Report, and we understand such measures are important to the Commission. The Protection Measures include implementing the management plans included in Exhibit MK-9 (Hazardous Materials and Waste Management Plan), Exhibit MK-10 (Unanticipated Discoveries Plan for Cultural Resources and Human Remains), Exhibit MK-11 (Noxious Weed Management and Revegetation Plan), and Exhibit MK-12 (Fugitive Dust Control Plan).

Q. PLEASE SUMMARIZE YOUR CONCLUSIONS REGARDING THE TRANSMISSION FACILITIES.

A. As discussed in the Environmental Report in Exhibit RL-2, and as summarized in our testimonies and exhibits, the Transmission Facilities will not unduly impair important environmental values.

F. Additional Information

Q. WILL THE PROJECT RESULT IN ENVIRONMENTAL BENEFITS?

A. Yes. The renewable energy generation will conserve scarce water resources and will not discharge pollutants. The Project will provide clean energy without use of substantial amounts of water, without hazardous chemicals or byproducts, and without production of CO_2 or other greenhouse gasses.

Q. WILL THE PROJECT RESULT IN SOCIOECONOMIC BENEFITS?

A. Yes. The Project would positively impact the local economy through local investment, taxation, and lease payments while generating jobs in a new industry in the region. Section 3.13 of the Environmental Report provides more detail.

Q. HOW DOES THE PROJECT PROPOSE TO USE NEW MEXICO-BASED VENDORS AND WORKERS ASSOCIATED WITH THE CONSTRUCTION OF THE PROJECT?

A. The Project's EPC contractors are anticipated to post for some positions locally to fill the positions necessary to complete construction of the Project. Examples include sub-contracting to local contractors for gravel, fill, fencing, and civil work. The Project will comply with NMSA Section 62-13-16 regarding the hiring of apprentices.

VI. COMPLIANCE WITH THE COMMISSION'S LOCATION RULE

Q. WHAT IS YOUR UNDERSTANDING OF THE REQUIREMENTS OF THE COMMISSION'S LOCATION RULE, 17.9.592 NMAC?

A. The Location Rule describes the process and requirements to obtain location approval. This includes the contents of the applications, process, and description of safe harbored facilities.

Q. DOES THE APPLICATION COMPLY WITH THE COMMISSION'S LOCATION RULE?

A. Yes. The Application provides all required information and complies with all of the applicable requirements of the Location Rule.

Q. PLEASE EXPLAIN HOW THE APPLICATION COMPLIES WITH THE LOCATION RULE'S SPECIFIC REQUIREMENTS REGARDING APPLICATIONS FOR GENERATING PLANTS.

A. Section IV of my testimony provides a description and size of the proposed generating plant and explains that it is a solar generation facility. Exhibit MK-2 provides location maps and an illustrative layout. A legal description of the property is included in Exhibit MK-3. Representative photos are in Exhibit MK-4.

Section V.C of my testimony explains that lease options have been entered with a private landowners, that Tumbleweed will obtain NMSLO approval for an access road, that Tumbleweed will obtain a zoning change from Chaves County, and the Chaves SWCA has no land use regulations that apply to the Project.

Sections V.A and V.B of my testimony identify all applicable air and water pollution control standards and regulations that apply to the Project.

Sections V.A and V.B of my testimony identify all written air and water quality authorizations necessary to begin construction of the Project, which are all construction-phase permits typically issued shortly before construction.

Sections V.A and V.B of my testimony identify that there are no air or water quality authorizations necessary for operation of the Project.

Section IV of my testimony addresses the expected date of operation of the Project.

Section VI of my testimony and the attached Certificate of Service demonstrate the application has been served on the NMSLO, Chaves County, the New Mexico Attorney General (now the Department of Justice ("NMDOJ")), the NMED, and the New Mexico State Engineer, as well as others, including the City of Roswell and the Chaves SWCD.

The Application, testimonies, and exhibits provide additional information to inform the Commission's decision-making regarding location approval of the Project.

Q. PLEASE EXPLAIN HOW THE APPLICATION COMPLIES WITH THE SPECIFIC REQUIREMENTS OF THE COMMISSION'S LOCATION RULE REGARDING APPLICATIONS FOR TRANSMISSION LINES.

A. Section IV of my testimony provides a description of the Transmission Facilities, including location, private land ownership, estimated number of feet the Gen-Tie Line will cross over private land, total length of the Gen-Tie Line, a description of interconnection facilities, location maps (Exhibit MK-2), and representational

schematic diagrams of the interconnection of the Gen-Tie Line to PNM's system (Exhibit MK-5).

Section V.C of my testimony explains that the Project will not violate any land use ordinances.

Because neither the Transmission Facilities nor the Solar Facilities require compliance with NEPA, an EA or EIS was not prepared. Rather, as explained in the Direct Testimony of Rebekah Longstreet, Tumbleweed prepared the Environmental Report contained in Exhibit RL-2 in the format prescribed by 40 C.F.R. § 1502.10.

As explained in Section V.C of my testimony, the Project will obtain NMSLO approval for an access road crossing, and will obtain a zoning change from Chaves County.

As explained in the Environmental Report, and as summarized in Ms. Longstreet's, Ms. Hargrave's, and Dr. Huntley's direct testimonies, the Transmission Facilities will not unduly impair important environmental values, including resources associated with air and water quality, flora and fauna, water, land uses, visual and scenic, cultural, historic, and archaeological, religious, geologic and paleontological, soils, mineral, socioeconomic, roads, noise, communication, military and aviation, geographic, radioactive, hazardous materials, and safety.

Section IV of my testimony addresses the Project's expected in-service dates.

Section VI of my testimony and the attached Certificate of Service demonstrate the Application has been served on the NMSLO, the City of Roswell, Chaves County, the NMDOJ, the NMED, and the New Mexico State Engineer, as well as the Chaves SWCD.

The Application, supporting testimonies and exhibits provide additional information to inform the Commission's decision-making regarding location approval of the Transmission Facilities.

Q. HAVE YOU PROVIDED THE INITIAL SERVICE OF PROCESS REQUIRED BY THE LOCATION STATUTE?

A. Yes. As required by Commission rules 17.9.592.10.J, and 17.9.592.13 NMAC, copies of the Application and supporting testimonies and exhibits have been served on state and local authorities identified above, and will be provided to and available in the public library in Roswell, which is the County Seat of Chaves County. See attached Certificate of Service. The Application and supporting materials will be available on the Applicant's website at: https://www.tumbleweedsolar.com.

VII. COMPLIANCE WITH THE ROW WIDTH STATUTE

Q. WHAT IS YOUR UNDERSTANDING OF THE REQUIREMENTS OF THE ROW WIDTH STATUTE, NMSA 1978, SECTION 62-3-3.2?

A. I understand that the ROW Width Statute provides as follows:

> Unless otherwise agreed to by the parties, no person shall begin the construction of any transmission line requiring a width for right of way of greater than one hundred feet without first obtaining from the commission a determination of the necessary right-of-way width to construct and maintain the transmission line. Construction does not include acquisition of rights of way, preparation of surveys or ordering of equipment.

Q. WHAT IS THE ROW WIDTH PROPOSED FOR THE GEN-TIE LINE?

A. As explained in the Direct Testimony of Kevin Heglund, the ROW Width proposed for the Gen-Tie Line to comply with electrical and safety codes for use of up to four transmission structures, and to provide sufficient room for micro-siting and construction and operational access, is 120 feet.

Q. DO THE UNDERLYING LANDOWNERS AGREE TO THE ROW WIDTH?

A. Yes. See the Affirmations contained in Exhibit MK-7. The Gen-Tie Line will be located on lands for which the Applicant has obtained a lease option over private land. Therefore, no lands for the Gen-Tie Line ROW will be "taken" without landowner agreement. Nevertheless, in an abundance of caution and to the extent required by law, the Applicants request Commission approval of the ROW width for avoidance of doubt and in light of prior Commission ROW width approvals.

Q. WILL THE UNDERLYING LANDOWNERS RECEIVE NOTICE OF THE HEARING?

A. Yes. The landowners are included on the Certificate of Service and will receive the Notice once it is approved for issuance by the Commission.

VIII. CONCLUSION

Q. PLEASE SUMMARIZE YOUR TESTIMONY.

A. My testimony summarizes the Project, its owner and its development status, describes the Commission approvals being requested, and addresses how the Project complies with all of the applicable requirements. The Application, testimonies and exhibits demonstrate that the Project will comply with all statutory and regulatory requirements. The Project will comply with all applicable air and

water pollution control standards. The Project will not violate any existing federal, state, county, or municipal land use statute or administrative regulation. The Project will not unduly impair power system reliability. The Transmission Facilities will not unduly impair important environmental values. The Project has the support of the landowners and will provide additional environmental and economic benefits. The proposed ROW Width is appropriate for compliance with electrical and safety codes and will provide sufficient room for micro-siting, construction, and operational access.

Q. IN YOUR OPINION, SHOULD THE COMMISSION APPROVE THE LOCATION OF THE SOLAR GENERATION FACILITIES AND THE LOCATION OF THE TRANSMISSION FACILITIES?

A. Yes.

Q. SHOULD THE COMMISSION APPROVE THE PROPOSED 120-FOOT ROW WIDTH TO THE EXTENT REQUIRED BY LAW?

A. Yes.

Q. DOES THIS CONCLUDE YOUR TESTIMONY AT THIS TIME?

A. Yes, it does.

Meghan Knudsen

706.847.9702 • megwhitley2@gmail.com • Moscow, ID

QUALIFICATIONS SUMMARY

Renewable energy development professional with over eight years of experience leading solar and battery storage projects from site origination through permitting, interconnection, financial close, and construction. Expertise includes permitting before local authorities, negotiation of complex real estate and tax agreements, interconnection filings across WECC and SPP, and project pricing. Experienced in New Mexico project development, including siting, permitting, and engagement with state agencies.

EMPLOYMENT

DESRI Moscow, ID — May 2021-Present
Director, Development — December 2025-Present
Senior Manager, Development — December 2022-December 2025
Associate, Development — May 2021-December 2022

- Led 430 MW of solar and 65 MW of battery storage projects in Utah and New Mexico through development and financial closing
- Signed PPA for 500MW of solar in Oklahoma
- Guided project pricing strategy and economic assumptions across RFP responses, resulting in 6 successful bids totaling 600 MW of solar and standalone storage
- Managed end-to-end conditional use permit process for 5 projects across Utah, Idaho, and New Mexico, including agency coordination, public hearings, and final approvals
- Negotiated agreements with 3 oil and gas operators and over 400 mineral owners at complex Oklahoma site
- Formulated market entry strategy and implemented campaign for Pacific Northwest across multiple utilities
- Led site due diligence and drafted LOIs for 6 M&A opportunities, assessing project viability and negotiating deal terms
- Filed and tracked interconnection queue positions across SPP and WECC, analyzing interconnection costs and managing positions through the study process to support project development decisions
- Negotiated 4 tax abatement agreements with local taxing authorities, reducing operating expenses for 20+ year terms in Utah and New Mexico

Invenergy LLC Denver, CO — February 2019-May 2021
Senior Analyst, Renewable Development

- Developed financial models for pricing of several projects in response to RFPs and ongoing PPA negotiations
- Aided in application submittal for interconnection positions at 2 projects
- Engaged with oil and gas operators and municipalities to resolve difficult mineral and groundwater rights issues
- Negotiated 11 tax abatement agreements with local taxing jurisdictions
- Secured leases and transmission easements, including one with the NM State Land Office
- Performed land analysis for development of a major transmission line
- Prospected 240+ new solar sites across 4 states and 2 battery storage sites
- Directed 11 land agents across several states and numerous projects
- Managed third party consultants for environmental, engineering, and construction surveys
- Completed limited construction activities among 4 projects for both 100% ITC and 60% PTC qualification
- Mitigated wind farm impacts to nearby air force bases, radar, and airports via consult with FAA and DOD

Luminous Energy Corporation Denver, CO — July 2017-February 2019
Business Development Associate

- Originated new solar and storage sites and negotiated real estate agreements with landowners
- Conducted site assessment and due diligence for new and existing sites
- Presented projects to other renewable development companies for joint venture, co-development, and asset sale opportunities
- Hired, trained, and supervised a business development intern
- Forged three new business relationships and development opportunities
- Investigated and identified market opportunities and trends to guide company strategy
- Corresponded with state and municipal agencies for permitting and tax purposes

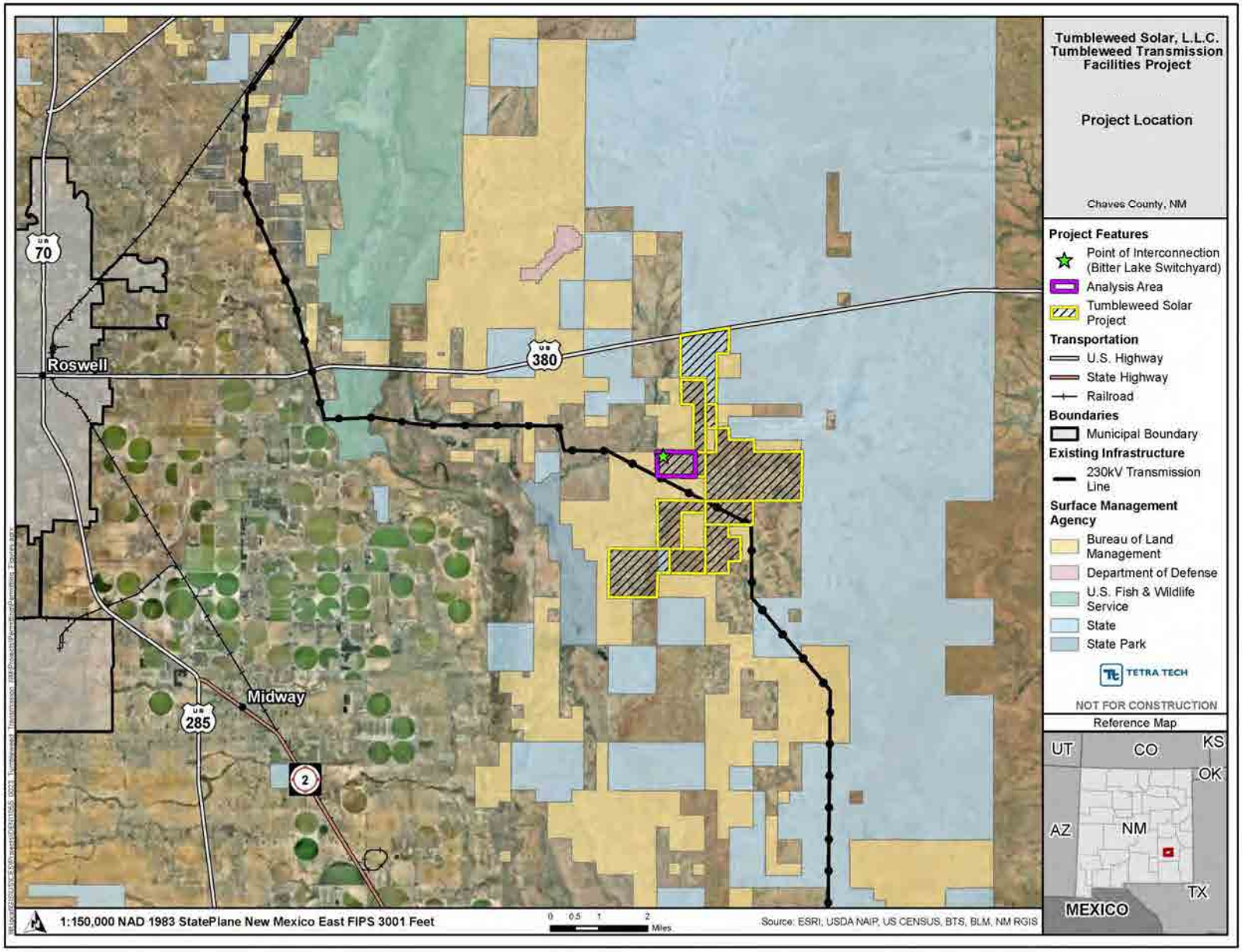
BOARD SEATS

Interwest Energy Alliance
- Attended quarterly board meetings with renewable energy developers across the industry
- Voted on western state permitting, siting, interconnection, policy, and regulatory matters

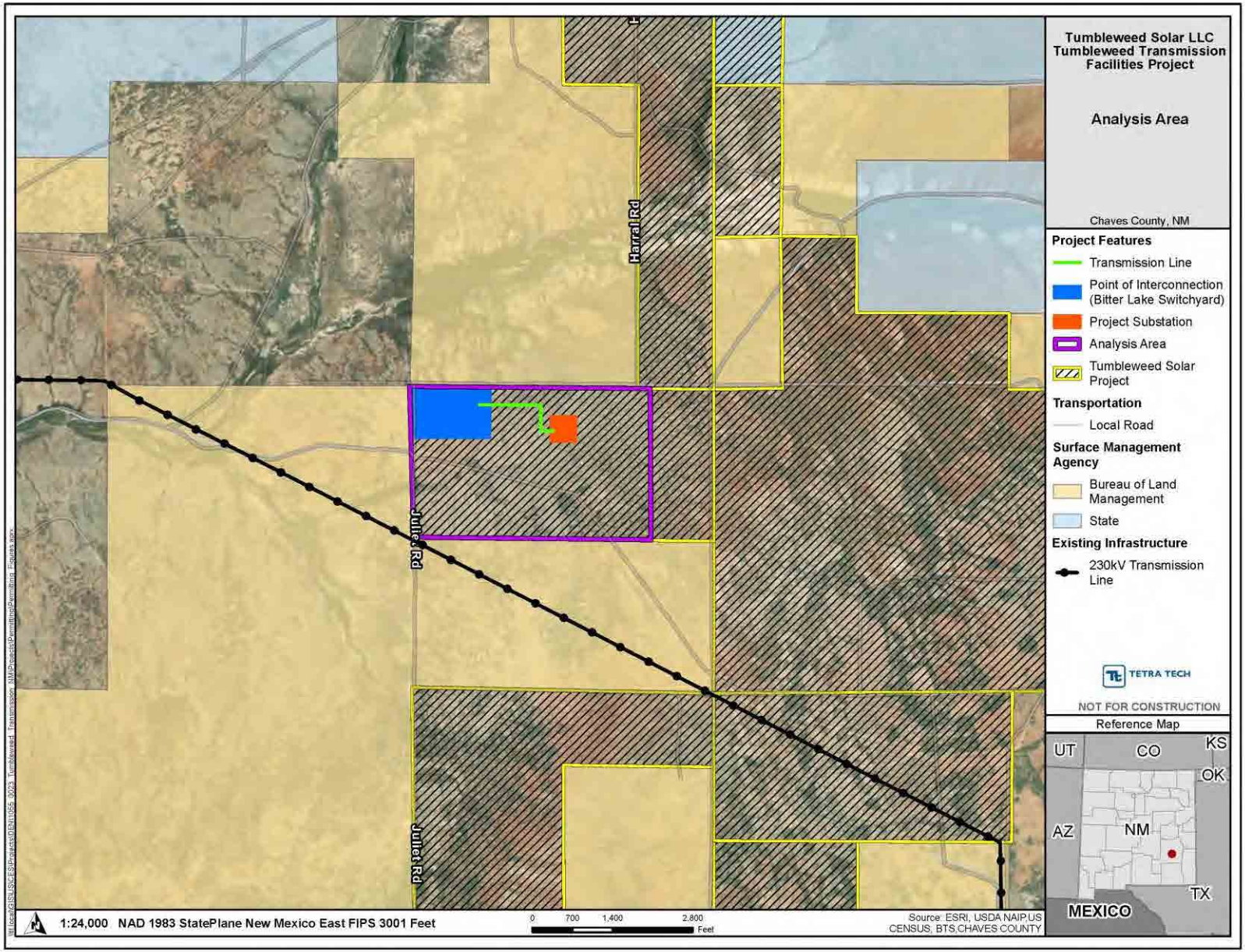
EDUCATION

The University of Georgia - Athens, GA May 2017
Bachelor of Science in Environmental Economics and Management
Cumulative GPA of 3.5
HOPE Scholarship Recipient

Tumbleweed Solar Location Map



Analysis Area Location Map



Tumbleweed Solar Project Legal Description

Parcel A:

TOWNSHIP 10 SOUTH. RANGE 26 EAST. N.M.P.M.• in the County of Chaves and State of New Mexico: SECTION 34: ALL less and except the E1/2SE1/4

Parcel B:

TOWNSHIP 11 SOUTH. RANGE 27 EAST. N.M.P.M., In the County of Chaves and State of New Mexico: SECTION 6: LOTS 4, 5 & 6; (being ALL less and except Lot 2)

Parcel C:

TOWNSHIP 11 SOUTH, RANGE 26 EAST, N.M.P.M., in the County of Chaves and State of New Mexico: SECTION 25: W1/2NW1/4

Parcel 1:

TOWNSHIP 11 SOUTH, RANGE 26 EAST, N.M.P.M., in the County of Chaves and State of New Mexico:

SECTION 1: SE1/4

SECTION 12: E1/2E1/2

TOWNSHIP 11 SOUTH, RANGE 27 EAST, N.M.P.M.1 in the County of Chaves and State of New Mexico:

SECTION 7: E1/2SW1/4; S1/2SE1/4 and LOTS 1 and 2

SECTION 17: ALL

SECTION 18: ALL

Parcel 2:

TOWNSHIP 11 SOUTH, RANGE 26 EAST, N.M.P.M.1 in the County of Chaves and State of New Mexico:

SECTION 13: N1/2

SECTION 24: N1/2N1/2; S1/2NW1/4 and SW1/4

SECTION 26: ALL

TOWNSHIP 11 SOUTH, RANGE 27 EAST, N.M.P.M.1 in the County of Chaves and State of New Mexico:

SECTION 19: Lots 1 and 2; E1/2NW1/4; NE1/4 (N1/2)

AND

NE1/4 and E1/2NW1/4 of SECTION 25, TOWNSHIP 11 SOUTH, RANGE 26 EAST, N.M.P.M., in the County of Chaves and State of New Mexico, and

SW1/4 and SW1/4SE1/4 of SECTION 19, TOWNSHIP 11 SOUTH, RANGE 27 EAST, N.M.P.M., in the County of Chaves and State of New Mexico, and

NW1/4 and NW1/4NE1/4 of SECTION 30, TOWNSHIP 11 SOUTH, RANGE 27 EAST, N.M.P.M., in the County of Chaves and State of New Mexico.

Tumbleweed Analysis Area Representative Photos





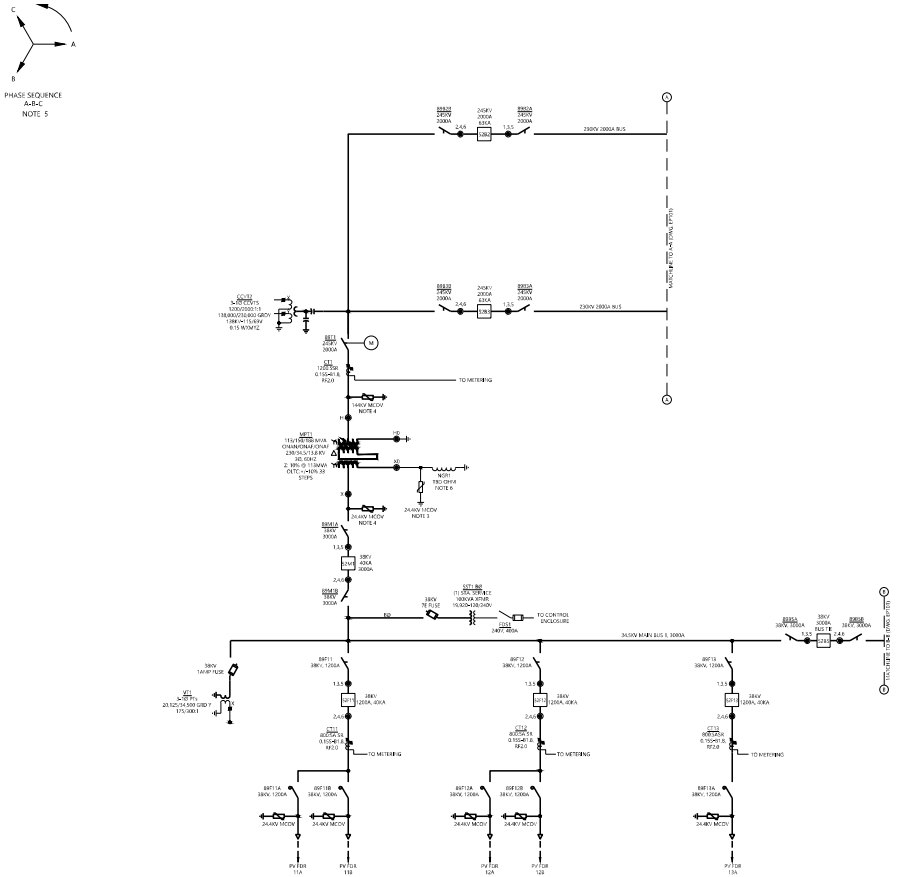
Tumbleweed Analysis Area Representative Photos



Tumbleweed Analysis Area Representative Photos



Tumbleweed Solar One-Line Diagram



NOTE(S):

1. EQUIPMENT RATINGS SHOWN ARE PRELIMINARY.
2. AC DISCONNECT SWITCHES ARE NO-LOAD DISCONNECTS UNLESS OTHERWISE SPECIFIED.
3. PROVIDED BY NGR VENDOR.
4. PROVIDED BY MPT VENDOR.
5. PHASING TO BE CONFIRMED WITH INTERCONNECTING SUBSTATION.
6. CAPACITOR BANK, SHUNT REACTIVE DEVICE AND NGR, TYPE, QUANTITIES AND SIZES ARE FOR BID PURPOSES ONLY. ACTUAL SIZING TO BE DETERMINED BASED ON THE RESULTS OF THE REACTIVE POWER AND SHORT CIRCUIT STUDIES.

REFERENCE DRAWING(S):

EP001	COVER SHEET
EP003	LEGEND
EP101	POWER ONE-LINE
EP102	POWER ONE-LINE
EP103	GENERAL ARRANGEMENT PLAN
EP800	MAJOR EQUIPMENT LIST

Westwood
Phone (952) 937-5150 12701 Whitewater Drive, Suite #300
Toll Free (888) 937-5150 Minnetonka, MN, 55343
mnt@westwoodps.com
Westwood Professional Services, Inc.
Business Registration Number: 21151

PREPARED FOR:

DESRI
575 Fifth Ave, 24th Floor
New York, NY 10017

REVISIONS				
#	DATE	COMMENT	BY	CHK APP
A	06/05/2026	10% SUBMITTAL - RESUED FOR REVIEW	HI	DD AM
B	07/30/2026	10% SUBMITTAL - RESUED FOR REVIEW	HI	DD AM
C	09/28/2026	10% SUBMITTAL - RESUED FOR REVIEW	TDK	DD AM

Tumbleweed Solar Project

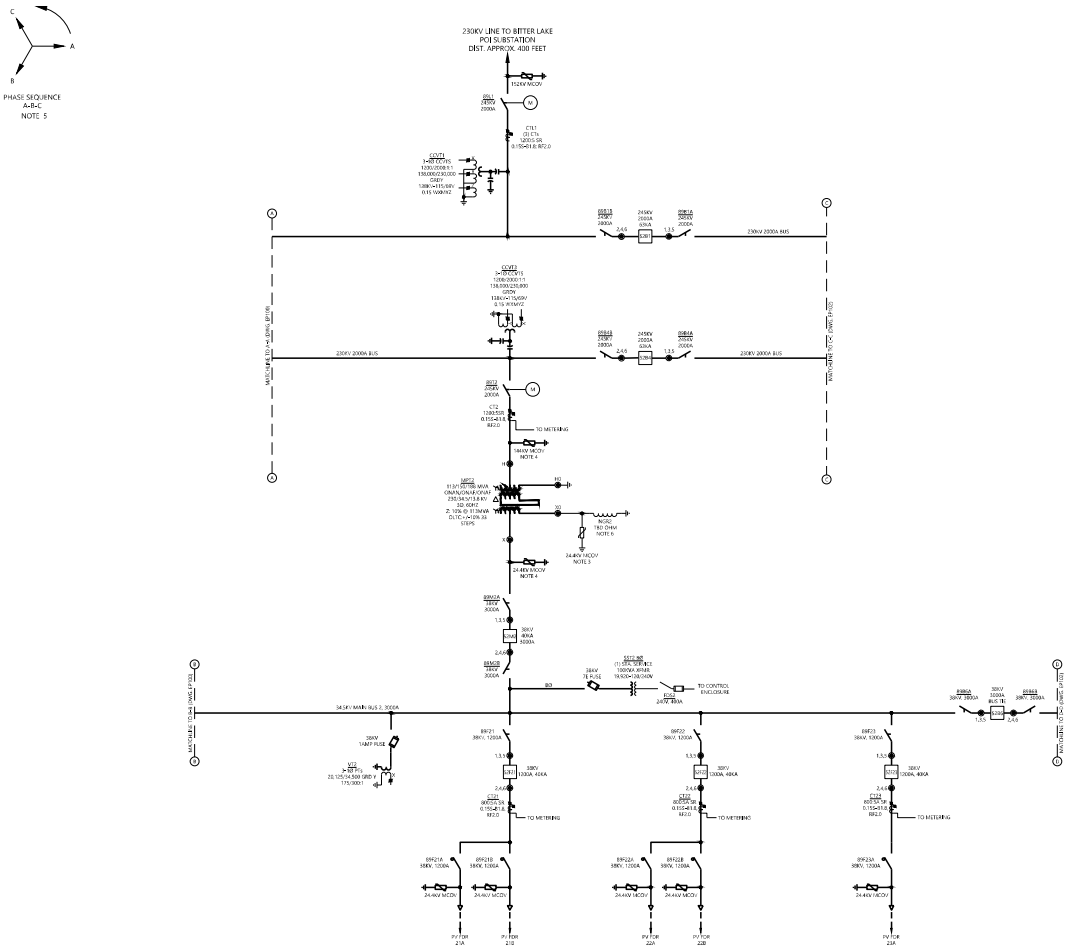
Chaves County, NM

Power One-Line

NOT FOR CONSTRUCTION

DATE: 09/28/2026

SHEET: EP100 REV: C



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REFERENCE DRAWING(S):

EP001	COVER SHEET
EP005	LEGEND
EP100	POWER ONE-LINE
EP102	POWER ONE-LINE
EP103	GENERAL ARRANGEMENT PLAN
EP800	MAJOR EQUIPMENT LIST

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C	09/28/2026	10% SUBMITTAL - RE-ISSUED FOR REVIEW	TDK	DD	AM

Tumbleweed Solar Project

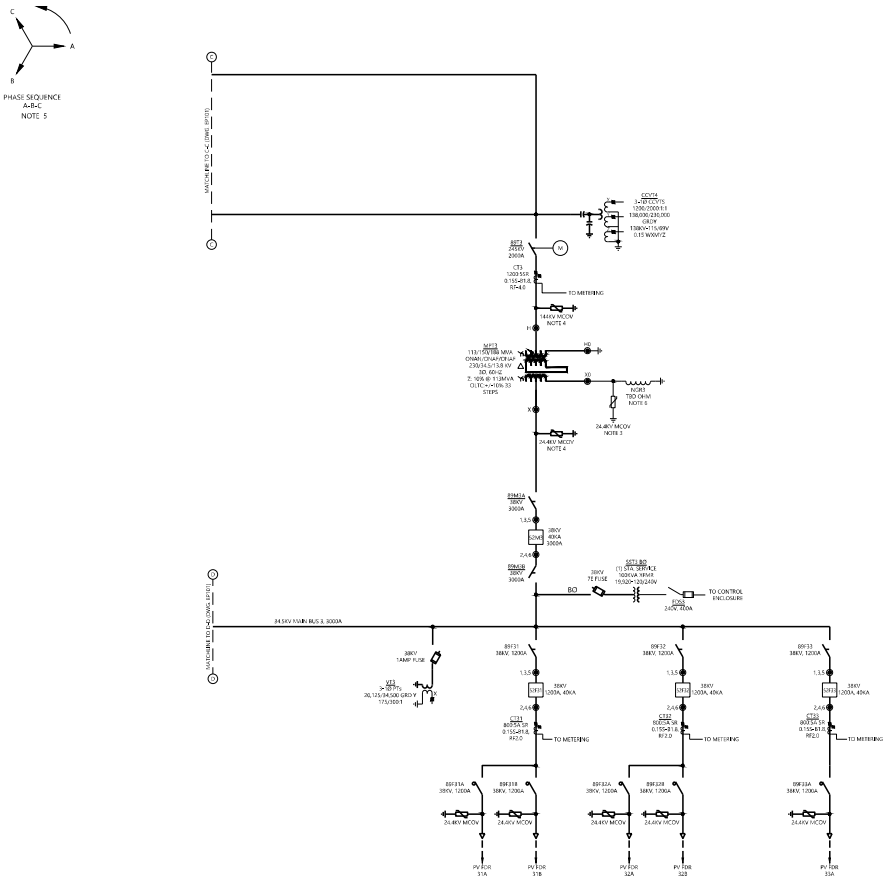
Chaves County, NM

Power One-Line

NOT FOR CONSTRUCTION

DATE: 09/28/2026

SHEET: EP101 REV: C



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REFERENCE DRAWING(S):

EP001	COVER SHEET
EP005	LEGEND
EP100	POWER ONE-LINE
EP101	POWER ONE-LINE
EP103	GENERAL ARRANGEMENT PLAN
EP800	MAJOR EQUIPMENT LIST

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MARCELL J. GARCIA
NEW MEXICO
21151
PROFESSIONAL ENGINEER

PREPARED FOR:

DESRI

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New York, NY 10017

REVISIONS

#	DATE	COMMENT	BY	CHK	APR
A	06/05/2026	10% SUBMITTAL - ISSUED FOR REVIEW	HS	DD	AM
B	06/26/2026	10% SUBMITTAL - RE-ISSUED FOR REVIEW	HS	DD	AM
C	07/20/2026	10% SUBMITTAL - RE-ISSUED FOR REVIEW	HS	DD	AM
D	09/28/2026	10% SUBMITTAL - RE-ISSUED FOR REVIEW	HS	DD	AM

Tumbleweed Solar Project

Chaves County, NM

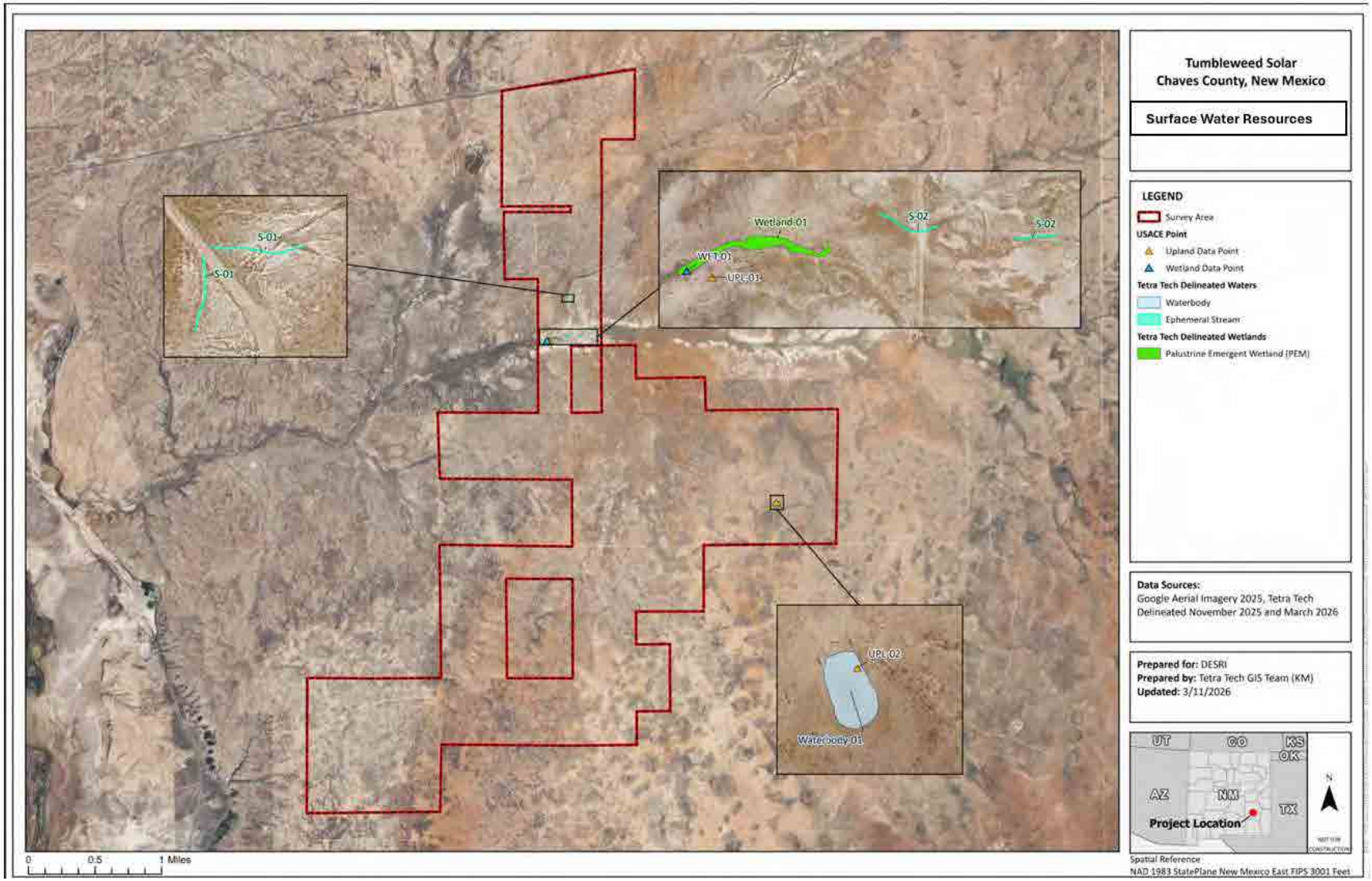
Power One-Line

NOT FOR CONSTRUCTION

DATE: 09/28/2026

SHEET: EP102 REV: D

Tumbleweed Solar Surface Water Resources **Exhibit MK-6**



BEFORE THE NEW MEXICO PUBLIC REGULATION COMMISSION

IN THE MATTER OF THE APPLICATION OF TUMBLEWEED FOR LOCATION APPROVAL OF SOLAR GENERATION FACILITIES AND ASSOCIATED TRANSMISSION FACILITIES PURSUANT TO NMSA § 62-9-3; AND RIGHT-OF-WAY WIDTH DETERMINATION PURSUANT TO NMSA § 62-9-3.2	)	**Case No. 26-_____**

ELECTRONICALLY SUBMITTED AFFIRMATION

Wanda Munson, under penalty of perjury under the laws of the State of New Mexico, states:

1. I make this affirmation pursuant to 1.2.2.10(E) NMAC and New Mexico R. 1-011(B) NMRA.

2. I am the co-owner of property ("Property") at which Tumbleweed Solar, L.L.C. proposes to locate the generation tie transmission line for the Tumbleweed Solar Project ("Project").

4. Tumbleweed Solar, L.L.C. has entered into leases for use of the Property for the Project, including a 120-foot wide right-of-way for the Project's transmission line.

5. I confirm that I have agreed to the Project's 120-foot wide transmission line right-of-way.

Dated: 9/4/2026

/s/ Wanda Munson
Wanda Munson

BEFORE THE NEW MEXICO PUBLIC REGULATION COMMISSION

IN THE MATTER OF THE APPLICATION OF TUMBLEWEED FOR LOCATION APPROVAL OF SOLAR GENERATION FACILITIES AND ASSOCIATED TRANSMISSION FACILITIES PURSUANT TO NMSA § 62-9-3; AND RIGHT-OF-WAY WIDTH DETERMINATION PURSUANT TO NMSA § 62-9-3.2	)	**Case No. 26-_____**

ELECTRONICALLY SUBMITTED AFFIRMATION

Alton J. Munson, under penalty of perjury under the laws of the State of New Mexico, states:

1. I make this affirmation pursuant to 1.2.2.10(E) NMAC and New Mexico R. 1-011(B) NMRA.

2. I am the co-owner of property ("Property") at which Tumbleweed Solar, L.L.C. proposes to locate the generation tie transmission line for the Tumbleweed Solar Project ("Project").

4. Tumbleweed Solar, L.L.C. has entered into leases for use of the Property for the Project, including a 120-foot wide right-of-way for the Project's transmission line.

5. I confirm that I have agreed to the Project's 120-foot wide transmission line right-of-way.

Dated: Sept 14-2026

/s/
Alton J. Munson

Tumbleweed Solar Protection Measures

Air

Air 1: Maintain construction equipment in accordance with manufacturer specifications to minimize combustion-related emissions during construction.

Air 2: Limit idling of construction equipment to the minimum necessary for proper operation.

Air 3: Enforce reduced vehicle speeds within construction areas to minimize the generation of fugitive dust.

Air 4: Implement irrigation with water or other palliatives or other dust control measures to reduce fugitive dust from construction activities.

Air 5: If on-site crushing and screening plants are required, ensure equipment complies with applicable air emission standards under 40 CFR 60 Subpart OOO (NSPS for Nonmetallic Mineral Processing Plants). Pre-NSPS equipment that does not meet these standards shall not be used. At least 90 days prior to use, the appropriate air quality permit (General Construction Permit [GCP] or Part 72 permit) will be obtained in accordance with the New Mexico Air Quality Control Act (NMSA 1978, §§ 74-2-1 et seq.) and 20.7.72 NMAC. Crushing and screening plants previously permitted at another location must obtain relocation approval from the New Mexico Environment Department (NMED) at least 90 days prior to use.

Air 6: If an on-site concrete batch plant is required, the appropriate air quality permit (GCP or Part 72 permit) will be obtained at least 90 days prior to operation, in accordance with the New Mexico Air Quality Control Act and 20.7.72 NMAC. Concrete batch plants previously permitted at a different location must obtain relocation approval from NMED, if applicable, at least 90 days prior to use.

Cultural

Cultural 1: Prepare an Unanticipated Discovery Plan.

Cultural 2: As required by Section 18-6-11.2 of the New Mexico Cultural Properties Act, New Mexico Statutes Annotated 1978, if human remains are encountered during construction, work will cease within 100 feet of the discovery and the New Mexico New Mexico State Historic Preservation Office, local law enforcement agency, and Office of the Medical Investigator will be notified.

Fire

Fire 1: Implement wildland fire prevention measures during construction, including limiting vehicle travel within and to construction areas to essential vehicles only, establishing parking areas, designating approved smoking areas, restricting non-construction flame sources outside of vehicles, and establishing safety requirements for construction-related flame and spark sources.

Fire 2: Coordinate emergency response procedures with local emergency response personnel prior to construction, as appropriate.

Fire 3: Equipment vehicles with fire suppression tools and equipment such as shovels and fire extinguishers, as appropriate.

Land Use

Land Use 1: Restore compacted soils as close as possible to pre-construction conditions as required for ground stabilization and erosion control.

Land Use 2: Obtain building permits from Chaves County.

Land Use 3: Obtain electrical permits from New Mexico Regulation and Licensing Department Construction Industries Division.

Land Use 4: Coordinate with the FAA and Department of Defense facilities as needed.

Noise

Noise 1: Maintain construction tools and equipment in good operating order according to manufacturers' specifications.

Noise 2: Limit use of major excavating and earth moving machinery to daytime hours.

Noise 3: To the extent practicable, schedule construction activity between dawn and dusk on weekdays, when higher sound levels are typically present and are found acceptable.

Some limited activities, but not limited to, such as concrete pours, will be required to occur continuously until completion.

Noise 4: Equip any internal combustion engine used for any purpose on the job or related to the job with a properly operating muffler that is free from rust, holes, and leaks.

Noise 5: For construction devices that utilize internal combustion engines, ensure the engine's housing doors are kept closed, and install noise-insulating material mounted on the engine housing consistent with manufacturers' guidelines, if possible.

Safety

Safety 1: Federal and state occupational health and safety standards, including OSHA requirements (29 CFR 1926), will be implemented for the Transmission Facilities.

Safety 2: Prior to construction, a site safety plan will be prepared for contractors. The plan will identify the nearest emergency medical facilities, agency contacts and procedures, and inclement weather protocols.

Soil

Soil 1: Limit construction activities so that activities will not occur during wet conditions when soil is saturated. Following a rain event, work will resume only after the Analysis Area is no longer inundated.

Soil 2: Comply with SWPPP protocols.

Soil 3: Segregate topsoil from subsoils and bedrock during excavation to the extent practicable. Topsoil and subsoils will not be commingled and will be replaced in the reverse order of excavation to the extent practicable.

Soil 4: Minimize erosion through the implementation and maintenance of standard erosion and sediment control measures. These may include certified weed-free straw wattles, bale barriers, and silt fencing. Specific erosion and sediment control measures will be identified in the SWPPP.

Soil 5: Prepare a geotechnical report prior to construction.

Transportation

Transportation 1: Obtain applicable permits needed to transport equipment and materials, including an oversize/overweight permit and utility permit as applicable.

Transportation 2: Prepare a traffic management plan which details the anticipated trip generation, proposed traffic flow, haul routes, and mitigation measures associated with the Transmission Facilities's construction. The traffic management plan will identify hazards, assess risks, and implement control measures to protect workers, contractors, and the public.

Transportation 3: Establish construction speed limits to promote safety and efficiency for all road users.

Vegetation

Vegetation 1: Construction will not be conducted during wet conditions when soils are saturated. After a rain event, construction would commence once the area is no longer inundated and would adhere to Stormwater Pollution Prevention Plan (SWPPP) protocols.

Vegetation 2: Topsoil will be placed separately from sub-soils/bedrock during excavation and not comingled and will be replaced in reverse order of excavation.

Vegetation 3: Erosion will be reduced by applying and maintaining standard erosion and sediment control methods. These may include using certified weed-free straw wattles and bale barriers and silt fencing. Specific erosion and sediment control measures will be specified in a SWPPP.

Vegetation 4: If any vegetated swales form due to heavy rainfall in areas of soil disturbance, then straw 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 after completion of construction. Reseeding shall use native grasses, shrubs, or forbs or as agreed to with landowner.

Vegetation 5: A Noxious Weed Management and Revegetation Plan will be developed and implemented for the control of noxious weeds and invasive species that could occur as a result of new surface disturbance activities at the Analysis Area.

Vegetation 6: If required as part of the SWPPP, a native seed mix will be applied to all temporary disturbance areas, followed by applications of mulch as required to provide additional erosion control.

Visual

Visual 1: Gen-tie structures and associated components will be low-glare finishes and colors that are compatible with the surrounding landscape, where feasible and consistent with applicable safety, engineering, and regulatory requirements.

Visual 2: Lighting, particularly for any necessary nighttime work, will be limited to what is required for safety, security, and emergencies and turned off when not in use.

Waste

Waste 1: Prepare a Spill Prevention, Containment, and Countermeasure Plan.

Waste 2: Prevent discharge of hazardous materials into the ground or into streams, drainage features, or other watercourses.

Waste 3: Remove and dispose of construction waste and other potentially hazardous materials at a facility authorized to accept such materials.

Waste 4: Implement a hazard communication program for onsite hazardous materials, including employee training, proper labeling, and posting of Safety Data Sheets (SDS).

Waste 5: Fuels and petroleum-based products will be stored in approved containers and kept away from excavated areas. Waste motor oil, hydraulic fluid, and liquid gear lubricant

will be stored in approved containers in designated isolated areas and removed monthly to an authorized disposal facility in accordance with New Mexico Environment Department (NMED) regulations.

Waste 6: Equipment with hydraulic hoses and cylinders will be inspected for leaks. Equipment found to have petroleum leaks that cannot be repaired immediately will be removed from service and replaced.

Waste 7: Contractors will receive appropriate training for hazardous materials.

Waste 8: Maintain spill kits onsite.

Waste 9: Any leaking equipment will be repaired immediately.

Waste 10: If contaminants are released, the Transmission Facilities will comply with the notification requirements set forth in 20.6.2.1203 NMAC.

Water

Water 1: Develop and implement a SWPPP as required by the New Mexico Environment Department surface water quality bureau and obtain coverage under a national pollution discharge elimination system construction general permit from the U.S. Environmental Protection Agency pursuant to Section 402 of the Clean Water Act, 33 United States Code § 1342. The SWPPP may 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 original condition to the extent practicable in order to meet SWPPP requirements for runoff and erosion control. Seed mix and seeding rates will be developed through consultation with the local agency, experts, or landowner preference.

Water 3: Equipment will be properly maintained for fluid leaks.

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

Water 5: Spills will be cleaned up immediately.

Water 6: No facilities shall be located in areas determined to be jurisdictional WOTUS by the USACE.

Water 7: Avoid fill and placing structures in WOTUS and other surface water features.

Water 8: Any new water wells drilled or diversions of existing water rights in the analysis area for the Transmission Facilities shall be appropriately permitted with the New Mexico Office of the State Engineer, and with the agreement of the water rights holder.

Water 9: No substation or gen-tie shall be located in areas mapped as a 100-year floodplain by the Federal Emergency Management Agency. Collection/lines, cables and access roads shall be designed to avoid 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 avoid the floodplain and not affect the base flood elevation.

Water 10: To the extent practicable, access roads shall be designed to avoid all jurisdictional WOTUS and 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. To the extent practicable, temporary access roads shall be designed following existing landform contours, where practicable, and revegetated with native or similar grasses, shrubs or forbs, or as agreed to with landowner.

Wildlife

Wildlife 1: Properly disposing of trash and food debris.

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

Wildlife 3: Providing environmental awareness training to all construction personnel working on the Transmission Facilities.

Wildlife 4: Checking trenches, excavations, and uncapped pipe segments for wildlife.

Wildlife 5: Complying with posted and established Transmission Facilities speed limits.

Wildlife 6: Conducting vegetation clearing outside the nesting season (March 1 to September 15), where feasible, to discourage birds from establishing nests in Transmission Facilities work areas.

Micrositing will be completed during engineering design to minimize impacts to sensitive biological resources to the extent practicable.

Wildlife 7: The worker environmental awareness program will including training specific to avoidance of migratory birds and active migratory bird nests during the nesting season from March 15 to September 15. If active nests are found in the Analysis Area during construction, a biologist will be contacted to evaluate the activity status of the nest. The nest will be avoided until determined inactive by a biologist.

Wildlife 8: Vegetation removal during the breeding season (March 1st–August 31st) could be preceded by a pre-construction nesting survey up to 2 weeks prior to construction to establish the occupancy status of any potentially suitable nests or nesting burrows detected within the Analysis Area. If active nests are found in the Analysis Area, a biologist will be contacted to evaluate the activity status of the nest. The nest will be avoided until determined inactive by a biologist.

Wildlife 9: Facilities are designed to discourage their use as perching or nesting substrates by birds including designing aboveground transmission and facilities to follow established Avian Power Line Interaction Committee (APLIC) guidelines to minimize bird collisions and avoid electrocution of raptors.

Wildlife 10: Species-specific surveys would be conducted to determine the presence of milkweed vegetation in the Analysis Area. These surveys would occur during the period (late April - September) that milkweed is detectable. If milkweed vegetation is present, the

revegetation seed mix would include pollinator species such as milkweed. Milkweed vegetation removal will be minimized to the greatest extent possible.

Wildlife - Migratory Birds 1: In accordance with the MBTA, construction activities and vegetation clearing would be conducted outside the peak breeding season (March 1 to September 15 at the Analysis Area) to avoid any adverse effects to migratory birds and their habitat.

Wildlife - Migratory Birds 2: If construction and vegetation clearing occur from March 1 through September 15, active avian nest surveys should be conducted by a biologist no more than 5 days prior to planned construction.

Wildlife - Migratory Birds 3: Some migratory birds may use abandoned mammal burrows found on-site for shelter and rearing of young; additionally, ground-nesting species have the potential to be found on-site. Construction personnel should be made aware of these species, their habits, and regulatory status, and biological monitors clearing areas for construction should take these species into account. They should consider species that will nest in trees and brush as well as ground- and burrow-nesters.

Wildlife - Migratory Birds 4: If migratory birds or their nests are present prior to or during construction, actions should be implemented to ensure migratory birds and their nests, eggs, and young will not be harmed. This can be achieved by establishing buffer distances from active nests. Clearing and construction activities should not occur in the buffer areas until the nests are no longer active. The NMERT results for the Analysis Area (NMDOW 2026) provided the following minimum distances for active nest buffer zones:

- 100 feet from songbird and raven nests;
- 0.25 miles from most raptor nests; and
- 0.50 miles for ferruginous hawk (*Buteo regalis*), golden eagle, peregrine falcon, and prairie falcon (*Falco mexicanus*).

Wildlife - Migratory Birds 5: The worker environmental awareness program will include training specific to avoidance of migratory birds and active migratory bird nests during the breeding season from March 1 to September 15. If active nests are found in the Analysis Area during construction, a biologist will be contacted to evaluate the activity status of the nest. The nest will be avoided until determined inactive by a biologist.

Wildlife - Migratory Birds 6: Facilities are designed to discourage their use as perching or nesting substrates by birds, including designing aboveground transmission and facilities to follow established Avian Power Line Interaction Committee guidelines to minimize bird collisions and avoid electrocution of raptors (APLIC 2026).

Wildlife - Migratory Birds 7: The Project will be in conformance with Avian Power Line Interaction Committee (APLIC) standards, including (but not limited to) clearance space between power lines, insulation on hardware when safe spacing is not possible, and line markings (APLIC 2005; APLIC 2026).

Exhibit MK-9

A HAZARDOUS MATERIALS AND WASTE MANAGMENT PLAN FOR

Tumbleweed Solar Facility

Chaves County, New Mexico

OCTOBER 5, 2026

PREPARED FOR:

DESRI

PREPARED BY:

Westwood

Westwood

Hazardous Materials and Waste Management Plan

Tumbleweed Solar Facility

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Appendix A: Environmental Spill Reporting Flowchart

1.0 Introduction

This Hazardous Materials Waste Management Plan ("Plan") has been prepared for the construction and operations of the Tumbleweed Solar Project ("Project") located in Chaves County, New Mexico. This purpose of this Plan is to establish a systematic approach for the identification, handling, storage, and disposal of hazardous materials during the operations of the solar facility. This Plan outlines the procedures and responsibilities necessary to protect human health and the environment while complying with applicable regulations.

A separate Spill Prevention, Control, and Countermeasure (SPCC) Plan will be prepared and implemented for the construction and operations phases of the Project according to U.S. Environmental Protection Agency (EPA) regulations contained in Title 40 Code of Federal Regulations, Part 112 (40 CFR 112). Submission of a Tier II form may also be required for this Project under Section 312 of the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA) depending on quantities of hazardous materials on-site.

The Project is located in Chaves County, New Mexico about 13.8 miles east of the town of Roswell. The Project includes the construction of a 350-megawatt (MW) photovoltaic (PV) array, a 1,700-foot-long generation tie (gen-tie) line, an operations and maintenance (O&M) facility, , a substation, and access roads. The Project is located on state as well as private, leased lands. Access to the Project is via an access road from the south side of East 2nd Street, located approximately 3.3 miles northeast of its intersection with Bottomless Lake Road (33°22'00.0"N 104°17'53.6"W).

2.0 Hazardous Materials Management Regulatory Overview

Federal, state, and local government agencies use various terms to describe hazardous materials, dependent on the context of use, applicable regulations, and type of chemical or material. Therefore, the terms "hazardous waste," "hazardous chemical," "hazardous material," etc. may be used to describe a broad range of chemicals and materials.

"Hazardous chemicals" found in the workplace are regulated under the Federal Occupational Safety and Health Act enforced by the Occupational Safety and Health Administration (OSHA). OSHA's Hazard Communication Standard (HCS) ensures that the identification and hazards associated with "hazardous chemicals" must be available and understandable to workers to ensure chemical safety in the workplace. This information is provided through hazard classifications, labels, safety data sheets (SDS), and training.

The Federal Hazardous Materials and Transportation Act, administered by the U.S. Department of Transportation (DOT) regulates the interstate, intrastate, and foreign transportation of hazardous materials in the United States by aircraft, railcar, vessel, and motor vehicle. Hazardous materials include items identified in 49 CFR Part 172 and Part 173 as well as hazardous wastes and substances specified in statutes and regulations administered by the U.S. EPA.

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or "Superfund")

and Emergency Planning and Community Right-to-Know Act (EPCRA) regulate spills and other emergency releases of hazardous materials that exceed their reportable quantity to the environment from contaminated, abandoned, or uncontrolled hazardous waste sites. Investigation and emergency response is enforced by the U.S. EPA, with EPCRA standards that require reporting to local emergency planning committees (LEPCs) and authorities as well.

2.1 Health and Safety Standards

Work will be conducted in strict accordance with the Owner's health and safety plan. All site workers, including subcontractors, will be required to read, understand, and abide by the health and safety plans. A site safety officer will be designated by the Owner or Project Operator to ensure compliance.

OSHA's Hazard Communication Standard (HCS) will be implemented within the health and safety plan to ensure chemical safety in the workplace. Manufacturers for Project hazardous materials are required to prepare labels and Safety Data Sheets (SDSs) to convey the hazard information for the workplace. In accordance with the HCS, all employers with hazardous chemicals in their workplaces must have hazard classification of materials, labels, SDSs, and hazard communication training for their exposed workers and train them to handle the chemicals appropriately.

3.0 Administration of Responsibility

To fully implement this Plan, the assistance and cooperation of multiple parties is required. In the event of an emergency or release, all parties and their site-personnel will follow their designated roles. The following descriptions outline key roles and responsibilities in the implementation of the Plan.

3.1 Owner Legal Entity

Tumbleweed Solar, L.L.C. is the Owner of the Tumbleweed Solar Facility. Tumbleweed Solar, L.L.C. is committed to reducing risks associated with the use, storage, transportation, and disposal of hazardous materials through implementation and regular review to the Plan for the construction and operations of the Project. Tumbleweed Solar, L.L.C. has committed the necessary resources to implement the measures described in this Plan. The specific responsibilities of the Owner and Project Operators are as follows:

- Allocate personnel to facilitate a safe working environment, safe working practices, and safe handling of hazardous materials;
- Designate the Emergency Coordinator;
- Perform inspections to ensure best practices outlined in this Plan;
- Coordinate training with hazardous materials handling personnel;
- Maintain the SDSs;
- Maintain security of hazardous material storage areas;
- Investigate hazardous material releases;
- Provide the proper notification for environmental releases;
- Ensure corrective action is taken in the event of a release;
- Coordinate disposal of waste materials;
- Ensure that emergency response equipment is available and working properly;
- Update this Plan as required;

- Ensure those who work with oil at the Facility are aware of and follow the requirements of this Plan;
- Follow the established policies and procedures of this Plan; and
- Enforce the requirements of the Plan and have overall responsibility of the Facility and SPCC Plan requirements.

3.2 Subcontractors

Subcontractors may be utilized for various support activities during construction and operations. Subcontractor responsibilities include:

- Follow the established policies and procedures of this Plan;
- Adhere to hazardous material transport procedures established in the Plan;
- Ensure the personnel have appropriate training; and
- Inform the Owner or Project Operators of any releases and ensure that corrective action is taken.

4.0 Hazardous Materials Management

During construction and operations of the Project, all efforts will be made to minimize on-site storage of hazardous materials, however, a variety of hazardous materials may be utilized and stored on-site, including but not limited to petroleum-based products, including diesel fuel and gasoline, lubricating oils, solvents, cleaning agents, and other substances. Materials will be stored at the temporary laydown yards during construction and the O&M facility during operations, as well as in remote areas of the Project throughout its PV array, and substation during construction installation and routine operations maintenance. Small quantities of other substances such as pesticides, herbicides, fertilizers, paints, and various chemicals may also be present at the Project. Portable sanitary facilities are also expected at the Facility and may contain human waste and treatment chemicals. Hazardous materials present on-site will be inventoried by the Owner or Project Operator, or their designated contractor, and inspected monthly.

Operations materials and equipment for the Facility, including solar panels, and padmount transformers are installed and operational at the facility. While these pieces of equipment pose a very low risk for exposure of hazardous materials when stored and functioning properly, they may contain potentially hazardous materials:

- Solar panels are mostly comprised of inert materials, primarily aluminum and glass. Small amounts of metals, including silver or cadmium, may be present within the interior of the panels. When intact, solar panels are not shown to leach metals or other chemicals.
- Padmount transformers often contain PCB-free mineral oil for cooling and insulation. The oil circulates throughout the equipment (*i.e.,* is not stored in a reservoir) and poses a very low risk for release. Once installed, the padmount transformers will not be handled or transported.

4.1 EPCRA Reporting

In accordance with the EPCRA, the Facility may be required to report on the storage, use, and releases of

certain chemicals to federal, state, tribal, territorial, and/or local governments. It also requires these reports to be used to prepare for and protect their communities from potential risks. The reporting thresholds for Tier I and Tier II are as follows:

- 500 pounds for Extremely Hazardous Substances (EHSs); or
- 10,000 pounds for all other hazardous materials.

ECPRA reporting is not included in this Plan and shall be prepared and filed with the New Mexico State Emergency Response Commission (SERC), the LEPC for the County, and the local fire department, if thresholds are exceeded.

4.2 Transportation

Transport of hazardous materials to and from the Project will comply with Department of Transportation (DOT) hazardous material classification procedures, training, registration, shipping papers, and label and placard placement. Hazardous materials classifications for the DOT are as follows:

- Class 1 - Explosives
- Class 2 - Gases
- Class 3 - Flammable Liquids
- Class 4 - Flammable Solids
- Class 5 - Oxidizers & Organic Peroxides
- Class 6 - Toxic & Infectious Substances
- Class 7 - Radioactive Materials
- Class 8 - Corrosives
- Class 9 - Miscellaneous Hazards

Class 9 includes materials such as hazardous waste, which would therefore be subject to DOT requirements for transportation from the Project. Hazardous waste management is further discussed in Section 7.0.

4.3 Release Prevention and Control Procedures

This Plan includes secondary containment and release prevention countermeasures that Tumbleweed Solar, L.L.C. and its subcontractors will implement during construction and operations of the Project.

These measures include, but are not limited to, the following:

- Maintaining SDS for the Project;
- Familiarizing handling personnel with SDS location and contents;
- Adhering to the manufacturer's recommendations on use, storage, and disposal of chemical products used during operations and maintenance activities;
- Utilizing drip pans when transferring materials outside of secondary containment areas to contain and capture any spilled hazardous materials;
- Properly containing and removing grease and oils during routine maintenance of maintenance equipment; and
- Properly disposing of discarded containers of fuels and other chemicals.

Spill kits and other emergency supplies will be maintained, and readily available primarily at the Project main laydown yard during construction and the O&M building during operations, as well as other staging near work areas, as necessary. Spill kits should be inspected monthly during written SPCC inspections to ensure any used contents have been replaced with additional supplies. Additionally, Project-specific spill prevention measures will be implemented during construction and operations as they relate to vehicle and equipment maintenance, material transfer, and the storage and transportation of hazardous materials. Project waste disposal and handling procedures are further outlined in Section 5.4.

Refer to the SPCC Plans maintained for the construction and operations phase of the Project for additional procedures regarding oil containment and releases.

4.3.1 Vehicle and Equipment Fueling and Maintenance

Loading and unloading of materials will primarily take place at the main temporary laydown yard during construction and the O&M facility staging areas during operations, however, there is no dedicated loading/unloading rack at the Project. The Emergency Coordinator will be responsible for inspecting oil-filled equipment and vehicles for possible signs of release and to ensure all equipment/vehicles are secured, parked, and safe. Tank truck loading/unloading procedures conform to regulations established by the U.S. Department of Transportation. The Owner or Project Operator will ensure that vendors understand the site layout, maintain equipment integrity, know the protocols for unloading hazardous material products, and have the necessary supplies to respond to a release from the vehicle, oil-filled equipment, or delivery hose.

Vehicle filling and unloading operations shall be performed by Project personnel trained in proper release prevention procedures. If fuel trucks are utilized, the vehicles will be inspected for hose leaks. The driver/equipment operator or Project personnel shall stay with and monitor the vehicle/equipment at all times while fuel is being transferred.

4.4 Containment and Storage of Hazardous Materials

Hazardous materials should be stored in pre-designated areas. If materials are removed for use, they will be returned the storage areas at the end of each workday. Flammable and combustible materials or substances should be kept within their approved safety containers within fireproof cabinets designed and rates to safely store the materials. Cabinets must be properly labeled. No more than 60 gallons of flammable materials or 120 gallons of combustible liquid should be stored within a single container or storage cabinet. Incompatible materials, such as oxidizers and flammables, should be separated in storage areas, with proper temperature and ventilation provided, when needed.

If secondary containers, like spray bottles, are used, the secondary container must be labeled with the product name, hazard identification symbols, pictures, or words and any additional hazard information for the chemical stored in the container.

Storage areas should be regularly observed and reviewed to determine if the container arrangements, ventilation performance, and changing inventories are still compatible with the hazardous material types and quantities present.

4.4.1 Secondary Containment

It is recommended that hazardous material contains be stored within secondary containment measures to prevent spills and leaks from reaching the environment. Methods of secondary containment at this Facility may include a combination of prefabricated structures to prevent materials from reaching the environmental as well as land-based spill response to prevent materials from reaching surface waters. It is recommended that all secondary containment structures shall be sized to hold a minimum of 110% of the volume of the single largest container within the containment area.

Additional guidelines specific to oil storage containers may be required and outlined in the SPCC Plan prepared for the Project.

4.4.2 Spill Materials

Spill response equipment will be maintained at an accessible location for Project personnel. The Table below identifies the spill response equipment that will be maintained at the Project. Project personnel will ensure sufficient inventory of spill response equipment is maintained through monthly inspections of safety materials.

Table 1: Spill Response Equipment

Equipment	*Location*	
	Construction	Operations
Communications		
Cellular Phones	Vehicles	Vehicles
Two-Way Radios	Vehicles and the Main Laydown Yard trailers	Vehicles and the O&M trailers
Personal Protective Equipment		
Protective Coveralls	Main Laydown Yard	O&M Facility
Impervious Boots and Gloves	Main Laydown Yard	O&M Facility
Hard Hats	Main Laydown Yard	O&M Facility
Safety Glasses	Main Laydown Yard	O&M Facility
Spill Response Equipment		
Fire Extinguisher	Vehicles and Main Laydown Yard	Vehicles and O&M Facility
Large Spill Response Kit	Main Laydown Yard	O&M Facility
Small Spill Response Kit	Vehicles	Vehicles
Shovels	Main Laydown Yard	O&M Facility
Empty Drums	Main Laydown Yard	O&M Facility
First Aid / Emergency Response		
First Aid Kits	Vehicles and Main Laydown Yard	Vehicles and O&M Facility
Eyewash Bottles	Vehicles and Main Laydown Yard	Vehicles and O&M Facility
Fire Extinguishers	Vehicles and Main Laydown Yard	Vehicles and O&M Facility

4.5 Training

In all cases, the Owner, or their subcontractor as applicable, shall ensure all applicable Occupational Safety and Health Administration (OSHA), security, safety and health requirements are complied with

during all operations and maintenance activities in addition to training outlined in the EHS Manual for the Project. Regular Training should cover SDS interpretation, spill response protocols, hazardous material container labeling, and propose use of personal protective equipment (PPE). Annual refresher sessions are recommended to ensure knowledge retention and inclusion of any lessons learned.

5.0 Release Response

Emergency spill supplies and equipment, such as oil-absorbent materials, tarps, and storage drums, are readily accessible at the main laydown yard or O&M facility and other areas where materials are stored to contain and control minor releases. The Owner or Project Operator, or their designed contractor, should periodically review spill response equipment inventory to ensure supplies are fully stocked and sufficient for the hazardous materials present at the Project. Spill materials will be clearly marked as emergency spill supplies and will be kept in areas that are readily accessible to all site personnel.

If an accidental release occurs, the Owner or Project Operator will immediately implement the items outlined in this Section. These procedures will include the initial identification and assessment of any hazardous conditions, adequate containment of the material release, notification of authorities, and proper cleanup of hazardous debris. Initial Identification and Risk Assessment

Project personnel will be trained to identify and report any hazardous material incidents that occur during operations to the Emergency Coordinator or their designee. Personnel will also be trained to assess whether work should be interrupted in accordance with the following procedures:

- Evaluate the nature of the release and determine if there is an imminent hazard to human health and safety;
- If necessary, suspend work in the affected area to ensure safety;
- Restrict access to the release area to prevent exposure or injury;
- Initiate a 911 call for emergency assistance if warranted; and
- Adhere to the Project emergency response plan, which may include evacuation procedures.

Notification of any hazardous condition should occur as soon as practicable following the discovery of a spill or release, in accordance with the procedures outlined Section 5.2 below.

5.1 Release Notification Procedures

Hazardous material releases may require notification to federal, state, and local authorities depending on the substance, quantity of the release, and the release area/media. Refer to Section 6.0: Notification Procedures of this Plan for reporting thresholds and notification requirements.

5.2 Containment and Cleanup of Hazardous Materials

Containment of hazardous materials will be delegated by the Emergency Coordinator and will be performed only by authorized Project personnel. Proper PPE, such as goggles, gloves, and aprons, shall be utilized during containment and disposal.

All containers used to store contaminated materials must be sealed and properly labeled to list the contents, date, name of responsible party (who spilled the materials), and phone number for each

responsible party. Hazardous waste handling is further discussed in Section 7.0.

6.0 Notification Procedures

Releases of hazardous materials from their primary or secondary container to the environment require immediate attention and may require notification to federal, state, and local authorities. The individual identifying the release shall immediately contact the Project Emergency Coordinator. The Emergency Coordinator, or designee will be responsible for notifying the appropriate regulatory agencies and, if necessary, the spill clean-up contractor. In the event of a release that does not meet the thresholds listed below, the release must still be contained, and a release report form must be filled out and filed with the Owner or Project Operator.

Any size discharge that affects or threatens to affect navigable waters (*i.e.,* one that creates an oil film, sheen, emulsion, or sludge upon navigable waters or adjoining shorelines) must be reported immediately (within fifteen (15) minutes) to the National Response Center (+1-800-424-8802). The National Response Center is staffed twenty-four (24) hours a day.

For spills that are to the environment, the reportable quantity (RQ) for hazardous materials, including hazardous waste, is based on the Federal EPA guidelines established under Title III List of Lists (40 CFR Part 302). In the state of New Mexico, the reportable quantity for petroleum products such as gasoline, diesel, and hydraulic fluid is twenty-five (25) gallons or three (3) cubic yards of contaminated material, or the presence in groundwater. A spill of any quantity that affects a water way within the State of New Mexico must be reported, regardless of the quantity (e.g., oil sheen). Some examples of the RQ of other common hazardous materials are as follows:

- 5,000 lbs. – Hydrochloric Acid
- 1,000 lbs. – Sulfuric Acid
- 100 lbs. – Ammonia
- 10 lbs. – Chlorine
- 1 lb. – Arsenic compounds

Pursuant to New Mexico Administrative Code, Title 20, Chapter 5, Part 118, the New Mexico Environmental Department (NMED) must be notified within twenty-four (24) hours for the following types of releases:

a. Is detrimental to the quality of waters of the state (*i.e.,* causes a sheen);
b. Creates a public health hazard;
c. Creates a vapor hazard;
d. Is in a quantity equal to or greater than its RQ; and
e. Any size release of oil that is discharged onto land in excess of twenty-five (25) gallons.

If the time of the initial release is unknown, it is recommended that state and local authorities be notified as well. Notification must be provided by telephone at (505) 827-9329 for in-state or out-of-state telephone calls. The following information should be reported to the NMED:

- The date, time, location, and duration of the spill, release, or suspected release;
- Reporting person/agency and contact info;

- Name, address, contact information, and Facility ID number of the discharger and
- The source and cause of the spill, release, or suspected release;
- The storage system description;
- A description of the spill, release, or suspected release, including its chemical composition and quantity;
- The estimated volume of the spill, releases, or suspected release; and
- Any actions taken to mitigate immediate damage from the spill, release, or suspected release.

The Emergency Coordinator or their designated representative will also need to complete a release report form and submit the form to the NMED. Spill report forms can be found in the Project SPCC Plan and should be maintained and kept according to SPCC regulations.

7.0 Hazardous Waste Management

The designated Emergency Coordinator for the Project during construction or operations will characterize hazardous waste for proper handling, disposal, and storage and ensure it is managed in accordance with the RCRA as administered by the EPA. RCRA covers the generation, transportation, treatment, storage and disposal of solid waste, which includes hazardous waste such as used oil.

Waste management at the Project shall also comply with the New Mexico Environmental Division (NMED) regulations for storage, handling, management, and disposal.

7.1 Hazardous Waste

Hazardous waste is classified as such by its quantity, concentration, or physical and chemical characteristics. Waste is considered to be hazardous if it is specifically listed as a known hazardous waste or meets the characteristics in one of the four EPA hazardous waste lists (F, K, P, and U lists).

7.1.1 Hazardous Waste Generators

The Project may also be subject to additional reporting dependent on the quantity and type of hazardous waste generated on a monthly basis. The EPA has different requirements for each type of hazardous waste generator category, as summarized below:

Table 2: Hazardous Wast Generator Categories

Requirement Type	Very Small Quantity Generators	Small Quantity Generators	Large Quantity Generators
Quantity Limits	≤100 kg/month	>100 and <1,000 kg/month	≥1,000 kg/month
EPA ID Number	Not required	Required	Required
On-Site Accumulation Quantity	≤1,000 kg	≤6,000 kg	No limit
Accumulation Time Limits	None	≤180 days or ≤270 days (if transporting greater than 200 miles)	≤90 days §262.17(a)
Waste Management	None	Basic requirements with technical standards for containers, tanks, drip pads or containment buildings	Full compliance for management of containers, tanks, drip pads or containment buildings
Personnel Training	Not required	Basic training required	Required
Contingency Plan and Emergency Procedures	Not required	Basic planning required	Full plan required
Preparedness and Prevention	Not required	Required	Required
Air Emissions	Not required	Not required	Required
Land Disposal Restrictions	Not required	Required	Required
Manifest Tracking	Not required	Required	Required
Waste Minimization	None	Good faith effort required	Program in place required
Biennial Report	Not required	Not required	Required
Exception and Additional Reporting	Not required	Required	Required
Recordkeeping	Not required	Required (except biennial reports)	Required
Closure	Not required	Required for tanks, drip pads and containment buildings	Required

The New Mexico hazardous waste generator categories are the same as the Federal categories. All hazardous waste generators are required to properly dispose of hazardous waste treatment, storage, or disposal facility and to comply with DOT packaging and shipping requirements. Based on the nature of

the Project, it is anticipated that the VSQG class will apply during the construction and operations phases. The Project personnel shall maintain records of hazardous waste quantities to ensure generator status is known and its relative requirements are implemented.

7.1.2 Used Oil

Used oil includes any oil that has been used, which at the Project may include, but is not limited to, transformer oil, diesel, gasoline, engine oil, mineral oil, biodegradable fuel, and hydraulic oil. The Project shall comply with Federal and New Mexico regulations for managing, handling, and disposing of used oil.

7.2 Universal Waste

Universal waste includes five specific categories of materials according to federal regulations: batteries, pesticides, mercury containment equipment, lamps, and aerosol cans. The EPA designates four categories of waste handlers:

- Small quantity handlers of universal waste (accumulates less than 5,000 kg of universal waste),
- Large quantity handlers of universal waste (accumulates 5,000 kg or more of universal waste),
- Universal waste transporters and,
- Universal waste destination facilities.

It is anticipated this Project will be classified as a small quantity handler (SQH) and must abide by the following requirements:

- Manage universal wastes in a way that prevents breakage and releases to the environment.
- Keep containers of universal waste closed.
- Immediately contain and transfer any universal wastes that show evidence of leakage or damage to an appropriate container.
- Meet waste-specific container or packaging requirements.
- Label or mark the universal waste (or container holding the universal waste) to indicate that it is a waste or universal waste.
- Accumulate universal waste for no longer than one year (a handler must be able to demonstrate the length of time that a universal waste has been accumulated from the date it became a waste or is received).
- Ensure that employees handling universal waste regulations do not require shipment using a hazardous waste manifest but do require that the waste be sent to a permitted hazardous waste disposal facility or a hazardous waste recycler as the final destination.

7.3 Waste Storage Locations

Hazardous material waste will be stored at predetermined areas in the Project that are designated for waste storage by the Emergency Coordinator. To ensure the safe and effective management of hazardous material waste, the following guidelines should be adhered to:

- Position waste dumpsters and storage containers away from sloped areas as well as waterways, wetlands, drainage ditches, or other conveyances;

- Cover containers at the end of the day and during rain events when not in active use. Stockpiles of erodible materials should be protected from precipitation and with proper erosion and sediment control, if applicable;
- Cursory, daily observations of waste containers to ensure there is no container leakage, staining, or other signs of the deterioration of the container's integrity;
- Secure storage of hazardous materials and waste in designated containers, either in a central location or at various satellite locations where work is active; and
- The selection of and coordination with a licensed waste management company for the Project, which should supply and maintain these waste containers, ensuring they are emptied and removed in accordance with federal, state, and local safety regulations.

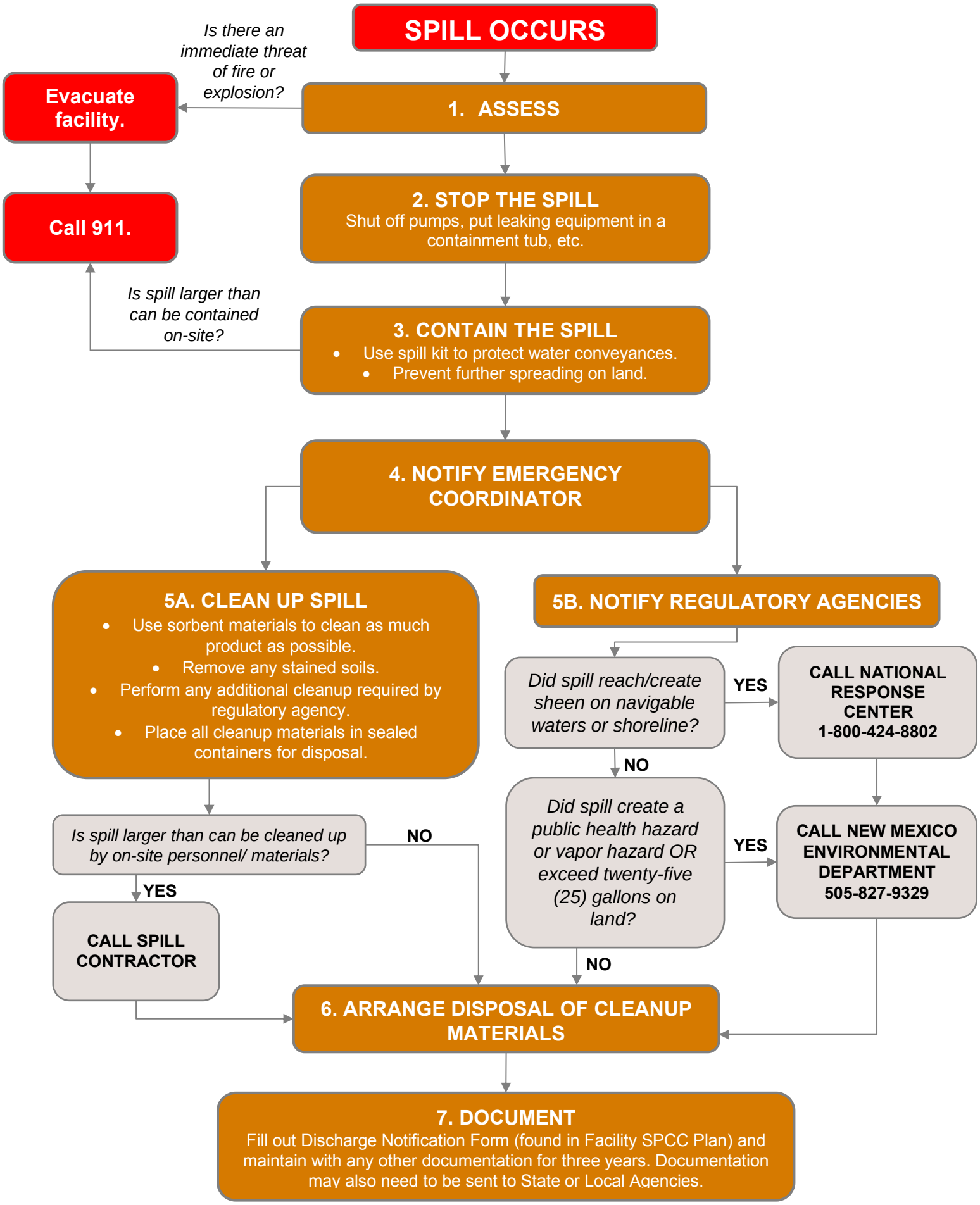
7.4 Waste Disposal

Wastes resulting from release, including contaminated spill response materials, will be removed and disposed of by a licensed cleanup contractor. Waste materials will be disposed of in accordance with federal, state, and local regulations.

The Owner or Project Operator will contract a licensed waste hauler in the event that hazardous material needs to be removed from the site.

Attachment A

Environmental Spill Reporting Flowchart



NOTE: This flow chart is to be used for reference only. Please refer to full Hazardous Materials and Waste Management Plan text for detailed response instructions.

Exhibit MK-10

Unanticipated Discoveries Plan for Cultural Resources and Human Remains

Tumbleweed Solar Project
Chaves County, New Mexico

October 2026



Prepared for

Tumbleweed Solar, L.L.C.
575 Fifth Ave., 24th Fl.
New York, NY 10017

Prepared by

Tetra Tech, Inc.
8911 Capital of Texas Hwy
Austin, TX 358176

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1 HOW TO USE THIS DOCUMENT

This Unanticipated Discoveries Plan (UDP) should be followed in the event archaeological sites, objects, or human remains are found during construction related to the Tumbleweed Solar Project (Project) in Chaves County, New Mexico. Project portions on lands managed by the New Mexico State Land Office (NMSLO) are subject to review by NMSLO and the New Mexico State Historic Preservation Officer (SHPO). Relevant regulations include the State of New Mexico Cultural Properties Act of 1969 (New Mexico Statutes Chapter 18 Sections 18-6-1 to 18-6-17, New Mexico Statutes Annotated 1978, as amended 2005) and Title 4, Chapter 10, Part 15 Standards for Survey and Inventory of the New Mexico Administrative Code (New Mexico Administrative Code 4.10.15). Additionally, the provisions of the New Mexico Cultural Properties Act (NMSA 1978 Section 18-6-11.2) and New Mexico Archaeological Council (NMAC) statute 4.10.11 apply to suspected unmarked human burials and unmarked burial grounds on private land. This document pertains to the work of Tumbleweed Solar, L.L.C. (Tumbleweed) and its contractors, including any and all individuals, organizations, or companies associated with the Project.

2 ARCHAEOLOGICAL SITE BOUNDARY INDICATORS

The boundaries of known sensitive archaeological sites have been marked with stakes, pink flagging tape, and pink masonry string. Stakes are at intervals of approximately 10 meters (33 feet). Construction crews are to refrain from causing any ground disturbing activities or driving off-road within these delineated areas. Note that in places where roads enter site boundaries, stakes/flags have been placed on either side of the road.

3 WHAT MAY BE ENCOUNTERED

Although an archaeological survey has been completed for the Project, previously undocumented archaeological resources may be found during ground-disturbing activities. If archaeological materials are encountered, all construction-related ground disturbing activities in the area of the discovery MUST STOP. Archaeological resources can vary and can include evidence or remnants of historic-era or prehistoric/precontact activities by humans. This may include, but is not limited to:

- Stone flakes, arrowheads, other stone tools, bone or wooden tools, pottery, beads.
- Historic building materials such as nails, glass, metal such as cans, barrel rings, farm implements, ceramics, bottles, marbles, beads.
- Charcoal or discolored earth resulting from hearth fires or buried trash deposits (midden).
- Structural remains such as stone or adobe foundations.
- Petroglyphs or pictographs (prehistoric or historic).
- Animal bones, usually the remains of meals.
- Human skeletal remains and/or bones, which may be whole or fragmented.

If there is an inadvertent discovery of archaeological resources, see procedures below. If in doubt, stop work and contact the Site Representative (SR) or Site Representative Manager (SRM) and the Environmental Compliance Manager (ECM).

4 DISCOVERY PROCEDURES

The procedures outlined here are applicable to all discoveries or archaeological resources, however there are specific additional procedures for discoveries of human remains, which are discussed further in the following section and illustrated in Figure 1. Note that notifying the Project Archaeologist (PA) about discoveries of previously undocumented archaeological resources on NMSLO-administered lands is mandatory and should follow the steps listed below. Notifying the PA about discoveries of previously undocumented archaeological resources on private land is voluntary.

4.1 Inadvertent Discovery of Archaeological Materials

1. Stop ALL work in the vicinity of the discovery.
2. Immediately notify SR or SRM and ECM.

Tumbleweed Site Representative Manager (SRM)
Name
Address
Phone: (xxx) xxx-xxx
Email:

Tumbleweed Environmental Compliance Manager (ECM)
Name
Address
Phone: (xxx) xxx-xxx
Email:

3. If the SRM or ECM determines that the discovery warrants further investigation (e.g., the discovery consists of multiple items, charcoal or stained sediment, or formal tools), secure and protect area of inadvertent discovery with 100-foot buffer.
4. Provided it does not disturb the discovery, vehicle movement and construction outside of the avoidance buffer may continue.
5. The SRM or ECM should notify the Tetra Tech Project Manager (PM) and the Project Archaeologist (PA) of the discovery within 24 hours. The Qualified Archaeologist may request photographs of the discovery and may wish to visit the Project to further inspect the discovery.

Tetra Tech Project Manager (PM)
Amanda Hargrave
8911 Capital of Texas Hwy
Austin, TX 358176
Phone: (303) 291-6276
Email: amanda.hargrave@tetratech.com

Tetra Tech Project Archaeologist (PA)
Deborah Huntley
390 Union Blvd, Suite 400
Lakewood, CO 80228
Phone: (720) 340-9474
Email: Deborah.Huntley@tetratech.com

6. If the PA determines the discovery is an archaeological site or object, they may expand the avoidance area as necessary to protect the resource. If the discovery is determined to not be

archaeological, work may continue. The assessment of the discovery should be completed within two (2) calendar days.

7. If the discovery is determined to be an archaeological resource, work may continue within the buffered area of the site only after 1) a professional archaeologist, Tumbleweed, interested Tribes or communities, and the New Mexico State Historic Preservation Officer (SHPO), as appropriate, have consulted regarding the significance of the resource and impact of the Project on the resource; and 2) any treatments determined necessary through those consultations have been completed and reviewed by a professional archaeologist, Tumbleweed, interested Tribes or communities, and the SHPO, as appropriate.

Any artifacts found on the ground surface within the Project are to be left in place. Consult with the AM regarding any concerns about observed artifacts.

4.2 Inadvertent Discovery of Human Remains

Strict state and federal regulations protect human remains, including both Native American remains and non-Native American remains. The provisions of the New Mexico Cultural Properties Act (NMSA 1978 Section 18-6-11.2) and New Mexico Archaeological Council (NMAC) statute 4.10.11 apply to suspected unmarked human burials and unmarked burial grounds on both NMSLO and private land. If human remains are discovered during construction, the following procedures will apply.

1. Stop ALL work in the vicinity of the discovery.
2. Notify Archaeological Monitor, SR, SRM, and ECM.
3. Secure and protect area of inadvertent discovery with 100-foot buffer.
4. Provided it does not disturb the discovery, vehicle movement and construction outside of the avoidance buffer may continue.
5. Archaeological Monitor or SR must contact local law enforcement.
6. The local law enforcement agency shall notify the Medical Investigator (MI) and SHPO.
7. Once notified by law enforcement the SHPO will designate a staff archaeologist or another professional archaeologist to respond to the discovery, if necessary.
8. If the law enforcement agency and professional archaeologist agree that the human remains are not part of a crime scene and the MI releases the human remains, the process detailed in 4.10.11 NMAC will be followed. This process includes obtaining a permit to excavate any burials, as well as developing a plan for treatment and final disposition of recovered remains and any associated funerary objects.
9. If the MI determines that an unmarked human burial or burial ground is part of a crime scene, the MI retains jurisdiction of that burial or burial ground and will follow Section 24-11-5 [ff.] NMSA 1978 and established investigative protocols of the MI and of the law enforcement agency of jurisdiction.

10. On the request of the SHPO to the MI in any case in which the MI retains jurisdiction of an unmarked human burial or burial ground, that burial or burial ground will be excavated, removed and analyzed, to the greatest extent deemed feasible by the MI, under the direction of a staff archaeologist or professional archaeologist.

All human remains must be treated with dignity and respect at all times. Do not take photographs or share information on social media.

5 CONFIDENTIALITY

The Project and employees shall make their best efforts, in accordance with federal and state law, to ensure that its personnel and contractors keep any inadvertent discovery of archaeological materials, including human remains, confidential. The media, or any third-party member or members of the public are not to be contacted or have information regarding the discovery, and any public or media inquiry is to be reported to the Tumbleweed Project Manager. Prior to any release of information, all responsible agencies and interested parties shall concur on the amount of information, if any, to be released to the public.

6 CONTACT INFORMATION

- Tumbleweed
  - NAME – Site Representative, Primary On-site Contact – Phone Number
  - NAME– Site Representative Manager, Secondary On-site Contact- Phone Number
  - NAME – Environmental Compliance Manager – Phone Number
- Tetra Tech
  - Amanda Hargrave, Project Manager – (303) 291-6276
  - Deborah Huntley, Project Archaeologist – (720) 340-9474
- Chaves County Sheriff's Office: (575) 624-7590
- New Mexico State Police (Clovis, NM Office): (575) 762-1305
- Michelle Ensey, State Historic Preservation Officer: (505) 827-4064, michelle.ensey@dca.nm.gov
- Office of the Medical Investigator, Albuquerque (505) 272-3053

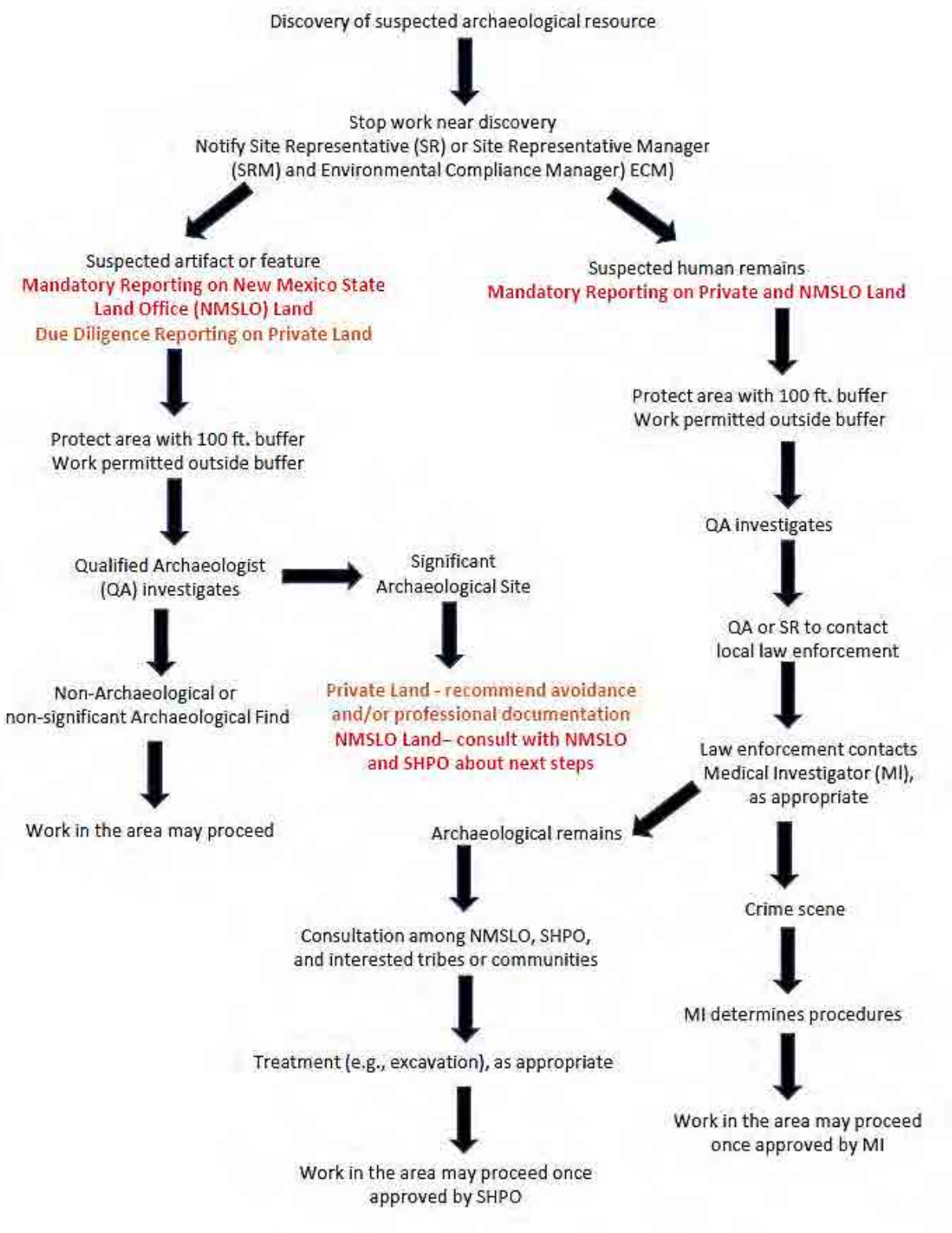

Figure 1. Flow Chart for Discoveries of Suspected Archaeological Resources or Human Remains

7 EXAMPLES OF ARCHAEOLOGICAL MATERIALS

Prehistoric Stone Tools





Prehistoric Stone Flakes and Cores (leftover materials from toolmaking)



Prehistoric Grinding Stones



Prehistoric Pottery



Historic Artifacts





Prehistoric Petroglyphs



Remains of Fire Hearth



Prehistoric Stone Structure Foundation



Prehistoric Adobe Wall Remnants



Exhibit MK-11

Noxious Weed Management and Revegetation Plan

Tumbleweed Solar Project

Chaves County, New Mexico

October 2026



Prepared for

Tumbleweed Solar, L.L.C.
575 5th Avenue, 24th Floor
New York, NY 10017

Prepared by

Tetra Tech, Inc.
6121 Indian School Rd NE #205
Albuquerque, New Mexico 87110

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Appendix A: New Mexico Noxious Weed List

Appendix B: Photo Log

Acronyms and Abbreviations

BMP	best management practice
BRA	Biological Resources Assessment
NMDA	New Mexico Department of Agriculture
NMDOT	New Mexico Department of Transportation
NRCS	National Resource Conservation Service
Plan	Noxious Weed Management and Revegetation Plan
Plan	Noxious Weed Management and Revegetation Plan
Project	Tumbleweed Solar Project
Project Area	4,156 acres of private land and 687 acres of state land totaling 4,843 acres in Chaves County, New Mexico
Tetra Tech	Tetra Tech, Inc.

1.0 INTRODUCTION

Tumbleweed Solar, L.L.C. contracted Tetra Tech, Inc. (Tetra Tech) to prepare a Noxious Weed Management and Revegetation Plan (Plan) for the proposed Tumbleweed Solar Project (Project) within Chaves County, New Mexico. The Project is a solar facility to be developed on approximately 4,156 acres of private land and 687 acres of state land totaling 4,843 acres (Project Area; Figure 1).

2.0 PURPOSE AND INTENT

The purpose of this Plan is to outline how Tumbleweed Solar, L.L.C. would manage revegetation of temporarily disturbed areas, prevent introduction of noxious weeds, and control the spread of noxious weeds in the Project Area. This Plan includes baseline information from the Tumbleweed Solar Project Biological Resources Assessment (BRA) (Tetra Tech 2026), including vegetation within the Project Area. By using information from the BRA, a site-specific integrative management plan was developed to inform the best integrated management approach to avoid introduction or spread of noxious weeds within the Project Area, and to ensure successful revegetation of disturbed areas within the Project Area.

3.0 REGULATORY CONTEXT

3.1 New Mexico Noxious Weed Act

The New Mexico Noxious Weed Management Act (76-7D-1 to 76-7D-6 New Mexico Statutes Annotated 1978) directs the New Mexico Department of Agriculture (NMDA) to develop a list of noxious weeds for the state, identify methods of control, and educate the public about noxious weeds. Under the Act, noxious weeds are defined as "plant species that are not indigenous to New Mexico and have been identified for management or control due to their adverse impacts on the economy or environment." Noxious weeds are classified into four categories:

- Class A species have limited or no presence in New Mexico, and preventing or eradicating infestations is the highest priority;
- Class B species are limited to portions of the state, and management should be designed to contain severe infestations;
- Class C species are widespread in the state, and management decisions should be determined at the local level based on feasibility; and,
- Watch List species have the potential to become problematic, but more data is needed to determine if these species should be listed (NMDA 2020).

The most recent update to the New Mexico Noxious Weeds List became effective July 2020 and includes 41 Class A, B, and C noxious weed species, and six watch list species (NMDA 2020; Appendix A).

4.0 EXISTING CONDITIONS

4.1 Ecoregion

The Project Area is within the Chihuahuan Basins and Playas and the Chihuahuan Desert Grasslands Level IV Ecoregions (Griffith et al. 2006). The Chihuahuan Desert Grasslands are found in regions with fine-textured soils, primarily composed of clays and silts, which are more effective at retaining water than rocky, coarse-textured soils. The main Chihuahuan basins were formed and filled with sediments during the Tertiary Basin and Range tectonism, when the Earth's crust expanded and faults formed. These low-elevation regions are among the state's hottest and driest environments. In addition to sections of salt flats, dunes, and windblown sand, the playas and basin bottoms include saline or alkaline soils. Mesquite (*Prosopis* spp.), gyp grama (*Gypsum grama*), alkali sacaton (*Sporobolus airoides*), tarbush (*Flourensia cernua*), four-wing saltbush (*Atriplex canescens*), and creosote bush (*Larrea tridentata*) is among the common desert shrubs and grasses that must tolerate significant seasonal and diurnal temperature fluctuations, minimal accessible moisture, and a high rate of evapotranspiration. Common cacti include horse crippler (*Homalocephala texensis*) and desert prickly pear (*Opuntia phaeacantha*).

4.2 Soils

A total of 13 soil types were identified in the Project Area (Figure 2; Table 1). The most prevalent soil type in the Project Area is Reeves-Holloman association consisting of 1,858.85 acres (38.39 percent of the Project Area).

Table 1. Soil Series within the Project Area

Map Unit Name	Map Symbol	Acreage
Reeves-Holloman association	RL	1,858.85
Russler silty clay loam	Ru	805.34
Hollomex-Reeves-Milner, dry loams, gently undulating	HMA	514.75
Tencee gravelly sandy loam	Te	372.79
Reeves-Holloman association	RL	344.28
Holloman-Gypsum land complex, 0 to 3 percent slopes	Hp	267.06
Holloman-Gypsum land complex, 3 to 5 percent slopes	HrC	254.87
Tencee-Sotim association	TS	128.60
Holloman-Gypsum land complex, 3 to 5 percent slopes	HrC	93.47
Sotim fine sandy loam	So	84.98
Holloman-Gypsum land complex, 3 to 5 percent slopes	HrC	57.80
Sotim fine sandy loam	So	45.45
Sotim-Berino association, gently undulating	SMA	14.23
TOTAL		4,842.46

Source: U.S. Department of Agriculture 2025a

4.3 Vegetation and Land Use

According to the Southwest Regional Gap Analysis Project (SWReGAP), 11 land cover types are mapped within the Project Area (Table 2, Figure 3; SWReGAP 2025a). The dominant land cover types in the Project Area are Apacherian-Chihuahuan Mesquite Upland Scrub (2,472.10 acres; 51.05 percent of the Project Area); Apacherian-Chihuahuan Piedmont Semi-Desert Grassland and Steppe (1,060.98 acres; 21.91 percent of the Project Area); and Chihuahuan Creosotebush, Mixed Desert and Thorn Scrub (557.97 acres; 11.52 percent of the Project Area).

Table 2. Southwest Regional Gap Analysis Project Land Cover Types in the Project Area

Land Cover Type	Acreage	Percentage of Project Area
Apacherian-Chihuahuan Mesquite Upland Scrub	2,472.10	51.05%
Apacherian-Chihuahuan Piedmont Semi-Desert Grassland and Steppe	1,060.98	21.91%
Chihuahuan Creosotebush, Mixed Desert and Thorn Scrub	557.97	11.52%
Western Great Plains Shortgrass Prairie	325.38	6.72%
Western Great Plains Sandhill Shrubland	187.11	3.86%
Chihuahuan Sandy Plains Semi-Desert Grassland	129.60	2.68%
Chihuahuan Stabilized Coppice Dune and Sand Flat Scrub	64.56	1.33%
North American Warm Desert Riparian Woodland and Shrubland	16.64	0.34%
Chihuahuan Mixed Salt Desert Scrub	14.38	0.30%
North American Warm Desert Lower Montane Riparian Woodland and Shrubland	13.54	0.28%
North American Arid West Emergent Marsh	0.21	<0.01%
TOTAL	4,842.46	100.00

Source: SWReGAP 2025

The Project is within the Chaves Soil and Water Conservation District. Based on email communication with the Chaves Soil and Water Conservation District Noxious Weeds Coordinator Drew Garnett on July 28, 2026, common noxious weeds seen and treated around and under solar panels most often within the district are Russian knapweed (Rhaponticum repens), scotch thistle (*Onopordum acanthium*), bull thistle (*Cirsium vulgare*), and musk thistle (*Carduus nutans*).

Based on field observations, the Project Area was consistent with SWReGAP mapped data. These ecosystems were very similar in plant demographics as are described by SWReGAP, however some understory grasses and forbs were also identified, including low woollygrass (*Dasyochloa pulchella*), blue grama, Torrey's ephedra (*Ephedra torreyana*), and yellowspine thistle (*Circsium ochrocentrum*). Other grasses were present at the time of the field survey; however, they were either dead or senescent going into late fall (Appendix C; Photographs 1, 3, 6, 7, and 8). Additionally, the Project Area has been highly disturbed by cattle and has large expanses of Lehmann lovegrass (*Eragrostis lehmanniana*), an invasive species in New Mexico that takes over areas displacing native vegetation.

One New Mexico Class C noxious weed, salt cedar (*Tamarix* spp.), was observed in the Project Area (Appendix B). Salt cedar was observed in isolated patches, typically consisting of three to four trees.

Table 3. Plant Species Observed within the Project Area

Common Name	Scientific Name
Adonis blazingstar	*Mentzelia multiflora*
Annual buckwheat	*Fagopyrum esculentum*
Alkali sacaton	*Sporobolus airoides*
Blue grama	*Bouteloua gracilis*
Broadleaf milkweed	*Asclepias latifolia*
Broom snakeweed	*Gutierrezia sarothrae*
Burrograss	*Scleropogon brevifolius*
Bush muhly	*Muhlenbergia porteri*
Cane bluesteem	*Bothriochloa barbinodis*
Creosote bush	*Larrea tridentata*
Dwarf desert peony	*Acourtia nana*
Four-wing saltbush	*Atriplex canescens*
Honey mesquite	*Nultuma glandulosa*
Horse crippler cactus	*Echinocactus texensis*
Javelina bush	*Condalia ericoides*
Low woollygrass	*Dasyochloa pulchella*
New Mexico prickly pear	*Opuntia phaeacantha*
Nineawn pappusgrass	*Enneapogon desvauxii*
Plains yucca	*Yucca glauca*
Shrubby tiquilia	*Tiquilia canescens*
Silver-leaved nightshade	*Solanum elaeagnifolium*
Small soapweed	*Yucca glauca*
Spiny phlox	*Phlox hoodii*
Stinkgrass	*Eragrostis cilianensis*
Saltcedar[1]	*Tamarix* spp.
Tobosa	*Hilaria mutica*
Torrey's ephedra	*Ephedra torreyana*
Tree cholla	*Cylindiopuntia imbricata*
Twisted spined prickly pear	*Opuntia macrorhiza*
White sands pricklypear	*Opuntia macrocentra*
Winged pigweed	*Cycloloma atriplicifolium*
Yellowspine thistle	*Cirsium ochrocentrum*

[1]New Mexico Noxious Weed

5.0 RECLAMATION AND REVEGETATION

This Plan has been designed to conform to the Federal Seed Act of 1983 (7 USC 1551-1611), the Federal Noxious Weed Act of 1975 (88 Statute 2148), and the New Mexico Noxious Weed Act (76-7D-1 to 76-7D-6).

5.1 Construction Phase

To prepare the Project Area for revegetation and optimize regrowth, several processes would be incorporated during construction. Site mowing would facilitate restoration after construction: 1) to preserve root crowns and the seed bank; and 2) to salvage topsoil. Topsoil salvage is invaluable for facilitating successful site revegetation. Most seeds, nutrients, organic matter, and soil crust microbes are in the top two inches of the soil (Leck et al. 1989:444; Pake and Venable 1996; Bainbridge 2007:391). During all activities, disturbance to native soils and plants would be minimized and avoided where feasible to optimize the revegetation process.

Unless necessary for construction, or where heavy and repeated compaction is anticipated to occur, mowing would be employed to leave root crowns and roots intact, which would allow important soil fauna and fungi to remain intact, and allow for regrowth of existing vegetation, providing a substantial boost to site restoration (Natural Resources Conservation Service [NRCS] 2024). Additional measures for site preparation during construction that would be implemented as necessary include:

- For areas that would be graded, excavated, or trenched, topsoil would be scraped from the surface and stored separately. The topsoil layer in the Project Area is likely to be shallow in the arid environment where the Project Area occurs; therefore, extra care should be taken to preserve this layer and separate it from subsoils.
- Topsoil would be stockpiled following standard BMPs and be protected from damage with signs and/or staking with flagging. Topsoil in weed infested areas would not be salvaged.
- Dust control measures would be implemented during excavation of topsoil.
- Disturbed soils would be stabilized as soon as practicable following disturbance. Silt fencing, wattles, mulch, and/or interim seeding (i.e., if soils would be exposed longer than 4 weeks) would be implemented, to prevent erosion and loss of material to the surrounding habitat via wind, and water. Once stockpiled, topsoil would not be disturbed again until post-construction revegetation begins.
- Where subsoil is excavated, care would be taken to ensure that no subsoil is mixed with salvaged topsoil.
- Stockpiled subsoil would be placed back into trenches and holes, as needed.

General construction BMPs would also be employed to minimize vegetation impacts, including:

- All seed, mulch, gravel, and fill materials would be certified weed-free.
- Whenever possible, disturbance would be limited to the minimum necessary footprint within the construction limits.

5.2 Post-Construction Phase

All disturbed areas shall be stabilized and revegetated to reduce weed establishment as soon as feasible following completion of construction. Prior to seeding, site preparation would optimize the establishment of the native plant community and minimize erosional effects (i.e., sediment loss and water runoff). The following surface preparation would be implemented:

- Small catchments, swales, and islands would be constructed as necessary, to provide micro-topographical relief and water and seed catchments.
- Soil placement in disturbed areas would be timed to occur right before seeding.
- Before topsoil is returned, areas that are heavily compacted would be chiseled or ripped to break up compacted layers and promote moisture and root penetration.
- Salvaged soils would be spread on top of the treated surfaces with subsoil being placed over the landscape first, followed by topsoil, to duplicate the natural soil profile.
- Topsoil would only be replaced when soil moisture is adequate (often containing 10 to 15 percent moisture, not being too wet to cause compaction or too dry that the soil turns to powder and is blown away. If soil is too wet, it would stick to the equipment and if too dry, it would resemble flour consistency.
- If any additional topsoil is imported from another location, the source would be certified weed free by the supplier.
- The revegetation area would be seeded within a few days of when topsoil is spread.

5.2.1 Seedbed Preparation

The seedbed would be prepared in a manner to ensure the soil is firm enough so that the seed is not easily washed or blown away, but loose enough for seed to penetrate the soil and be able to sprout. Any of the following methods may be implemented:

- Soils must be in a friable condition prior to implementing any seedbed preparation.
- Additional topsoil may need to be brought in to optimize seed germination, by providing adequate depth and to amend any topsoil that may be alkaline with high salt content, as is characteristic for the region where the Project Area is located.
- Extreme surface roughening by pocking or gouging heavily compacted soils to below the compacted layer. This method is only used on steeper slopes, or areas that have highly erosive soils or arid areas.
- Ripping heavily compacted soils in areas that are flatter and have less erosive soils.
- Scarification: Ripping or chiseling topsoil after it has been spread using ripper shanks pulled by tractors, road graders, or bulldozers.
- Harrowing, discing, and cultipacking would be avoided, when possible, due to the risk of erosion from wind and water in the arid climate where the Project Area occurs.

- Non-compacted soils would not be ripped to avoid disturbing the existing soil community.

5.2.2 Seeding

The species to be planted largely would consist of colonizers and plants that increase soil nutrients, have high success rates in revegetation efforts in New Mexico, and are salt and/or alkali tolerant species (if soil tests confirm high salt and alkali content). Seed would be purchased from a registered seed supplier conforming to the requirements of the New Mexico Seed Law, Section 76-10-11, using certified varieties whenever possible (blue tags). Seeds shall be free from all noxious weed seeds in accordance with New Mexico Seed Law (Section 76-10-11). A seed mix recommended for this Project is listed in Table 4.

Table 4. Project-Specific Preliminary Seed Mix

Species Common Name	*Species Scientific Name*	Pounds (lbs). of pure live seed/acre
Oats	*Avena sativa*	0.50
Sterile triticale	*Triticum aestivum* X *Secale cereale 'Quickguard'*	0.50
Bottlebrush squirreltail	*Elymus elymoides*	1.75
New Mexico feathergrass	*Hesperostipa neomexicana*	1.00
Western wheatgrass	*Agropyron smithii*	1.75
Alkali sacaton	*Sporobolus airoides*	0.20
Black grama	*Bouteloua eriopoda*	0.20
Little bluestem	*Schizachyrium scoparium*	0.50
Needle grama	*Bouteloua aristidoides*	0.30
Sand dropseed	*Sporobolus cryptandrus*	0.08
Sideoats grama	*Bouteloua curtipendula* var. *Vaughn***	0.75
Blanket flower	*Gaillardia pulchella*	0.30
Desert marigold	*Baileya multiradiata*	0.10
Desert zinnia	*Zinnia acerosa*	0.20
Hairy golden aster	*Heterotheca villosa*	0.20
Lewis flax	*Linum lewisii*	0.20
Prairie aster	*Machaeranthera tanacetifolia*	0.20
Wild four o'clock	*Mirabilis multiflora*	0.30
White prairie clover	*Dalea candida*	0.30
Scarlet globemallow	*Sphaeralcea coccinea*	0.30
Four-wing saltbush	*Atriplex canescens*	0.40
Sand sage	*Artemisia filifolia*	0.05

Species Common Name	*Species Scientific Name*	Pounds (lbs). of pure live seed/acre
Winterfat	*Krascheninnikovia lanata*	0.20

NMDOT 2017

** Local, wild-sourced genotypes preferred. Provide specified registered variety only if wild-sourced seed is unavailable.

5.2.2.1 Timing

Seeding would occur as soon as possible after the soils have been de-compacted to avoid problematic crusts that develop after soil is exposed for long periods. Seed would be planted according to seed supplier recommendations. In New Mexico, cool season species are best planted in late fall (after October 1); seeding should not be done when the ground is frozen. For warm season species, seeding just prior to summer monsoons is recommended, which occur June through August, but if that is not feasible, then during the summer monsoon season is recommended to assure enough precipitation to support germination (New Mexico State Land Office 2008). If only one seeding can be done, planting both warm and cool species can be accomplished in early summer.

5.2.3 Seed Application

Seeds should be applied following site surface preparation, using drill seeding or broadcast seeding methods. This would minimize the loss of seed to wildlife (i.e. granivores eating the seed) and wind erosion, while maximizing germination potential.

- If drill seeding is employed, only rangeland drills are recommended. Drills must be capable of applying seed in uniformly spaced rows, often adjusted for 6-8-inch spacing. It is recommended that the drill be equipped with depth bands and press wheels, along with multiple boxes with agitators to prevent seed from getting stuck in the seed box. Chain attachments also are recommended to ensure even coverage of seed.
- Broadcast seeding is only recommended for ears not accessible by a rangeland drill. If broadcast seeding is used, it is recommended that the area be raked after seeding if the seedbed has crusted.
- Supplemental watering to maximize soil-seed contact may also be necessary following broadcast seeding.
- Deep imprinting would follow the seeder to facilitate soil-seed contact and produce a roughened, non-compacted surface that would catch both seeds and water and increase infiltration (Dixon 1995); a chain drag may follow to maximize soil-seed contact. Reseeding multiple times may be necessary due to the arid region in which the Project Area is located, with average annual rainfall ranging 4-9 inches.
- Seed should be drilled to a depth of ¼ to ½ inches no matter the size or type of seed (New Mexico State Land Office 2008).

5.2.4 Mulching

The application of mulch is important for preserving limited soil moisture in arid lands (NRCS ND). Mulching also provides cover to protect soil and seeds from erosion by wind and water. To be effective, mulches must cover the ground almost entirely and have sufficient durability to last until the seeds germinate.

In general, mulch would be applied immediately after seeding to protect seed and applied in a manner that avoids disturbing seeds. Mulches may include certified weed-free native grass hay, hydro mulch, biodegradable erosion control mats or blankets, wood or bark chips, or even gravel and rock.

5.3 Monitoring

Monitoring would be implemented to ensure that the revegetation effort is working. Revegetation success would be determined based on establishment of desirable vegetation, and the absence or control of noxious weed species. Monitoring would help identify and evaluate problems that could interfere with the success of the revegetation effort, such as non-native invasive species becoming established, erosion, weather events causing damage, or human and/or wildlife disturbance. Vegetation monitoring would occur in conjunction with noxious weed monitoring outlined in Section 6.3.

To identify potential problems, regular monitoring would include:

- Establish goals for monitoring.
- Compare the site to the surrounding land.
- Establish measures for erosion control, buffers, fencing, other protective measures.
- Identify prescriptions for management tools, including mowing, grazing, pesticides, etc.

Monitoring would also include:

- Description of problems that have been identified at the site through monitoring logbooks or reports.
- Correctional actions to the problems.

Detailed information on any additional considerations affecting the success of the revegetation effort would be noted, including:

- Temporary fencing for site protection.
- Installation of signs to discourage travel into revegetated areas by Project personnel.
- Control of erosion caused by runoff and wind.
- Implementation of weed management measures outlined in Section 6, below.

6.0 NOXIOUS WEED CONTROL AND MONITORING

Noxious weed control is vital to the success of revegetation. Throughout construction, revegetation, and operation activities, Tumbleweed Solar, L.L.C. would take appropriate actions to prevent the

spread of state- and county-listed noxious weeds. Weed control measures would be conducted in compliance with the New Mexico Noxious Weed Act. Management of noxious weeds would include the following:

- *Prevention:* Implementing measures to prevent the introduction of new noxious weed and prevent the spread of existing noxious weeds during construction, operation, and maintenance activities.
- *Control Methods:* Treating noxious weed populations with their appropriate control methods, at appropriate time intervals.
- *Monitoring:* Assessing noxious weed changes within and adjacent to impacted areas over time and ensuring that existing as well as new weed populations are not increasing their distributions.

6.1 Prevention

Tumbleweed Solar, L.L.C. would implement preventative measures and BMPs to minimize the potential for introduction of new weed infestations or spread of existing infestations. Preventative measures may include:

- Contractor education - Prior to the start of construction activities, all personnel would be instructed on the importance of noxious weed control. Information and training would be provided to all construction personnel regarding noxious weed identification and prevention strategies. Operations and maintenance personnel would be similarly informed.
- Early identification of existing weed infestations.
- Minimizing disturbance areas to the maximum extent practicable.
- Washing all equipment prior to entering and leaving the Project Area.
- Use of weed-free seed, mulch, gravel, and fill material and during construction, operations, and revegetation activities.
- Topsoil shall be properly handled, segregated, and protected from contamination.

Additional BMPs that would be followed to help minimize the spread of noxious weeds during construction, revegetation, operation, and maintenance activities may include:

- Avoid creating soil conditions that promote weed germination and establishment by limiting the extent of ground disturbance to the minimum practicable. Utilize the drive and crush construction method rather than grading and removing topsoils wherever possible to minimize seedbed disturbance. This is particularly important for cheatgrass infested areas.
- Designate a washing station to clean vehicles and equipment (e.g., using water, compressed air, shaker diamond grid, or similar). Keep vehicles and equipment free of soil and debris capable of transporting weed seeds, roots, or rhizomes before entering and leaving the Project Area.

- Clean vehicles and equipment prior to arriving at the work site and before moving from weed-contaminated areas to other areas within the Project.
- Concentrate cleaning efforts on the undercarriage and wheels to remove seeds and plant parts.
- Store cleaned equipment, vehicles, and materials in specified weed-free areas to avoid the need for repeated vehicle/equipment washing.
- Limit the number of designated areas used for equipment storage and vehicle parking.
- To the extent possible, avoid work in noxious and invasive weed-infested areas, especially when weed species have produced seed capable of being spread.
- Begin construction activities in weed-free areas first, before moving to weed-infested areas, to the extent practicable.
- Inspect, remove, and appropriately dispose of weed seed and plant parts found on clothing and equipment.
- Collect, bag, and dispose of seeds and plant parts by incineration on site or at a site that accepts weed materials.
- Identify and mark the locations with signage of noxious and invasive weed areas where separate topsoil segregation must occur before earth disturbance. Topsoil in weed infested areas would not be salvaged.
- Segregate areas with noxious weed infestations to the extent practical; this would limit mixing contaminated topsoil with uncontaminated topsoil.
- Mark topsoil stockpiles with signage indicating if they contain noxious or invasive weed species or are weed-free.
- Ensure straw or hay bales used for sediment barrier installations or mulch distribution are certified weed-free. A list of certified weed-free hay producers is available from the NMDA (NMDA 2026).
- Immediately following construction, implement revegetation of temporarily disturbed lands using the temporary or permanent seed mix for the Project.
- Monitor known infestation areas to determine if these areas require remedial action and treatment.

6.2 Control Methods

Noxious weed treatment would focus on controlling existing populations of noxious weeds within the Project Area. Existing noxious weed populations would be prevented from expanding in size and density and spreading to new sites. Where practicable, existing populations of noxious weeds should be eradicated. New noxious weeds detected during post-construction restoration would be considered a result of construction activities and would be controlled and treated accordingly.

Control of noxious weeds would be implemented using an integrated approach that incorporates a mixture of cultural, mechanical, or chemical control measures. The most appropriate control method depends on the noxious weed species being treated, the size of the infestation, and the terrain and

habitat needing treatment. Regional experts may be consulted to determine species-specific treatment methods if necessary. Standard treatment methods for noxious weeds are described in *Weed Control in Natural Areas in the Western United States* (DiTomaso et al. 2013).

6.2.1 Cultural

Cultural control methods include land management practices aimed at preventing noxious or invasive species spread or invasion, such as properly timed livestock grazing, prescribed burning, and seeding/revegetating with competitive plants that would reduce the likelihood of noxious weeds and invasive species becoming established. By adopting cultural methods, other noxious and invasive weed management actions can become more effective.

6.2.2 Mechanical

Mechanical control methods include physical methods such as mowing or discing, or removal of plants using hand tools. Mowing is typically timed to occur after noxious weeds and invasive species have begun to grow, but while native species are dormant. By doing repeated mowing of noxious weed/invasive species populations, the mowing stresses the plants by depleting root reserves and eventually killing the plants. However, mowing can be a time-intensive control method, as it often involves repeated mowing efforts to reduce or eradicate populations. Initial mowings may even stimulate growth for some noxious/invasive populations, making this method seem less effective. Over time, however, this method can be very effective as long as an established mowing schedule is followed.

Removal of noxious weeds and invasive species using hand tools is another effective control method only recommended for very small infestations and only for species that are not rhizomatous. Pulling may not remove the entire root system; therefore, it is ineffective for killing rhizomatous species. Plant pulling can become costly due to the time intensive labor hours that are required; therefore, this method is only recommended for very small populations.

The following BMPs are important to consider for mechanical methods of noxious and invasive weed control.

- Ensure that hand-pulled plants remove the entire root so they do not resprout from residual roots.
- Wear personal protection equipment (i.e., long sleeves, gloves) to protect against plant allergens and avoid areas where chemical treatments or other safety restrictions apply.
- Properly dispose of all vegetative materials, preferably in paper bags, and remove from the site; dispose of the materials at a designated facility that accepts noxious and invasive weed vegetative materials.

6.2.3 Chemical

Chemical controls include the use of herbicides that are designed to target specific noxious weed/invasive species populations and to avoid desirable native species. Chemical control methods

are often considered the most effective control method for managing noxious weeds and invasive species, especially for larger populations.

Herbicide would be applied using the minimum necessary to ensure effective treatment of noxious weed and invasive species populations, while also limiting spills and cleanup, to avoid unintended impacts to native vegetation and the surrounding environment. If there are dense populations that impact native vegetation, herbicide applications would be followed by focused seeding if needed.

Tumbleweed Solar, L.L.C. would be responsible for hiring a qualified contractor (e.g., possessing a Commercial or Public Pesticide Applicator license) to implement chemical noxious weed treatments. The contractor would be responsible for following label instructions for storage and disposal of herbicides, and by following all relevant federal, state, and local laws. In addition, Tumbleweed Solar, L.L.C. or its contractor would ensure that noxious weed chemical control does not affect revegetation efforts.

BMPs would be followed when using chemical control of noxious and invasive weeds in the Project Area, including:

- Herbicide applications would be completed or supervised by a NMDA Licensed Certified Operator (21 New Mexico Administrative Code 17.50.12) pesticide applicator per the New Mexico Pesticide Control Act (Chapter 76, Article 4 of the New Mexico Statutes).
- Herbicide label requirements must be followed by law. Deviations are not allowed.
- Herbicide applications would be made with the appropriate spraying equipment. Spot treatment with an herbicide spray gun is the preferred method in discrete areas.
- Apply herbicides in the minimum amount and at the minimum frequency necessary to control the target weed.
- Do not conduct treatments during precipitation events or when precipitation is expected within 24 hours.
- Apply herbicides in favorable weather conditions to minimize drift. Only conduct herbicide applications when average wind speeds are below 10 miles per hour. Applicators are responsible for minimizing the discharge of pollutants resulting from the application of herbicides.
- Control herbicide application, handling, spills, and cleanup to avoid impacts on surrounding vegetation.

6.3 Monitoring and Reporting

Monitoring for noxious weeds would be conducted annually for a minimum of 3-5 years (or until site stabilization criteria are achieved) following construction activities to assess weed growth and inform noxious weed control measures. Monitoring noxious weed infestations would enable Tumbleweed Solar, L.L.C. to respond promptly to new infestations and ensure the success of the site's revegetation. Noxious weed inspections would occur throughout the Project Area using visual inspections while driving and/or walking. If new and/or expanding noxious weed populations are detected, integrative management control methods outlined in Section 6.2 would be implemented in a timely manner.

The results of monitoring efforts would be summarized in annual monitoring reports that describe the noxious weeds identified, treatments implemented, and treatment success, and would make recommendations to improve treatment success (if necessary) and note any new target noxious weed species or emergence.

Tumbleweed Solar, L.L.C. would maintain ongoing communication with neighboring landowners and Chaves County regarding noxious weeds within the Project.

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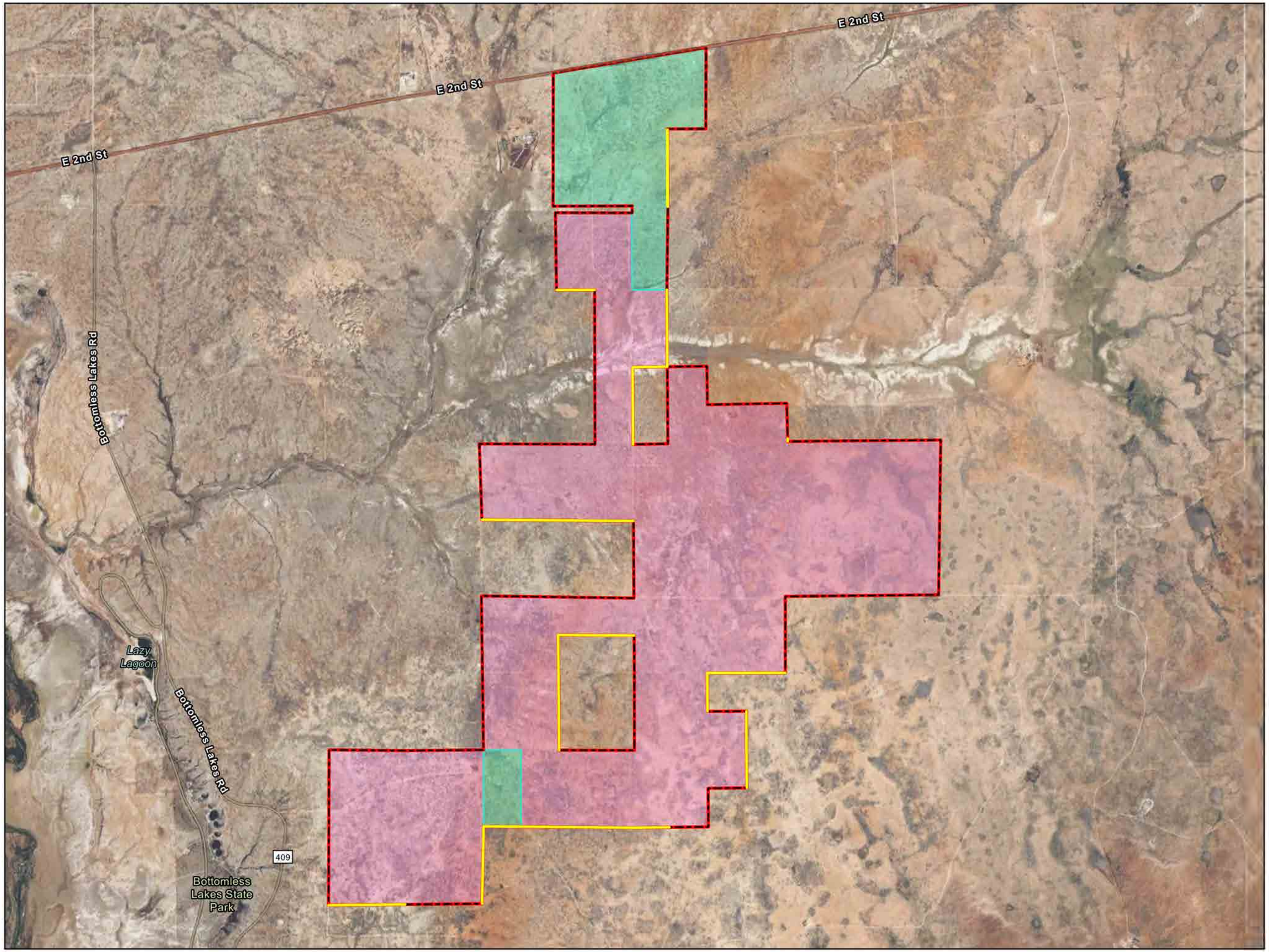
FIGURES



Tumbleweed Solar
Chaves County, New Mexico

Figure 1: Project Location and Land Ownership

LEGEND

- Survey Area

Land Ownership

- Private Land
- State Land
- Federal Land

Federal land is depicted as overlapping the Survey Area; actual federal land boundary is believed to be along the perimeter of the Survey Area.

Data Sources:
Google Aerial Imagery 2025, USGS-PADUS 2025

Prepared for: DESRI

Prepared by: TETRA TECH

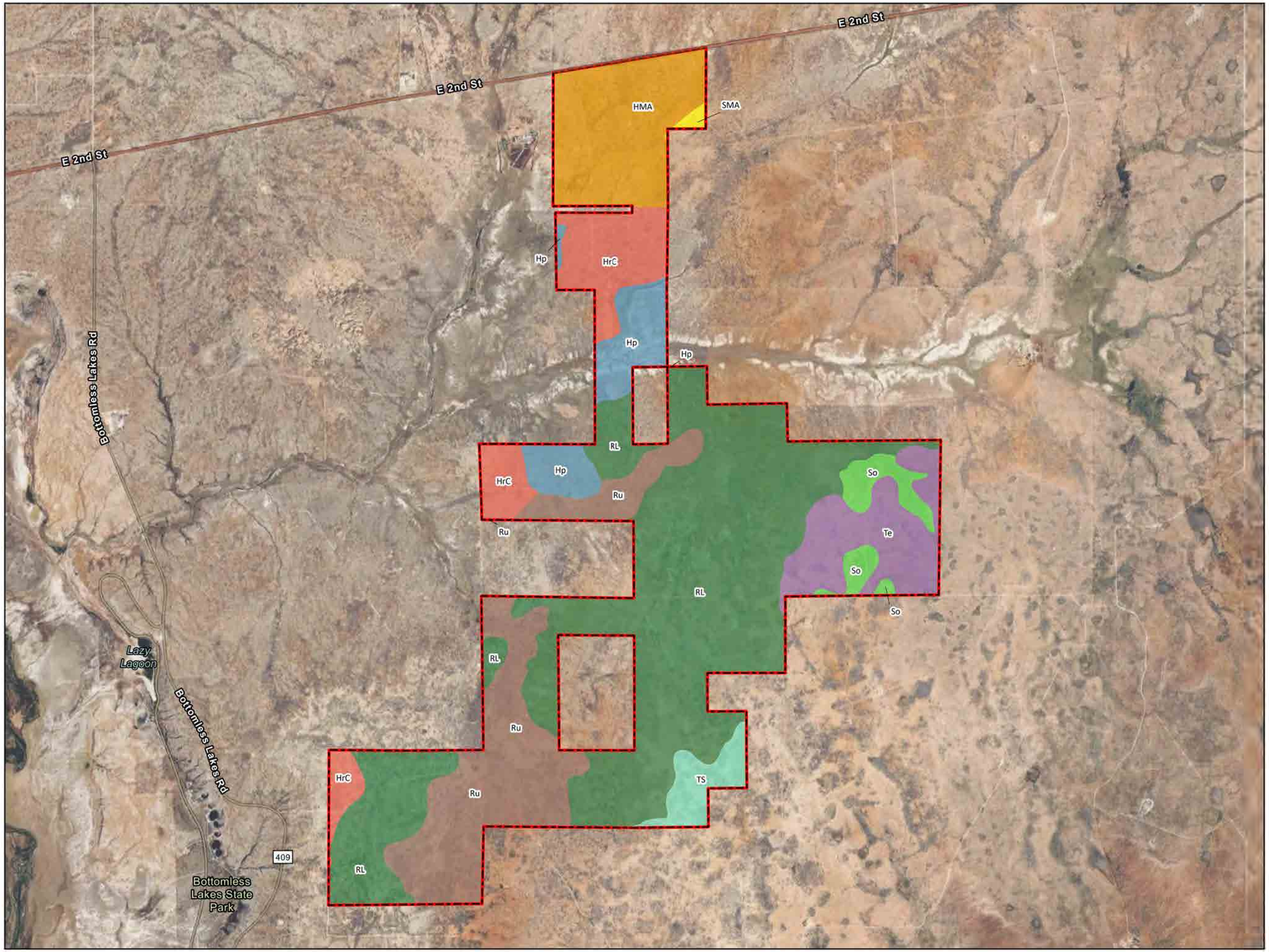
Updated: 7/2/2026



Spatial Reference
NAD 1983 StatePlane New Mexico East FIPS 3001 Feet

Tumbleweed Solar
Chaves County, New Mexico

Figure 2: Soils



LEGEND

- Survey Area

Soil Series

- HMA - Hollomex-Reeves-Milner, dry loams, gently undulating
- Hp - Holloman-Gypsum land complex, 0 to 3 percent slopes
- HrC - Holloman-Gypsum land complex, 3 to 5 percent slopes
- RL - Reeves-Holloman association
- Ru - Russler silty clay loam
- SMA - Sotim-Berino association, gently undulating
- So - Sotim fine sandy loam
- TS - Tencee-Sotim association
- Te - Tencee gravelly sandy loam

No hydric soil was identified within Survey Area.

Data Sources:
Google Aerial Imagery 2025, USDA-NRCS 2025

Prepared for: DESRI

Prepared by: TETRA TECH

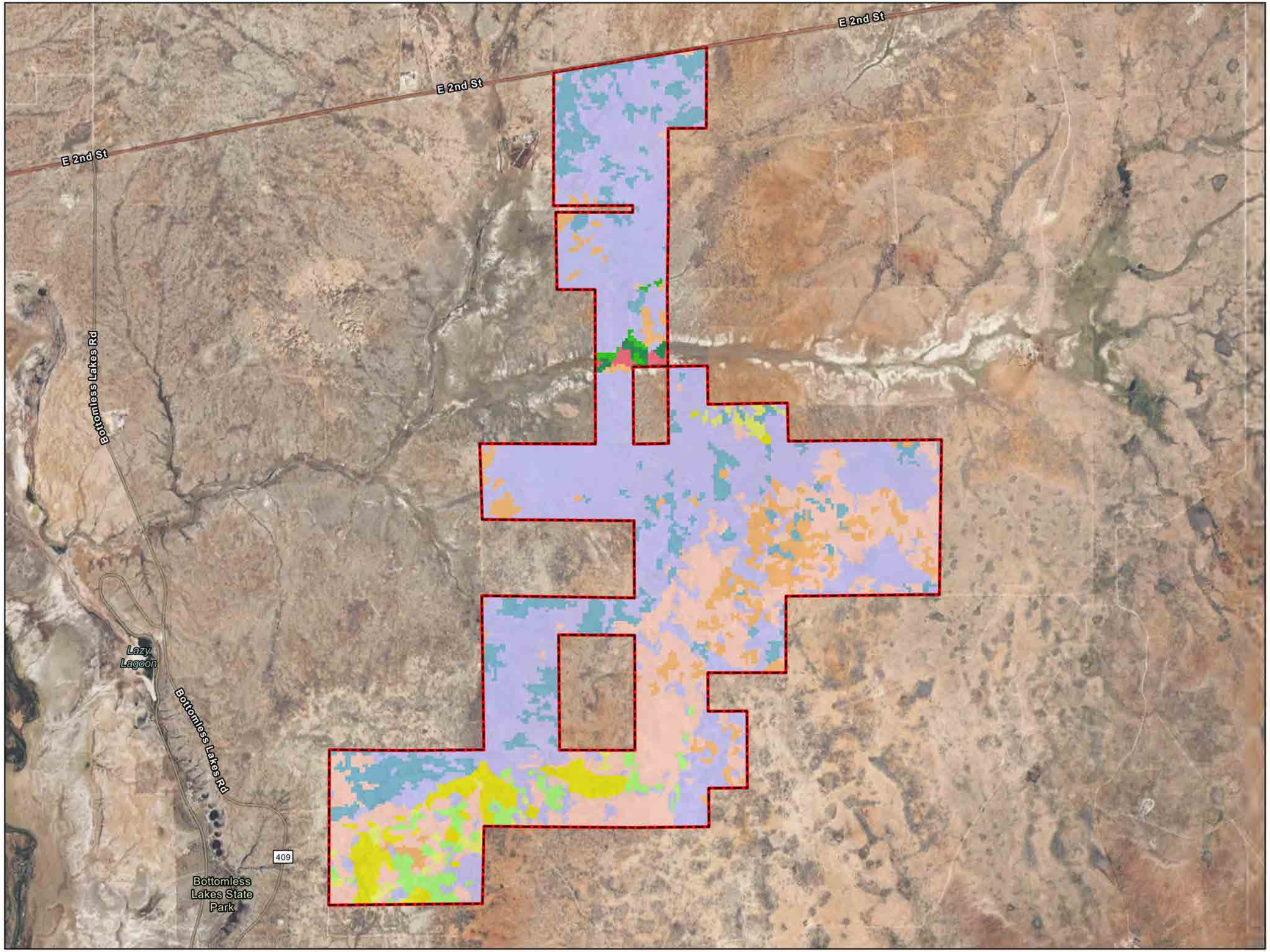
Updated: 7/2/2026



Spatial Reference
NAD 1983 StatePlane New Mexico East FIPS 3001 Feet

Tumbleweed Solar
Chaves County, New Mexico

Figure 3: Southwest Regional Gap Analysis Land Cover



LEGEND

- Survey Area

Southwest Regional Gap Analysis Land Cover

- Apacherian-Chihuahuan Mesquite Upland Scrub
- Apacherian-Chihuahuan Piedmont Semi-Desert Grassland and Steppe
- Chihuahuan Creosotebush, Mixed Desert and Thorn Scrub
- Chihuahuan Mixed Salt Desert Scrub
- Chihuahuan Sandy Plains Semi-Desert Grassland
- Chihuahuan Stabilized Coppice Dune and Sand Flat Scrub
- North American Arid West Emergent Marsh
- North American Warm Desert Lower Montane Riparian Woodland and Shrubland
- North American Warm Desert Riparian Woodland and Shrubland
- Western Great Plains Sandhill Shrubland
- Western Great Plains Shortgrass Prairie

Data Sources:
Google Aerial Imagery 2025, SWReGAP 2016

Prepared for: DESRI

Prepared by: TETRA TECH

Updated: 7/2/2026



Spatial Reference
NAD 1983 StatePlane New Mexico East FIPS 3001 Feet

APPENDIX A: NEW MEXICO NOXIOUS WEED LIST

New Mexico Noxious Weed List

Updated June 2020

Class A Species

Class A species are currently not present in New Mexico or have limited distribution. Preventing new infestations of these species and eradicating existing infestations is the highest priority.

Common Name	Scientific Name
Black henbane	*Hyoscyamus niger*
Camelthorn	*Alhagi psuedalhagi*
Canada thistle	*Cirsium arvense*
Dalmation toadflax	*Linaria dalmatica*
Diffuse knapweed	*Centaurea diffusa*
Dyer's woad	*Isatis tinctoria*
Giant salvinia	*Salvinia molesta*
Hoary cress	*Cardaria spp.*
Leafy spurge	*Euphorbia esula*
Oxeye daisy	*Leucanthemum vulgare*
Purple loosestrife	*Lythrum salicaria*
Purple starthistle	*Centaurea calcitrapa*
Ravenna grass	*Saccharum ravennae*
Scentless chamomile	*Matricaria perforata*
Scotch thistle	*Onopordum acanthium*
Spotted knapweed	*Centaurea biebersteinii*
Yellow starthistle	*Centaurea solstitialis*
Yellow toadflax	*Linaria vulgaris*

Class B Species

Class B species are limited to portions of the state. In areas with severe infestations, management should be designed to contain the infestation and stop any further spread.

Common Name	Scientific Name
African rue	*Peganum harmala*
Bull thistle	*Cirsium vulgare*
Chicory	*Cichorium intybus*
Halogeton	*Halogeton glomeratus*
Malta starthistle	*Centaurea melitensis*
Perennial pepperweed	*Lepidium latifolium*
Poison hemlock	*Conium maculatum*
Quackgrass	*Elytrigia repens*
Spiny cocklebur	*Xanthium spinosum*
Teasel	*Dipsacus fullonum*

Class C Species

Class C species are widespread in the state. Management decisions for these species should be determined at the local level, based on feasibility of control and level of infestation.

Common Name	Scientific Name
Cheatgrass	*Bromus tectorum*
Curlyleaf pondweed	*Potamogeton crispus*
Eurasian watermilfoil	*Myriophyllum spicatum*
Giant cane	*Arundo donax*
Hydrilla	*Hydrilla verticllata*
Jointed goatgrass	*Aegilops cylindrica*
Musk thistle	*Carduus nutans*
Parrotfeather	*Myriophyllum aquaticum*
Russian knapweed	*Acroptilon repans*
Russian olive	*Elaeagnus angustifolia*
Saltcedar	*Tamarix spp.*
Siberian elm	*Ulmus pumila*
Tree of heaven	*Ailanthus altissima*

Watch List Species

Watch List species are species of concern in the state. These species have the potential to become problematic. More data is needed to determine if these species should be listed. When these species are encountered, please document their location and contact appropriate authorities.

Common Name	Scientific Name
Buffelgrass	*Pennisetum ciliaris*
Crimson fountaingrass	*Pennisetum setaceum*
Meadow knapweed	*Centaurea pratensis*
Myrtle spurge	*Euphorbia myrsinites*
Pampas grass	*Cortaderia sellonana*
Yellow bluestem	*Bothriochloa ischaemum*

APPENDIX B: PHOTO LOG



Photograph 1: Representative view of mixed-grass grasslands within the Project Area.



Photograph 2: Representative view of creosote bush dominated scrubland in the Project Area.



Photograph 3: Representative view of mixed shrub grassland where yucca and creosote intersperse the grassland.



Photograph 4: View of isolated tamarisk trees within the Project Area.



Photograph 5: View of the transmission lines that run throughout the Project Area.



Photograph 6: View of a broadleaf milkweed (*Ascelpias latifolia)* cluster in the Project Area.

Exhibit MK-12

A FUGITIVE DUST CONTROL PLAN FOR

Tumbleweed Solar Project

Chaves County, New Mexico

OCTOBER 5, 2026

PREPARED FOR:

DESRI

PREPARED BY:

Westwood

Westwood

Fugitive Dust Control Plan

Tumbleweed Solar Project

Chaves County, New Mexico

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Project Number: 72998.00
Date: October 5, 2026

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Appendix A: Vicinity Map

1.0 Project Description

This Fugitive Dust Control Plan ("Plan") has been prepared for the Tumbleweed Solar Project ("Project"), located in Chaves County, New Mexico in accordance with New Mexico Administrative Code Section 20.2.23.112. The purpose of this Plan is to provide guidelines and protocols to prevent or mitigate fugitive dust emissions to the maximum extent possible during construction of the Project.

The Project includes the construction of a 350-megawatt (MW) photovoltaic (PV) array, a 1,700-foot-long generation tie (gen-tie) line, an operations and maintenance (O&M) facility, a substation, fencing, and access roads.

1.1 Project Location

The Project site ("site") is located in Chaves County, New Mexico, approximately 13.8 miles east of the town of Roswell. Access to the Project is via an access road from the south side of East 2nd Street, located approximately 3.3 miles northeast of its intersection with Bottomless Lake Road. Please refer to Appendix A for the site Vicinity Map.

Table 1: Project Location

Section	Township	Range
34	10S	26E
1, 12, 13, 24, 25	11S	26E
7, 17, 18, 19, 30	11S	27E
Latitude and Longitude Points (Decimal)		
Latitude	33°22'00.0"N	
Longitude	104°17'53.6"W	

Prior to construction, the site consisted of undeveloped shrubland. The prevailing wind direction at the site is generally from the south to southeast throughout the year.

There are no sensitive receptors, such as schools, healthcare facilities, or elderly care facilities, within the vicinity of the project.

1.2 Dust Generating Activities

Construction activities with the potential to disturb the ground and/or generate dust are summarized below:

- Grading: Grading consists of cutting, filling, trenching, and grading soils in preparation for installation of final site features, including access roads, solar panels, staging and storage areas, utilities, and other site structures. Grading activities generate dust by active earthmoving and leaving graded soils exposed. Areas requiring grading have been limited to the extent feasible to minimize soil exposure throughout the Project.
- Stockpiling: Stockpiling may be necessary for temporary staging of soils during grading activities. Dust may be generated by the uncompacted, unstabilized nature of the stockpiles.

- Access Roads: Vehicles and equipment have the potential to generate dust when travelling over and disturbing exposed soils on unstabilized roads and paths. Vehicles and equipment may include construction equipment, delivery vehicles, or personal vehicles. Vehicles may also facilitate transport of dust by trapping dirt in tire treads and on other parts of the vehicle, which has the potential to track dust onto paved public roadways.
- Transport of Bulk Materials: Transport of bulk materials that may generate dust includes open truck transport of soils across the site. Dust may be generated during loading and unloading of truck beds, as well as from material blowing out of open truck beds.

2.0 Dust Mitigation Measures

Wet suppression will be the primary active means of controlling dust on-site during construction activities. The following Best Management Practices (BMPs) may also be implemented during construction as required to minimize soil loss from the construction site area via wind erosion to the greatest extent practicable. BMPs shall be selected to best match field conditions, construction activities, and site topography. The BMPs used for dust control may also serve to prevent erosion via stormwater.

Table 2: Potential Dust Control BMPs

Potential BMPs	Construction Activities					Application Notes
	Non-Driving Areas			Driving Areas		
	Clearing and Grubbing	Site Grading	Stockpiling	Access Roads	Bulk Transport	
Scheduling/Phasing	X	X	X	X	X	Minimize soil disturbance, as feasible, per phase. Stake/flag areas that are to be left undisturbed.
Limiting Disturbance of Natural Vegetation	X	X				Maintain natural vegetation where feasible in order to preserve root structure and promote natural retention of soils.
Water Sprinkling/Wet Suppression	X	X	X	X	X	Spray areas with high potential for dust transport or with visible dust emissions with water. Non-potable water shall be used.
Hydromulch	X	X	X			Spray application per manufacturer recommendations. Use either with seeds mixed in or as a protective cover over seeds.
Erosion Control Blanket	X	X				May be used in areas especially susceptible to water erosion, such as steep slopes or channel bottoms. Install per manufacturer recommendations.
Stockpile Management			X			Stockpiles shall be no higher than 15 feet above the natural existing or manmade grade abutting the stockpile. Stockpiles shall be temporarily stabilized with vegetation or covered when not in

						use. When stockpiles are actively in use, water may be applied to form a crust and prevent dust transport.
Chemical Dust Suppressants	X	X	X	X	X	Chemical dust suppressants must comply with federal, state, and local water resource protection standards. Apply in amounts, frequency, and rates recommended by the manufacturer.
Road Barriers – Stabilized Aggregate Surface				X		Apply gravel materials or geotextiles to access roads to minimize dust. See details regarding road construction in the civil plan set. Wet suppression may still be required to control dust from stabilized roads.
Construction Entrances				X	X	Rock entrances shall be constructed in accordance with state requirements for construction stormwater. Steel grates or other equivalent devices may also be used to remove bulk material from tires of vehicle traffic.
Street Sweeping/Scraping				X	X	Remove track-out material from paved or public roadways whenever observed.
Vehicle Control				X	X	Designate specific areas for vehicle traffic and implement speed limits to reduce dust generation. Cover truck hoppers with retractable screen to prevent blowing of soils.

2.1 BMPs for Clearing, Grading, and Soil Moving

The following practices should be implemented to minimize dust generation during clearing, grading, and soil moving activities:

- Earthwork should be phased to minimize the amount of soil exposed at any given time.
- When possible, earth disturbance activities shall begin upwind from the prevailing wind direction and stabilizing disturbed additional areas.
- Earthwork should be limited during periods of high winds (30 mph or greater).
- Exposed soils should be sprinkled with non-potable water during clearing and grading activities whenever visible dust is continuously generated.
- If visible dust is a consistent concern in specific areas, more robust controls (such as application of chemical dust suppressants) may be used.
- Stockpiles should be temporarily stabilized with vegetative cover when not in use for extended periods to prevent wind erosion. For shorter periods, application of non-potable water or chemical dust suppressants may be used.
- For smaller, temporary stockpiles, tarps or similar plastic sheeting may be applied when feasible. All covers shall be secured and anchored.
- Areas in which earthwork has temporarily ceased shall be stabilized with mulch, erosion control blanket, or temporary vegetation to prevent dust generation.

2.2 BMPs for Dirt Roads and Vehicle Traffic

The following practices should be implemented to minimize dust generated by vehicle traffic on dirt roads and in construction areas:

On-Site Construction Traffic:

- When traveling in construction areas of exposed soil, vehicle traffic should be limited to designated routes to the greatest extent possible and maintain speeds of 10 mph or less.
- Haul routes or other exposed areas disturbed by vehicle traffic shall be sprinkled with water when visible dust is generated.
- If visible dust is a recurring issue and cannot be controlled with water alone, more robust controls (such as application of chemical dust suppressants or geotextile barriers) may be used.
- Security measures should be implemented to prohibit unauthorized vehicles from entering the site during non-working hours.
- If fugitive dust is a recurring issue on unstabilized roads, consider stabilizing with recycled asphalt, concrete, or petroleum products legal for such use.
- Temporary haul routes that are no longer needed shall be permanently stabilized with vegetation.

Construction Traffic on Public Roadways:

- Measures shall be taken to prevent transport of dirt and dust to public roadways to the greatest extent possible. These measures may include dry brushing of trucks, covering of truck beds, use of construction entrances, and street sweeping.
- Vehicles shall maintain posted speed limits on all public roads. If visible dust is generated on public roads while traveling at posted speeds, lower speeds shall be considered.
- Dirt and gravel roadways shall be sprinkled with non-potable water whenever visible dust is being generated.
- If visible dust is a recurring issue on public roads and cannot be controlled with water alone, more robust controls (such as application of chemical dust suppressants or geotextile barriers) may be used.

2.3 High Wind Event Contingency Measures

A high wind event may occur if wind speeds are 30 miles per hour or greater accompanied by dry soil conditions. High wind events that result in widespread reduced visibility due to blowing fugitive dust and elevated monitored particulate levels may be addressed with the following control measures:

- Installing and using an on-site anemometer to measure wind speed; the anemometer should trigger a suitable warning mechanism to notify on-site personnel of high wind conditions.
- Using wet suppression to minimize visible dust in areas most susceptible to wind erosion (such as haul roads) to the greatest extent possible.

- If visible dust is a recurring problem in disturbed areas, bulk materials, or stockpiles and water alone is not enough to mitigate fugitive dust, more robust controls (such as application of soil adhesives) may be used.
- In the case of a high wind event, processes that can produce fugitive dust will be slowed or shut down.

2.4 Water Supply

The Engineering, Procurement, and Construction (EPC) firm hired to construct the Project will utilize a variety of different strategies during construction to adequately control dust generation and emissions from the Project site. One technique will involve application of reclaimed wastewater to active areas of the site, when needed, to keep the ground surface damp and prevent dust generation when disturbed by mechanical equipment. The amount of water needed during construction will depend heavily on weather conditions at the site. For example, a slight rainfall event may eliminate the need for any water application for several days.

2.5 Timeframe for BMP Installation and Maintenance

Unlike with stormwater controls, maintenance of dust control BMPs is most critical in dry weather. The application of BMPs should be performed at a frequency to be determined by the responsible party, subject to moisture levels from rain events.

Visible dust clouds should be addressed as soon as practicable with temporary BMPs, such as spraying with water. Areas that routinely generate visible dust should be addressed with temporary controls until the area can be permanently stabilized.

In dry conditions, when visible dust is generated through wind action alone, temporary dust control BMPs should be initiated immediately (within one working day) after construction activity disturbing soil is anticipated to temporarily cease.

2.6 BMPs During Inactive Operation

Prior to the end of the workday, weekends, and holidays in dry conditions (when visible dust is generated through wind action alone), non-potable water should be applied to disturbed surface area to form a visible crust. If soil type is not conducive to forming a “crust,” alternative BMPs, such as chemical dust suppressants, should be implemented on exposed areas. Stockpiles should be covered with tarps or other covers to prevent wind erosion.

3.0 Documentation

Control measures implemented during construction activities shall be documented as follows:

- For control measures requiring recurring application, operation, or maintenance (such as application of water/dust suppressants or cleaning trackout materials), the EPC shall document the date, time, frequency, quantity, and locations of actional taken to implement the control measures on a weekly basis;
- For discrete control measures, such as a change in operating procedure or installation of a control, the date, time, and length of activities/changes in operation shall be recorded upon completion.

For dust suppressants or other proprietary measures, the product specifications and label instructions for approved usage shall also be saved or otherwise documented. Records shall be maintained for a period of two years after the date of collection.

4.0 Training

Construction personnel shall be trained on fugitive dust control as part of initial environmental training prior to commencing ground disturbing work. New personnel joining the project after the initial start will be trained by a member of the contractor's environmental staff.

Dust control training shall include:

- Regulations
- Mitigation measures
- Company polices
- Sensitive receptors
- Preventative measures

5.0 Responsible Parties

The party responsible for implementing this Plan will ensure that site work is done in accordance with the dust mitigation guidelines presented in this Plan to the greatest extent possible. They will also ensure the availability of resources needed to comply with the Plan, train on-site personnel to comply with the guidelines presented in the Plan, and maintain records associated with the Plan.

Table 3: Project Team Contacts

EPC Contact Information (to be completed at a later date)			
Company:		Address:	
Project Manager Name: Phone Number: Email:			
On-Site Supervisor: Phone Number: Email:			
Dust Control Plan Preparer			
Company:	Westwood Professional Services	Address	12701 Whitewater Drive. Suite 300 Minnetonka, MN 55343
Contact Name	Carrie Boecher	Contact Phone	952-697-5711

Appendix A

Vicinity Map

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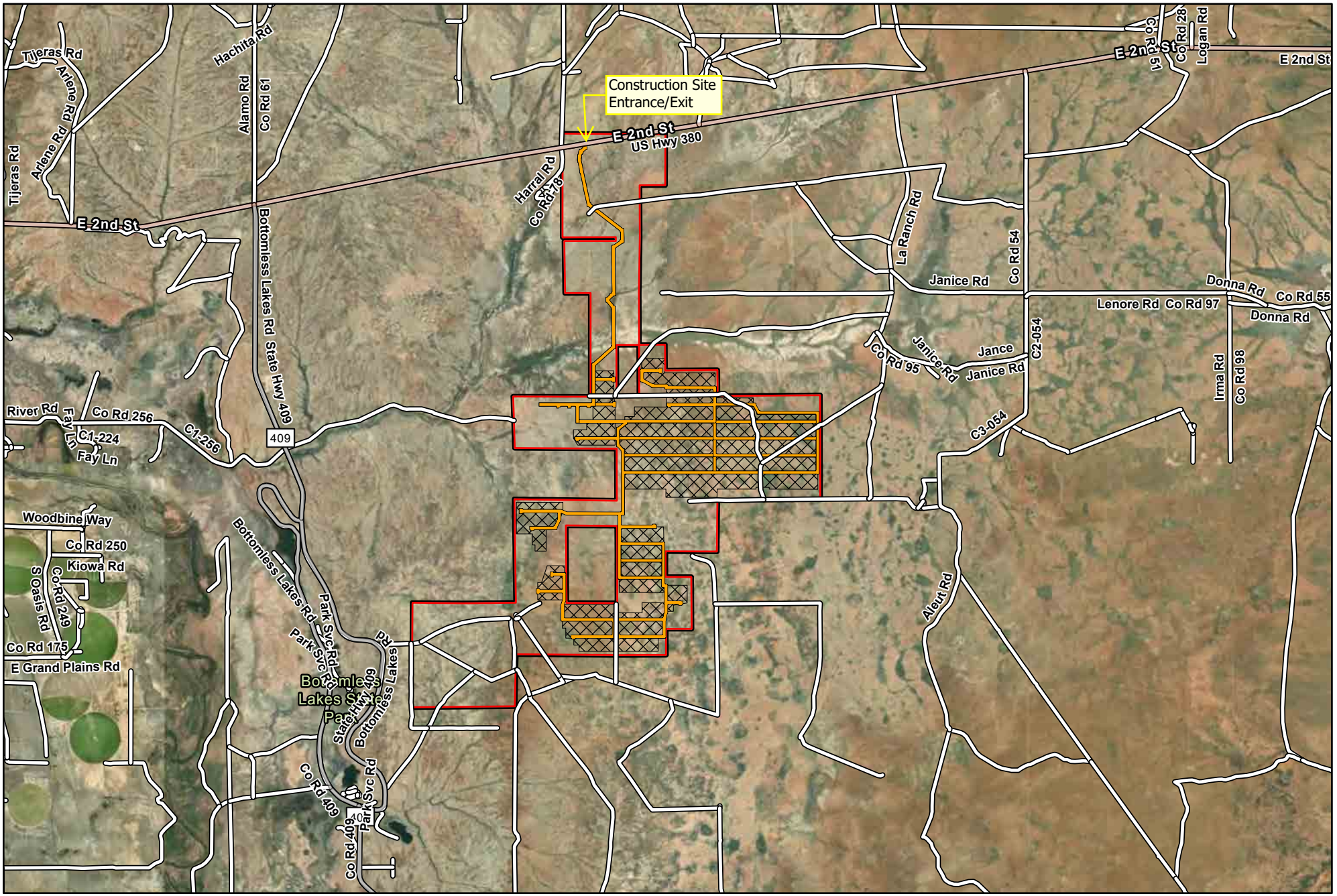

Data Source(s): Westwood (2026); Esri WMS Basemap Imagery (Accessed 2026); USGS (2026); FEMA (2026); USDA (2026)

Legend

- Property Boundary
- Access Roads
- Limits of Distrubance 1,853.4 acres
- Public Roads

N

0 1.25 2.5 Miles

Tumbleweed Solar

Chaves County, New Mexico

Figure 1: Project Location

August 25, 2026

Westwood
Toll Free (888) 937-5150 westwoodps.com

N:\0072998.00_GIS_Working\20260715_MRA\Tumbleweed Dust Control Plan\Tumbleweed Dust Control Plan.aprx

BEFORE THE NEW MEXICO PUBLIC REGULATION COMMISSION

IN THE MATTER OF THE APPLICATION OF TUMBLEWEED SOLAR, L.L.C. FOR LOCATION APPROVAL OF SOLAR GENERATION FACILITIES AND ASSOCIATED TRANSMISSION FACILITIES PURSUANT TO NMSA § 62-9-3; AND RIGHT-OF-WAY WIDTH DETERMINATION PURSUANT TO NMSA § 62-9-3.2	)	**Case No. 26-_____**

ELECTRONICALLY SUBMITTED VERIFICATION

Meghan Knudsen, under penalty of perjury under the laws of the State of New Mexico, states:

I make this verification pursuant to 1.2.2.10(E) NMAC and New Mexico R. 1-011(B) NMRA.

I have read the foregoing *Direct Testimony of Meghan Knudsen* and the exhibits attached thereto, and the statements therein are true and correct based on my personal knowledge and belief.

Dated: 10/2/2026

Meghan Knudsen

BEFORE THE NEW MEXICO PUBLIC REGULATION COMMISSION

IN THE MATTER OF THE APPLICATION OF TUMBLEWEED SOLAR, L.L.C. FOR LOCATION APPROVAL OF SOLAR GENERATION FACILITIES AND ASSOCIATED TRANSMISSION FACILITIES PURSUANT TO NMSA § 62-9-3; AND RIGHT-OF-WAY WIDTH DETERMINATION PURSUANT TO NMSA § 62-9-3.2	)	**Case No. 26-_____**

DIRECT TESTIMONY

OF

REBEKAH LONGSTREET

ON BEHALF OF

TUMBLEWEED SOLAR, L.L.C.

OCTOBER 16, 2026

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Attachments:

Exhibit RL-1: Resume of Rebekah Longstreet
Exhibit RL-2: Environmental Report for Tumbleweed Transmission Facilities

Verification of Rebekah Longstreet

I. WITNESS INTRODUCTION AND QUALIFICATIONS

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS

A. My name is Rebekah Longstreet. My business address is 3500 Trinity Drive #A4 Los Alamos, NM 87544.

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

A. I am employed by Tetra Tech, Inc ("Tetra Tech") as a Deputy Project Manager and Environmental Planner.

Q. PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND EXPERIENCE.

A. I have a master's degree in urban and regional planning from Eastern Washington University. I have eight years of experience in urban and regional planning. Further details are provided in my resume, included in Exhibit RL-1.

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

A. I am appearing on behalf of Tumbleweed Solar, L.L.C. ("Tumbleweed" or "Applicant").

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. My testimony supports Tumbleweed's application to the New Mexico Public Regulation Commission ("NMPRC" or "Commission") for location approval of the generation tie transmission line ("Gen-Tie Line") and Substation (together, the "Transmission Facilities") associated with the Tumbleweed Solar Generation Facilities (together, the "Tumbleweed Solar Project" or "Project"). My testimony summarizes findings regarding whether the location of the Transmission Facilities will unduly impair important environmental values.

Q. HAVE YOU TESTIFIED BEFORE ANY REGULATORY AUTHORITIES?

A. Yes, I have testified before local government regulatory authorities, including the City of Rio Rancho Planning and Zoning Board and Governing Body as a City staff planner, and as a planning consultant on various land development applications and long-range planning efforts including comprehensive plan updates and zoning code updates before the Los Alamos County Planning and Zoning Commission and County Commission, the City of Gallup Planning and Zoning Commission and City Council, and the City of Albuquerque Land Use Planning Commission.

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

A. I sponsor Exhibit RL-1, which is my resume, and Exhibit RL-2, which is the Environmental Report for the Tumbleweed Transmission Facilities ("Environmental Report" or "ER").

Q. WERE EXHIBITS RL-1 AND RL-2 PREPARED BY YOU OR UNDER YOUR SUPERVISION?

A. Yes.

Q. ARE EXHIBITS RL-1 AND RL-2 TRUE AND CORRECT COPIES OF THE DOCUMENTS YOU DESCRIBE IN YOUR TESTIMONY?

A. Yes.

II. THE ENVIRONMENTAL REPORT

Q. WHY WAS THE ENVIRONMENTAL REPORT PREPARED?

A. The Environmental Report in Exhibit RL-2 was prepared to comply with the requirement of the Commission's Rule 17.9.592 NMAC (the "Location Rule"). Subsection 17.9.592.10 of the Location Rule identifies the contents of applications for location approval of transmission lines, including associated facilities such as substations. In particular, the 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, neither the Tumbleweed Solar Generating Facilities nor the Transmission Facilities involve federal actions that require the preparation of an environmental assessment or environmental impact statement. Accordingly, in compliance with the Location Rule, 17.9.592.10.E NMAC, the Environmental Report was prepared in the same format as prescribed in 40 C.F.R. Section 1502.10.

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

A. The 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 the proposed action.

(f) Affected Environment.

(g) Environmental consequences.

(h) List of preparers.

(i) Appendices, if any.

Q. **DOES THE ENVIRONMENTAL REPORT FOLLOW THAT FORMAT?**

A. Yes, the Environmental Report covers these subject areas.

Q. WHAT IS YOUR UNDERSTANDING OF THE STANDARD THE COMMISSION MUST APPLY TO APPROVE THE LOCATION OF TRANSMISSION LINES?

A. My understanding is that the Location Statute, NMSA 1978, Section 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. The environmental values the Commission may consider in making this 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.

I also understand that subsection 17.9.592.10 of the 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."

Q. DOES THIS STANDARD APPLY ONLY TO THE GEN-TIE LINE?

A. I understand that the Location Statute applies the "undue impairment" standard to "transmission lines." I am not a lawyer, but I understand that the Location Statute defines "transmission line" to mean "any electric transmission line and associated facilities designed for or capable of operations at a nominal voltage of two hundred thirty kilovolts or more, to be constructed in connection with and to transmit electricity from a new plant for which approval is required." NMSA 1978, Section 62-9-3.B. The Gen-Tie Line is designed for or capable of operations at a nominal voltage of 230 kV, and the Substation is an associated facility to the Gen-Tie Line. The Gen-Tie Line and the Substation are associated with the Tumbleweed Solar Generation Facilities, which themselves require Commission location approval since they are designed for operations over 300 MW. Therefore, my understanding is that these Transmission Facilities require location approval. Accordingly, my testimony addresses the "undue impairment" standard as applied to the proposed Gen-Tie Line and Substation together as the Transmission Facilities.

Q. DO THE ENVIRONMENTAL REPORT AND YOUR TESTIMONY COVER ALL OF THE ENVIRONMENTAL VALUES IDENTIFIED IN THE LOCATION STATUTE AND RULE?

A. Yes.

Q. DOES THE ENVIRONMENTAL REPORT COVER THE PROPOSED LOCATION OF THE GEN-TIE LINE AND THE SUBSTATION?

A. Yes. The approximately 1,700-foot long Gen-Tie Line will be located in a 120-foot wide ROW on private land within the Analysis Area shown on Figures 1 and 2 in the Environmental Report in Exhibit RL-2. The Substation would be located on about 5 acres of private land within the Analysis Area. The Gen-Tie Line would connect the Project Substation with Southwestern Public Service Company's ("SPS") new Bitter Lake Switchyard, which will be the point of interconnection to the grid.

For purposes of assessment of impacts on important environmental values, an approximately 252-acre Analysis Area was identified as the area within which the Transmission Facilities would be located. The preliminary locations of the proposed Gen-Tie Line and Substation within the Analysis Area are shown on Figure 2 in Exhibit RL-2. The final locations of the Gen-Tie and Substation within the Analysis Area will be determined based on engineering considerations and micro-siting.

Q. DOES THE ENVIRONMENTAL REPORT CONSIDER THE ENTIRE ANALYSIS AREA?

A. Yes. Altogether, we estimate that the maximum disturbance for the Transmission Facilities would be about 10 acres located within the Analysis Area. However, for impact assessment purposes, we assumed the entire 252 acres of the Analysis Area would be cleared and graded. Further details regarding construction and operation of the Transmission Facilities are provided in Chapter 2 of the Environmental Report.

III. PROTECTION MEASURES

Q. DOES THE ENVIRONMENTAL REPORT ADDRESS MEASURES TO AVOID AND MINIMIZE IMPACTS TO IMPORTANT VALUES?

A. Yes. Tumbleweed proposes numerous Protection Measures to avoid and minimize impacts associated with the Transmission Facilities. The Protection Measures are discussed in various sections of the Environmental Report according to pertinent resources.

Q. IS THERE A CONSOLIDATED LIST OF THESE MEASURES?

A. Yes. Appendix A to the Environmental Report provides a consolidated list of Protection Measures. The same list is included as Exhibit MK-8 to the Direct Testimony of Meghan Knudsen.

IV. SUMARY OF FINDINGS REGARDING IMPORTANT ENVIRONMENTAL VALUES

Q. WHAT DOES THIS SECTION OF YOUR TESTIMONY ADDRESS?

A. This section of my testimony summarizes the potential impacts of the Transmission Facilities to important environmental values identified in the Location Statute and Location Rule, and presents my findings that the location of the Transmission Facilities would not result in undue impairment of important

environmental values. The Environmental Report presents more detail on each of these resource areas. Ms. Hargrave's Direct Testimony and Natural Resources Report in Exhibit AH-2 address biological resources and water resources. Dr. Huntley's Direct Testimony and Cultural Resources Technical Report in Exhibit DH-2 address cultural, historic, and archeological resources.

Q. PLEASE SUMMARIZE YOUR FINDINGS WITH RESPECT TO EXISTING PLANS OF STATE AND LOCAL GOVERNMENTS AND PRIVATE ENTITIES FOR DEVELOPMENT AT OR IN THE VICINITY OF THE PROPOSED LOCATION OF THE TRANSMISSION FACILITIES.

A. Our investigation indicates that there are no state or local government plans for development on or in the vicinity of the location of the Transmission Facilities. The private lands for the Transmission Facilities are under lease to Tumbleweed for purposes of the Project.

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

A. The Project is expected to have only minor, temporary impacts on air quality. See ER Section 3.4. During construction and decommissioning, construction-related activities would result in low-level and localized emissions of regulated air pollutants. During construction, emissions would include equipment exhaust that contains carbon monoxide, nitrogen oxides, particulate matter, volatile organic compounds, and HAPs. Ground disturbance and vehicle traffic would also cause particulate matter emissions. These short-term construction-related activities are

not expected to cause an exceedance of the National Ambient Air Quality Standards or to degrade the air quality of the region.

If on-site crushing and screening plants or on-site concrete batch plants are needed during construction, the appropriate air quality permit (General Construction Permit [GCP] or Part 72 permit) will be obtained in accordance with the New Mexico Air Quality Control Act (NMSA 1978, §§ 74-2-1 et seq.) and 20.2.72 NMAC.

The Transmission Facilities would not create air emissions during operations. During operations, maintenance activities would consist of a maintenance crew visiting the site occasionally for visual inspections. The activities should result in minimal vehicle emissions and particulate matter emissions for a temporary period.

Protection Measures are proposed to avoid and minimize impacts to air quality, including a Dust Control Plan. See ER Section 3.4 and Exhibit MK-12 attached to the Direct Testimony of Meghan Knudsen.

In light of the analysis summarized above and explained further in the ER, and incorporation of Protection Measures, I do not expect the location of the Transmission Facilities will unduly impair important environmental values with respect to air quality.

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

A. The location of the Transmission Facilities will have only minimal impacts on water resources. See ER Section 3.15, and the Natural Resources Report attached as Exhibit AH-2 to the Direct Testimony of Amanda Hargrave.

No surface water features or special aquatic sites, including wetlands or potential waters of the U.S., were identified during the natural resources survey of the Analysis Area as shown on Figure 15 in the Environmental Report. No ephemeral streams were identified in the Analysis Area either. Therefore, no direct impacts to aquatic resources are likely to occur.

The potential to impact water resources primarily lies with the indirect impacts that could occur due to stormwater runoff from construction activities into downstream aquatic resources. The Project will implement a Storm Water Pollution Prevention Plan ("SWPPP") during construction to minimize the effects of storm water runoff in the event of significant rain or runoff events. The Project will also submit a National Pollutant Discharge Elimination System ("NPDES") Construction General Permit Notice of Intent with the EPA.

Additional Protection Measures are proposed to avoid and minimize impacts to water resources and water quality. See ER Section 3.15.3.

In light of the analysis summarized above and explained further in the ER, and incorporation of Protection Measures, I do not expect the location of the Transmission Facilities will unduly impair important environmental values with respect to water resources and water quality.

Q. PLEASE SUMMARIZE YOUR FINDINGS WITH RESPECT TO BIOLOGICAL RESOURCES INCLUDING FISH, WILDLIFE, PLANT LIFE, FLORA AND FAUNA.

A. The Transmission Facilities are expected to have minor impacts on biological resources. See ER Section 3.5, and the Natural Resources Report attached as Exhibit AH-2 to the Direct Testimony of Amanda Hargrave.

Impacts to wildlife and vegetation would result from actions that alter wildlife habitats, including changes to vegetation, surface disturbance, and the presence of humans and equipment during construction. Altering wildlife habitat in ways that would be considered adverse may occur directly (through habitat loss from surface disturbance) or indirectly (through the reduction in habitat quality caused by increased noise levels, increased human activity, and the presence of fugitive dust).

Although the disturbance area for the Transmission Facilities is expected to be about 10 acres, for impact assessment purposes, we assumed that the entire 252-acre Analysis Area would be cleared of all vegetation during construction. Post-construction, interim reclamation would occur in areas not needed for long-term operations and maintenance. Impacts to vegetation from decommissioning activities would be similar to impacts from construction.

The loss of up to 252 acres of wildlife habitat would not cause undue degradation to general wildlife and vegetation as this habitat type is common across the regional landscape and is readily available on land surrounding the Analysis Area. While there are wildlife protected areas within the region, the

Transmission Facilities are not expected to adversely impact these areas or their use by wildlife due to the distance from the Analysis Area, intervening topography including large escarpments, and intervening land uses such as Highway 380.

Two federally listed candidate species, the monarch butterfly and the peregrine falcon, have the potential to occur in the Analysis Area. However, the habitat within the Analysis Area is not unique to the surroundings. The Transmission Facilities could impact individuals but would not likely contribute to a trend towards federal listing or cause a loss of viability to the population or species. In addition, protection measures are proposed to avoid and minimize impacts to these species. See Environmental Report Appendix A and Exhibit MK-8.

Operation of the Transmission Facilities could present electrocution risk to avian wildlife; however, this risk is very low because the Transmission Facilities will follow established Avian Power Line Interaction Committee ("APLIC") guidelines to minimize bird collisions and avoid electrocution of raptors. Additional Protection Measures are proposed to avoid and minimize impacts to biological resources. See ER Section 3.5.3

In light of the analysis summarized above and explained further in the ER, and incorporation of Protection Measures, I do not expect the location of the Transmission Facilities will unduly impair important environmental values with respect to biological resources, including fish, wildlife, plant life, flora and fauna.

Q. PLEASE SUMMARIZE YOUR FINDINGS WITH RESPECT TO CULTURAL, HISTORIC, ARCHEOLOGICAL, AND RELIGIOUS RESOURCES.

A. Two historic archaeological sites (LA 208242 and LA 209339) were evaluated for their significance and integrity and potential for listing in the National Register of Historic Properties ("National Register") and the State Register of Historic Places ("State Register"). One of the sites includes the remains of a ranching activity area that may have included a small ranch house. The other site includes the remains of an oil activity area. As explained in ER Section 3.6, neither of the sites are listed on the National Register or State Register, neither meet the criteria of eligibility, and neither qualify as historic properties.

Three Isolated Occurences of scattered artifacts were found, but do not meet the criteria for eligibility and do not qualify as historic properties.

Tumbleweed proposes to implement an Unanticipated Discoveries Plan, attached to Meghan Knudsen's Direct Testimony as Exhibit MK-10, to avoid and minimize impacts to cultural resources and human remains uncovered during construction.

There are no religious resources located in or near the Analysis Area, therefore, no impacts to such resources are anticipated.

Protection Measures are proposed to avoid and minimize impacts to cultural, historic, archeological, and religious resources. See ER Section 3.6.3.

In light of the analysis summarized above and explained further in the ER, and incorporation of Protection Measures, I do not expect the location of the

Transmission Facilities will unduly impair important environmental values with respect to cultural, historic, archaeological, and religious resources.

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

A. Impacts to land use would be minor. See ER Section 3.10. The primary current land use in the Analysis Area is cattle grazing, which would be terminated. The Transmission Facilities would have minimal impact to the areas surrounding the Analysis Area given the existing land use of low-density livestock grazing.

A zone change through the Chaves County Planning and Zoning Commission is being pursued for the Tumbleweed Solar Project. This zone change application would change the zoning of the Analysis Area from Agricultural to Industrial. The Transmission Facilities are an allowable use within the Industrial zone district. No special use permit or land use permits from the Chaves County Planning and Zoning Commission would be required for the Transmission Facilities.

Tumbleweed coordinated with the Chaves County Soil and Water Conservation District ("Chaves SWCD"), which reviewed the proposed Noxious Weed Management Plan, and indicated no concerns with the Project.

There are no established recreation resources in or immediately adjacent to the Analysis Area that would be impacted by the Transmission Facilities. The Transmission Facilities would not significantly impact recreational uses at Bottomless Lakes State, Overflow Wetlands ACEC, Roswell Cave Complex ACEC, and Bitter Lake National Wildlife Refuge. The distance and changes in

elevation between these recreation sites and the Analysis Area minimize any visual and noise impacts the Transmission Facilities would have on recreational users at these sites. Generally, though there would be potential visibility of the Transmission Facilities along elevated roadside routes in the northern area of Bottomless Lakes State Park and along the Pecos River, the Project would appear very distant, and where discernable, the forms and colors would appear muted and blend into the surrounding landscape.

Protection Measures are proposed to avoid and minimize impacts to land uses. See ER Section 3.10.3.

In light of the analysis summarized above and explained further in the ER, and incorporation of Protection Measures, I do not expect the location of the Transmission Facilities will unduly impair important environmental values with respect to land use.

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

A. There are no communication facilities located in or near the Analysis Area, and none would be impacted by the Transmission Facilities. See ER Section 3.10. In light of this, I do not expect the location of the Transmission Facilities will unduly impair important environmental values with respect to communication signals.

Q. PLEASE SUMMARIZE YOUR FINDINGS WITH RESPECT TO MILITARY ACTIVITIES AND AVIATION.

A. There are no aviation facilities, military training routes or military facilities, in or near the Analysis Area, and no impacts to such facilities are expected. See ER

Section 3.10. In light of this, I do not expect the location of the Transmission Facilities will unduly impair important environmental values with respect to military activities and aviation.

Q, PLEASE SUMMARIZE YOUR FINDINGS WITH RESPECT TO GEOGRAPHIC AND SCENIC RESOURCES.

A. Scenic and geographic resources include places of scenic value, topography and landforms as well as human resources such as recreation areas, publicly accessible lands, conservation areas, and other locations with cultural value. See ER Section 3.8. Table 6 in the ER lists the geographic and scenic resources in the region, including the Bitter Lake National Wildlife Refuge, the Bottomless Lakes State Park, and the Pecos River.

These resource areas would not be directly impacted by the Transmission Facilities due to the distance and intervening topography between the Analysis Area and the geographic resources. The topographic map in ER Figure 7 depicts the 100 ft tall escarpment on the western edge of Bottomless Lakes State Park, which blocks the view of the Transmission Facilities by recreational users at the State Park. Similarly, the Pecos River and Bitter Lake National Wildlife Refuge are separated from the Transmission Facilities by several miles and a change in elevation, which would obstruct views of the Transmission Facilities.

In addition, Protection Measures are proposed to avoid and minimize impacts to geographic resources. See ER Section 4.8.3.

In light of the analysis summarized above and explained further in the ER, and incorporation of Protection Measures, I do not expect the location of the

Transmission Facilities will unduly impair important environmental values with respect to geographic and scenic resources.

Q. PLEASE SUMMARIZE YOUR FINDINGS WITH RESPECT TO VISUAL RESOURCES.

A. Views of the proposed Transmission Facilities will vary depending on the viewer's location in the landscape. See ER Section 3.16. The tallest and most visible features will be the 110-foot high transmission structures (up to a total of four) spaced between 200 feet and 600 feet apart along the 1,700-foot long Gen-Tie Line.

The surrounding area is sparsely populated, with only one rural residence within two miles of the Analysis Area. Typical viewers would therefore likely include a limited number of rural residents, workers, travelers, and recreationists visiting Bottomless Lakes State Park. The visual analysis area is characterized by relatively flat, arid desert grasslands and shrublands, with existing features associated with intensive grazing, unpaved roads, dispersed agricultural materials, and a 230 kV transmission infrastructure extending from the western portion toward the southeastern portion of the area. The open terrain and limited vegetation height contribute to broad, unobstructed views across the land.

The Gen-Tie Line would potentially be visible from portions of the surrounding landscape. Beyond two miles, intervening topography would screen most of the Gen-Tie to the east, south, and west, including most views from Bottomless Lakes State Park. Limited visibility would occur in the State Park's northernmost and northeastern tip areas; however these views would be confined

primarily to roadside routes elevated above the main recreation area, which would remain fully screened. There would also be potential visibility north of and along US 380 and near the Pecos River to the west.

Viewers are likely to perceive landscape features with greater clarity in foreground views (within approximately 1 to 2 miles of the Gen-Tie), with clarity gradually diminishing from areas beyond that distance. The potential visibility for the Gen-Tie would be relatively high only within the foreground viewing distance.

In light of the analysis summarized above and explained further in the ER, I do not expect the location of the Transmission Facilities will unduly impair important environmental values with respect to visual resources.

Q. PLEASE SUMMARIZE YOUR FINDINGS WITH RESPECT TO GEOLOGY, SOILS, AND PALEONTOLOGICAL RESOURCES.

A. There are no unique or important geologic or soils resources, or Prime Farmlands or Farmlands of Statewide Importance in the Analysis Area, and the probability for impacting vertebrate fossils (important paleontological resources) in the Analysis Area is low. See ER Section 3.7. Therefore, no or minimal impacts are expected. Nevertheless, Tumbleweed has proposed an Unanticipated Discoveries Plan, attached as Exhibit MK-10 to the Direct Testimony of Meghan Knudsen.

Additional Protection Measures are proposed to avoid and minimize impacts to soil resources. See ER Section 3.7.3.

In light of the analysis summarized above and explained further in the ER, and incorporation of Protection Measures, I do not expect the location of the

Transmission Facilities will unduly impair important environmental values with respect to geology, soils, and paleontological resources.

Q. PLEASE SUMMARIZE YOUR FINDINGS WITH RESPECT TO MINERAL AND MINING RESOURCES.

A. There are no registered mines in the Analysis Area. Other mines within the vicinity are gravel pit aggregate and stone mines. See ER Section 3.11. During construction, the Analysis Area would be cleared and graded, disturbing approximately 18 inches of topsoil, sand, and gravel. The foundations of the transmission structures would require disturbances for the foundations. After the Transmission Facilities are decommissioned, the area would be reclaimed.

The development of the Transmission Facilities would impact the ability to access surface and subsurface mineral deposits via open-pit mining techniques. There are no plans for aggregate or gypsum mining in the Analysis Area. Impacts to subsurface mineral resources and oil and gas reserves are not anticipated since there are no known existing subsurface oil and gas reserves within the Analysis Area. There are no current or planned mining or drilling activities within the Analysis Area. Tumbleweed has coordinated with the US Bureau of Land Management ("BLM") as the subsurface mineral rights holder. The coordination determined that a mineral materials disposal contract is not required for the Transmission Facilities since the project will not use the subsurface minerals owned by the BLM based on planned construction methods.

In light of the analysis summarized above and explained further in the ER, I do not expect the location of the Transmission Facilities will unduly impair important environmental values with respect to mineral and mining resources.

Q. PLEASE SUMMARIZE YOUR FINDINGS WITH RESPECT TO SOCIOECONOMICS.

A. The proposed Transmission Facilities could contribute to short-term socioeconomic benefits from construction employment and local spending. See ER Section 3.13. No long-term changes to the population or housing availability in rural Chaves County are anticipated as a result of the Transmission Facilities. The Transmission Facilities would provide long-term economic benefits through a diversified economic base, increased tax revenue, and property lease payments.

In light of the analysis summarized above and explained further in the ER, I do not expect the location of the Transmission Facilities will unduly impair important environmental values with respect to socioeconomics.

Q. PLEASE SUMMARIZE YOUR FINDINGS WITH RESPECT TO TRANSPORTATION AND ROADS.

A. The Analysis Area typically experiences minimal existing traffic levels. See ER Section 3.14. Transmission Facilities construction and decommissioning would increase traffic on the local and regional transportation routes. The increase in daily construction traffic due to material and equipment delivery and worker commutes would result in a short-term increase in traffic on local routes. Construction traffic would most noticeably impact Harral Road and East 2nd Street. Local users may experience short-term delays as a result of increased

construction traffic. The increase in traffic due to construction would not impact the regional transportation network further away from the Analysis Area with higher existing traffic counts. Necessary permits would be obtained for the use of the local transportation network, such as oversize/overweight permits from New Mexico Department of Transportation ("NMDOT"), access permit from NMDOT, and a road use agreement with Chaves County.

During operations, trips to the Analysis Area would be limited to routine preventative maintenance visits. These would occur on a monthly basis and would consist of several technicians visiting the site. These operations-related trips would be undetectable on the local and regional transportation network.

Protection Measures are proposed to avoid and minimize impacts to transportation and roads. See ER Section 3.14.3.

In light of the analysis summarized above and explained further in the ER, and incorporation of Protection Measures, I do not expect the location of the Transmission Facilities will unduly impair important environmental values with respect to transportation and roads.

Q. PLEASE SUMMARIZE YOUR FINDINGS WITH RESPECT TO NOISE.

A. The Transmission Facilities are proposed in a rural area with very low existing ambient noise levels. See ER Section 3.12. While the construction and decommissioning phases of the Transmission Facilities will temporarily elevate local sound levels, these activities will be intermittent and transient, resulting in no long-term or adverse acoustic effects. During operations, the Transmission Facilities will generate ongoing operational sounds. However, due to the

significant separation distance between the Transmission Facilities and the nearest noise-sensitive receptors approximately 2 miles from the Analysis Area, no adverse construction or operational noise impacts are anticipated because the anticipated noise levels are expected to attenuate to a very low level at this distance.

Protection Measures are proposed to avoid and minimize noise impacts. See ER Section 3.12.3.

In light of the analysis summarized above and explained further in the ER, and incorporation of Protection Measures, I do not expect the location of the Transmission Facilities will unduly impair important environmental values with respect to noise.

Q. PLEASE SUMMARIZE YOUR FINDINGS WITH RESPECT TO HEALTH AND SAFETY.

A. The Analysis Area does not include known health or safety environmental conditions that would present health and safety risks during Transmission Facilities construction, operations, and decommissioning. See ER Section 3.9. Construction and operational activities for the proposed Transmission Facilities would occur in accordance with all applicable health and safety laws and regulations, including those administered by OSHA. A Hazardous Materials and Waste Management Plan is proposed to prevent and remediate accidental spills during construction. See Exhibit MK-9 attached to the Direct Testimony of Meghan Knudsen. Additional Protection Measures are proposed to avoid and minimize impacts to health and safety.

In light of the analysis summarized above and explained further in the ER, and incorporation of Protection Measures, I do not expect the location of the Transmission Facilities will unduly impair important environmental values with respect to health and safety.

V. CONCLUSION.

Q. DOES THE INFORMATION CONTAINED IN YOUR TESTIMONY, THE ENVIRONMENTAL REPORT, AND BACKGROUND TECHNICAL REPORTS SUPPORT THE CONCLUSION THAT THE TRANSMISSION FACILITIES WILL NOT UNDULY IMPAIR IMPORTANT ENVIRONMENTAL VALUES?

A. Yes.

Q. DOES THIS CONCLUDE YOUR TESTIMONY AT THIS TIME?

A. Yes, it does.

TETRA TECH

Rebekah Longstreet
Environmental Planner

EXPERIENCE SUMMARY

Rebekah Longstreet is an AICP-certified planner working as a Deputy Project Manager and Environmental planner focused on entitlements and land development. Rebekah has been an American Institute of Certified Planners (AICP) certified planner for 3 years. Rebekah is a graduate of Eastern Washington University with a Masters in Urban and Regional Planning. She has coordinated on interdisciplinary projects to being development applications, including conditional use permits, special use permits, and master plans, through the approval processes of local regulatory agencies in New Mexico. Rebekah has represented clients in presentation to planning commissions, city councils, and land management agencies during public hearings to obtain approvals for development projects. Her responsibilities have included researching local, state, and federal land use regulations and site conditions to assess project feasibility in support of early stage design development. Rebekah has facilitated public outreach processes in support of long-range planning projects and development applications.

CORPORATE PROJECT EXPERIENCE

Environmental Planner/Deputy Project Manager, 2026–Present
Innergex, Desert Valley BESS, Doña Ana County, NM

Supporting development of the County Special Use Permit and Zone Change application and supporting technical studies for a solar and BESS Project on private land in Doña Ana County, NM.

Environmental Planner/Deputy Project Manager, 2026–Present
DESRI Renewables, Malachite Storage and Agate Solar Projects, Luna County, NM

Supporting development of the County Special Use Permit application and supporting technical studies for a solar and BESS Project on private land in Luna County, NM.

Environmental Planner, January 2026-present

Clearway San Juan Mesa Wind Repower, Chaves County, NM

Supported the Special Use Permit application to Chaves County for the development of a wind energy repower project in Chaves County, NM.

Environmental Planner, February 2026-March 2026

XGS Energy Geothermal Permit Matrix, Socorro County, NM

Researched local, state, and federal regulatory and permitting requirements for a Geothermal Power Plant. Developed a permit matrix for a Geothermal Power Plant in Socorro County, NM.

Environmental Planner, January 2026-present

Tenaska Cardinal Portfolio Goshawk BESS, San Juan County, UT

Researched local, state, and federal regulatory and permitting requirements for a BESS project. Developed a permit matrix for BESS development in San Juan County, UT.

EDUCATION

MA, Urban and Regional Planning, Eastern Washington University, 2018

BA, Geology, Calvin College, 2015

AREA OF EXPERTISE

Land Use Planning

Permitting

REGISTRATIONS/ CERTIFICATIONS

American Institute of Certified Planners (AICP), American Planning Association, 2023

American Planning Association, Member

TRAINING OFFICE

Denver, CO

YEARS OF EXPERIENCE

8

YEARS WITHIN FIRM

<1

PREVIOUS EXPERIENCE

Dekker Perich Sabatini, July 2020-March 2024
Urban Planning Associate

Coordinated on firm-wide projects to bring development applications, including conditional use permits, master plans, and zone map amendments, through the approval processes of local regulatory agencies in New Mexico. Represented clients in presentations to planning commissions, city councils, and land management agencies during public hearings to obtain approval for projects and to obtain decision maker input on long range planning projects. Researched local, state, and federal land use regulations to assess project feasibility in support of early stage design development. Worked with a multi-disciplinary inter-jurisdictional team, provided public outreach, to support long- range planning projects including updating the City of Gallup Comprehensive Plan, the City of Gallup Zoning Code, and the Los Alamos County Zoning Code.

City of Rio Rancho, November 2019 – June 2020
Municipal Planner II

Facilitated public outreach process for the adoption of a site-specific subdivision ordinance. Guided developers through local and state land use regulations to complete their projects. Updated the City's Wireless Telecommunications Facilities Ordinance and Wireless Telecommunications Facilities Design Criteria. Reviewed and made recommendations on land use applications to the Planning and Zoning Board and the Governing Body, including master plan amendments, zone map amendments, platting actions, and variances.

City of Sun Valley, August 2018 – September 2019
Assistant Planner

Reviewed and made staff recommendations to the Planning and Zoning Commission on development applications, including preliminary and final plats, right-of-way encroachment permits, and architectural design review applications, to the Planning and Zoning Commission. Served as floodplain administrator, including reviewing development applications within designated flood zones, maintaining Community Rating System, and conducting flood awareness outreach. Researched best practices for local government regulations on topics including wayfinding, e-bike regulations, unmanned aerial vehicle regulations.

EPA Region 10 Environmental Finance Center, January 2017 – June 2018
Graduate Student Assistant

Researched best practices for asset management of small rural drinking water systems. Created asset management program using ArcGIS Online, ESRI's Collector, and Excel to inventory, map, and track assets. Provided technical support for drinking water systems in collaboration with Rural Communities Assistance Corporation, WA State Department of Ecology, and WA State Department of Health. Assisted HOA members and tribal community members managing rural systems, including discussing financial planning for asset replacements to ensure drinkable water for their community.

Hire Date: 1/12/2026

Years with other firms: 8

Exhibit RL-2

Environmental Report for Tumbleweed Transmission Facilities

NMPRC Location Control Application



October 10, 2026

Prepared for

Tumbleweed Solar, L.L.C.
575 Fifth Avenue, 24th Floor
New York, NY 10017

Prepared by

TETRA TECH

Tetra Tech, Inc.
3500 Trinity Drive #A4
Los Alamos, NM 87544

EXECUTIVE SUMMARY

Tumbleweed Solar, L.L.C (Applicant) is proposing to site a new approximately 1,700-foot 230 kilovolt (kV) generation-tie (Gen-Tie) transmission line and an about 5-acre Substation (together, the Tumbleweed Transmission Facilities) to connect the proposed Tumbleweed Solar Generating Facility to the new Bitter Lake Switchyard to be owned by Southwestern Public Service Company (SPS). Tetra Tech, Inc. (Tetra Tech) has been retained by the Applicant to prepare this Environmental Report and associated surveys and reporting. The Transmission Facilities will be located on 252 acres of privately owned property within unincorporated Chaves County, to the east of Roswell, New Mexico (Analysis Area).

This Environmental Report was prepared by Tetra Tech to support the Applicant's Location Control application to the New Mexico Public Regulation Commission (NMPRC) pursuant to New Mexico Statutes Annotated (NMSA) 1978, Section 62-9-3. NMSA 1978 § 62-9-3.F states "The commission shall approve the application for the location of the transmission lines unless the commission finds that the location will unduly impair important environmental values or the operation of the proposed transmission lines will unduly impair power system reliability."

The scope of this Environmental Report includes the affected environment (existing conditions) and environmental impacts of the Transmission Facilities for the factors listed in NMSA 1978 § 62-9-3.M and 17.9.592.10 NMAC, including existing plans of the state, local government and private entities for other developments at or in the vicinity of the proposed location; air resources, biological resources, cultural, historic, archaeological, and religious resources, geologic, paleontological, and soil resources, scenic and geographic resources, health and safety, land use, recreation, minerals and mining resources, noise, aviation and military uses, communication signals, socioeconomics, traffic and roads, water resources, and visual resources. The impacts assessment within this report includes impacts related to all stages of the Transmission Facilities, including construction, operations, and decommissioning. This report includes protection measures that will be employed to avoid, minimize and mitigate potential impacts. In summary, based on the analyses in this report, the location of the Transmission Facilities is not expected to unduly impair important environmental values.

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Appendix A. List of Protection Measures

Acronyms and Abbreviations

°F	degree Fahrenheit
µPa	micropascal
§	section
AADT	annual average daily traffic
AC	alternating current
Applicant	Tumbleweed Solar, L.L.C
AQB	Air Quality Bureau
AQI	Air Quality Index
BLM	Bureau of Land Management
CFR	Code of Federal Regulations
dB	decibel
dB	A-weighted decibel
DC	direct current
EMNRD	Energy, Minerals, and Natural Resources Department
EPA	U.S. Environmental Protection Agency
EPRI	Electric Power Research Institute
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
GCP	General Construction Permit
gen-tie	generation tie
HAP	hazardous air pollutant
HMI	human-machine interface
HV	high voltage
Hz	hertz
IPaC	Information for Planning and Consultation
kV	kilovolt
LCP	Location Control Permit
Lp	sound pressure level
Lw	sound power level
MBTA	Migratory Bird Treaty Act
NAAQS	National Ambient Air Quality Standards

NATCARB	National Carbon Sequestration Database
NCED	National Conservation Easement Database
NHPA	National Historic Preservation Act
NMAC	New Mexico Administrative Code
NMAAQS	New Mexico Ambient Air Quality Standards
NMCRIS	New Mexico Cultural Resource Information System
NMDOW	New Mexico Department of Wildlife
NMED	New Mexico Environment Department
NMERT	New Mexico Environmental Review Tool
NMPRC	New Mexico Public Regulatory Commission
NMSA	New Mexico Statutes Annotated
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NSR	noise sensitive receptor
NWI	National Wetland Inventory
OSHA	Occupational Safety and Health Administration
PFYC	Potential Fossil Yield Classification
Transmission Facilities	Tumbleweed Transmission Facilities
PV	photovoltaic
ROW	right-of-way
SCADA	supervisory control and data acquisition
SHPO	State Historic Preservation Office
SIP	State Implementation Plan
SPCC	Spill Prevention, Control, and Countermeasures
SRTP	Southeast Regional Transportation Plan
SWPPP	Stormwater Pollution Prevention Plan
T&E	threatened and endangered
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

VMT	vehicle miles traveled
WBD	Watershed Boundary Dataset
WECS	wind energy conversion system

1.0 INTRODUCTION

Tumbleweed Solar, L.L.C. (Tumbleweed or Applicant) is proposing to site a new approximately 1,700-foot 230 kilovolt (kV) generation-tie transmission line (Gen-Tie Line) and an about 5-acre Substation (together, the Tumbleweed Transmission Facilities) to connect the proposed Tumbleweed Solar Generating Facility to the proposed Bitter Lake Switchyard to be owned by Southwestern Public Service Company (SPS). The Transmission Facilities will be located on 252 acres of privately owned property within unincorporated Chaves County, to the east of Roswell, New Mexico (Analysis Area) (Figures 1 and 2).

This Environmental Report was prepared to support the Applicant's Location Control approval application to the New Mexico Public Regulation Commission (NMPRC) pursuant to New Mexico Statutes Annotated (NMSA) 1978, Section (§) 62-9-3. NMSA 1978 § 62-9-3.F states "The commission shall approve the application for the location of the transmission lines unless the commission finds that the location will unduly impair important environmental values or the operation of the proposed transmission lines will unduly impair power system reliability."

The Environmental Report meets the requirements of New Mexico Administrative Code (NMAC) § 17.9.592.10, which lays out the application requirements, stating "E. 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 provided. No federal nexus is associated with the Transmission Facilities; therefore, no federal environmental assessment or environmental impact statement is required under the National Environmental Policy Act (NEPA). This Environmental Report is provided in the format prescribed by 40 Code of Federal Regulations (CFR) Section 1502.10.

The scope of this Environmental Report includes the affected environment (existing conditions) and environmental impacts of the Transmission Facilities for the factors listed in NMSA 1978 § 62-9-3.M and 17.9.592.10, including existing plans of the state, local government and private entities for other developments at or in the vicinity of the proposed location; air resources, biological resources, cultural, historic, archaeological, and religious resources, geologic, paleontological, and soil resources, scenic and geographic resources, health and safety, land use, recreation, minerals and mining resources, noise, aviation and military uses, communication signals, socioeconomics, traffic and roads, water resources, and visual resources. The impacts assessment within this report includes impacts related to all stages of the Transmission Facilities including construction, operations, and decommissioning. This report includes protection measures that will be employed to avoid, minimize and mitigate potential impacts.

1.1 Background

The Transmission Facilities will connect the Tumbleweed Solar Generation Facility with the existing SPS transmission system via the Substation and the approximately 1,700-foot 230-kV Gen-Tie Line, as shown in Figure 2.

1.2 Purpose and Need

The purpose of the Transmission Facilities is to provide an interconnection between the new Tumbleweed Solar Generation Facility and the SPS transmission system. The interconnection is intended to provide renewable energy to consumers in New Mexico, in support of SPS's compliance with the New Mexico Renewable Energy Act (NMSA § 62-16-4), and to provide the safe, reliable, and efficient delivery of electricity to meet energy demand in New Mexico.

1.3 Decision to be Made

As required by NMSA 1978 § 62-9-3, the Applicant is applying to the NMPRC for location approval of the Tumbleweed Transmission Facilities. This statute states the NMPRC shall approve applications for the location of transmission lines and associated facilities unless the NMPRC finds the location will unduly impair important environmental values. This Environmental Report provides an analysis of the existing conditions and the Transmission Facilities' potential impacts on the important environmental values identified in NMSA 1978 § 62-9-3.M and 17.9.592.10 NMAC.

2.0 TRANSMISSION FACILITIES COMPONENTS AND ALTERNATIVES

2.1 Transmission Facilities Components

2.1.1 Analysis Area

The scope of this Environmental Report covers an approximately 252-acre Analysis Area located in unincorporated Chaves County, approximately 13 miles east of Roswell, New Mexico. The Analysis Area is private property leased to the Applicant, parcel number 4149065186227000000 legally described as S: 13 T: 11S R: 26E N2.

Portions of the Analysis Area will be graded where Transmission Facilities will be located. For the purposes of this Report, the impact analyses assume the entire 252-acre Analysis Area will be cleared and graded to facilitate construction of the Transmission Facilities. The Analysis Area will include additional infrastructure associated with the adjacent Tumbleweed Solar Project, including laydown areas, and an operations and maintenance building.

2.1.2 Facilities

The Transmission Facilities include a 5-acre Substation and an approximately 1,700 foot 230-kV Gen-Tie Line.

The Substation would be located to the west of the Tumbleweed Solar Project (see Direct Testimony of Meghan Knudsen). The Substation would collect energy from the Solar Generation Facilities and connect to the 230-kV Gen-Tie Line. The 5-acre Substation would consist of main power transformer(s), circuit breakers, voltage transformers, current transformers, disconnect switches, grounding transformers, reactive compensation devices (if applicable), space heater, surge arresters, rigid bus, grounding system, control building (with heating, ventilation, and air cooling; lighting; battery system; protective relaying; metering; and a supervisory control and data acquisition [SCADA] human-machine interface [HMI]), a 30-foot meteorological tower, raceway/conduit, lighting, fire protection system, wildlife protection, lightning protection, bollards, and station auxiliary power. The maximum height of structures within the Substation would be 30 feet.

SPS's 10-acre switchyard at the point of interconnection, the Bitter Lake Switchyard, would be located directly west of the Substation. The maximum height of structures within the Switchyard would be 30 feet.

Tumbleweed's Substation and SPS's Bitter Lake Switchyard would be fenced with a 10-foot-hight chain-link fence with 1-inch diamond mesh. An 18-inch-tall, galvanized sheet metal flashing would be provided along the top of the fence and gate external areas to deny climbing animals a toehold.

The 230-kV Gen-Tie Line would be approximately 1,700 feet in length connecting the Tumbleweed Solar Project to the new SPS 230-kV Bitter Lake Switchyard. The right-of-way would be 120 feet wide with up to about 5 acres of disturbance. The interconnection line structures would be braced line posts (BLP) tangent, delta configuration on a single steel pole with a maximum height of 110 feet. See Figure 3.

The Analysis Area would be accessed from E 2nd Street (Highway 380) via Harral Road and Juliet Road. Access roads would be constructed through the Analysis Area. Site access roads would be a minimum of 26 feet wide. Where crane walks are utilized, roads would have a minimum 10-foot temporary compacted earthen shoulder on each side. Roads would be widened through turns and curves as necessary to accommodate equipment transportation. Temporary widening for cranes and temporary construction roads would be reclaimed. The Tumbleweed Substation site access road shall have a minimum inside radius of 50 feet and shall be long enough for a delivery vehicle to fully pull in and straighten prior to entering through the gate. Access roads would be covered with at least 6 inches of aggregate over a compacted subgrade, including geotextile fabric (or equivalent) as required. If geotextile fabric is not utilized, a minimum of 12 inches of aggregate over compacted subgrade would be provided. Access roads would have crushed rock surfacing.

2.1.3 Construction

2.1.3.1 Pre-Construction Surveys

The Applicant has completed pre-construction biological, cultural, and aquatic resource surveys of the Analysis Area. Additional engineering, surveying, and site assessments will occur as the design process continues.

2.1.3.2 Construction Schedule and Workforce

Construction is anticipated to begin in spring 2028 and take up to 2 years to fully construct the Transmission Facilities. The construction workforce size will be determined during the development of the construction plan and is estimated to include up to 450 workers over the 24-month construction period for both the Tumbleweed Solar Generating Facilities and the Tumbleweed Transmission Facilities. The on-site construction workforce would consist of engineers, heavy equipment operators, laborers, craftsmen, supervisory personnel, and construction management personnel.

2.1.3.3 Construction Activities

A detailed Traffic Management Plan will be developed prior to construction commencement. The Traffic Management Plan will include the traffic flow, haul routes, mitigation measures, number of equipment deliveries and trip generation associated with construction activities.

Construction will consist of the following activities:

- Installation of stormwater prevention, erosion control, vegetation protection measures, and delineation of any sensitive areas;
- Securing the perimeter of the construction area;
- Vegetation clearing and grubbing;
- Earthwork and grading as necessary;
- Installation of access roads;
- Trenching and installation of direct current (DC) and alternating current (AC) cabling;
- Construction of the collector substation and interconnection equipment; and

- Commissioning and testing of the Transmission Facilities' high voltage (HV) facilities.

The order of these construction activities may vary depending on specific site needs. Table 1 describes the detailed construction activities. Typical equipment that may be present on site includes, but is not limited to, graders, excavators, bulldozers, bucket trucks, stringing equipment backhoes, cutting machines, end loaders, delivery trucks, trenching machines, flatbed trucks, cranes, rollers, electrical test equipment, off-road buggies, forklifts and carry decks, water supply trucks, water spray trucks, concrete mixers, compaction machines, survey equipment, temporary generators, and light trucks. A detailed equipment list will be developed concurrent to the development of construction plans.

Table 1. Construction Activities

Construction Activity	Associated Actions
Site Preparation	Vegetation clearing within approved disturbance limits; topsoil stripping and stockpiling; rough grading; installation of erosion/sediment controls (silt fences, check dams, etc.) per the Stormwater Pollution Prevention Plan; installation of temporary orange silt fencing at environmentally sensitive areas; pre-construction survey of site conditions; establishing construction entrance(s); establishing access roads.
Substation Construction	Excavation and grading of substation pad; installation of grounding grid; concrete foundations for transformer(s), switchgear, control building, and structures; erection of steel bus structures and equipment; transformer and switchgear installation; control building construction; installation of MV and HV cabling, conduit, and raceways; installation of relay/protection equipment; installation of perimeter fencing; commissioning and testing.
Gen-tie construction activities	Survey and staking of structure locations; geotechnical borings for foundations; structure foundation excavation and concrete placement; structure assembly and erection; conductor and optical ground wire stringing; hardware installation; grounding; line crossings and relocations as needed; testing and commissioning.

2.1.3.4 Water Use

Water used during construction would be used for equipment washing, dust abatement, and to support general construction activities. The water source and water volume would be determined prior to construction and be described in the Stormwater Pollution Prevention Plan (SWPPP). Water source options include drilling a well, trucking in water, or using existing irrigation infrastructure. Water used for dust control would be treated to ensure no negative impacts on human health and ecology including downstream environments; for the avoidance of doubt, potable water is not required for dust control, and treatment of the water source utilized by Contractor for dust control is only required to the extent necessary to comply with the applicable law and permitting requirements. Tumbleweed proposes to implement the Dust Control Plan in Exhibit MK-12.

2.1.3.5 Interim Reclamation

After construction, the areas in the Analysis Area that are not needed for long-term operations and maintenance would be reclaimed. Cut and fill slopes will be seeded with a low-growth seed mix native to the Analysis Area. Erosion and sediment controls will be maintained throughout construction and removed per SWPPP upon stabilization.

2.1.4 Operations and Maintenance

The Transmission Facilities are designed for fully automatic, unmanned operation. The Transmission Facilities would be monitored via a SCADA system with real-time data collection, remote monitoring, and alarm management.

Routine maintenance would be limited in scope and would consist of a few technicians visiting the Transmission Facilities to perform system checks. An operations and maintenance manual will be development for permanently installed equipment. The manual will detail maintenance activities and schedules. Typical maintenance activities include inverter/power control system inspection; substation equipment inspection; access road maintenance including aggregate replenishment; vegetation management within fenced areas; and communications/SCADA system checks.

2.1.5 Decommissioning

Decommissioning of the Transmission Facilities would include disconnecting the components from the grid and removing the equipment. Materials would be salvaged and recycled as feasible. Materials that cannot be recycled would be disposed of at authorized locations. Following decommissioning, the Analysis Area would be reclaimed and restored as near as possible to their original condition, subject to coordination with the landowner and compliance with County requirements.

2.2 Protection Measures

A list of protection measures to minimize or avoid potential impacts from the Transmission Facilities is provided in Appendix A and listed by applicable environmental value in Section 3.0 of this Report.

2.3 Alternatives Considered

An alternative Transmission Facilities location was considered. The alterative location was to the northwest of the Analysis Area.

The current Transmission Facilities location was chosen as the preferred alternative due to the proximity to the point of interconnection.

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL IMPACTS

3.1 Scope of Analysis

The scope of analysis for this Environmental Report includes the existing conditions of the affected environment and the potential environmental impacts or consequences related to the Transmission Facilities' development. The resources addressed within this analysis are those environmental values provided in NMSA 1978 § 62-9-3M, which states:

In determining if the proposed location of the transmission line will unduly impair important environmental values, the commission may consider the following factors:

(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.

The analysis also addresses the environmental values within NMAC §17.9.562.10G, which states:

testimony demonstrating that the transmission line will not unduly impair important environmental values; important environmental values include, but are not limited to:

(1) preservation of air quality and water quality;

(2) preservation of land uses, soils, flora, and fauna; and

(3) preservation of water resources, mineral resources, socioeconomic resources, cultural resources, historic resources, religious resources, visual resources, geologic resources, and geographic resources.

The analysis addresses existing plans of the state, local government and private entities for other developments at or in the vicinity of the proposed location; air resources; biological resources; cultural, historic, archaeological, and religious resources; geologic, paleontological, and soil resources; scenic and geographic resources; health and safety; land use; recreation; aviation and military uses; minerals and mining resources; noise resources; communication signals; socioeconomics; traffic and roads; water resources; and visual resources.

3.2 Methodology and Assumptions

Environmental surveys, including biological, cultural, and aquatic resources surveys, were conducted for the entire Analysis Area. Details regarding the survey processes and results are included in the relevant sections of this report. In addition to the field surveys, a desktop review of existing resources was conducted using publicly available data and literature. The affected environment data evaluated in this report also consisted of geographic information system spatial data obtained primarily from the U.S. Department of Agriculture, the U.S. Fish and Wildlife Service (USFWS), and the U.S. Geological Survey (USGS). A complete list of data sources consulted is provided in Section 6.0. ArcGIS software was used to analyze the data collected.

The analysis assumes the entire approximately 252-acre Analysis Area would be cleared and graded during construction of the Transmission Facilities. The analysis incorporates the protection measures listed in Appendix A.

3.3 Existing Plans of the State, Local Government and Private Entities for Other Developments at or in the Vicinity of the Proposed Location

Tetra Tech conferred with the state, county, and landowner and, other than the proposed Transmission Facilities and Solar generating facilities, did not identify any existing plans for other developments at or in the vicinity of the proposed location.

3.4 Air Resources

Data sources used to assess air quality conditions include the following:

- U.S. Environmental Protection Agency (EPA) Green Book; and
- New Mexico Environment Department (NMED) Air Quality Bureau.

3.4.1 Affected Environment

As required by the Clean Air Act, the EPA has set National Ambient Air Quality Standards (NAAQS) for six criteria pollutants: carbon monoxide, lead, particulate matter, ozone, nitrogen dioxide, and sulfur dioxide. These pollutants are common in outdoor air and are considered harmful to public health and the environment. Areas where criteria pollutants exceed NAAQS standards are designated as "non-attainment areas" by the EPA (EPA 2026g). Chaves County is in attainment for all EPA criteria pollutants as of June 16, 2026 (EPA 2026a). The EPA has delegated the responsibility of regulation and enforcement of the NAAQS to the state level and has approved the New Mexico State Implementation Plan (SIP), which allows the State to enforce both the New Mexico Ambient Air Quality Standards (NMAAQS) and the NAAQS (NMED 2026).

The EPA provides data on hazardous air pollutant (HAP) emissions as well as criteria pollutants. HAP emissions are known to cause cancer and other serious health impacts. The AirToxScreen was developed by the EPA to provide an assessment of risks to the public from air toxics, including cancer risks and other long-term health effects from breathing air toxics. AirToxScreen shows the cancer risk due to HAP emissions for the Census Block where the Analysis Area is located is 30 in a million, higher than the state average of 20 in a million and the same as the national average cancer risk (EPA 2020).

The NMED Air Quality Bureau (AQB) has authority over air quality throughout New Mexico, excluding Bernalillo County and Tribal lands. NMED AQB has established Air Quality Control Regions. The Analysis Area falls within NMED AQB Air Quality Region 5. Air monitoring sites within this region are located in Carlsbad, NM within Eddy County approximately 65 miles south of the Analysis Area, and in Hobbs, NM, within Lea County approximately 80 miles southeast of the Analysis Area. There are no NMED AQB air monitoring sites within Roswell or Chaves County.

Air quality is measured by the Air Quality Index (AQI), which is the EPA's tool for communicating the level of air pollution as it relates to human health (AirNow 2026). Within Chaves County, air quality has been reported as good to moderate throughout 2025 and into 2026 (EPA 2026b). In 2025 in Chaves

County, 91 percent of the days when the AQI was reported were classified as good, 7 percent were classified as moderate, and 2 percent were classified as unhealthy for sensitive groups.

3.4.2 Environmental Impacts

The Transmission Facilities would not create air emissions during operations. During operations, maintenance activities would consist of a maintenance crew visiting the site occasionally for visual inspections. The activities should result in minimal vehicle emissions and particulate matter emissions for a temporary period.

During construction and decommissioning, construction-related activities would result in low-level and localized emissions of regulated air pollutants. During construction, emissions would include equipment exhaust that contains carbon monoxide, nitrogen oxides, particulate matter, volatile organic compounds, and HAPs. Ground disturbance and vehicle traffic would also cause particulate matter emissions. If on-site crushing and screening plants or on-site concrete batch plants are needed during construction, the appropriate air quality permit (General Construction Permit [GCP] or Part 72 permit) will be obtained in accordance with the New Mexico Air Quality Control Act (NMSA 1978, §§ 74-2-1 et seq.) and 20.2.72 NMAC.

Tumbleweed proposes to implement a Fugitive Dust Control Plan that includes mitigation measures for dust control during construction. Dust control measures listed in the Dust Control Plan may include sprinkling and irrigation with water and other palliatives, use of vegetative cover and mulching, and wind breaks. In addition to the dust control measures, other measures proposed to reduce air pollution emissions include maintaining equipment and vehicles properly and turning off vehicles to reduce idling time.

3.4.3 Protection Measures

The air resources–related Protection Measures listed in Appendix A that would be implemented to avoid and minimize Transmission Facilities impacts include the following:

- Air 1: Maintain construction equipment in accordance with manufacturer specifications to minimize combustion-related emissions during construction.
- Air 2: Limit idling of construction equipment to the minimum necessary for proper operation.
- Air 3: Enforce reduced vehicle speeds within construction areas to minimize the generation of fugitive dust.
- Air 4: Implement irrigation with water or other palliatives or other dust control measures to reduce fugitive dust from construction activities.
- Air 5: If on-site crushing and screening plants are required, ensure equipment complies with applicable air emission standards under 40 CFR 60 Subpart OOO (NSPS for Nonmetallic Mineral Processing Plants). Pre-NSPS equipment that does not meet these standards shall not be used. At least 90 days prior to use, the appropriate air quality permit (General Construction Permit [GCP] or Part 72 permit) will be obtained in accordance with the New Mexico Air Quality Control Act (NMSA 1978, §§ 74-2-1 et seq.) and 20.2.72 NMAC. Crushing and screening plants

previously permitted at another location must obtain relocation approval from the New Mexico Environment Department (NMED) at least 90 days prior to use.

- Air 6: If an on-site concrete batch plant is required, the appropriate air quality permit (GCP or Part 72 permit) will be obtained at least 90 days prior to operation, in accordance with the New Mexico Air Quality Control Act and 20.2.72 NMAC. Concrete batch plants previously permitted at a different location must obtain relocation approval from NMED, if applicable, at least 90 days prior to use.

3.4.4 Conclusion

Chaves County is in attainment for all six criteria pollutants, and the AQI has historically been classified as good with low cancer risks from air pollution toxics. The operations phase of the Transmission Facilities would cause minimal air quality impacts due to the lack of air emissions related to operations activities. During construction and decommissioning, air emissions would be short term and localized due to the use of construction equipment. These short-term construction-related activities are not expected to cause an exceedance of the NAAQS or to degrade the AQI of the region. The location of the Transmission Facilities is not expected to unduly impair environmental values regarding air quality.

3.5 Biological Resources

3.5.1 Methodology

Tetra Tech completed a natural resources survey of the Analysis Area on November 4 and 5, 2025, December 22, 2025, and March 3, 2026, to identify and characterize flora, fauna, and aquatic resources on the site and to assess habitat suitability for federal and state special status species protected under the Endangered Species Act, Bald and Golden Eagle Protection Act, Migratory Bird Treaty Act, New Mexico State Statutes (17-2-13 and 17-2-14 NMSA), and New Mexico Wildlife Conservation Act. The assessment included an initial desktop review of available data and a field survey. The biological resources analysis results, including a list of threatened and endangered (T&E) species and a ranking of the likelihood of the species to occur, ranging from unlikely to high, based on general habitat characteristics at the Analysis Area, are included in Section 3.5 of this Environmental Report.

Tetra Tech reviewed the following data sources as part of the desktop analysis of the Analysis Area:

- 7.5-minute quadrangle topographic mapping (USGS 1950 and 2023)
- Current and historic aerial imagery (Google 2026, NAIP 2024)
- Federally Designated Critical Habitat (USFWS 2026a)
- Information for Planning and Consultation (IPaC) resource list (USFWS 2026b)
- National Hydrography Dataset (NHD) mapping (USGS 2023)
- National Wetlands Inventory (NWI) mapping (USFWS 2026c)
- New Mexico Crucial Habitat Assessment Tool data (NMCHAT 2013)
- New Mexico Department of Wildlife (NMDOW) Biota Information System of New Mexico (BISON-M 2026)

- New Mexico Energy, Minerals, and Natural Resources Department (EMNRD) State Endangered Plant List (EMNRD 2026a)
- New Mexico Environmental Review Tool (NMERT) (NMDOW 2026)
- New Mexico Rare Plants website (NMRP 2026)
- Watershed Boundary Dataset (WBD) watersheds (USGS 2025)
- U.S. Department of Agriculture (USDA) Plants Database (USDA 2026d)

3.5.1.1 Current Conditions and Analysis Area Overview

The biological resources in the Analysis Area, including vegetation, wildlife species, and habitat, are typical of the Chihuahuan Basins and Playas Level IV Ecoregion of southeastern New Mexico. The Analysis Area and surrounding landscape have been previously disturbed by grazing, several dirt access roads and an existing transmission line bisecting the site. Several water tanks and agricultural equipment were located on site. No unique vegetation, wildlife, or habitat features were identified during the field surveys for biological and aquatic resources survey of the Analysis Area.

According to the Western Regional Climate Center's (2026) period of record for the Roswell Industrial Air Park, New Mexico (COOP Station No. 297610), the following climate trends are anticipated for the Analysis Area. The average annual maximum temperature is 75.9 degrees Fahrenheit (°F). The average annual minimum temperature is 46.6 °F. Annual precipitation ranges from 6 to 20 inches with an average annual total precipitation of 12.55 inches. Summer monsoon thunderstorms bring much of the precipitation to the area, while winters are considered cool to cold and dry. Average annual total snowfall is 11.5 inches, which typically occurs in the months of November to March. Weather during the natural resources surveys ranged from approximately 70 to 85 °F.

Vegetation

The Analysis Area is located within the Chihuahuan Basins and Playas Level IV EPA Ecoregion. According to Griffith et al. (2014), this ecoregion in West Texas and Southeast New Mexico is mostly below 4,500 feet in elevation and is characterized by alluvial fans, internally drained basins, and river valleys; these low elevation areas are some of the hottest and most arid habitats in the state. The playas and basin floors have saline or alkaline soils and areas of salt flats, dunes, and windblown sand that support typical desert shrubs and grasses capable of withstanding large seasonal and diurnal ranges in temperature, low available moisture, and a high evapotranspiration rate. Typical shrubs and grasses in the Chihuahuan Basins and Playas ecoregion include creosote bush (*Larrea tridentata*), tarbush (*Flourensia cernua*), fourwing saltbush (*Atriplex canescens*), *Acacia* spp., gyp grama (*Bouteloua breviseta*), and alkali sacaton (*Sporobolus airoides*); horse crippler (*Echinocactus texensis*) and other cacti are also common.

During the natural resources survey, biologists observed typical Chihuahuan desert grassland and shrubland within the Analysis Area. Dominate vegetation consisted of honey mesquite (*Prosopis glandulosa*), blue grama (*Bouteloua gracilis*), Russian thistle (*Salsola tragus*), and winterfat (*Krascheninnikovia lanata*), which is typical of current conditions of the Chihuahuan Basins and Playas Ecoregion.

The Analysis Area and surrounding landscape have been previously disturbed by heavy grazing, existing dirt access roads, an existing transmission line, and several water tanks and agricultural equipment located throughout the Analysis Area. Plant species recorded during the natural resources survey are listed in Table 2.

During all of the surveys, no USDA-listed noxious weed species were observed within or around the Analysis Area (USDA 2010). One New Mexico Department of Agriculture state-listed noxious weed species was observed within the Analysis Area: saltcedar (*Tamarix* spp.; NMDA 2020). Protection measures, such as noxious weed washing stations, can be utilized to reduce the introduction of noxious, invasive, and non-native plants. Tumbleweed proposes to implement a Noxious Weed and Control Management Plan, on which it coordinated with the Chavez County Soil and Water Conservation District (Chaves SWCD) noxious weed manager.

Table 2. Vegetation Observed during the Biological Survey

Scientific Name	Common Name	Growth Habits[1/]
Acourtia nana	Dwarf desert peony	Forb/herb
Asclepias latifolia	Broadleaf milkweed	Forb/herb
Atriplex canescens	Four-wing saltbush	Shrub, Subshrub
Bothriochloa barbinodis	Cane bluesteem	Graminoid
Bouteloua gracilis	Blue grama	Graminoid
Cirsium ochrocentrum	Yellowspine thistle	Forb/herb
Condalia ericoides	Javelina bush	Shrub
Cycloloma atriplicifolium	Winged pigweed	Forb/herb
Cylindropuntia imbricata	Tree cholla	Shrub, Tree (Cactus)
Dasyochloa pulchella	Fluffgrass	Graminoid
Echinocactus texensis	Horse crippler	Shrub (Cactus)
Enneapogon desvauxii	Nineawn pappusgrass	Graminoid
Ephedra torreyana	Torrey's ephedra	Shrub, Subshrub
Eragrostis cilianensis	Stinkgrass	Graminoid
Eragrostis lehmanniana	Lehmann lovegrass	Graminoid
Eriogonum annuum	Annual buckwheat	Forb/herb
Gutierrezia sarothrae	Broom snakeweed	Forb/herb, Shrub, Subshrub
Larrea tridentata	Creosote bush	Shrub
Mentzelia multiflora	Adonis blazingstar	Forb/herb
Muhlenbergia porteri	Bush muhly	Graminoid
Nerisyrenia linearifolia	White sands fanmustard	Shrub, Tree
Opuntia macrocentra	purple pricklypear	Shrub, Tree (Cactus)

Scientific Name	Common Name	Growth Habits[1/]
Opuntia macrorhiza	Twisted spined prickly pear	Shrub
Opuntia phaeacantha	New Mexico prickly pear	Shrub
Phlox hoodii	Spiny phlox	Forb/herb
Pleuraphis mutica	Tobosagrass	Graminoid
Prosopis glandulosa	Honey mesquite	Shrub, Tree
Scleropogon brevifolius	Burrograss	Graminoid
Solanum elaeagnifolium	Silver-leaved nightshade	Forb/herb, Subshrub
Sporobolus airoides	Alkali sacaton	Graminoid
Tamarix spp.	Saltcedar	Shrub, Tree
Tiquilia canescens	Shrubby tiquilia	Subshrub
Yucca campestris	Plains yucca	Forb/herb, Shrub, Subshrub
Yucca glauca	Soapweed yucca	Forb/herb, Shrub, Subshrub

1/ Source: USDA Plants Database 2026

Wildlife Refuge and Protected Areas

Figure 4 shows wildlife refuges and protected areas in the vicinity of the Analysis Area. Bitter Lake National Wildlife Refuge near Roswell is a biologically significant wetland area, with a high diversity of dragonflies and damselflies, approximately 5.5 miles northwest of the Analysis Area. The Refuge blends the ecological conditions of the Chihuahuan Desert, short grass prairie, Pecos River, and the Roswell Artesian Basin. The Pecos River and its associated wetlands draw 357 species of birds documented by the U.S. Fish and Wildlife Service (USFWS), as well as 29 species of mammals, over 50 species of reptiles and amphibians, 23 types of fish, and more than 100 species of damselflies and dragonflies. The wetlands provide habitat for migratory birds, including lesser sandhill cranes from mid-September through December, snow geese from November to March, snowy plover and avocet in the spring and summer, and about 20 species of ducks from October through March (USFWS 2026d). The Roswell springsnail (*Pyrgulopsis roswellensis*) is an aquatic species in the Hydrobiidae family of mud snails which live in wetland sinkhole and spring-fed habitat in caves and karsts. It was federally listed as endangered in 2005 due to its limited distribution, low mobility, fragmentation of habitat, and threats such as surface and groundwater contamination and depletion. Its range includes the Bitter Lake National Wildlife Refuge (USFWS 2026e).

The Roswell Cave Complex Area of Critical Environmental Concern (ACEC) is 4.5 miles northwest of the Analysis Area. The Roswell Cave Complex ACEC comprises nine cave systems: Angora-Corn Cave, Bat Hole Cave, Coachwhip Cave, Crockett Cave, Crystal Caverns-Devils Well Caves, Martin-Antelope Gyp Cave, Millrace Cave, Torgac Cave, and Zia Christine Cave. The ACEC comprises 16,814 acres of surface area. The caves host bat hibernacula and nurseries (BLM 1997) and provide habitat for the tricolored bat (*Perimyotis subflavus*) (USFWS 2026b).

The Overflow Wetlands ACEC is 3.2 miles southwest of the Analysis Area. The Overflow Wetlands ACEC comprises 6,814 acres of riparian habitat along the Pecos River (BLM 1997). The diverse habitat due to

the presence of the Pecos River, the drainage interconnecting upland habitats to the Pecos floodplain, a mixture of grassland habitat and mixed desert shrub vegetation, and riparian vegetation provide habitat for a variety of terrestrial and aquatic wildlife species. The Pecos bluntnose shiner (*Notropis simus pecosensis*) is a federally listed fish species that inhabits the ACEC within the Pecos River. The interior least tern (*Sterna antillarum athalassos*) and southwestern willow flycatcher (E*mpidonax traillii extimus*) may migrate through the area but are not likely to be residents within the ACEC due to lack of suitable habitat (BOR 2012).

Bottomless Lakes State Park is located 2.3 miles southwest of the Analysis Area. The park attracts recreational users for birdwatching, boating (non-motorized), camping, fishing, scuba diving, and swimming.

The Pecos River and its associated refuge, state park, and ACECs will not be affected by proposed activities in the Analysis Area. No ephemeral streams were located on site that would carry water to these biologically significant areas down-gradient. Transient wildlife that may utilize the Analysis Area may also utilize these water sources outside of the Analysis Area, though no impacts are anticipated to their water source.

Wildlife

The Chihuahuan Basins and Playas Level IV EPA Ecoregion provides habitat for a variety of wildlife species, many of which are endemic or of limited range. Common mammals found in this ecoregion include bighorn sheep (*Ovis canadensis*), black-tailed jackrabbit (*Lepus californicus*), coyote (*Canis latrans*), and Merriam's kangaroo rat (*Dipodomys merriami*) (Natural Atlas 2026). There are a variety of birds in the Chihuahuan Basins and Playas ecoregion, including raptors, woodpeckers, songbirds, ravens (*Corvus* spp.), and quail (*Callipepla* spp.). Numerous reptiles are also found in the ecoregion, including the common side-blotched lizard (*Uta stansburiana*), horned lizards (*Phrynosoma* spp.), and the western diamondback rattlesnake (*Crotalus atrox*).

During the field surveys, the Tetra Tech biologist detected six mammals, four birds, and one reptile in areas adjacent to the Analysis Area (Table 3). None of the species detected were special-status species; however, pronghorn and mule deer are Species of Economic and Recreation Importance in New Mexico (NMDOW 2026).

Table 3. Wildlife Observed during the Natural Resources Survey

Scientific Name	Common Name
Birds	
Spizella breweri	Brewers' sparrow
Corvus cryptoleucus	Chihuahuan raven
Buteo jamaicensis	Red-tailed hawk
Sturnella magna	Western meadowlark
Mammals	
Canis latrans	Black-tailed jackrabbit
Bos taurus	Cattle

Scientific Name	Common Name
Canis latrans	Coyote
Spermophilus mexicanus	Mexican ground squirrel
Odocoileus hemionus	Mule deer
Antilocapra americana	Pronghorn
Reptiles	
Uta stansburiana	Common side-blotched lizard

Migratory Birds

Most bird species are protected by the Migratory Bird Treaty Act (MBTA). The MBTA implements various treaties and conventions between the United States and other countries for the protection of migratory birds. Under the MBTA, unless permitted by regulations, it is unlawful to 1) pursue, hunt, take, capture, or kill; 2) attempt to take, capture, or kill; and 3) possess, offer to sell, barter, purchase, deliver, or cause to be shipped, exported, imported, transported, carried, or received any migratory bird, part, nest, egg, or product, manufactured or not. U.S. Fish and Wildlife Service (USFWS) regulations broadly define "take" under the MBTA to mean "pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to pursue, hunt, shoot, wound, kill, trap, capture, or collect." Under the MBTA, take does not include habitat loss or alteration. The Transmission Facilities are expected to comply with the MBTA.

New Mexico State Statutes (17-2-13 and 17-2-14 NMSA) contain additional state protections for songbirds (where trapping, killing or injuring are prohibited), and hawks, vultures, and owls (taking, possessing, trapping, destroying, maiming or selling are prohibited exception by permit).

Suitable nesting habitat for migratory birds and state protected birds are present within the Analysis Area for species that ground nest and nest in Chihuahuan desert prairie vegetation. Various species of bird are common in the area and could utilize this habitat for nesting. Raptors and ravens are common to the area but are unlikely to utilize the Analysis Area for nesting due to the lack of tall vegetation, such as trees and suitable perching structures currently. During the field surveys, four bird species and several inactive (non-raptor) nests were detected in areas adjacent to the Analysis Area (see Table 3); none were observed within the Analysis Area.

Bald and Golden Eagles

Bald eagles (*Haliaeetus leucocephalus*) and golden eagles (*Aquila chrysaetos*) are protected under MBTA and the Bald and Golden Eagle Protection Act. Bald eagles are found typically in association with water (i.e., lakes, reservoirs, rivers, and wetlands) and sometimes can be found in wooded habitats according to Natural Heritage New Mexico (NHNM 2026). In New Mexico, they typically breed in northern portions of the state (October to July) and are winter visitors in the southeast part of the state (Cornell Lab 2026, eBird 2026a, NHNM 2026). Specifically, in Chaves County, bald eagles are uncommon visitors during winter months (BISON-M 2026).

Golden eagles can be found from the tundra, through grasslands, intermittent forested habitat and woodland-brushlands, and south to arid deserts and canyonlands and are typically found in open

country in the vicinity of hills, cliffs, and bluffs (USFWS 2026d). Specifically in New Mexico, golden eagles are an uncommon permanent resident, found in mountains, river canyons, mesas, plains, and deserts statewide. Golden eagles nest on cliffs and escarpments or in the largest trees of forested stands that often afford an unobstructed view of the surrounding habitat at elevations ranging from 4,000 to 12,000 feet above mean sea level; they may also build nests on the ground or in human-made structures, including windmills, observation towers, nesting platforms, and electrical transmission towers (Cornell Lab 2026, USFWS 2026e). While golden eagles nest nearly statewide wherever cliffs are available, they are absent only from the southeastern plains (BISON-M 2026).

Both bald and golden eagles are carnivores. Bald eagles are opportunistic feeders, primarily eating fish, but also preying on waterfowls, shorebirds, waterbirds, turtles, snakes, small mammals (including prairie dogs [*Cynomys* spp.]), and carrion (USFWS 2026e). Golden eagles feed mainly on small to mid-sized prey, including mammals (like rabbit, hare, ground squirrel, and prairie dog), as well as invertebrates, carrion, and other wildlife (BISON-M 2026).

Given bald and golden eagles' nesting preferences (for the northern part of the state), observational data, and lack of suitable nesting locations (i.e., trees, structures, cliffs), neither species is likely to nest within the Analysis Area under the current conditions. The Analysis Area contains suitable foraging habitat for bald and golden eagles with the Pecos River and its adjacent wetlands nearby, about three to five miles west of the Analysis Area, particularly in winter according to observational data (eBird 2026a). No bald or golden eagle individuals were observed during the biological survey.

Special-Status Species

Tetra Tech reviewed the federally listed and state listed species with the potential to occur within the Analysis Area (Table 4; USFWS 2026b, NMDOW 2026). Two species federally listed under the Endangered Species Act, the peregrine falcon (*Falco peregrinus*) and monarch butterfly (*Danaus plexippus*), have the potential to occur within the Analysis Area. The remaining species are unlikely to occur in the Analysis Area due to lack of suitable habitat and/or being outside their known geographic range. Table 4 describes the special-status species with the potential to occur in the Analysis Area, their habitat, and their likelihood to occur in the Analysis Area.

No USFWS designated critical habitat intersects the Analysis Area; the nearest critical habitat is approximately 2 miles west of the Analysis Area for the Pecos pupfish (*Cyprinodon pecosensis*).

Table 4. Special-Status Species Potentially Occurring in the Analysis Area

Common Name ***Scientific Name***	Status (Federal/State)	Range or Habitat Requirements	Potential for Occurrence in Analysis Area
Birds, Raptors			
Bald Eagle *Haliaeetus leucocephalus*	BGEPA/ST	Bald eagles typically nest in forested areas adjacent to large bodies of water. They perch in tall, mature trees or on poles that afford a wide view of the surroundings. In winter, they	Breeding: Unlikely Non-breeding: Low The Analysis Area is within the wintering range of this

Common Name ***Scientific Name***	Status (Federal/State)	Range or Habitat Requirements	Potential for Occurrence in Analysis Area
		can be seen in dry, open uplands if there is access to open water for fishing.	species. The Analysis Area does not contain suitable aquatic features typically associated with bald eagles; however, it may contain foraging habitat.
Bell's Vireo *Vireo bellii*	-/ST	Bell's vireo is distributed across the southwestern United States, primarily in shrubby, riparian habitats. The species is known to nest in willows (*Salix* spp.) and honey mesquite (*Prosopis glandulosa*) and prefers low-density vegetation for breeding and foraging.	Breeding: Unlikely Non-breeding: Low The Analysis Area lacks suitable riparian habitat but contains low-density vegetation areas.
Northern Aplomado Falcon *Falco femoralis septentrionalis*	EXPN/SE	Northern aplomado falcons are found in grassy plains with scattered yuccas (*Yucca* spp.) and mesquite. They are secondary nesters, using abandoned nests of other raptors and ravens (*Corvus* spp.).	Breeding: Unlikely Non-breeding: Low Foraging habitat exists in the Analysis Area. The Analysis Area is within the year-round range of this species. This species has not been documented within Chaves County.
Peregrine Falcon *Falco peregrinus*	-/ST	The peregrine falcon forages in most habitats but is preferential to regions with riparian areas. Chihuahuan desert scrub and Chihuahuan semi-desert grassland are potential foraging habitats. Open stands of creosote, yucca, and large succulents are optimal foraging locations in the desert.	Breeding: Unlikely Non-breeding: Moderate Foraging habitat exists in the Analysis Area.

Common Name ***Scientific Name***	Status (Federal/State)	Range or Habitat Requirements	Potential for Occurrence in Analysis Area
Birds, Other			
Piping Plover *Charadrius melodus*	FT/-	Found in coastal habitats including sand spits, small islands, tidal flats, shoals, seasonally emergent seagrass beds, and sandbars with inlets.	Breeding: Unlikely Non-breeding: Unlikely The Survey Area lacks suitable habitat.
Yellow-billed Cuckoo (western pop.) *Coccyzus americanus occidentalis*	FT/-	The western population of the yellow-billed cuckoo is associated with riparian areas with large cottonwood galleries. The U.S. Fish and Wildlife Service designated habitat of this species begins approximately west of the Rocky Mountains.	Breeding: Unlikely Non-breeding: Unlikely The Analysis Area is outside of species' range.
Fishes			
Pecos Bluntnose Shiner *Notropis simus pecosensis*	FT/SE	The Pecos bluntnose shiner is a fish limited to the Pecos River in New Mexico. It is most often found in the main channel where sandy or gravelly substrates are found.	Unlikely: the Analysis Area does not have a surface water connection to the Pecos River.
Pecos Pupfish *Cyprinodon pecosensis*	FPT/ST	The Pecos pupfish is endemic to the Pecos River drainage in New Mexico and Texas and is currently found primarily in saline springs and gypsum sinkholes on the Bitter Lake National Wildlife Refuge and Bottomless Lakes State Park.	Unlikely: the Analysis Area lacks suitable aquatic habitat.
Insects			
Monarch Butterfly *Danaus plexippus*	FPT/-	Monarchs are found throughout the United States in areas with nectar-bearing flowering plants for foraging and shrubs and trees for roosting. Milkweed (Asclepias spp.) acts as an obligatory reproductive host plant for monarch larvae.	Moderate: the Analysis Area contains milkweed, creating suitable habitat; however, the Transmission Facilities are not within the direct

Common Name ***Scientific Name***	Status (Federal/State)	Range or Habitat Requirements	Potential for Occurrence in Analysis Area
		Monarchs are generational migrants and require milkweed for the development of larvae. Milkweed is found in a variety of habitats and locations throughout the United States.	migration flyway, making it unlikely that significant populations will use the Analysis Area.
Mammals			
Spotted Bat *Euderma maculatum*	-/ST	Found in a variety of habitats, foraging in open areas and roosting in cliffs. Primarily found in subalpine coniferous forest habitat in their New Mexico range, though habitat includes pinyon-juniper woodlands and sandstone cliffs over perennial water sources. The Analysis Area does not contain suitable roosting habitat.	Roosting: Unlikely Foraging: Low
Reptiles			
Western River Cooter *Pseudemys gorzugi*	-/ST	Western river cooters occur in the Rio Grande and Pecos River drainages from New Mexico to Texas and northeastern Mexico. They have recently been detected at several sites along the Black River in southeastern New Mexico. They are often found basking on logs, muddy banks, and overhanging vegetation.	Unlikely: the Analysis Area lacks perennial water features that are required to support this species.
Western Ribbon Snake *Thamnophis proximus*	-/ST	This species is native to the central and southern United States, Mexico, and Central America, and it thrives in and around aquatic and semi-aquatic habitats. These include marshes, swamps, ponds, lakes, streams, and rivers, where they are often found basking or hunting for prey like	Unlikely: the Analysis Area lacks aquatic features that are required to support this species.

Common Name ***Scientific Name***	Status (Federal/State)	Range or Habitat Requirements	Potential for Occurrence in Analysis Area
		frogs, tadpoles, salamanders, and fish. They may also inhabit grasslands and woodlands, particularly if they are close to water sources, and can be found in roadside ditches that hold water for extended periods.	
Plants			
Pecos sunflower *Helianthus paradoxus*	FT/SE	Annual member of the family Asteraceae that grows in permanently saturated soils most often associated with spring systems in desert wetland ciénegas in New Mexico and Texas.	Unlikely: the Analysis Area does not contain aquatic habitat to support this species.

BGEPA = Bald and Golden Eagle Protection Act, EXPN = Experimental Non-Essential, FE = Federally Endangered, FT = Federally Threatened, FPT= Federally Proposed Threatened, PT = Proposed Threatened, SE = State Endangered, ST = State Threatened.

Sources: BISON-M 2026, IPaC (USFWS 2026b), NMERT (NMDOW 2026), NHNM 2026

Monarch Butterfly

The monarch butterfly is designated as proposed threatened under the Endangered Species Act (ESA). Proposed threatened species are not protected by the "take" prohibitions of Section 9 of the ESA until the rule to list is finalized, but the species is evaluated here should it become listed and protected.

Monarch butterflies are experiencing population decline across North America as a result of habitat reduction and fragmentation. This species is important ecologically for plant population stability, as it is an opportunistic pollinator. Monarchs are known to occur throughout New Mexico during migration and breeding seasons in the warmer months of April to October but is not known to overwinter within the state (Cary and DeLay 2016). Monarch butterflies lay their eggs on host milkweed plants (*Asclepias* spp.), and it is their sole source of food for larvae during the caterpillar phase of life.

The Analysis Area contains suitable foraging habitat for the monarch due to the presence of flowering forbs. The Analysis Area contains milkweed, creating suitable habitat for breeding (Xerces Society 2019). The Analysis Area is not within the direct migration flyway, though monarchs frequent the county (MonarchWatch 2026).

Peregrine Falcon

The peregrine falcon is a state threatened species in New Mexico that breeds throughout much of North America and is considered summer or year-round residents in montane areas of New Mexico. In Chaves County, peregrine falcons are considered rare, occurring during spring and fall migration

(BISON-M 2026). The peregrine falcon breeds in southeastern New Mexico, a small portion of southern New Mexico, and in the mountains and canyons of western New Mexico (Avian Conservation Partners New Mexico 2017; Sibley 2014). During migration, peregrine falcons may occur at the Analysis Area (Sibley 2014). This species typically feeds on avian species such as pigeons and waterfowl. There are documented occurrences of peregrine falcons within 25 miles of the Analysis Area (eBird 2026b). Based on these data mentioned, the Analysis Area is outside the species' breeding range and within its migratory range and has a moderate likelihood of occurrence within the Analysis Area during spring and fall migration.

3.5.2 Environmental Impacts

Impacts to wildlife and vegetation would result from actions that alter wildlife habitats, including changes to vegetation, surface disturbance, and the presence of humans and equipment during construction. Altering wildlife habitat in ways that would be considered adverse may occur directly (through habitat loss from surface disturbance) or indirectly (through the reduction in habitat quality caused by increased noise levels, increased human activity, and the presence of fugitive dust).

Vegetation

For impact assessment purposes, it is assumed that the entire 252-acre Analysis Area would be cleared of all vegetation during construction. Further impacts to vegetation would occur as a result of deposition of fugitive dust generated during clearing and grading activities, the use of access roads, and from wind erosion of exposed soils. This could reduce photosynthesis and productivity, increase water loss (Eveling and Bataille 1984), and result in injury to leaves in plants near the Analysis Area. Localized fugitive dust could be generated from the areas of disturbed soil from blading associated with construction. Plant community composition could subsequently be altered resulting in habitat degradation. Localized impacts on plant populations and communities could occur if seed production in some plant species is reduced. Construction traffic and equipment brought to the site also represent a pathway for the introduction and spread of noxious weeds and invasive species. The Applicant has prepared a Noxious Weed Management and Revegetation Plan for the Transmission Facilities (Protection Measure Vegetation 5), which includes preventative and control measures to reduce the introduction of noxious, invasive, and non-native plants, such as noxious weed washing stations. The Applicant's Noxious Weed Management and Revegetation Plan would align with the control methods for the listed invasive and noxious plant species outlined within the New Mexico State's Troublesome Weeds of New Mexico booklet (Ashigh et al. 2010).

Post-construction, interim reclamation would occur in areas not needed for long-term operations and maintenance. Impacts to vegetation from decommissioning activities would be similar to impacts from construction. Once decommissioning is complete, final reclamation of the Analysis Area would reestablish vegetation (Protection Measures Water 2, Land Use 1, and Vegetation 6).

Wildlife Refuge and Protected Areas

Direct impacts, such as noise and vibration disturbances, associated with construction and operations to the wildlife habitat within the Bitter Lake National Wildlife Refuge, Roswell Cave Complex ACEC, Overflow Wetlands ACEC, and Bottomless Lakes State Park would not occur due to their distance from the Analysis Area, intervening topography including large escarpments as shown on Figure 5, and

intervening land uses such as Highway 380. Air resources impacts, including emissions from construction and decommissioning equipment and vehicles, are analyzed in Section 3.4. Emissions would be minor and would not impact the overall air quality of the region and thus would not impact wildlife within these refuges and protected areas. The Analysis Area lacks caves, riparian habitat, and aquatic features which attract species to the wildlife refuge and protected areas. The bird, mammal, and reptile species which are unique to these areas may traverse the Analysis Area but are unlikely to reside in the Analysis Area due to the lack of suitable habitat, thus the species use of the wildlife refuge and protected areas would be unimpaired. Species traversing the Analysis Area would experience the same general wildlife impacts discussed below.

General Wildlife

The Analysis Area would be disturbed to facilitate construction of the Transmission Facilities. Direct impacts to wildlife from construction would include the removal of existing vegetation, risk of direct mortality of species during construction, loss or degradation of native habitat, and displacement of wildlife species from habitat due to development. Additional potential indirect impacts could include disruption or displacement of species from nesting/birthing and foraging areas, changes in activity patterns due to construction, increased human activity, and noise disturbance. Noise disturbance from construction vehicles and equipment could impact wildlife by interfering with animals' abilities to detect important sounds or by posing an artificial threat to animals (Clinton and Barber 2013). The Analysis Area has been previously disturbed by grazing, several dirt access roads, an existing transmission line bisecting the site, and agricultural equipment; therefore, the use by wildlife is likely to be low, thereby resulting in low impacts to individuals that are present. Short-term disturbances associated with construction light and noise would cause individuals to move from the Analysis Area to the similar suitable habitat within the surrounding landscape. However, these impacts would not result in population-level effects.

The Transmission Facilities would be fenced, limiting the types of wildlife that may utilize the Analysis Area post-construction to reptiles, birds, and small mammals. Operations activities would occasionally include noise disturbances that would temporarily displace wildlife in the Analysis Area and vicinity.

The Transmission Facilities components would create nesting opportunities for raptors due to the Transmission Facilities creating suitable perching structures. The Transmission Facilities will comply with the requirements of the Aviation Power Line Interaction Committee (APLIC).

Impacts to wildlife species would be minimized through the implementation of protection measures such as allowing wildlife to leave the work area, checking trenches or excavation for wildlife, complying with speed limits, and following a worker environmental awareness training (Protection Measures Wildlife 1 through 9, Noise 1, and General 1). Protection Measure Noise 1 would be implemented to minimize noise and light disturbances by generally constructing during daylight hours and using equipment with noise control devices.

Impacts to wildlife from decommissioning activities would be similar to impacts from construction. Once decommissioning is complete, final reclamation of the Analysis Area would include the removal of Transmission Facilities fencing to promote the reintroduction of wildlife to the area.

Monarch Butterfly

With respect to the monarch butterfly, removal of vegetation in the Analysis Area would reduce the availability of flowering plants and thus possibly impact food sources. However, the vegetation in the Analysis Area is not unique to the surrounding landscape and habitat in the vicinity is uniform and would remain available. In addition, due to their ability to avoid or to move out of areas of human activity, adult butterflies are not likely to be directly harmed. Therefore, the proposed Transmission Facilities could impact individuals but would not likely contribute to a trend toward federal listing or cause a loss of viability to the population or species. In addition, the Transmission Facilities are not within the direct migration flyway, making it unlikely that significant populations of monarch butterflies will utilize the Analysis Area.

Peregrine Falcon

During migration, peregrine falcons may occur in the Analysis Area. This species typically feeds on avian species such as pigeons and waterfowl. There are documented occurrences of peregrine falcons within 25 miles of the Analysis Area. Based on this data, the Analysis Area is outside the species' breeding range and within its migratory range and has a moderate likelihood of occurrence within the Analysis Area during spring and fall migration.

3.5.3 Protection Measures

The Protection Measures that would be implemented to avoid and minimize impacts to biological resources are described above and include:

- Water 2: Temporarily disturbed areas will be revegetated to the extent practicable in order to meet SWPPP requirements for runoff and erosion control. Seed mix and seeding rates will be developed through consultation with the local agency, experts, or landowner preference.
- Land Use 1: Restore compacted soils as close as possible to pre-construction conditions as required for ground stabilization and erosion control.
- Wildlife 1: Properly disposing of trash and food debris.
- Wildlife 2: Allowing wildlife that has entered the work area to leave the area on their own.
- Wildlife 3: Providing environmental awareness training to all construction personnel working on the Transmission Facilities.
- Wildlife 4: Checking trenches, excavations, and uncapped pipe segments for wildlife (NMDGF 2022).
- Wildlife 5: Complying with posted and established Transmission Facilities speed limits.
- Wildlife 6: Conducting vegetation clearing outside the nesting season (March 15 to September 15) where feasible to discourage birds from establishing nests in Transmission Facilities work areas. Micrositing will be completed during engineering design to minimize impacts to sensitive biological resources to the extent practicable.
- Wildlife 7: The worker environmental awareness program will including training specific to avoidance of migratory birds and active migratory bird nests during the nesting season from March 15 to September 15. If active nests are found in the Analysis Area during construction, a

biologist will be contacted to evaluate the activity status of the nest. The nest will be avoided until determined inactive by a biologist.

- Wildlife 8: Vegetation removal during the breeding season (March 1st–August 31st) could be preceded by a pre-construction nesting survey up to 2 weeks prior to construction to establish the occupancy status of any potentially suitable nests or nesting burrows detected within the Analysis Area. If active nests are found in the Analysis Area, a biologist will be contacted to evaluate the activity status of the nest. The nest will be avoided until determined inactive by a biologist.
- Wildlife 9: Facilities are designed to discourage their use as perching or nesting substrates by birds including designing aboveground transmission and facilities to follow established Avian Power Line Interaction Committee (APLIC) guidelines to minimize bird collisions and avoid electrocution of raptors.
- Wildlife 10: Species-specific surveys would be conducted to determine the presence of milkweed vegetation in the Analysis Area. These surveys would occur during the period (late April - September) that milkweed is detectable. If milkweed vegetation is present, the revegetation seed mix would include pollinator species such as milkweed. Milkweed vegetation removal will be minimized to the greatest extent possible.
- Wildlife - Migratory Birds 1: In accordance with the MBTA, construction activities and vegetation clearing would be conducted outside the peak breeding season (March 1 to September 15 at the Analysis Area) to avoid any adverse effects to migratory birds and their habitat.
- Wildlife - Migratory Birds 2: If construction and vegetation clearing occur from March 1 through September 15, active avian nest surveys should be conducted by a biologist no more than 5 days prior to planned construction.
- Wildlife - Migratory Birds 3: Some migratory birds may use abandoned mammal burrows found on-site for shelter and rearing of young; additionally, ground-nesting species have the potential to be found on-site. Construction personnel should be made aware of these species, their habits, and regulatory status, and biological monitors clearing areas for construction should take these species into account. They should consider species that will nest in trees and brush as well as ground- and burrow-nesters.
- Wildlife - Migratory Birds 4: If migratory birds or their nests are present prior to or during construction, actions should be implemented to ensure migratory birds and their nests, eggs, and young will not be harmed. This can be achieved by establishing buffer distances from active nests. Clearing and construction activities should not occur in the buffer areas until the nests are no longer active. The NMERT results for the Analysis Area (NMDOW 2026) provided the following minimum distances for active nest buffer zones:
    - 100 feet from songbird and raven nests;
    - 0.25 miles from most raptor nests; and

  - 0.50 miles for ferruginous hawk (Buteo regalis), golden eagle, peregrine falcon, and prairie falcon (Falco mexicanus).

- Wildlife - Migratory Birds 5: The worker environmental awareness program will include training specific to avoidance of migratory birds and active migratory bird nests during the breeding season from March 1 to September 15. If active nests are found in the Analysis Area during construction, a biologist will be contacted to evaluate the activity status of the nest. The nest will be avoided until determined inactive by a biologist.
- Wildlife - Migratory Birds 6: Facilities are designed to discourage their use as perching or nesting substrates by birds, including designing aboveground transmission and facilities to follow established Avian Power Line Interaction Committee guidelines to minimize bird collisions and avoid electrocution of raptors (APLIC 2026).
- Wildlife - Migratory Birds 7: The Project will be in conformance with Avian Power Line Interaction Committee (APLIC) standards, including (but not limited to) clearance space between power lines, insulation on hardware when safe spacing is not possible, and line markings (APLIC 2005; APLIC 2026).
- Vegetation 1: Construction will not be conducted during wet conditions when soils are saturated. After a rain event, construction would commence once the area is no longer inundated and would adhere to Stormwater Pollution Prevention Plan (SWPPP) protocols.
- Vegetation 2: Topsoil will be placed separately from sub-soils/bedrock during excavation and not comingled and will be replaced in reverse order of excavation.
- Vegetation 3: Erosion will be reduced by applying and maintaining standard erosion and sediment control methods. These may include using certified weed-free straw wattles and bale barriers and silt fencing. Specific erosion and sediment control measures will be specified in a SWPPP.
- Vegetation 4: If any vegetated swales form due to heavy rainfall in areas of soil disturbance, then straw 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 after completion of construction. Reseeding shall use native grasses, shrubs, or forbs or as agreed to with landowner.
- Vegetation 5: A Noxious Weed Management and Revegetation Plan will be developed and implemented for the control of noxious weeds and invasive species that could occur as a result of new surface disturbance activities at the Analysis Area.
- Vegetation 6: If required as part of the SWPPP, a native seed mix will be applied to all temporary disturbance areas, followed by applications of mulch as required to provide additional erosion control.
- Noise 1: Construction activities will generally be limited to the least noise-sensitive times of day (i.e., daytime between 6 a.m. and 8 p.m.), unless necessary due to weather, safety, or

schedule constraints. Construction equipment will be equipped with manufacturers' standard noise control devices or better (e.g., mufflers, engine enclosures).

- General 1: Implement a worker environmental awareness program to train facility personnel regarding their responsibilities to conserve protected resources that are located on-site and associated treatment measures.

3.5.4 Conclusion

Two federally listed candidate species, the monarch butterfly and the peregrine falcon, have the potential to occur in the Analysis Area. However, the habitat within the Analysis Area is not unique to the surroundings. The Transmission Facilities could impact individuals but would not likely contribute to a trend toward federal listing or cause a loss of viability to the population or species. If milkweed vegetation is present, minimizing impacts to the monarch breeding habitat is recommended.

The loss of up to 252 acres of wildlife habitat would not cause undue degradation to general wildlife and vegetation as this habitat type is common across the regional landscape and is readily available on land adjacent to the Analysis Area. The Transmission Facilities are not expected to adversely impact the wildlife refuge and protected areas in the vicinity or their use by wildlife. The location of the Transmission Facilities is not expected to unduly impair important environmental values regarding biological resources.

3.6 Cultural, Historic, Archaeological, and Religious Resources

Tetra Tech completed a cultural resources survey of the Analysis Area to assess the cultural, historic, and archaeological resources within the Analysis Area. The activity was registered as New Mexico Cultural Resources Inventory System (NMCRIS) Number 161488. The survey was a 100-percent pedestrian survey conducted according to applicable protocols established by the New Mexico SHPO (NMAC 4.10.15 Standards for Survey and Inventory). Tetra Tech documented cultural resources within the survey area and determined their cultural-temporal affiliation, integrity, significance, and eligibility based on NRHP, NHPA, and Secretary of the Interior's and New Mexico Cultural Properties Act Standards and Guidelines. Data sources reviewed to determine the current cultural, historic, archaeological, and religious resource conditions include the following:

- New Mexico Cultural Resource Information System (NMCRIS) online geographic information system database;
- NRHP;
- New Mexico State Register of Cultural Properties;
- New Mexico Historic Preservation Division Tribal County Consulting List;
- New Mexico Historic Preservation Division County-by-County Working List (NM HPD 2024);
- Bureau of Land Management (BLM) General Land Office (GLO) records; and
- Historical topographic maps and aerial imagery.

Tetra Tech completed an intensive cultural resources survey of the Analysis Area on the following dates: December 18, 2025; June 3-4, 2026; and July 27-28, 2026. The first survey was conducted as part of a due diligence inventory of private land that was registered under NMCRIS Number 160424. The

survey area was subsequently expanded to meet the requirements of the PRC's environmental review process, which required two additional field surveys. The new investigation was registered under NMCRIS 161488.

3.6.1 Affected Environment

Archaeological Resources

Two historic archaeological sites (Laboratory of Anthropology Number [LA] 208242 and LA 209339) and three isolated occurrences were identified and documented in the Analysis Area. The isolated occurrences consist of a historic threaded pipe fragment, a small historic artifact scatter, and one chert projectile point fragment. The archaeological sites are related to historic ranching and mining activities.

LA 208242 is the remains of a ranching activity area that may have included a small ranch house. The site contains an historic artifact scatter with some domestic refuse and three features—a rock concentration, an earthen berm, and a circular depression that may have been a small stock tank. The 1945 BLM GLO map notes a structure and windmill at this location, while the Bottomless Lakes, NM (1950) USGS 7.5-minute quadrangle map notes two structures. A land patent from 1941 identifies William E. Clements (b. July 12, 1908, d. February 2, 1992) as the landowner. The site has been impacted by mechanical blading, roadway expansion, and livestock trampling. Soils are shallow and unlikely to contain significant buried deposits. No information was readily available about the Clements family; there is no indication they made significant contributions to local or regional history.

LA 209339 is the remains of an oil activity area. The site contains an artifact scatter and five features: an oil well, buried water pipe, discharge scar, refuse pile, and wooden posts. Diagnostic artifacts place the site in the 1940-50s. The 1946 BLM GLO map and the Bottomless Lakes, NM (1950) USGS 7.5-minute quadrangle map do not show any structures at or near the site location. The site is estimated to be approximately 60-percent intact. Although the well, water pipe, and wooden posts are partially buried and indicated that subsurface features are present at the site, these deposits are not expected to contribute additional information important to our understanding of recent extractive mining activities.

The cultural investigation evaluated the NRHP-eligibility of the resources identified during the survey and found that none of them meet the NRHP criteria for eligibility.

The isolated occurrences do not contain further information potential beyond what has already been documented during the cultural investigation. They do not meet the NRHP criteria of eligibility and therefore do not qualify as historic properties.

The two historic archaeological sites (LA 208242 and LA 209339) were evaluated for their significance and integrity and potential for listing in the NRHP. Both sites are recommended as not meeting the NRHP criteria of eligibility and not qualifying as historic properties. Further information is provided in the Cultural Resources Report attached to the Direct Testimony of Deborah Huntley.

Religious Resources

There are no known or established religious facilities, including churches, synagogues, mosques, or known tribal sacred sites, within the Analysis Area or within a 5-mile radius.

Tribal Resources

No tribal sacred places or traditional cultural properties (TCPs) are known to exist in the Analysis Area; however, consultation with tribes and other cultural groups would be needed to identify potential TCPs and other tribal resources.

3.6.2 Environmental Impacts

There are no resources recommended as eligible for listing or that qualify as "historic properties" (listed on or eligible for listing on the National Register or State Register), therefore there would be no impact to historic properties or significant archaeological resources. There are no known or established religious facilities in the Analysis Area therefore there would be no impact to religious resources. Tumbleweed has proposed to implement an Unanticipated Discoveries Plan in the event of discovery of cultural resources or human remains, which would avoid and minimize impacts. See Exhibit MK-10 attached to the Direct Testimony of Meghan Knudsen.

3.6.3 Protection Measures

The cultural, historic, archaeological, and religious related Protection Measures listed in Appendix A that would be implemented to avoid and minimize Transmission Facilities impacts include the following:

- Cultural 1: Prepare an Unanticipated Discovery Plan.
- Cultural 2: As required by Section 18-6-11.2 of the New Mexico Cultural Properties Act, New Mexico Statutes Annotated 1978, if human remains are encountered during construction, work will cease within 100 feet of the discovery and the New Mexico New Mexico State Historic Preservation Office, local law enforcement agency, and Office of the Medical Investigator will be notified.

3.6.4 Conclusion

With the implementation of the protection measures, there would be no significant impacts to cultural resources. The location of the Transmission Facilities is not expected to unduly impair important environmental values regarding cultural, historic, archeological, or religious resources.

3.7 Geologic, Paleontological, and Soil Resources

Data sources reviewed to determine the current geologic, paleontological, and soil resource conditions include the following:

- U.S. Geological Survey (USGS) topographic maps;
- Geologic map of the Bottomless Lakes quadrangle, Chaves County, New Mexico (Rawling and McCraw 2010);
- BLM New Mexico's Potential Fossil Yield Classification GIS data (BLM 2022a);
- NRCS soil maps (NRCS 2026a); and

- Tetra Tech's Biological Resources Assessment (Tetra Tech 2026b).

3.7.1 Affected Environment

Geology of the Analysis Area is mapped within the geologic map of the Bottomless Lakes quadrangle, Chaves County, New Mexico (NMBGMR 2026). The geology of the Analysis Area is mapped as Paleozoic sedimentary rocks of the Permian Artesia Groups, including the Seven Rivers Formation and the Yates Formation which are gypsum complexes from the Guadelupian to upper Permian periods, as shown on Figure 6. The Seven Rivers Formation consists of white to pale gray gypsum, brick red, pale red to orange very fine sandstone, siltstone, and mudstone, and minor limestone. The gypsum content of these formations is approximately 75 percent with a concomitant increase in the more clastic interbeds. The Yates Formation overlies the Seven Rivers Formation and consists of gypsum, dolomite, and fine-grained, thin-bedded sandstone. This formation is largely obscured by sand sheets and small stabilized dunes. The tops of both formations are not exposed (Rawling and McCraw 2010). The presence of gypsum presents a potential hazard for subsidence and karst. There are no karst features mapped in the Analysis Area (Weary and Doctor 2014).

Four soil types are mapped in the Analysis Area as shown in Figure 7 and Table 5. The soils are well-drained, non-hydric, and are not designated Prime Farmland or Farmland of Statewide Importance (NRCS 2026b). The Holloman soils are formed from alluvial and eolian sediments, or precipitated lime and gypsum. They are formed in loamy, calcareous, and gypsiferous sediments (NRCS 2026a).

Table 5. Soils in the Analysis Area

Soil Unit Name	Map Symbol	Hydric Rating	Drainage Class	Farmland Classification	Acres
Reeves-Holloman association	RL	Non-hydric	Well-drained	Not prime farmland	10.31
Russler silty clay loam	Ru	Non-hydric	Well-drained	Not prime farmland	52.71
Holloman-Gypsum land complex, 3 to 5 percent slopes	HrC	Non-hydric	Well-drained	Not prime farmland	93.76
Holloman-Gypsum land complex, 0 to 3 percent slopes	Hp	Non-hydric	Well-drained	Not prime farmland	95.72

Source: NRCS 2026a

The BLM Potential Fossil Yield Classification System (PFYC) is a predictive model for areas which are likely to produce fossils of scientific interest. The PFYC was created from available geologic maps and assigns a class value to each geological unit, representing the potential abundance and scientific importance of paleontological resources that occur in that geological unit. The PFYC classes are based on the known relative abundance of scientifically important paleontological resources and their

sensitivity to adverse impact (BLM 2022b). The Analysis Area falls within PFYC Class 2. Geologic units are not likely to contain paleontological resources within Class 2. The probability of impacting scientifically important paleontological resources is low. Within Class 2, localities containing important paleontological resources may exist but are occasional and should be managed on a case-by-case basis.

3.7.2 Environmental Impacts

The Analysis Area will be cleared, bladed, and graded during construction, as described in Section 2.1.3 of the Environmental Report.

Blading and grading would displace soils and may impact geologic units. Construction below the current surface level would include trench digging and foundation installation. This work would impact the soil. Soil structure and porosity may be impacted by heavy equipment operations, which could result in soil compaction. Loss of vegetative cover may increase soil erosion during stormwater events.

Decreased soil organism diversity, soil nutrient levels, soil stability, and organic matter may be impacted by the disruption of soil crust and subsequent erosion. No biological soil crusts or sensitive soils were observed during the natural resources survey. Soil resources could be indirectly impacted due to the accidental mixing of topsoil with subsoil during construction. No Prime Farmlands or Farmlands of Statewide Importance would be impacted. Construction and decommissioning activities would include potential for soil contamination due to chemical spills or leaks from equipment. Soil contamination can result in less vegetative cover, increased soil erosion, and decreased soil fertility. Protection measures are proposed to avoid and minimize these impacts.

A geotechnical report is anticipated to be required prior to construction and building permit issuance. The geotechnical report will assess the subsurface conditions specific to the areas where Transmission Facilities will be located. The geotechnical report will evaluate the soil composition, density, moisture content, and load-bearing capacity which are critical for understanding how the ground will support the planned structure. The geotechnical report will inform the foundation design based on the identified soil conditions to prevent issues such as structural failure due to settlement. The geotechnical report will also identify any potential geotechnical hazards which could impact construction and structure safety.

3.7.3 Protection Measures

The geologic, paleontological, and soil resources related Protection Measures listed in Appendix A that would be implemented to avoid and minimize Transmission Facilities impacts include the following:

- Soil 1: Limit construction activities so that activities will not occur during wet conditions when soil is saturated. Following a rain event, work will resume only after the Analysis Area is no longer inundated.
- Soil 2: Comply with SWPPP protocols.

- Soil 3: Segregate topsoil from subsoils and bedrock during excavation to the extent practicable. Topsoil and subsoils will not be commingled and will be replaced in the reverse order of excavation to the extent practicable.
- Soil 4: Minimize erosion through the implementation and maintenance of standard erosion and sediment control measures. These may include certified weed-free straw wattles, bale barriers, and silt fencing. Specific erosion and sediment control measures will be identified in the SWPPP.
- Soil 5: Prepare a geotechnical report prior to construction.
- Waste 1: Prepare a Spill Prevention, Containment, and Countermeasure Plan.
- Waste 2: Prevent discharge of hazardous materials into the ground or into streams, drainage features, or other watercourses.
- Waste 3: Remove and dispose of construction waste and other potentially hazardous materials at a facility authorized to accept such materials.
- Waste 4: Implement a hazard communication program for onsite hazardous materials, including employee training, proper labeling, and posting of Safety Data Sheets (SDS).
- Waste 5: Fuels and petroleum-based products will be stored in approved containers and kept away from excavated areas. Waste motor oil, hydraulic fluid, and liquid gear lubricant will be stored in approved containers in designated isolated areas and removed monthly to an authorized disposal facility in accordance with New Mexico Environment Department (NMED) regulations.
- Waste 6: Equipment with hydraulic hoses and cylinders will be inspected for leaks. Equipment found to have petroleum leaks that cannot be repaired immediately will be removed from service and replaced.
- Waste 7: Contractors will receive appropriate training for hazardous materials.
- Waste 8: Maintain spill kits onsite.
- Waste 9: Any leaking equipment will be repaired immediately.
- Waste 10: If contaminants are released, the Transmission Facilities will comply with the notification requirements set forth in 20.6.2.1203 NMAC.

3.7.4 Conclusion

Through the implementation of the protective measures listed in this Environmental Report, the Transmission Facilities would limit impacts to geologic, paleontological, and soil resources. During construction and decommissioning, impacts to soil resources would be mitigated through the implementation of a SWPPP. The location of the Transmission Facilities is not expected to unduly impair important environmental values regarding geologic, paleontological, and soil resources.

3.8 Scenic and Geographic Resources

Data sources reviewed to determine scenic and geographic resources include the following:

- National Park Service's physiographic provinces (NPS 2017);
- BLM Recreational Opportunities (BLM 2026a);
- USGS Protected Areas Database of the United States (PAD-US) (USGS 2026a);
- NRCS Stewardship Lands Easement Locations Public Viewer (USDA 2026a); and
- National Conservation Easement Database.

3.8.1 Affected Environment

Scenic and geographic resources included in this analysis include places of scenic value, topography and landforms as well as human resources such as recreation areas, publicly accessible lands, conservation areas, and other locations with cultural value.

The Analysis Area is within the Great Plains Physiographic Province as described by the National Park Service (NPS). The Physiographic Provinces are defined by their geomorphology, which include the physical features and processes of landforms as they relate to geologic structures. The Great Plains Province is characterized by plateau-like flat plains with little relief throughout (NPS 2017).

Table 6 lists the scenic and geographic resources in the vicinity of the Analysis Area identified during a review of USGS-PADUS, BLM Recreational Opportunities map, NRCS Stewardship Lands Easement Locations Public Viewer, and the National Conservation Easement Database. The resources are shown in Table 6 and Figure 4.

Table 6. Geographic Resources

Resource Name	Resource Manager	Resource Use	Proximity to Analysis Area
Bitter Lake National Wildlife Refuge	U.S. Fish and Wildlife Service	Wildlife habitat, recreational uses including hunting, biking, birding, and hiking.	5.5 miles west of the Analysis Area
Pecos River	Various	Wildlife habitat, fishing	3 miles west of the Analysis Area
Roswell Cave Complex Area of Critical Environmental Concern	Bureau of Land Management (BLM)	Wildlife habitat, recreational uses	4.5 miles northwest of the Analysis Area
Overflow Wetlands Area of Critical Environmental Concern	BLM	Wildlife habitat, recreational uses	3.2 miles southwest of the Analysis Area
Bottomless Lakes State Park	New Mexico State Parks	Recreation including hiking, swimming, fishing, birding, boating, camping, and scuba diving.	2.3 miles southwest of the Analysis Area

Resource Name	Resource Manager	Resource Use	Proximity to Analysis Area
Lazy Lagoon Lake within Bottomless Lakes State Park	New Mexico State Parks	Recreation including hiking and birding. No aquatic recreation. Wildlife habitat.	2.3 miles southwest of the Analysis Area
Cottonwood Lake within Bottomless Lakes State Park	New Mexico State Parks	Recreation including hiking and birding. No aquatic recreation. Wildlife habitat.	2.6 miles southwest of the Analysis Area
Mirror Lakes within Bottomless Lakes State Park	New Mexico State Parks	Recreation including hiking and birding. No aquatic recreation. Wildlife habitat.	2.6 miles southwest of the Analysis Area
Devil's Inkwell within Bottomless Lakes State Park	New Mexico State Parks	Recreation including camping, hiking, swimming, birding, boating	2.7 miles southwest of the Analysis Area
Figure Eight Lakes within Bottomless Lakes State Park	New Mexico State Parks	Wildlife habitat, no aquatic recreation	2.7 miles southwest of the Analysis Area
Pasture Lake within Bottomless Lakes State Park	New Mexico State Parks	Bird-watching, wildlife habitat, no aquatic recreation activities	2.8 miles southwest of the Analysis Area
Lost Lake within Bottomless Lakes State Park	New Mexico State Parks	Recreation including hiking and birding. No aquatic recreation. Wildlife habitat.	3.1 miles southwest of the Analysis Area
Lea Lake within Bottomless Lakes State Park	New Mexico State Parks	Camping, fishing, swimming, beach recreation	3.5 miles southwest of the Analysis Area
Spring River	Various	Wildlife habitat	5.8 miles west of the Analysis Area
Rio Hondo	Various	Wildlife habitat	5.5 miles west of the Analysis Area

Resource Name	Resource Manager	Resource Use	Proximity to Analysis Area
J Kenneth Smith Bird Sanctuary and Nature Center	Private	Bird-watching, wildlife habitat, educational programs	14.8 miles west of the Analysis Area
Haystack Mountain Off - Highway Vehicle (OHV) Area	BLM	OHV trails	17.9 miles northeast of Analysis Area
Mesacalero Sands North Dune OHV Area	BLM	OHV use at sand dunes	24.7 miles east of Analysis Area
Mathers Wilderness Study Area	BLM	Wildlife habitat, dispersed recreation	27.6 miles northeast

Source: ENMRD 2026b, USFWS 2026d, J. Kenneth Bird Sanctuary and Nature Center 2026, BLM 1997, BLM 2026b, NCED 2025

3.8.2 Environmental Impacts

Bottomless Lakes State Park, Bitter Lake National Wildlife Refuge, and the Pecos River would not be directly impacted by the Transmission Facilities due to the distance and intervening topography between the Analysis Area and the geographic resources. The topographic map in Figure 5 depicts the 100 ft tall escarpment on the western edge of Bottomless Lakes State Park, which blocks the view of the Transmission Facilities by recreational users at the State Park. Similarly, the Pecos River and Bitter Lake National Wildlife Refuge are separated from the Transmission Facilities by several miles and a change in elevation, which would obstruct views of the Transmission Facilities. Potential visual impacts of the Transmission Facilities on these resources are discussed in Section 3.16 of this Environmental Report. Generally, though there would be potential visibility of the Transmission Facilities along elevated roadside routes in the northern area of Bottomless Lakes State Park and along the Pecos River, the Project would appear very distant, and where discernable, the forms and colors would appear muted and blend into the surrounding landscape.

Noise impacts are discussed in Section 3.12 of this Environmental Report. Given the distance between the geographic resources and the Analysis Area, temporary noise generated during construction and decommissioning would have minimal impact on the visitors and users of the geographic resources.

As discussed in Section 3.3 of this Environmental Report, the Transmission Facilities would not impact the overall air quality of the region. Air quality at the geographic resources areas identified within this report would not be diminished by the Transmission Facilities.

Section 3.14 discusses the transportation impacts of the Transmission Facilities.

3.8.3 Protection Measures

The scenic and geographic resources related Protection Measures listed in Appendix A that would be implemented to avoid and minimize Transmission Facilities impacts include the following:

- Air 1: Maintain construction equipment in accordance with manufacturer specifications to minimize combustion-related emissions during construction.
- Air 2: Limit idling of construction equipment to the minimum necessary for proper operation.
- Air 3: Enforce reduced vehicle speeds within construction areas to minimize the generation of fugitive dust.
- Air 4: Implement irrigation with water or other palliatives or other dust control measures to reduce fugitive dust from construction activities.
- Air 5: If on-site crushing and screening plants are required, ensure equipment complies with applicable air emission standards under 40 CFR 60 Subpart OOO (NSPS for Nonmetallic Mineral Processing Plants). Pre-NSPS equipment that does not meet these standards shall not be used. At least 90 days prior to use, the appropriate air quality permit (General Construction Permit [GCP] or Part 72 permit) will be obtained in accordance with the New Mexico Air Quality Control Act (NMSA 1978, §§ 74-2-1 et seq.) and 20.7.72 NMAC. Crushing and screening plants previously permitted at another location must obtain relocation approval from the New Mexico Environment Department (NMED) at least 90 days prior to use.
- Air 6: If an on-site concrete batch plant is required, the appropriate air quality permit (GCP or Part 72 permit) will be obtained at least 90 days prior to operation, in accordance with the New Mexico Air Quality Control Act and 20.7.72 NMAC. Concrete batch plants previously permitted at a different location must obtain relocation approval from NMED, if applicable, at least 90 days prior to use.
- Wildlife 1: Properly disposing of trash and food debris.
- Wildlife 3: Providing environmental awareness training to all construction personnel working on the Transmission Facilities.
- Noise 3: To the extent practicable, schedule construction activity between dawn and dusk on weekdays, when higher sound levels are typically present and are found acceptable. Some limited activities, but not limited to, such as concrete pours, will be required to occur continuously until completion.

3.8.4 Conclusion

The Transmission Facilities would be located from at least 2.3 miles to more than 5 miles from the identified geographic resources. There are significant changes in topography between the Analysis Area and the geographic resources, which, combined with the distance, would minimize visual and noise impacts. The Transmission Facilities would have minor, temporary air quality impacts related to construction activities. The air quality impacts would not significantly degrade the air quality within the overall region or the air quality at the geographic resources. The location of the Transmission Facilities is not expected to unduly impair the environmental value of scenic and geographic resources.

3.9 Health and Safety

Data sources reviewed to determine the current health and safety conditions include the following:

- Google Earth aerial imagery of the Analysis Area (Google 2026), and
- EPA's online environmental review databases.

3.9.1 Affected Environment

This assessment of the current health and safety conditions of the Analysis Area includes an evaluation of existing environmental impairments and safety hazards and risks to workers and the public associated with construction, operations, and decommissioning of the Transmission Facilities.

The Analysis Area and the immediate vicinity are vacant rangelands within unincorporated Chaves County. Nearby development includes cattle ranching–related agricultural structures approximately 1.9 miles north of the Analysis Area, recreational facilities associated with Bottomless Lake State Park approximately 2.3 miles to the southwest, and gravel pits located approximately 2.5 miles north of the Analysis Area and 2.3 miles west of the Analysis Area. There are gravel and dirt roads and an existing transmission line within and surrounding the Analysis Area. The Analysis Area can be accessed from East 2nd Street (Highway 380) via Harral Road. See Figure 8.

Based on a review of the EPA's cleanup database, there are no cleanup sites in the Analysis Area (EPA 2026d). One hazardous waste site is located 4.4 miles south of the Analysis Area, associated with a natural gas compressor station (EPA 2026d, EPA 2026f).

The fire and emergency response to the Analysis Area comes from the Chaves County Volunteer Fire Department and Chaves County Sheriff's Office (Chaves County 2022). The Pecos Valley Regional Communications Center provides 911 answering and dispatching of emergency services for Chaves County. Lovelace Regional Hospital, located in Roswell, 13 miles northwest of the Analysis Area, is the nearest hospital. See Figure 8.

3.9.2 Environmental Impacts

Since there are no known environmental health or safety conditions within the Analysis Area, construction of the Transmission Facilities would not impact health or safety related to hazardous waste or radioactive hazards. Construction would not impact the natural gas compressor station located south of the Analysis Area.

Public access to the Analysis Area will be restricted during construction to minimize the potential exposure of members of the public to construction-related risks.

Transmission Facilities operations, construction, and decommissioning would meet the requirements of the Occupational Safety and Health Act of 1970 (29 CFR 1926) as administered by the Occupational Health and Safety Administration (OSHA) and other applicable regulations governing health and safety. Protective measures to reduce fire risks will be implemented including providing a smoking area for workers and banning non-construction flame sources outside of vehicles, establishing safety guidelines for construction flame and spark sources, and equipping vehicles with fire suppression tools and equipment. These protective measures would reduce the potential occupational health and safety risks of the Transmission Facilities.

During operations, the Transmission Facilities would be operated and maintained in compliance with industry standards for safety and security. Transmission Facilities components would be fenced, and

site signage would be provided to restrict public access. Maintenance workers accessing the site would receive safety training.

Waste that is generated during construction and decommission would be disposed of off-site at authorized locations. A Spill Prevention, Control, and Countermeasures (SPCC) Plan, in accordance with 40 CFR Part 112, would be developed and followed to minimize potential exposure from accidental releases of hazardous materials. Accidental releases of hazardous materials would be appropriately cleaned up and disposed of, following the procedures of the SPCC Plan. Tumbleweed proposes to implement a Hazardous Materials and Waste Management Plan, which would avoid and minimize impacts to health and safety. See Exhibit MK-9 to the Direct Testimony of Meghan Knudsen.

3.9.3 Protection Measures

The health and safety–related Protection Measures listed in Appendix A that would be implemented to avoid and minimize Transmission Facilities impacts include the following:

- Waste 1: Prepare a Spill Prevention, Control, and Countermeasure Plan.
- Waste 2: Prevent discharge of hazardous materials into the ground or into streams, drainage features, or other watercourses.
- Waste 3: Remove and dispose of construction waste and other potentially hazardous materials at a facility authorized to accept such materials.
- Waste 4: Implement a hazard communication program for onsite hazardous materials, including employee training, proper labeling, and posting of Safety Data Sheets (SDS).
- Waste 5: Fuels and petroleum-based products will be stored in approved containers and kept away from excavated areas. Waste motor oil, hydraulic fluid, and liquid gear lubricant will be stored in approved containers in designated isolated areas and removed monthly to an authorized disposal facility in accordance with New Mexico Environment Department (NMED) regulations.
- Waste 6: Equipment with hydraulic hoses and cylinders will be inspected for leaks. Equipment found to have petroleum leaks that cannot be repaired immediately will be removed from service and replaced.
- Waste 7: Contractors will receive appropriate training for hazardous materials.
- Waste 8: Maintain spill kits onsite.
- Waste 9: Any leaking equipment will be repaired immediately.
- Waste 10: If contaminants are released, the Transmission Facilities will comply with the notification requirements set forth in 20.6.2.1203 NMAC.
- Fire 1: Implement wildland fire prevention measures during construction, including limiting vehicle travel within and to construction areas to essential vehicles only, establishing parking areas, designating approved smoking areas, restricting non-construction flame sources outside of vehicles, and establishing safety requirements for construction-related flame and spark sources.

- Fire 2: Coordinate emergency response procedures with local emergency response personnel prior to construction, as appropriate.
- Fire 3: Equip vehicles with fire suppression tools and equipment such as shovels and fire extinguishers, as appropriate.
- Fire 4: Fuel highway-legal vehicles off-site or in approved areas to reduce the risk of fire. Fueling of construction equipment that is transported to the site and is not highway-legal will be conducted in accordance with applicable construction safety practices and relevant federal, state, and local laws.
- Safety 1: Federal and state occupational health and safety standards, including OSHA requirements, will be implemented for the Transmission Facilities.
- Safety 2: Prior to construction, a site safety plan will be prepared for contractors. The plan will identify the nearest emergency medical facilities, agency contacts and procedures, and inclement weather protocols.

3.9.4 Conclusion

The Analysis Area does not include known health or safety environmental conditions that would present health and safety risks during Transmission Facilities construction, operations, and decommissioning. The provided protective measures would limit and avoid occupational and public safety risks. The location of the Transmission Facilities is not expected to unduly impair important environmental values regarding health and safety.

3.10 Land Use, Including Recreation, Aviation, Military, and Communications Signals

Current land use data sources reviewed to determine the current land use conditions and land use planning include the following:

- Chaves County Comprehensive Plan (Chaves County 2016);
- BLM Rights-of-Way (BLM 2026d);
- BLM Roswell Field Office grazing allotment GIS spatial data (BLM 2026c);
- Google Earth aerial imagery for land uses (Google 2026);
- Federal Aviation Administration (FAA) airport information (FAA 2026a);
- Military training routes (DoD 2026; FAA 2026b); and
- Geospatial Energy Mapper (Argonne National Laboratory 2026).

3.10.1 Affected Environment

Land use refers to the human use of land for economic and cultural activities. The Analysis Area is comprised of private property, and is surrounded by federally owned land managed by the BLM Roswell Field Office to the north, west, and south, and private property to the east. See Figure 1.

The Analysis Area and the surrounding vicinity are vacant and have not been significantly altered for land use, except for an existing road (Google 2026). Cattle grazing has been the primary use of the

Analysis Area. The Analysis Area is located within an unincorporated area of Chaves County (Chaves County 2026a). To the west of the Analysis Area, the Tumbleweed Solar Project is proposed to be developed.

The nearest road is Juliet Road located on the west side of the Analysis Area and Harral Road located on the east side of the Analysis Area. The nearest major road is Highway 380 (E 2nd St), located approximately 2.3 miles north of the Analysis Area (Chaves County 2026a). See Figure 8.

The Chaves County Comprehensive Plan lays out a vision for the future development of Chaves County. The Future Land Use Scenario within the Chaves County Comprehensive Plan designates the Analysis Area as Rural Agricultural. The Comprehensive Plan does not provide a definition of Rural Agricultural and does not define the uses which are allowable within the Rural Agricultural designation (Chaves County 2016).

The Analysis Area is outside of the Extraterritorial Zoning Jurisdiction of the Roswell-Chaves County Extraterritorial Zoning Ordinance and is therefore not subject to the requirements that ordinance (Chaves County 2025). The Transmission Facilities are subject to the Chaves County Zoning Ordinance (Chaves County 2023).

As shown on the Chaves County Zoning Map, the Analysis Area is zoned Area I Agricultural. A zone change through the Chaves County Planning and Zoning Commission is being pursued for the Tumbleweed Solar Project. This zone change application would change the zoning of the Analysis Area to Zone D Industrial. The Transmission Facilities are an allowable use within the Industrial Zone district. No special use permit or land use permits would be required for the Transmission Facilities, as confirmed via a phone call with Chaves County staff on July 22, 2026. Chaves County Zoning Ordinance Article XXVI Wind Energy Conversion Systems, does not apply to transmission lines, as stated in Section 1 Applicability and Section 6 Definitions.

The Transmission Facilities would be required to obtain building permits through the Chaves County Planning and Zoning Department. Electrical permits would be required and would be reviewed and approved by the New Mexico Regulation and Licensing Department Construction Industries Division.

There are no official recreational sites or uses within the Analysis Area since it is located on private property. The private property owner may use the Analysis Area for informal recreation uses. Developed recreational sites in the vicinity are described in Section 3.8 of this Environmental Report.

There are no airports located within a 5-mile radius of the Analysis Area. The Roswell Air Center is the nearest aviation facility and is located 12 miles southwest of the Analysis Area as shown in Figure 8. (FAA 2026a). The Analysis Area is not within special use airspaces or military training routes (DoD 2026; FAA 2026c). See Figure 8.

Other land uses in the vicinity include a 230kV transmission line to the southwest of the Analysis Area and an oil pipeline to the east of the Analysis Area as shown on Figure 8. No cellular towers or other telecommunication facilities are located in or near the Analysis Area (Argonne National Laboratory 2026). A BLM right-of-way (ROW) exists to the south of the Analysis Area. The ROW is held by SPS through the Power Transmission Federal Land Policy and Management Act (Serial Number NMNM106076200, BLM Case Number C-13736780) for the overhead transmission line (BLM 2026d).

BLM grazing allotments surround the Analysis Area, as shown in Table 7 (BLM 2026c). Two grazing allotments encumber the Analysis Area. These grazing allotments are planned to be terminated in full by the BLM.

Table 7. BLM Grazing Allotments

Allotment Number	Allotment Name	Size	Location relative to Analysis Area
NM65158	Comanche Sacaton	6,192 acres	Directly east, south, and west of Analysis Area
NM65057	Comanche Spring	2,597 acres	Directly north of the Analysis Area
NM65059	Comanche Hill South	4,648 acres	2 miles west of the Analysis Area
NM65054	Pronghorn Mesa	2,234 acres	0.25 miles east of the Analysis Area
NM65040	N Comanche Draw 3	1,442 acres	1 mile north of the Analysis Area
NM65540	N Comanche Draw 15	1,256 acres	1.5 miles north of the Analysis Area
NM65056	Annaya Well	13,851 acres	0.75 miles northeast of the Analysis Area
NM65062	Slash G	8,659 acres	2 miles south of the Analysis Area

Source: BLM 2026c

3.10.2 Environmental Impacts

The current cattle grazing within the Analysis Area would be terminated. The Transmission Facilities would have minimal impact to the areas surrounding the Analysis Area given the existing land use of low-density livestock grazing. This agricultural use is compatible with the Transmission Facilities. The rural character of the working landscape would be maintained. The Transmission Facilities would impact the amount of available range within the area by permanently removing developed and fenced portions of the Transmission Facilities from the potential grazing lands in the vicinity. Impacts to nearby BLM Grazing Allotments would be minimal. The two grazing allotments which encumber the Analysis Area are planned to be terminated in full by the BLM. A Noxious Weed and Control Management Plan is proposed for the control of noxious weeds and invasive species, which could occur as a result of new surface disturbance activities at the site. See Exhibit MK-11 attached to the Direct Testimony of Meghan Knudsen.

During construction, the entire Analysis Area would be cleared and graded for the Transmission Facilities' construction, changing the land cover from herbaceous and shrub/scrub to a developed classification. Loss of native vegetation during construction increases the potential for noxious, invasive, and non-native plant species establishment. If these species were to become established, the vegetation region surrounding the Analysis Area may be impacted, resulting in additional loss of suitable foraging opportunities.

The Transmission Facilities would be consistent with the Chaves County Comprehensive Plan. This plan lists renewable energy as a target industry to recruit in support of economic development within the County. The Transmission Facilities support renewable energy development since the

transmission facilities would connect renewably generated energy from the Tumbleweed Solar Project to the local grid. Additionally, the Transmission Facilities support the following goals from the Comprehensive Plan:

> *Land Use Goal 4.3: Direct commercial and industrial development to appropriate locations in Chaves County.*
>
> *Goal 6.1: Support economic development and foreign trade initiatives in order to retain, strengthen, and expand existing businesses, as well as create new jobs and business development opportunities within Chaves County.*
>
> *Goal 6.3: Attract industries that are mindful of the County's limited natural resources and are committed to protecting the environment.*

A zone change through the Chaves County Planning and Zoning Commission is being pursued for the Tumbleweed Solar Project. This zone change application would change the zoning of the Analysis Area to Zone D Industrial. The Transmission Facilities are an allowable use within the Industrial zone district. No special use permit or land use permits from the Chaves County Planning and Zoning Commission would be required for the Transmission Facilities.

The Transmission Facilities would be required to obtain building permits through the Chaves County Planning and Zoning Department. Electrical permits would be required and would be reviewed and approved by the New Mexico Regulation and Licensing Department Construction Industries Division.

The Analysis Area is an appropriate location for industrial development, such as the Transmission Facilities, due to the rural nature of the site and the proximity to other energy infrastructure. The Transmission Facilities would provide economic benefits to the County through the generation of local construction jobs, landowner lease payments, and the generation of tax revenue. The Transmission Facilities would diversify the County's economic base and support the transition towards clean, renewable energy sources that lower carbon emissions.

There are no established recreation resources in or immediately adjacent to the Analysis Area that would be impacted by the Transmission Facilities. The Transmission Facilities would not significantly impact recreational uses at Bottomless Lakes State, Overflow Wetlands ACEC, Roswell Cave Complex ACEC, and Bitter Lake National Wildlife Refuge. The distance and changes in elevation between these recreation sites and the Analysis Area minimize any visual and noise impacts the Transmission Facilities would have on recreational users at these sites. As described in Section 203.5.2, the Transmission Facilities would not significantly impact wildlife use of these sites, and therefore would not impact wildlife viewing associated recreational uses.

The Transmission Facilities would not impact aviation uses, military operations, or telecommunications facilities because there are no aviation facilities, military training routes or military facilities, or telecommunications facilities in or near the Analysis Area. See Figure 8.The Applicant consulted the FAA Obstruction Evaluation Pre-Screening Tool using a maximum height of 150 ft for a transmission line tower within the Analysis Area and determined that the Transmission Facilities do not exceed the FAA notice criteria due to the height of the proposed structures and the distance to the nearest airport (FAA 2026b). The FAA notice criteria is based on the FAA Obstruction

Standards which define height limits relative to the surrounding terrain, airport elevation, and proximity to established reference points of airports.

3.10.3 Protection Measures

The land use–related Protection Measures listed in Appendix A that would be implemented to avoid and minimize Transmission Facilities impacts include the following:

- Land Use 1: Restore compacted soils as close as possible to pre-construction conditions as required for ground stabilization and erosion control.
- Land Use 2: Obtain building permits from Chaves County.
- Land Use 3: Obtain electrical permits from New Mexico Regulation and Licensing Department Construction Industries Division.
- Land Use 4: Coordinate with the FAA and Department of Defense facilities as needed.
- Vegetation 5: A Noxious Weed Management and Revegetation Plan will be developed and implemented for the control of noxious weeds and invasive species that could occur as a result of new surface disturbance activities at the Analysis Area.
- Vegetation 6: If required as part of the SWPPP, a native seed mix will be applied to all temporary disturbance areas, followed by applications of mulch as required to provide additional erosion control.

3.10.4 Conclusion

Within the Analysis Area, livestock grazing would cease because of the Transmission Facilities. The Transmission Facilities would have minimal impact on the cattle grazing land use of the areas surrounding the Analysis Area. The Transmission Facilities are supportive of the goals of the Chaves County Comprehensive Plan. The Applicant is pursuing a zone change from Agricultural to Industrial Zone. The Transmission Facilities are an allowable use within the Industrial Zone District. The Transmission Facilities would not require any land use permits from the Chaves County Planning and Zoning Commission. The Transmission Facilities would have no impacts on recreation, communication signals, and aviation or military uses. The location of the Transmission Facilities is not expected to unduly impair important environmental values regarding land use, recreation, aviation, military uses, and communication signals.

3.11 Minerals and Mining Resources

Minerals and mining data sources reviewed to determine the current mineral and mining conditions include the following:

- New Mexico Mining and Minerals Division Registered Mines in New Mexico (EMNRD 2026c);
- USGS Prospect- and mine-related features on USGS topographic maps (USGS 2016);
- USGS Mineral Resources Data System (USGS 2026b);
- Homeland Infrastructure Foundation Level Database (HIFLD 2021);
- DOE National Carbon Sequestration Database (DOE 2026);

- New Mexico Bureau of Geology and Mineral Resources (NMBGMR 2026); and
- Geologic Map of the Bottomless Lakes quadrangle, Chaves County, New Mexico (Rawling and McCraw 2010).

3.11.1 Affected Environment

This section analyses the surface and subsurface mineral resources.

There are no registered mines in the Analysis Area. Other mines within the vicinity are gravel pit aggregate and stone mines as shown in Figure 9 (USGS 2016, 2026a). Within the Analysis Area and the immediate vicinity, subsurface mineral rights for minerals are federally owned (EMNRD 2026c).

The Analysis Area is within the Permian Basin, a sedimentary basin known for oil and gas reserves (HIFLD 2021). The National Carbon Sequestration Database (NATCARB) maps carbon dioxide geologic storage potential in oil and gas fields across the United States. Within the Analysis Area, NATCARB does not show carbon sequestration potential. In the immediate vicinity of the Analysis Area, NATCARB shows potential oil and gas fields from the Siluro-Devonian Reservoir, San Andres Reservoir, Wolfcamp Reservoir, and Pre-Permian Reservoir (DOE 2026).

The New Mexico Oil Conservation Division (OCD) oil and gas map identifies two plugged oil wells within the southeast quadrant of the Analysis Area (EMNRD 2026d).

3.11.2 Environmental Impacts

During construction, the Analysis Area would be cleared and graded, disturbing approximately 18 inches of topsoil, sand, and gravel. The foundations of the transmission structures would require disturbances for the foundations. After the Transmission Facilities are decommissioned, the area would be reclaimed.

The development of the Transmission Facilities would impact the ability to access surface and subsurface mineral deposits via open-pit mining techniques. There are no plans for aggregate or gypsum mining in the Analysis Area (EMNRD 2026c).

Impacts to subsurface mineral resources and oil and gas reserves are not anticipated since there are no known existing subsurface oil and gas reserves within the Analysis Area. There are no current or planned mining or drilling activities within the Analysis Area. The Applicant has coordinated with the BLM as the subsurface mineral rights holder. The coordination determined that a mineral materials disposal contract is not required for the Transmission Facilities since the project will not use the subsurface minerals owned by the BLM based on planned construction methods.

3.11.3 Protection Measures

No protection measures are proposed for these resources. The Applicant would coordinate with BLM as the subsurface mineral rights holder as needed. There are no plans for mining or drilling within the Analysis Area.

3.11.4 Conclusion

The Transmission Facilities would inhibit surface excavation of minerals within the Analysis Area due to the location of the Transmission Facilities. There are no known mines or planned extraction

activities within the Analysis Area. The location of the Transmission Facilities is not expected to unduly impair important environmental values regarding minerals and mining resources.

3.12 Noise Resources

Noise data sources reviewed to determine the current noise conditions include the following:

- Google Earth aerial imagery for land uses (Google 2026), and
- U.S. Census Bureau data for population characteristics.

3.12.1 Affected Environment

Airborne sound is described as the rapid fluctuation or oscillation of air pressure above and below atmospheric pressure, creating a sound wave. Sound is characterized by properties of the sound waves, which are frequency, wavelength, period, amplitude, and velocity. Noise is defined as unwanted sound. A sound source is defined by a sound power level (L_W), which is independent of any external factors. The acoustic sound power is the rate at which acoustical energy is radiated outward and is expressed in units of watts. Sound energy travels in the form of a wave, a rapid fluctuation or oscillation of air pressure above and below atmospheric pressure. A sound pressure level (L_p) is a measure of this fluctuation and can be directly determined with a microphone or calculated from information about the source sound power level and the surrounding environment through predictive acoustic modeling. While the sound power of a source is strictly a function of the total amount of acoustic energy being radiated by the source, the sound pressure levels produced by a source are a function of the distance from the source and the effective radiating area or physical size of the source. In general, the magnitude of a source's sound power level is always considerably higher than the observed sound pressure level near a source since the acoustic energy is being radiated in various directions.

Sound levels are presented on a logarithmic scale to account for the large pressure response range of the human ear and are expressed in units of decibels (dB). A dB is defined as the ratio between a measured value and a reference value usually corresponding to the lower threshold of human hearing defined as 20 micropascals (µPa). The A-weighted filter is applied to compensate for the frequency response of the human auditory system. Sound exposure in acoustic assessments is commonly measured and calculated as A-weighted dB (dBA). Estimates of noise sources and outdoor acoustic environments, and the comparison of relative loudness, are presented in Table 8.

Table 8. Sound Pressure Levels and Relative Loudness of Typical Noise Sources and Acoustic Environments

Noise Source or Activity	Sound Level (dBA)	Subjective Impression
Vacuum cleaner (10 feet)	70	Moderate
Passenger car at 65 miles per hour (25 feet)	65	
Large store air-conditioning unit (20 feet)	60	
Light auto traffic (100 feet)	50	Quiet

Noise Source or Activity	Sound Level (dBA)	Subjective Impression
Quiet rural residential area with no activity	45	
Bedroom or quiet living room; bird calls	40	Faint
Typical wilderness area	35	
Quiet library, soft whisper (15 feet)	30	Very quiet
Wilderness with no wind or animal activity	25	Extremely quiet
High-quality recording studio	20	
Acoustic test chamber	10	Just audible
	0	Threshold of hearing

Adapted from: Beranek (1988) and EPA (1971)

The acoustic Analysis Area is characterized by a quiet, rural baseline environment dominated by natural sounds and minimal human-induced noise. Existing ambient sound levels are low, reflecting the area's vacant status, unincorporated Chaves County location, and primary use for low-density cattle grazing. Surrounding lands managed by the BLM Roswell Field Office to the north, west, and south, along with private agricultural lands to the east, contribute to this low-density, rural soundscape.

Localized human activity and minor, intermittent noise sources within the immediate vicinity are limited to local vehicular traffic along Juliet Road to the west, Harral Road to the east, and an existing internal unpaved road. Distant transportation noise is generated by Highway 380 (E. 2nd St), located approximately 2.3 miles north of the analysis area. Additional periodic noise includes utility infrastructure maintenance associated with the 230kV transmission line to the southwest and the oil pipeline to the east. Due to the absence of commercial developments or local airports within a 5-mile radius, there are no major localized stationary noise sources. The nearest aviation facility, Roswell Air Center, is located 12 miles southwest and does not present overlapping flight path noise, as the analysis area sits entirely outside of special use airspaces or military training routes.

Noise sensitive receptors (NSRs) are locations or populations that are potentially sensitive to noise, such as residences, schools, places of worship, recreational areas, and public gathering areas. These receptors may be affected by exposure to elevated noise levels.

There is one inhabited structure approximately 2 miles north of the Analysis Area (Google 2026). Bottomless Lake State Park is located 2.3 miles southwest of the Analysis Area and includes Devils Inkwell Campground located 2.7 miles southwest of the Analysis Area and Pasture Lake Campground 2.8 miles southwest of the Analysis Area. There are no schools, places of worship, or public gathering areas within 2 miles of the Analysis Area as shown in Figure 8.

There are no noise-related regulations at the state level in New Mexico. Article XXIV, Section 12 of the Chaves County Zoning Ordinance contains the following language regulating noise from wind energy conversion systems (WECS):

> *"Noise level of the WECS shall not exceed fifty-five (55) dBA, including constructive interference effects, as measured at existing residences, businesses, and public buildings outside the boundaries of the Affected Landowner's property."*

There is no County-wide noise ordinance or noise ordinances related to uses other than WECS.

3.12.2 Environmental Impacts

Noise produced by facilities such as the Transmission Facilities includes that from construction and operation. Noise generated during Transmission Facilities construction will include sound sources associated with both transmission line and substation construction.

Overhead transmission line construction is typically completed in the following stages, but various construction activities may overlap, with multiple construction crews operating simultaneously:

- Site access and preparation;
- Installation of structure foundations;
- Erecting of support structures; and
- Stringing of conductors, shield wire and fiber optic ground wire.

Construction activities near any single NSR will occur in distinct, non-continuous phases over the project schedule. High-noise events - such as early-stage clearing and late-stage facility installation - are separated by periods of lower activity, preventing long-term, continuous noise exposure at any individual location.

Construction of the Transmission Facilities will require the use of heavy equipment that will be periodically audible outside the immediate transmission line right-of-way. Construction may generate noise levels that exceed the ambient levels and has the potential to cause a temporary and short-term disturbance. The Transmission Facilities will make reasonable efforts to minimize the impact of noise resulting from construction activities.

Noise levels from overhead transmission line construction were evaluated using a screening-level analysis approach. The calculation methodology requires the input of the number and type of construction equipment by phase as well as typical noise source levels associated with that equipment. The results of this evaluation are estimated composite sound levels at 50 feet and 1,000 feet. Table 9 summarizes results for the four conceptual construction phases. The composite noise levels consider the estimated time that equipment is in operation as well as the influence of ground effects.

Table 9. Construction Phase Noise Levels for Overhead Line Construction

Phase No.	Construction Phase	Example Construction Equipment	Equipment Noise Level at 50 feet, dBA	Operational Usage Factor (%)	Composite L_{eq} Noise Level at 50 feet, dBA	Composite L_{eq} Noise Level at 1000 feet, dBA	Composite L_{eq} Noise Level at 2 miles, dBA
1	Site Access and Preparation	Bulldozer	86	40	85	51	23
		Grader	82	40			
		Roller – Compactor	73	40			
		Loader	78	40			
		Water Truck	80	40			
		Dump Truck	80	40			
2	Installation of Structure Foundations	Bulldozer	86	40	91	56	28
		Loader	78	40			
		Backhoe-Loader	80	40			
		Fork Lift	80	40			
		Mobile Crane	82	16			
		Mobile Crane	82	16			
		Auger Rig	85	20			
		Drill Rig	87	20			
		Compressor	81	40			
		Pump	83	40			
		Portable Mixer	82	100			
		Jackhammer	90	20			
		Cement Mixer Truck	80	40			
		Dump Truck	80	40			
		Slurry Truck	80	40			
		Specialty Truck	75	40			
		Water Truck	80	40			
3	Erecting of Support Structures	Forklift	80	40	95	60	32
		Mobile Crane	82	16			
		Compressor	81	40			
		Flatbed Truck	75	40			
		Flatbed Truck	75	40			

Phase No.	Construction Phase	Example Construction Equipment	Equipment Noise Level at 50 feet, dBA	Operational Usage Factor (%)	Composite L_{eq} Noise Level at 50 feet, dBA	Composite L_{eq} Noise Level at 1000 feet, dBA	Composite L_{eq} Noise Level at 2 miles, dBA
		Water Truck	80	40			
		Heavy Lift Helicopter	95	90			
4	Stringing of Conductors, Shield Wire and Fiber Optic Ground Wire	Tracked Dozer	86	40	93	58	30
		Backhoe-Loader	80	40			
		Compressor	81	40			
		Line Puller	81	50			
		Mixed Trucks	80	40			
		Specialty Truck	75	40			
		Specialty Truck	75	40			
		Water Truck	80	40			
		Light Helicopter	92	90			

Data compiled in part from the following sources: FHWA, 1992, 2006; Bolt, Beranek and Newman, Inc., 1977.

Note: Table of results is subject to revision. Data is provided for illustrative purposes only and may not be representative of final equipment used during Transmission Facilities construction.

Development of the Substation will include construction and installation of equipment. New permanent access roads may be required as well as clearing of all vegetation and grading the site until it is essentially flat. Secure fencing and a grounding system must also be in place prior to the foundation installation. The Substation equipment such as the transformers and circuit breakers can then be mounted directly to the foundations, the control building can be constructed, and high voltage conductors can be installed. Construction equipment and resulting received sound levels are expected to be like that produced during transmission line construction.

Construction work on the Substation will generally occur in one or more of the following phases depending on the extent of site work required:

- Site clearing;
- Site grading and compaction;
- Trenching and foundations;
- Equipment pads; and
- Equipment installation.

Equipment utilized for construction will differ from one phase to another. In general, heavy equipment (bulldozers, dump trucks, cement mixers) will be used during excavation and concrete pouring activities.

Construction of the Substation will generate noise that will temporarily affect offsite NSRs. Average site sound levels for each phase of Substation construction are presented in Table 10 below. The composite noise levels consider the estimated time that equipment is in operation.

Table 10. Construction Phase Noise Levels for Substation Construction

Phase No.	Construction Phase	Example Construction Equipment	Equipment Noise Level at 50 feet, dBA	Operational Usage Factor (%)	Composite Noise Level at 50 feet, dBA	Composite Leq Noise Level at 1000 feet, dBA	Composite L_{eq} Noise Level at 2 miles, dBA
1	Site Clearing	Brush Cutters	81	50	91	56	29
		Tracked Dozer	88	40			
		Wheeled Tractor	80	40			
		Wheeled Loader	80	40			
		Wood Chipper	91	60			
		Water Truck	80	40			
2	Site Grading and Compaction	Scraper	85	40	88	53	26
		Tracked Dozer	88	40			
		Grader	82	40			
		Roller-Compactor	75	20			
		Wheeled Loader	80	40			
		Backhoe-Loader	80	40			
		Water Truck	80	40			
3	Trenching and Foundations	Excavator	80	40	87	53	26
		Backhoe-Loader	80	40			
		Skid-Steer Loader	70	40			
		Wheeled Loader	80	40			
		Auger Rig	85	20			
		Tracked Dozer	88	40			
		Cement Mixer Truck	80	40			
		Water Truck	80	40			
4	Equipment Pads	Wheeled Loader	80	40	84	49	22
		Mobile Crane	82	16			
		Forklift	80	40			
		Flatbed Truck	75	40			
		Dump Truck	80	40			
		Cement Mixer Truck	80	40			
		Water Truck	80	40			

Phase No.	Construction Phase	Example Construction Equipment	Equipment Noise Level at 50 feet, dBA	Operational Usage Factor (%)	Composite Noise Level at 50 feet, dBA	Composite Leq Noise Level at 1000 feet, dBA	Composite L_{eq} Noise Level at 2 miles, dBA
5	Equipment Installation	Compressor	81	40	84	49	22
		Mobile Crane	82	16			
		Forklift	80	40			
		Wheeled Loader	80	40			
		Dump Truck	80	40			
		Specialty Truck	75	40			
		Water Truck	80	40			

Data compiled in part from the following sources: FHWA, 1992, 2006; Bolt, Beranek and Newman, Inc., 1977.

Note: Table of results is subject to revision. Data is provided for illustrative purposes only and may not be representative of final equipment used during Transmission Facilities construction.

During operations, noise generated by the Transmission Facilities would include noise from the Gen-Tie Line and from the Substation.

Transmission line sound sources would consist primarily of corona noise in addition to Aeolian, or wind, noise, and noise associated with maintenance activities. Transmission line noise (also known as corona noise) is caused by the partial electrical breakdown of the insulating properties of air around the electrical conductors and overhead power lines. Audible noise generated by corona on transmission lines is composed of two major components.

The first is the broadband component, which has higher frequencies that distinguish it from more common outdoor environmental noise. The random phase relationship of the pressure waves generated by each corona source along a transmission line results in a characteristic sound commonly described as crackling, frying, or hissing.

The second component is a lower-frequency sound that is superimposed over the broadband noise. The corona discharges produce positive and negative ions that, under the influence of the alternating electric field around alternating current conductors, are alternately attracted to and repelled from the conductors. This motion establishes a sound-pressure wave having a frequency twice that of the voltage (i.e., 120 hertz [Hz] for a 60-Hz system). Higher harmonics (e.g., 240 Hz) may also be present, but they are generally of lower significance (EPRI 2005).

Corona activity increases with increasing altitude and with increasing voltage in the line but is generally not affected by system loading. The relative magnitude of hum and broadband noise may be different depending on weather conditions at the line. According to the Electric Power Research Institute, when the line is wet (such as during rainy weather conditions), the broadband component typically dominates; however, under icing conditions, the lower frequency components may be more prevalent (EPRI 2005).

Corona noise levels during precipitation may vary over a wide range. During the initial stages, when the conductors are not thoroughly wet, there may be considerable fluctuation in the noise level as the precipitation intensity varies. When the conductors are thoroughly wet, the noise fluctuations will often be less significant, because even as the intensity of precipitation diminishes the conductors will still be saturated, which can result in corona discharge. The variation in noise levels during rain depends greatly on the condition of the conductor surface and on the voltage gradient at which the conductors are operating. At high operating gradients, the audible noise is less sensitive to rain rate than at low gradients. Consequently, the variation in noise levels is less for the higher gradients. In different weather conditions, the relative magnitudes of random noise and hum may be different. Noise levels in fog and snow usually do not attain the same magnitude as compared to rain, and elevated noise levels during fog and snow are usually for a shorter duration in proportion to the event (EPRI 1982).

During fair weather conditions, corona occurs only at scratches or other imperfections in the conductor surface or where dust has settled on the line. These limited sources are such that the corona activity is minimal, and the audible noise generated is very low. Generally, the fair-weather audible noise of transmission lines cannot be distinguished from ambient noise at the edge of the ROW.

In addition to corona noise, wind blowing across power lines and power poles can generate noise when airflow is non-laminar or turbulent. Aeolian, or wind, noise is produced when a steady flow of wind interacts with a solid object, such as a tower. The interaction produces oscillating forces on the object that in turn can radiate sound as a dipole source at a given frequency.

The occurrence of aeolian noise is dependent on several factors and is difficult to predict. Wind noise from a stationary source requires perfect conditions: to produce any sound, the wind must blow for enough time in a specific direction at a specific speed; a slight deviation in either the direction or intensity would disrupt the conditions necessary to produce noise. Wind can create a variety of sounds, ranging from a low hum to a snapping sound to a high whistle. Aeolian noise is not considered a significant contributor to noise disturbance and has not been considered further in the acoustic analysis.

The primary ongoing noise sources at substations are the transformers, which generate sound generally described as a low humming. There are three main sound sources associated with a transformer: core noise, load noise and noise generated by the operation of the cooling equipment. The core vibrational noise is the principal noise source and does not vary significantly with electrical load.

Transformer noise varies with transformer dimensions, voltage rating, and design, and attenuates with distance. The noise produced by substation transformers is primarily caused by the load current in the transformer's conducting coils (or windings) and consequently the main frequency of this sound is twice the supply frequency (60 Hz). The characteristic humming sound consists of tonal components generated at harmonics of 120 Hz. Most of the acoustical energy resides in the fundamental tone (120 Hz) and the first 3 or 4 harmonics (240, 360, 480, 600 Hz).

Circuit-breaker operations may also cause audible noise, particularly the operation of air-blast breakers, which is characterized as an impulsive sound event of very short duration, and expected to occur no more than a few times throughout the year. Because of its short duration and infrequent occurrence, circuit breaker noise was not considered in this analysis.

Noise from the Transmission Facilities is not expected to have a significant impact on the region. The closest inhabited structure is approximately 2 miles from the Project (Figure 10). Anticipated construction-related noise levels are expected to attenuate to 22–32 dBA (quiet to very quiet) at this distance and are therefore considered very low level.

3.12.3 Protection Measures

The noise-related Protection Measures listed in Appendix A that would be implemented to avoid and minimize Transmission Facilities impacts include the following:

- Noise 1: Maintain construction tools and equipment in good operating order according to manufacturers' specifications.
- Noise 2: Limit use of major excavating and earth moving machinery to daytime hours.
- Noise 3: To the extent practicable, schedule construction activity between dawn and dusk on weekdays, when higher sound levels are typically present and are found acceptable. Some

limited activities, but not limited to, such as concrete pours, will be required to occur continuously until completion.

- Noise 4: Equip internal combustion engine used for any purpose on the job or related to the job with a properly operating muffler that is free from rust, holes, and leaks.
- Noise 5: For construction devices that utilize internal combustion engines, ensure the engine's housing doors are kept closed, and install noise-insulating material mounted on the engine housing consistent with manufacturers' guidelines, if possible.

3.12.4 Conclusion

The Analysis Area is situated within a rural environment characterized by low baseline noise levels. While the construction and decommissioning phases of the Transmission Facilities will temporarily elevate local sound levels, these activities will be intermittent and transient, resulting in no long-term or adverse acoustic effects. During operations, the Transmission Facilities will generate ongoing operational sounds. However, due to the significant separation distance between the Transmission Facilities and the nearest noise-sensitive receptor approximately 2 miles from the Analysis Area, no adverse construction or operational noise impacts are anticipated because the anticipated noise levels are expected to attenuate to a very low level at this distance. Consequently, the location of the Transmission Facilities is not expected to unduly impair important environmental values regarding noise.

3.13 Socioeconomics

Data sources reviewed to determine the current socioeconomic conditions include the following:

- Headwaters Economics, and
- U.S. Census Bureau data for population characteristics.

3.13.1 Affected Environment

The socioeconomic factors relevant to the Transmission Facilities include population, housing and occupancy, income, poverty, and industry employment. The socioeconomic data are provided for the geographic area of the City of Roswell, Chaves County, and the State of New Mexico as reference populations.

The total population estimate in 2024 for Chaves County was 64,217 (U.S. Census Bureau 2024a). Figure 11 shows the population change within Chaves County and the City of Roswell over the past three decades. The population of Chaves County has been slowly declining since reaching a high in 2010. Since 2010, the population size has declined 0.7 percent. The population of the City of Roswell has slowly increased since 1990.

The Analysis Area falls within Census Tract 12 within Chaves County. Census Tract 12 has a population density of 0.7 people per square mile. The population density of the Census Tracts within the City of Roswell is an average of 2,616 people per square mile. The population density of Chaves County is 10.7 people per square mile and the population density of New Mexico is 17.5 people per square mile (U.S. Census Bureau 2020a). The Analysis Area has very low population density.

In 2024, there were approximately 26,864 housing units in Chaves County (U.S. Census Bureau 2024b). As shown in Figure 12, 12 percent of the housing units were vacant and 88 percent were occupied. The homeownership rate is 71.3 percent and the median value of owner-occupied units is $156,400 (U.S. Census Bureau 2026a).

The median household income within Chaves County is $52,938, lower than the median household income in New Mexico of $67,817 and higher than the median household income of $51,583 in the City of Roswell. Figure 13 shows the income distribution within Chaves County. A total of 24.3 percent of people in Chaves County are living under the poverty line, higher than the statewide 16.4 percent of people in New Mexico experiencing poverty (U.S. Census Bureau 2026b). The U.S. Census Bureau uses a set of money income thresholds that vary by family size and composition to determine who is in poverty. If a family's total income is less than the family's threshold, then that family and every individual in it is considered in poverty (U.S. Census Bureau 2026b).

The employment rate in Chaves County is 55.8 percent of the population 16 years old and over. The unemployment rate is 5 percent (U.S. Census Bureau 2026a). The top employment industries in Chaves County are educational services, health care, and social assistance, followed by retail trade as shown in Figure 14.

3.13.2 Environmental Impacts

The Transmission Facilities would not have a substantial impact on the total population or population density within Chaves County. The existing rural setting with low population density would not be altered by the Transmission Facilities. The Transmission Facilities would be located near the planned Tumbleweed Solar Project and existing electric transmission lines.

During construction, up to 450 workers are anticipated to work on both the Tumbleweed Solar Project and on the Tumbleweed Transmission Facilities during the 2-year construction period. Construction workers who do not live in Roswell or the nearby area are expected to stay in nearby hotels or campsites and commute to the construction site daily. Housing for the construction workers for the 2-year construction period is unlikely to change the area's population or housing demand in the long term. Given the number of construction workers, the change in demand for housing during Transmission Facilities construction and decommissioning would be minor relative to existing conditions.

The economic benefits from the Transmission Facilities would include construction employment, multipliers from local spending, increased tax revenue, and property owner lease payments as applicable. These economic outputs would provide beneficial impacts to the Chaves County and City of Roswell economies. Construction and decommissioning impacts would be short term and temporary.

3.13.3 Protection Measures

No protection measures are proposed because the impact to socioeconomic resources is expected to be minimal.

3.13.4 Conclusion

No long-term changes to the population or housing availability in Chaves County are anticipated as a result of the Transmission Facilities. The Transmission Facilities would provide short-term economic

benefits related to construction employment and local spending during construction and decommissioning. In the long term, the Transmission Facilities would provide economic benefits through a diversified economic base, increased tax revenue, and property lease payments. The location of the Transmission Facilities is not expected to unduly impair important environmental values regarding socioeconomics.

3.14 Traffic and Roads

Data sources reviewed to determine the current traffic and road conditions include the following:

- New Mexico Department of Transportation (NMDOT)
- Southeast Regional Transportation Plan

3.14.1 Affected Environment

This analysis includes public and private roads that may be impacted by trips generated during Transmission Facilities construction, operations, and decommissioning. The Analysis Area would be accessed from East 2nd Street (Highway 380) via Harral Road, as shown on Figure 8. East 2nd Street (U.S. Highway 380) is the primary access route from the Analysis Area to the City of Roswell, New Mexico. Other roads in the region by which equipment, materials, and construction workers would travel to reach the Analysis Area include U.S. Highway 285 and Interstate 40. Table 10 shows the management segment anticipated to be traveled in Transmission Facilities-related trips, road type, and the annual average daily traffic (AADT) data from the NMDOT Traffic Monitoring Program's online database. The NMDOT AADT Data shows the 2025 yearly AADT, which is the average number of vehicles traveling on a specific road segment in 2025, calculated by dividing the total yearly traffic in both directions by 365 days.

Table 10. Transportation Route Characteristics

Road Name	Management	Functional Classification	Segment Anticipated to be Traveled	Road Type	AADT Range
Harral Road	Chaves County	Local	East 2nd Street to Analysis Area	Unpaved gravel/dirt	None available
East 2nd Street (U.S. Highway 380)	NMDOT District 2	Minor Arterial	U.S. Highway 285 to Harral Road	Paved with two lanes	2,000 – 6,000
U.S. Highway 285 (N. Main Street)	NMDOT District 2	Principal Arterial	Interstate 40 to U.S. Highway 380	Paved with a minimum of two lanes	3,000 – 18,000
Interstate 40	NMDOT District 2	Interstate	Around U.S. Highway 285	Major interstate, paved with a minimum of four lanes	15,000-30,000

Source: NMDOT 2026a, 2026b

Harral Road is a local road. Local roads carry no through-traffic movement and are used to provide access to adjacent land. East 2nd Street is a minor arterial. Minor arterials are used for trips of moderate length and offer connectivity to the higher arterial system. They offer less mobility than principal arterials, but more accessibility. U.S. Highway 285 is a principal arterial that serves the major centers of the City of Roswell and provides a high degree of mobility with abutting land uses directly served by it. U.S. Highway 285 is designated as a critical rural freight corridor (SERTPO 2025). Interstate 40 is the highest class of arterials. Abutting land uses are not directly served by interstates, which have higher speed limits, higher vehicle miles traveled (VMT), and more travel lanes (NMDOT 2026a).

The existing transportation uses surrounding the Analysis Area are agricultural uses related to ranching. In general, traffic is greater in and around population centers.

The Southeast Regional Transportation Plan (SRTP) provides guidance for elected officials, organizations, and individual citizens on the structure of the transportation network to serve future needs most effectively. The SRTP lists green energy as a key industry and target industry within the region (SERTPO 2025).

3.14.2 Environmental Impacts

Transmission Facilities construction and decommissioning would increase traffic on the local and regional transportation routes. The increase in daily construction traffic due to material and equipment delivery and worker commutes would result in a short-term increase in traffic on local routes. A detailed traffic management plan, including the traffic flow, trip generation, haul routes, and mitigation will be developed by the contractor prior to construction. Construction traffic would most noticeably impact the AADT on Harral Road and East 2nd Street. Local users may experience short-term delays as a result of increased construction traffic. The increase in traffic due to construction would not impact the regional transportation network further away from the Analysis Area with higher existing AADT counts. Necessary permits would be obtained for the use of the local transportation network. Permits which may be required include oversize/overweight permits from NMDOT, access permit from NMDOT, and a road use agreement with Chaves County (NMDOT 2026c, Chaves County 2026b)

During operations, trips to the Analysis Area would be limited to routine preventative maintenance visits. These would occur on a monthly basis and would consist of several technicians visiting the site. These operations-related trips would be undetectable on the local and regional transportation network.

3.14.3 Protection Measures

The traffic and road related Protection Measures listed in Appendix A that would be implemented to avoid and minimize Transmission Facilities impacts include the following:

- Transportation 1: Obtain applicable permits needed to transport equipment and materials, including an oversize/overweight permit and utility permit as applicable.
- Transportation 2: Prepare a traffic management plan, which details the anticipated trip generation, proposed traffic flow, haul routes, and mitigation measures associated with the

Transmission Facilities' construction. The traffic management plan will identify hazards, assess risks, and implement control measures to protect workers, contractors, and the public.

- Transportation 3: Establish construction speed limits to promote safety and efficiency for all road users.

3.14.4 Conclusion

The Transmission Facilities would result in a short-term increase in traffic during construction and decommissioning. During operations, there would be a negligible increase in traffic on the local and regional transportation networks. The location of the Transmission Facilities is not expected to unduly impair important environmental values regarding roads and traffic.

3.15 Water Resources

3.15.1 Affected Environment

Tetra Tech completed an aquatic resources evaluation including a preliminary desktop assessment and a field survey on November 4 and 5, 2025, December 22, 2025, and March 3, 2026 (Tetra Tech 2026a). The results of the aquatic resources evaluation, including a description of the wetlands, streams, and channels found within the Transmission Facilities survey areas, figures showing the location of aquatic features, representative photos of aquatic features, tables summarizing each aquatic feature delineated, and U.S. Army Corps of Engineers (USACE) Arid West Regional Supplement wetland determination data sheet, are described in Section 3.15 of this Environmental Report.

Additional data sources reviewed include:

- Federal Emergency Management Agency (FEMA) floodplain dataset (FEMA 2025);
- Google Earth time-series imagery (Google 2026);
- USDA (2026b) Natural Resources Conservation Service (NRCS) Web Soil Survey;
- NRCS Hydric Soils List (USDA 2026c);
- USACE Antecedent Precipitation Tool (APT; USACE 2026);
- USGS topographic quadrangle maps (USGS 2023);
- USGS Watershed Boundary Dataset (USGS 2025);
- USFWS National Wetlands Inventory (NWI) dataset (USFWS 2026c); and
- USGS NHD (USGS 2023b).

3.15.1.1 Current Conditions and Area Overview

The Analysis Area is located within the Chihuahuan Basins and Playas Level IV EPA Ecoregion (Griffith et al. 2014). This ecoregion is characterized by alluvial fans, internally drained basins, and river valleys mostly below 4,500 feet in elevation. These low elevation areas are some of the hottest and most arid habitats in the state. The playas and basin floors have saline or alkaline soils and areas of salt flats, dunes, and windblown sand. The average elevation of the Analysis Area is approximately 3,580 to 3,600 feet above mean sea level (amsl). The topography in the Analysis Area is relatively flat, gently sloping to the northwest, with slopes up to 4.9 percent.

The climate for this area, based on the climatic records for the Roswell Industrial Air Park Station in Roswell, New Mexico, has an average annual maximum temperature of 109 °F, and an average annual minimum temperature of 11 °F. The average annual rainfall is 10.92 inches, with the majority occurring between June and October, while the average annual total snowfall is 5.1 inches, which largely occurs between October and February (NOAA 2026). Weather during the November 2025 survey was approximately 41 °F to 85 °F and sunny, with winds of approximately 5 miles per hour.

The Analysis Area is located in the Roswell Artesian Groundwater Water Basin (NMOSE 2005). Chaves County groundwater withdrawals were estimated at 235,509 acre-feet in 2020 (NMOSE 2024) and 258,456 acre-feet in 2022 (Roswell Basin Water Master 2022). The dominant water use in Chaves County is for irrigated agriculture (89 percent), while other notable uses include public water supply (7 percent), industrial (4 percent), and livestock (3 percent) uses. There are no publicly-monitored groundwater wells within the Analysis Area (NMBGMR 2026, USGS 2026c). The nearest monitored groundwater well in the Roswell Basin aquifer system is USGS Site #324620104255001 (Site Name 18S.26E.06.442221_A), over 40 miles south of the Analysis Area, with historical well depths to water below land surface of 63.8 to 197.7 feet.

The Analysis Area lies within the subwatershed of Comanche Draw (Hydrologic Unit Code 130600070502), which is part of the larger Upper Pecos drainage basin. There are no NHD- or NWI-mapped water features within the Analysis Area (USFWS 2026c; USGS 2023b). During the November 2025 natural resources survey, the absence of NHD- and NWI-mapped surface water features, or potential waters of the U.S., was confirmed (Tetra Tech 2026). No jurisdictional drainages or waterways cross the Analysis Area.

According to the FEMA Flood Map Service Center data, the Analysis Area is outside Zone A mapped floodplains, with the nearest occurring 0.51 miles west of the Analysis Area (FEMA 2025) at Comanche Draw. Zone A floodplains represent the 100-year floodplain that has a 1 percent chance of being inundated in a given year.

3.15.2 Environmental Impacts

No surface water features or special aquatic sites, including wetlands or potential waters of the U.S., were identified during the natural resources survey of the Analysis Area as shown on Figure 15. No ephemeral streams were identified in the Analysis Area either. Therefore, no direct impacts to aquatic resources are likely to occur.

The potential to impact water resources primarily lies with the indirect impacts that could occur due to stormwater runoff from construction activities into downstream aquatic resources. Protection measures should be implemented to minimize these effects and include Protection Measures Water 1 through 12 and Waste 1 through 6 (see Section 3.14.3 below). A SWPPP would be developed and implemented for construction, which would meet the construction stormwater discharge permit requirements of the NMED Surface Water Quality Bureau (Protection Measure Water 1). The SWPPP would include several measures to control runoff and to reduce erosion and sedimentation at construction sites. Similarly, a SPCC Plan would be developed to minimize the potential for adverse impacts to surface waters or groundwater resulting from accidental spills or releases of hazardous materials (Protection Measure Waste 1). Stormwater Best Management Practices included in the

SWPPP would be used during construction to reduce potential impacts from erosion, sedimentation, and turbidity in surface waters during construction.

The water source for construction uses, such as equipment washing, dust suppression, and structure foundations, would be determined prior to construction. If drilling permitted wells associated with the Tumbleweed Transmission Facilities is necessary, the Applicant would adhere to Protection Measure Water 8.

Post-construction, temporarily disturbed areas not needed for operations and maintenance would be reclaimed. Reclamation of disturbed areas would minimize the potential for long-term erosion and stormwater runoff.

No water quality impacts would occur from the routine operations and maintenance activities. Impacts during decommissioning would be similar to those described during construction related to stormwater runoff and accidental spills or releases of hazardous materials.

3.15.3 Protection Measures

Protection measures listed in Appendix A related to water resources that would be implemented to avoid and minimize impacts as part of the Tumbleweed Transmission Facilities are described above and include:

- Water 1: Develop and implement a SWPPP as required by the New Mexico Environment Department Surface Water Quality Bureau and obtain coverage under a National Pollution Discharge Elimination System Construction General Permit from the U.S. Environmental Protection Agency pursuant to Section 402 of the Clean Water Act, 33 United States Code § 1342. The SWPPP may 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 original condition to the extent practicable in order to meet SWPPP requirements for runoff and erosion control. Seed mix and seeding rates will be developed through consultation with the local agency, experts, or landowner preference.
- Water 3: Equipment will be properly maintained for fluid leaks.
- Water 4: Fuels and petroleum will be stored away from excavated areas.
- Water 5: Spills will be cleaned up immediately.
- Water 6: No facilities shall be located in areas determined to be jurisdictional WOTUS by the USACE.
- Water 7: Avoid fill and placing structures in WOTUS and other surface water features.
- Water 8: Any new water wells drilled or diversions of existing water rights in the Analysis Area for the Transmission Facilities shall be appropriately permitted with the New Mexico Office of the State Engineer, and with the agreement of the water rights holder.

- Water 9: No substation or gen-tie shall be located in areas mapped as a 100-year floodplain by the Federal Emergency Management Agency. Collection/lines, cables and access roads shall be designed to avoid 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 avoid the floodplain and not affect the base flood elevation.
- Water 10: To the extent practicable, access roads shall be designed to avoid all jurisdictional WOTUS and 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. To the extent practicable, temporary access roads shall be designed following existing landform contours, where practicable, and revegetated with native or similar grasses, shrubs or forbs, or as agreed to with landowner.
- Waste 1: Prepare a Spill Prevention, Control, and Countermeasure Plan.
- Waste 2: Hazardous materials will not be drained onto the ground or into streams or drainage areas.
- Waste 3: Construction waste including trash, other solid waste, petroleum products and other potentially hazardous materials will be removed to a disposal facility authorized to accept such materials.
- Waste 4: Contractors shall implement a hazard communication program for any onsite hazardous materials to include training, labeling and posting of Safety Data Sheets ("SDS"). 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 for leaks. Any equipment found to have petroleum leaks that cannot be repaired immediately shall be removed from service and replaced.
- Waste 5: Contractors shall have proper training, there will be spill kits on site, and any leaking equipment shall be repaired immediately. 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.
- Waste 6: If sanitary sewer systems do not already exist at the Transmission Facilities 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 and unless temporary portable systems are utilized. 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).

- Land Use 1: Restore compacted soils as close as possible to pre-construction conditions as required for ground stabilization and erosion control.
- Vegetation 6: If required as part of the SWPPP, a native seed mix will be applied to all temporary disturbance areas, followed by applications of mulch as required to provide additional erosion control (see Water 1).
- Soil 3: Erosion will be reduced by applying and maintaining standard erosion and sediment control methods. These may include using certified weed free straw wattles and bale barriers and silt fencing. Specific erosion and sediment control measures will be specified in a SWPPP (see Water 1).

3.15.4 Conclusion

No direct impacts to surface water features or special aquatic sites would occur from the construction of the Transmission Facilities. The protection measures proposed would minimize the potential for indirect adverse impacts to surface waters or groundwater during construction. Construction water use would be minimal, and there would be no long-term water use associated with operations and maintenance. The location of the Transmission Facilities is not expected to unduly impair important environmental values regarding water resources.

3.16 Visual Resources

3.16.1 Affected Environment

A viewshed map was prepared to analyze the approximately 1,700-foot 230 kV Gen-Tie transmission line of the Project. See Figure 16. Project components will include an operations and maintenance building, associated chain link fence, and a Substation with a maximum height of approximately 30 feet. By comparison, the Gen-Tie structures would reach a maximum height of approximately 110 feet and would represent the most visible component of the Project. The Gen-Tie Line would consist of up to four tangent structures aligned along a common centerline and spaced approximately 200 feet to 600 feet apart. These design assumptions were used to identify areas from which the tallest Project structures would potentially be visible within the surrounding landscape.

The nearest highway to the Project site is US 380, located approximately 2.5 miles to the north, while the nearest city, Roswell, is approximately 13 miles to the west. The surrounding area is sparsely populated, with a single rural residence nearby. Typical viewers would therefore likely include a limited number of rural residents, workers, travelers, and recreationists visiting Bottomless Lakes State Park. The visual analysis area is characterized by relatively flat, arid desert grasslands and shrublands, with existing features associated with intensive grazing, unpaved roads, dispersed agricultural materials, and a 230 kV transmission infrastructure extending from the western portion toward the southeastern portion of the area. The open terrain and limited vegetation height contribute to broad, unobstructed views across the land.

3.16.1.1 Methodology

A project's viewshed is generally the area around a project within which there is line-of-sight visibility between viewers on the ground and proposed project components. The visual analysis area for the

Transmission Facilities extended out to a 5-mile radius of the Gen-Tie Line to include nearby recreation site Bottomless Lake State Park. Aerial imagery and elevation data were also used for this analysis. Viewshed modeling assumed the maximum potential height for the Gen-Tie structures to be 110 feet tall.

The topographic viewshed analysis was conducted using Environmental Systems Research Institute ArcGIS Geographic Information System (GIS) software with the Spatial Analyst extension to process 10-meter Digital Elevation Models of the terrain within the analysis area. The ArcGIS software was used to analyze line-of-sight from the 3D coordinates of the gen-tie structures to points on the terrain surface, thereby identifying locations from which the Project would potentially be visible. The viewshed analysis accounted for both curvature of the earth and refraction, using the default values identified in the software. The viewshed analysis assumed an average viewer height of 5.5 feet and assumed "bare earth" conditions run from the Transmission Facilities looking out to determine areas with potential visibility. The assumed "bare earth" conditions mean identification of areas with potential views of the Transmission Facilities were based on topography only. As a result, the analysis is conservative because it does not account for screening by intervening structures, vegetation, small terrain changes, atmospheric conditions and attenuation, or other features.

3.16.2 Environmental Impacts

The viewshed analysis results, as seen in Figure 16, indicate that the Gen-Tie Line would potentially be visible from portions of the surrounding landscape. Beyond two miles, intervening topography would screen most of the Gen-Tie Line to the east, south, and west, including most views from Bottomless Lakes State Park. Limited visibility would occur in the State Park's northernmost and northeastern tip areas; however, these views would be confined primarily to roadside routes elevated above the main recreation areas, which would remain fully screened by the intervening topography. There would also be potential visibility north of and along US 380 and near the Pecos River to the west, but from these distances, forms and textures associated with the Transmission Facilities would generally be expected to blend into the surrounding landscape, and where discernable colors would appear muted.

Viewers are likely to perceive landscape features with greater clarity in foreground views (within approximately 1 to 2 miles of the Gen-Tie Line), with clarity gradually diminishing from areas beyond that distance. The viewshed analysis shows that the potential visibility for the Gen-Tie Line would be relatively high within the foreground viewing distance. However, visibility does not necessarily equate to visual prominence. Given the Gen-Tie's narrow structures, limited horizontal dimension, and dispersed alignment, it would occupy a relatively small portion of the overall view and would not be expected to appear very noticeable within the landscape. The visual sensitivity of the Gen-Tie Line would also be reduced by distance, the limited number of viewers, and the relatively low level of public activity within the area.

3.16.3 Protection Measures

Protection measures listed in Appendix A related to visual resources that would be implemented to avoid and minimize impacts from the Tumbleweed Transmission Facilities are described above and include:

Air 3: Enforce reduced vehicle speeds within construction areas to minimize the generation of fugitive dust.

Air 4: Implement irrigation with water or other palliatives or other dust control measures to reduce fugitive dust from construction activities.

Vegetation 4: If any vegetated swales form due to heavy rainfall in areas of soil disturbance, then straw 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 after completion of construction. Reseeding shall use native grasses, shrubs, or forbs or as agreed to with landowner.

Visual 1: Gen-tie structures and associated components will be low-glare finishes and colors that are compatible with the surrounding landscape, where feasible and consistent with applicable safety, engineering, and regulatory requirements.

Visual 2: Lighting, particularly for any necessary nighttime work, will be limited to what is required for safety, security, and emergencies and turned off when not in use.

Water 2: Disturbed areas will be restored to original condition to the extent practicable in order to meet SWPPP requirements for runoff and erosion control. Seed mix and seeding rates will be developed through consultation with the local agency, experts, or landowner preference.

Water 10: To the extent practicable, access roads shall be designed to avoid all jurisdictional WOTUS and 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. To the extent practicable, temporary access roads shall be designed following existing landform contours, where practicable, and revegetated with native or similar grasses, shrubs or forbs, or as agreed to with landowner.

3.16.4 Conclusion

The tallest structure associated with the Tumbleweed Transmission Facilities would have the potential to be visible from much of the visual analysis area, particularly across the open, flat terrain where there are few intervening landforms and vegetation to screen views. As viewing distance increases, however, the structure's apparent size, contrast, and perceptibility would diminish substantially. Although the Gen-Tie Line structures may be discernible from nearby locations, their overall contribution to the visual character of the surrounding area would generally be limited, particularly when viewed in the context of existing transmission infrastructure located approximately 0.5 mile away within the visual analysis area. Overall, the Gen-Tie Line's contribution to the visual character of the area would generally be limited, particularly when considered in relation to the existing transmission infrastructure and the low number of potentially affected viewers. The location of the Transmission Facilities is not expected to unduly impair important environmental values regarding visual resources.

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5.0 LIST OF AGENCIES, ORGANIZATIONS, AND PERSONS TO WHOM COPIES OF THE ENVIRONMENTAL REPORT ARE SENT

- New Mexico Public Regulation Commission
- New Mexico Attorney General (Department of Justice)
- New Mexico Environment Department
- New Mexico State Engineer
- Chaves County
- City of Roswell
- Roswell Public Library
- Chavez County Soil and Water Conservation District
- Landowner

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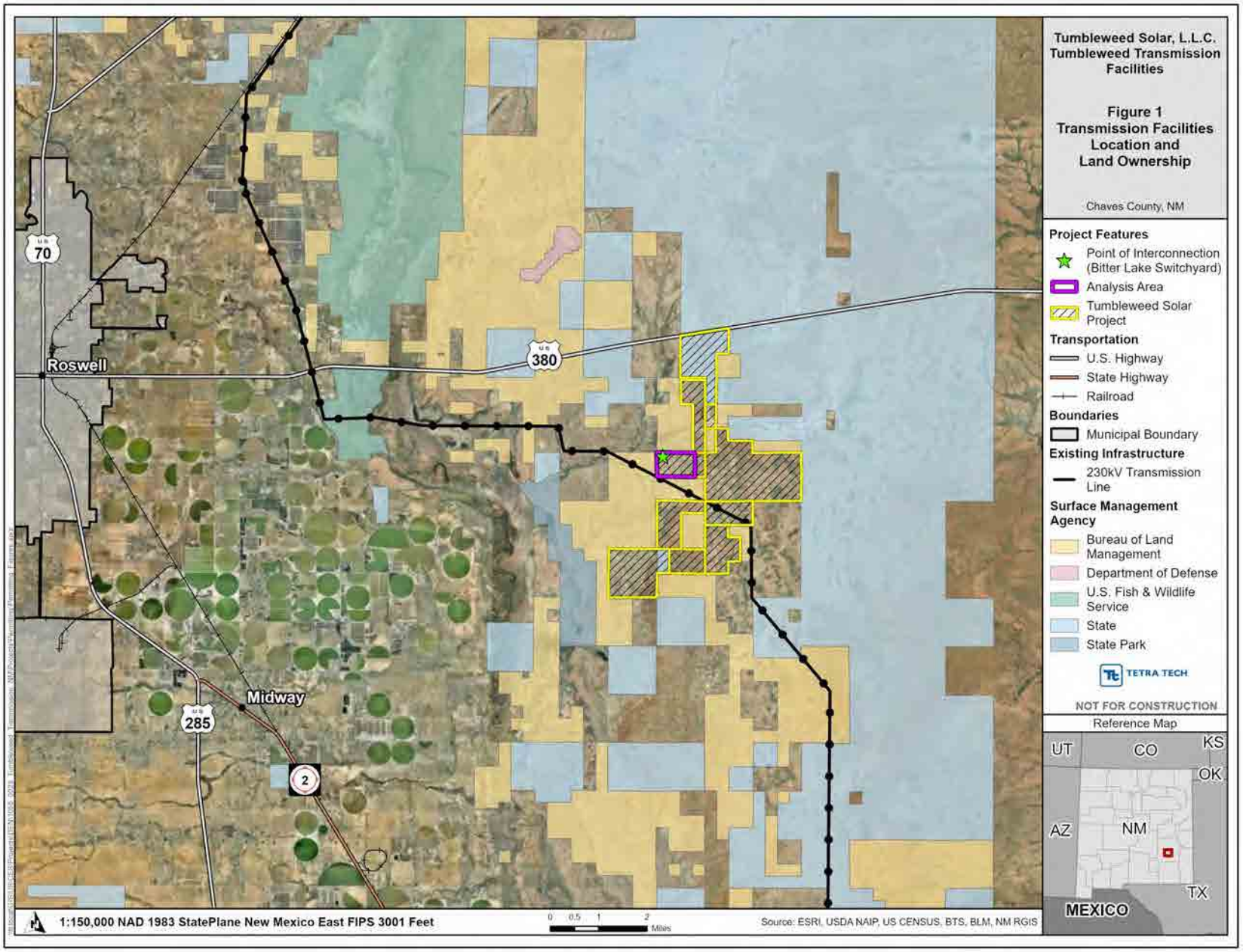
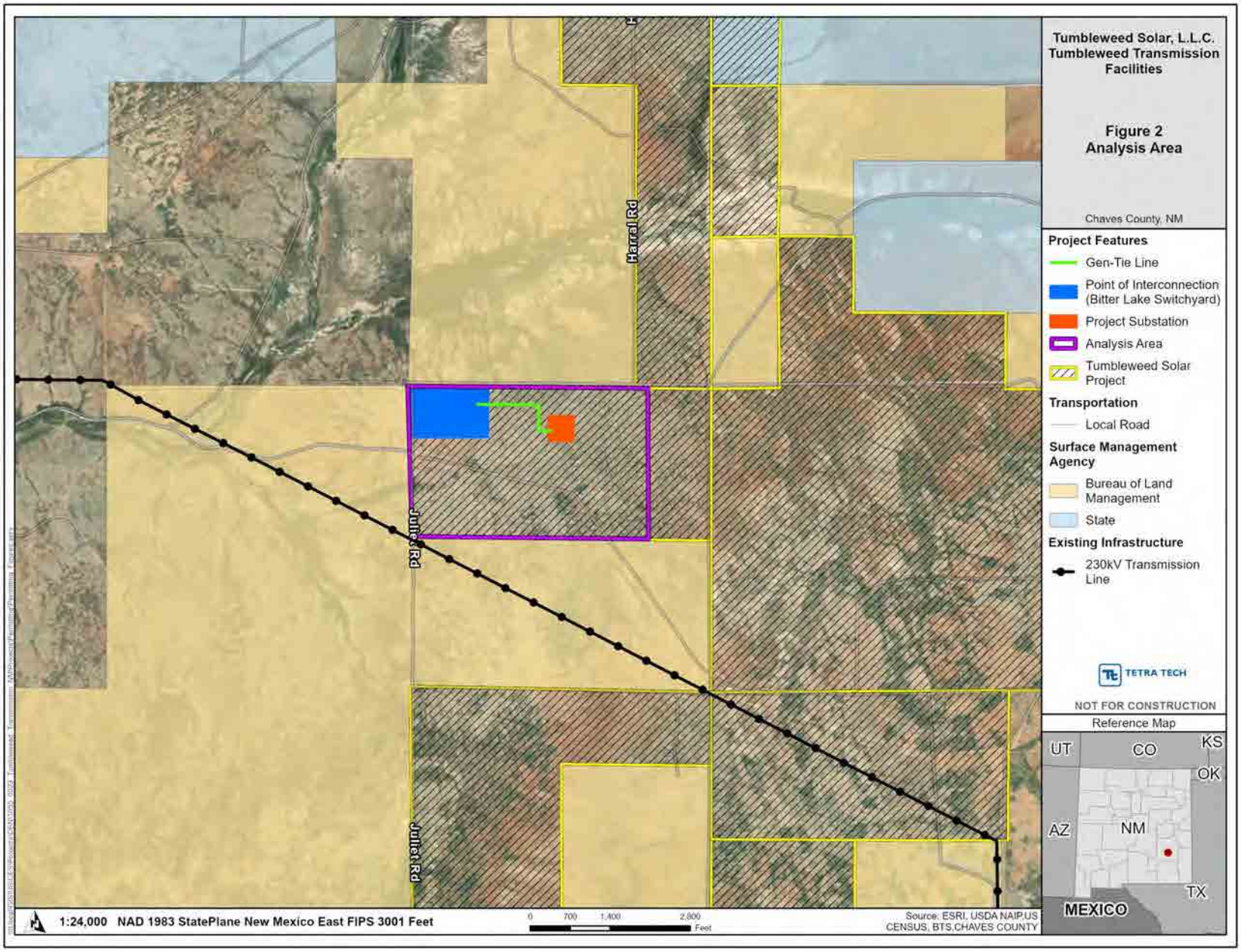
FIGURES


Tumbleweed Solar, L.L.C.
Tumbleweed Transmission Facilities
Figure 1
Transmission Facilities Location and Land Ownership
Chaves County, NM
Project Features
Point of Interconnection (Bitter Lake Switchyard)
Analysis Area
Tumbleweed Solar Project
Transportation
U.S. Highway
State Highway
Railroad
Boundaries
Municipal Boundary
Existing Infrastructure
230kV Transmission Line
Surface Management Agency
Bureau of Land Management
Department of Defense
U.S. Fish & Wildlife Service
State
State Park
TETRA TECH
NOT FOR CONSTRUCTION
Reference Map
UT
CO
KS
OK
AZ
NM
TX
MEXICO
Roswell
Midway
70
380
285
2
1:150,000 NAD 1983 StatePlane New Mexico East FIPS 3001 Feet
0 0.5 1 2
Miles
Source: ESRI, USDA NAIP, US CENSUS, BTS, BLM, NM RGIS


Tumbleweed Solar, L.L.C.
Tumbleweed Transmission Facilities
Figure 2
Analysis Area
Chaves County, NM
Project Features
Gen-Tie Line
Point of Interconnection (Bitter Lake Switchyard)
Project Substation
Analysis Area
Tumbleweed Solar Project
Transportation
Local Road
Surface Management Agency
Bureau of Land Management
State
Existing Infrastructure
230kV Transmission Line
TETRA TECH
NOT FOR CONSTRUCTION
Reference Map
UT
CO
KS
OK
AZ
NM
TX
MEXICO
Harral Rd
Juliet Rd
Juliet Rd
1:24,000 NAD 1983 StatePlane New Mexico East FIPS 3001 Feet
0 700 1,400 2,800
Feet
Source: ESRI, USDA NAIP,US CENSUS, BTS,CHAVES COUNTY

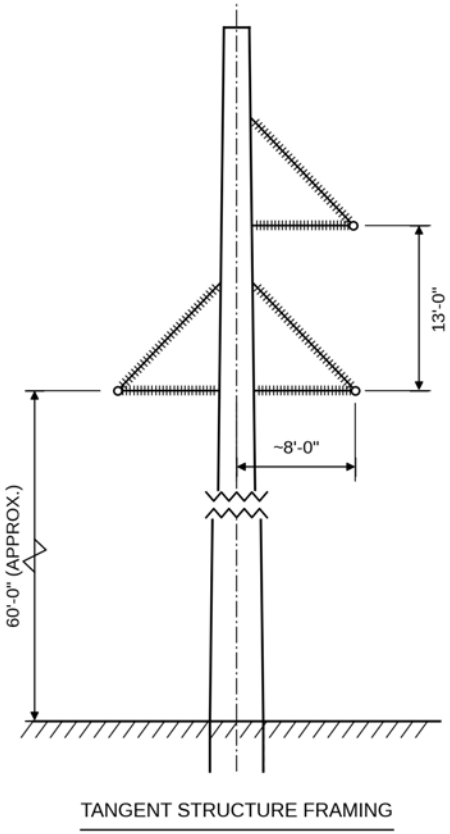
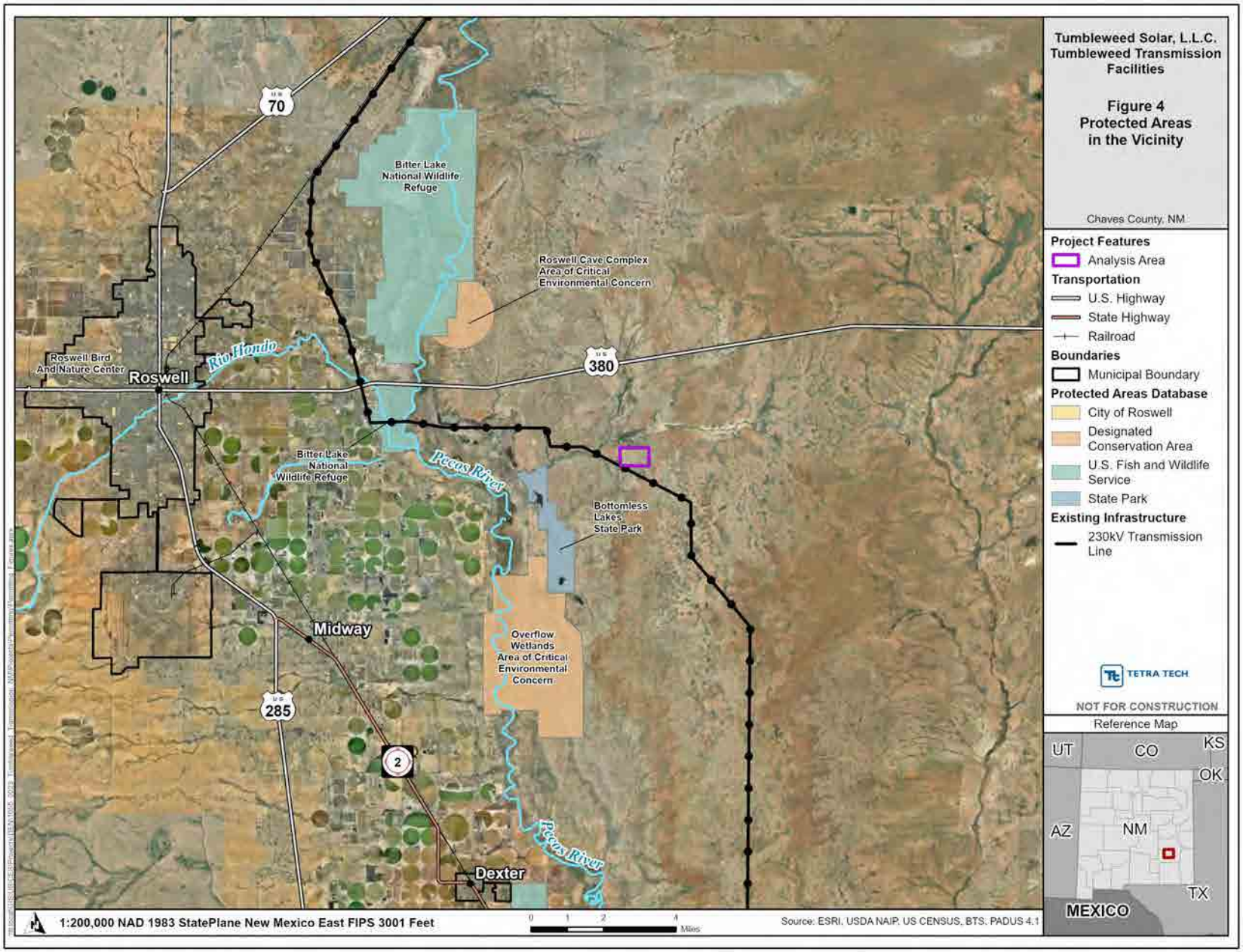
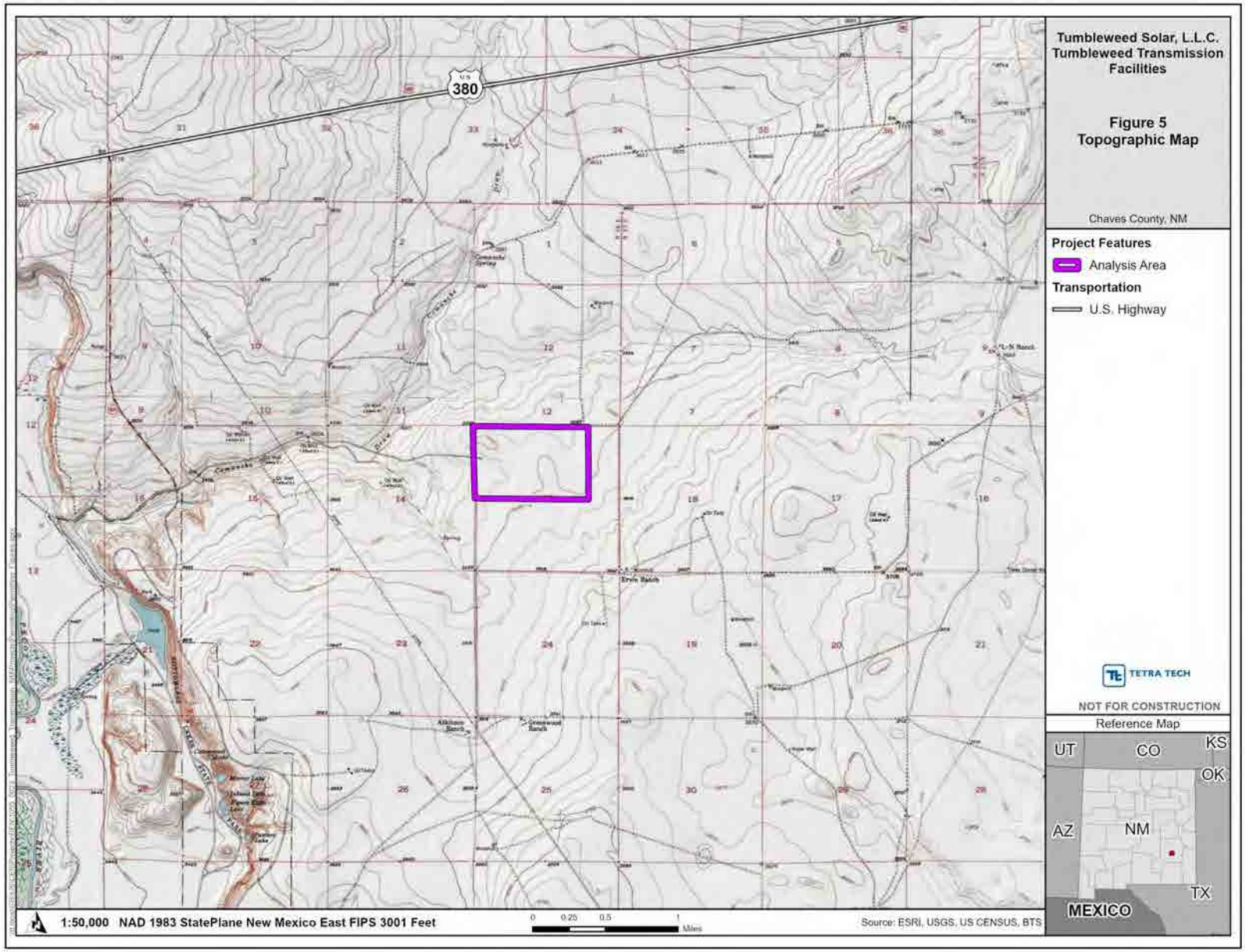
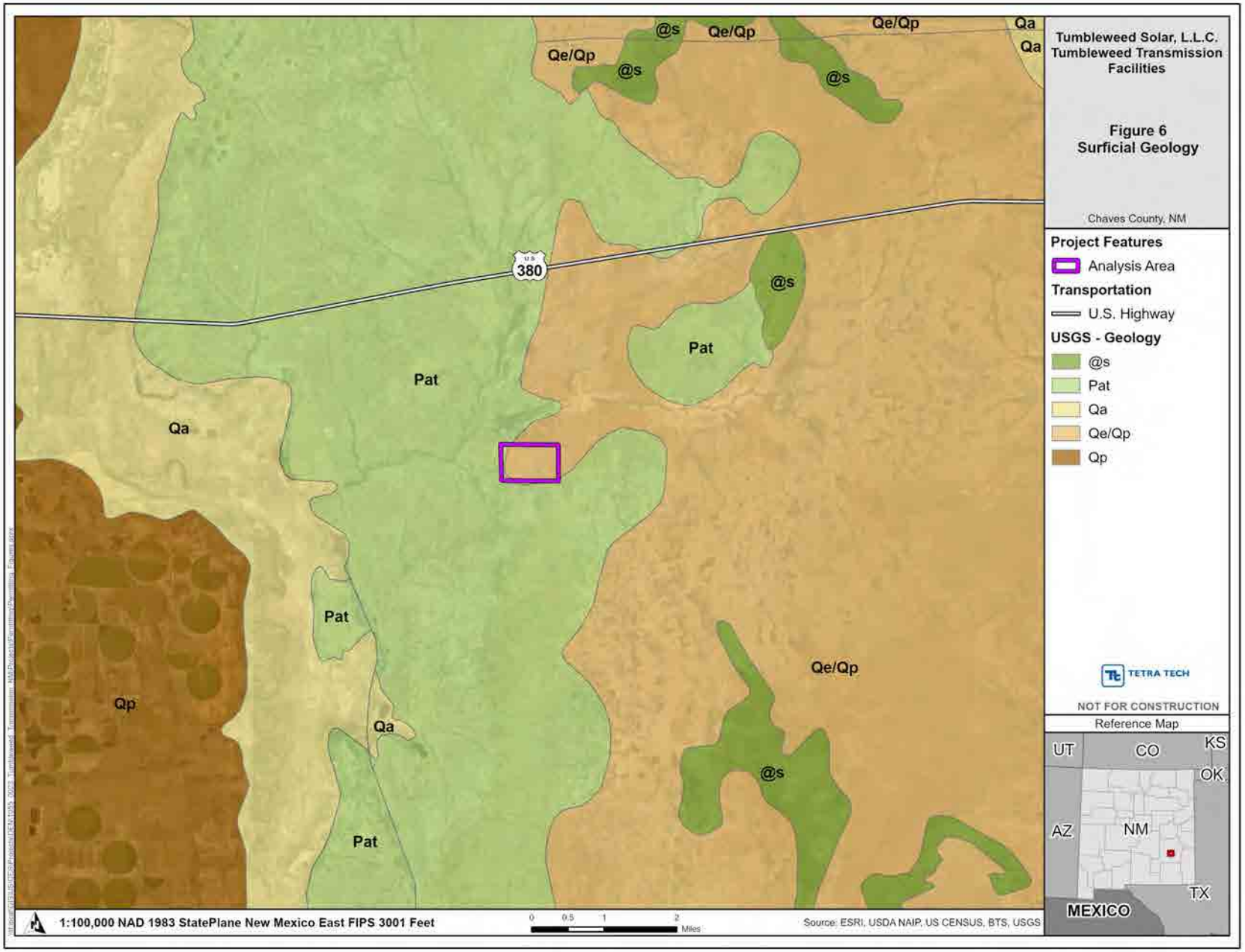
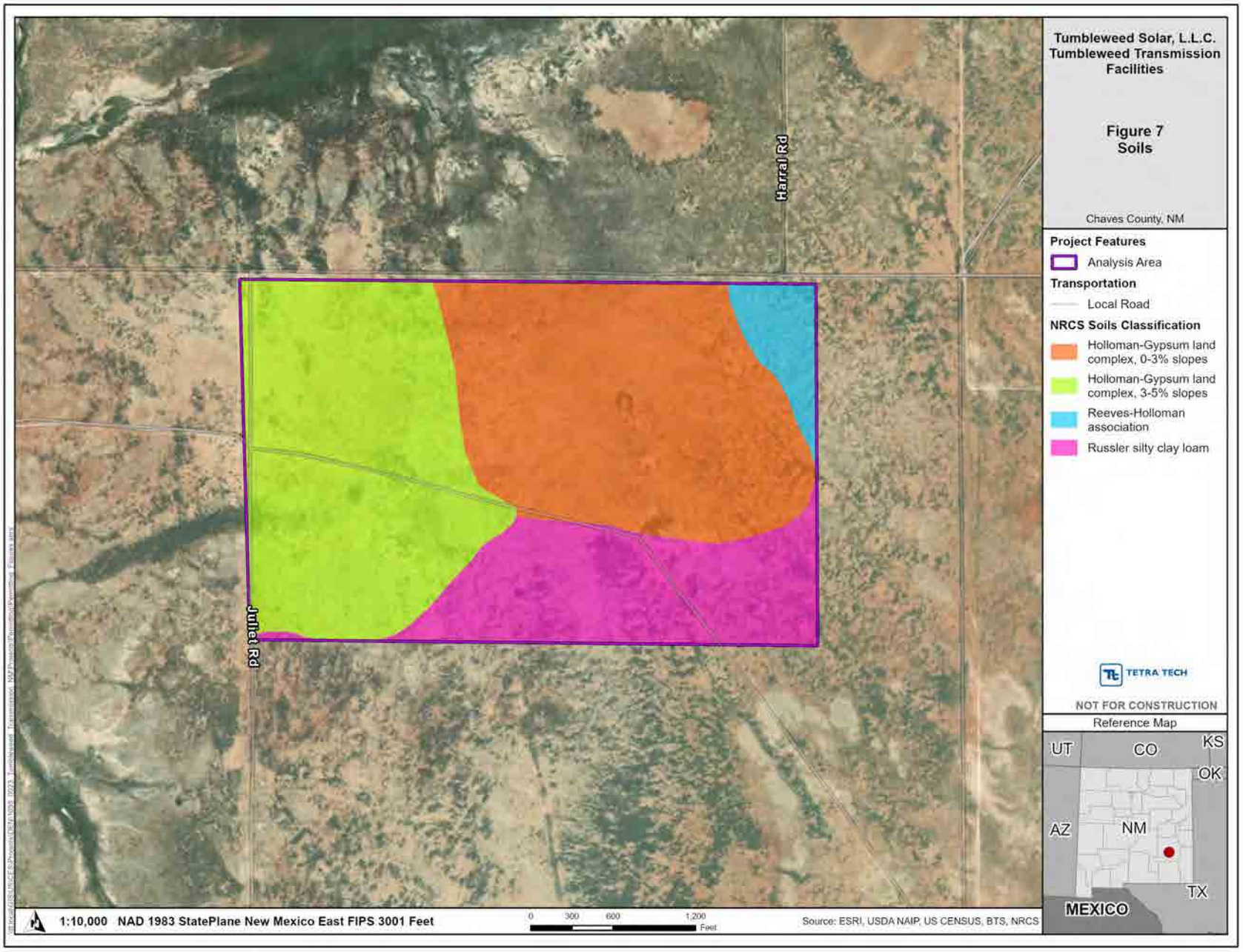


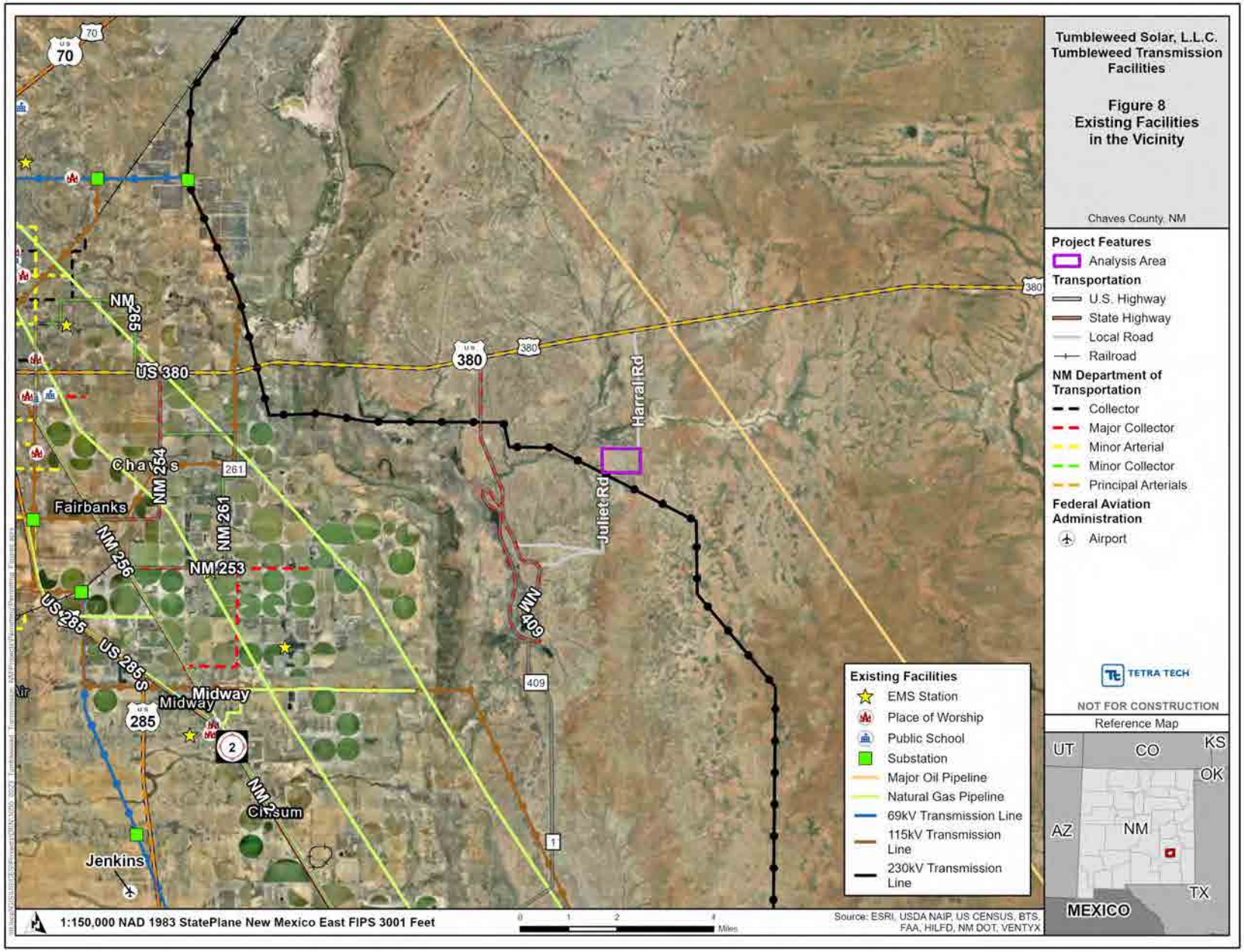
Figure 3. Transmission Structure

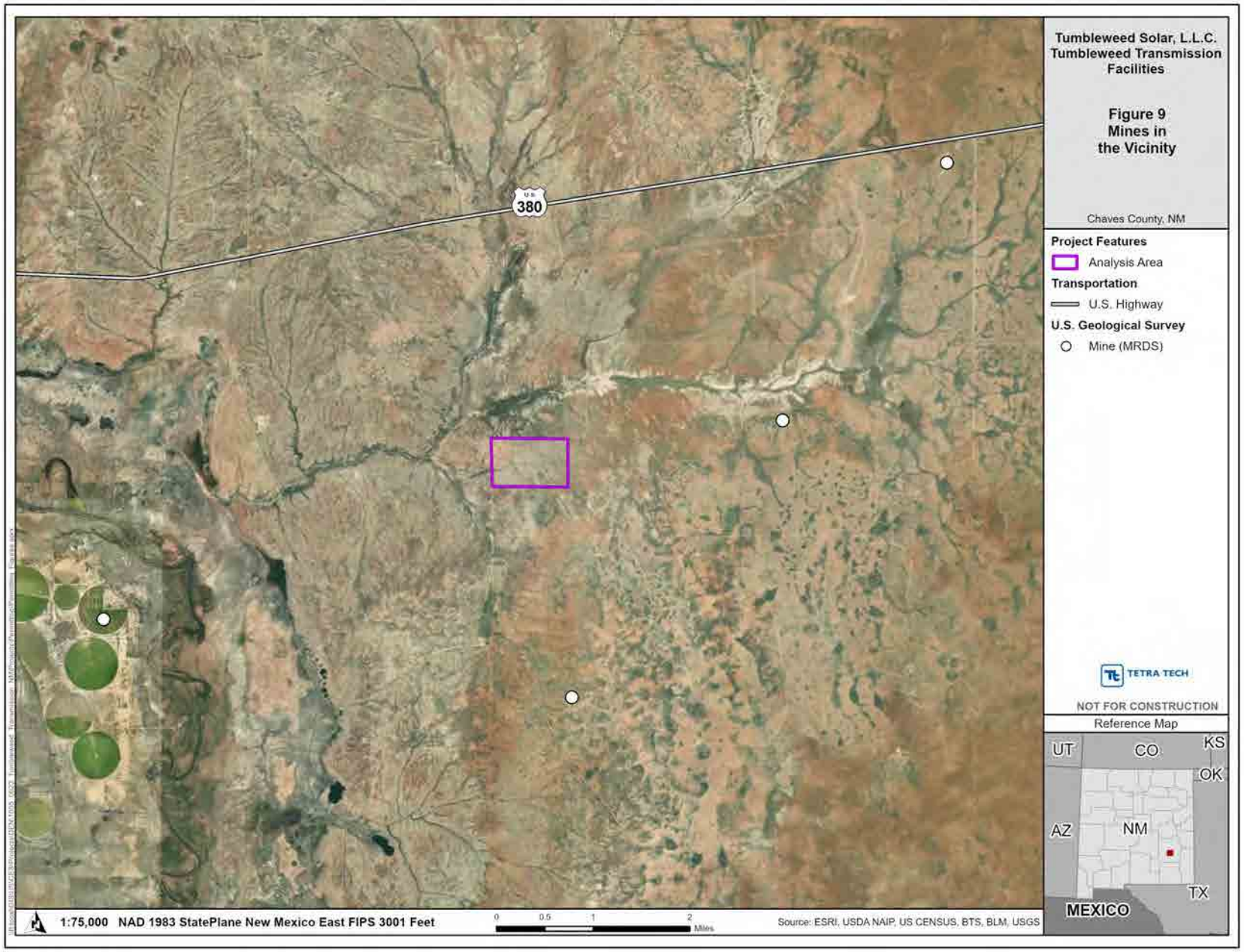

Tumbleweed Solar, L.L.C.
Tumbleweed Transmission Facilities
Figure 4
Protected Areas in the Vicinity
Chaves County, NM
Project Features
Analysis Area
Transportation
U.S. Highway
State Highway
Railroad
Boundaries
Municipal Boundary
Protected Areas Database
City of Roswell
Designated Conservation Area
U.S. Fish and Wildlife Service
State Park
Existing Infrastructure
230kV Transmission Line
TETRA TECH
NOT FOR CONSTRUCTION
Reference Map
UT
CO
KS
OK
AZ
NM
TX
MEXICO
Bitter Lake National Wildlife Refuge
Roswell Cave Complex Area of Critical Environmental Concern
Roswell Bird And Nature Center
Roswell
Rio Hondo
Bitter Lake National Wildlife Refuge
Pecos River
Bottomless Lakes State Park
Midway
Overflow Wetlands Area of Critical Environmental Concern
Pecos River
Dexter
70
380
285
2
1:200,000 NAD 1983 StatePlane New Mexico East FIPS 3001 Feet
0 1 2 4 Miles
Source: ESRI, USDA NAIP, US CENSUS, BTS, PADUS 4.1

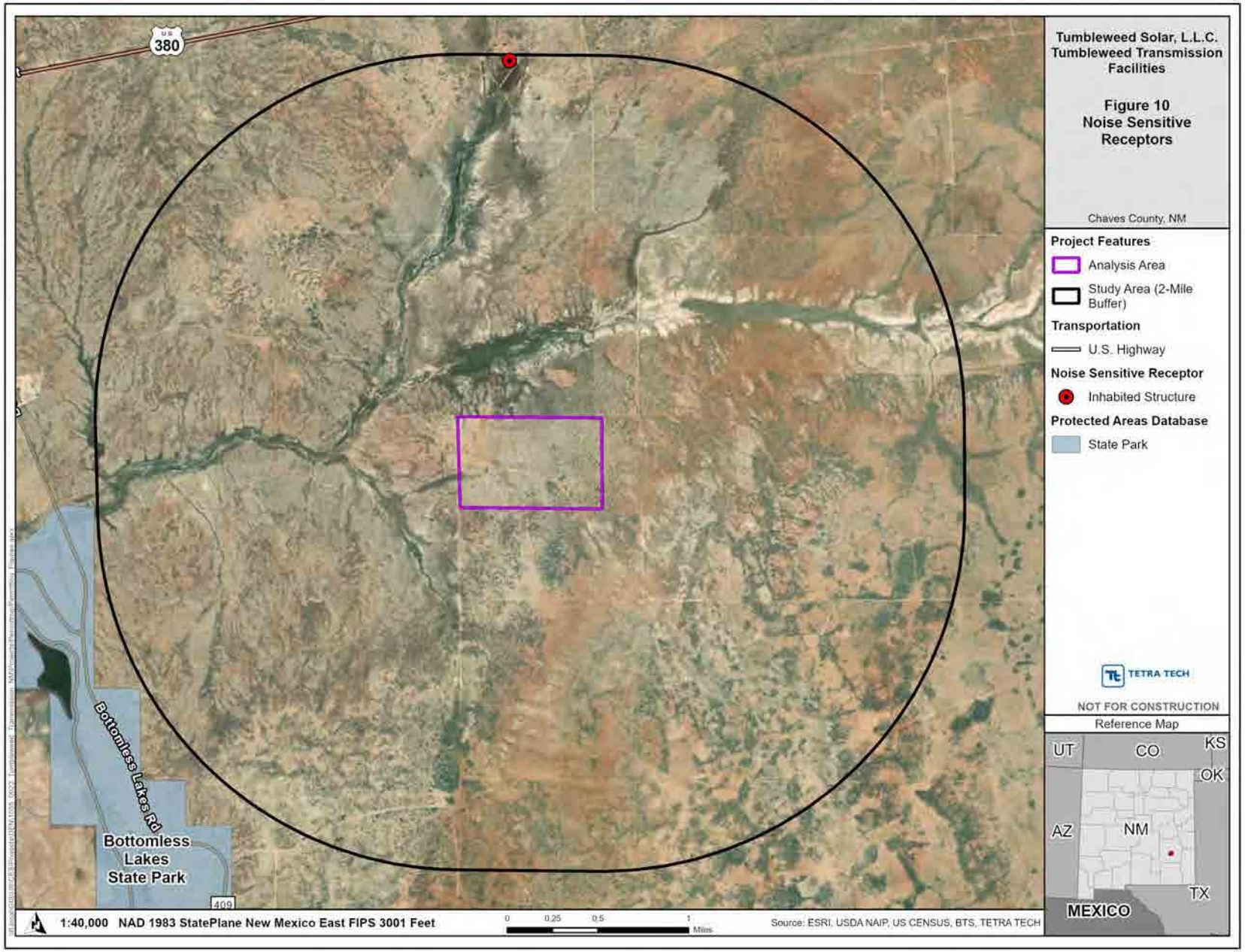

Tumbleweed Solar, L.L.C.
Tumbleweed Transmission Facilities
Figure 5
Topographic Map
Chaves County, NM
Project Features
Analysis Area
Transportation
U.S. Highway
TETRA TECH
NOT FOR CONSTRUCTION
Reference Map
UT
CO
KS
OK
AZ
NM
TX
MEXICO
380
1:50,000 NAD 1983 StatePlane New Mexico East FIPS 3001 Feet
0 0.25 0.5 1
Miles
Source: ESRI, USGS, US CENSUS, BTS

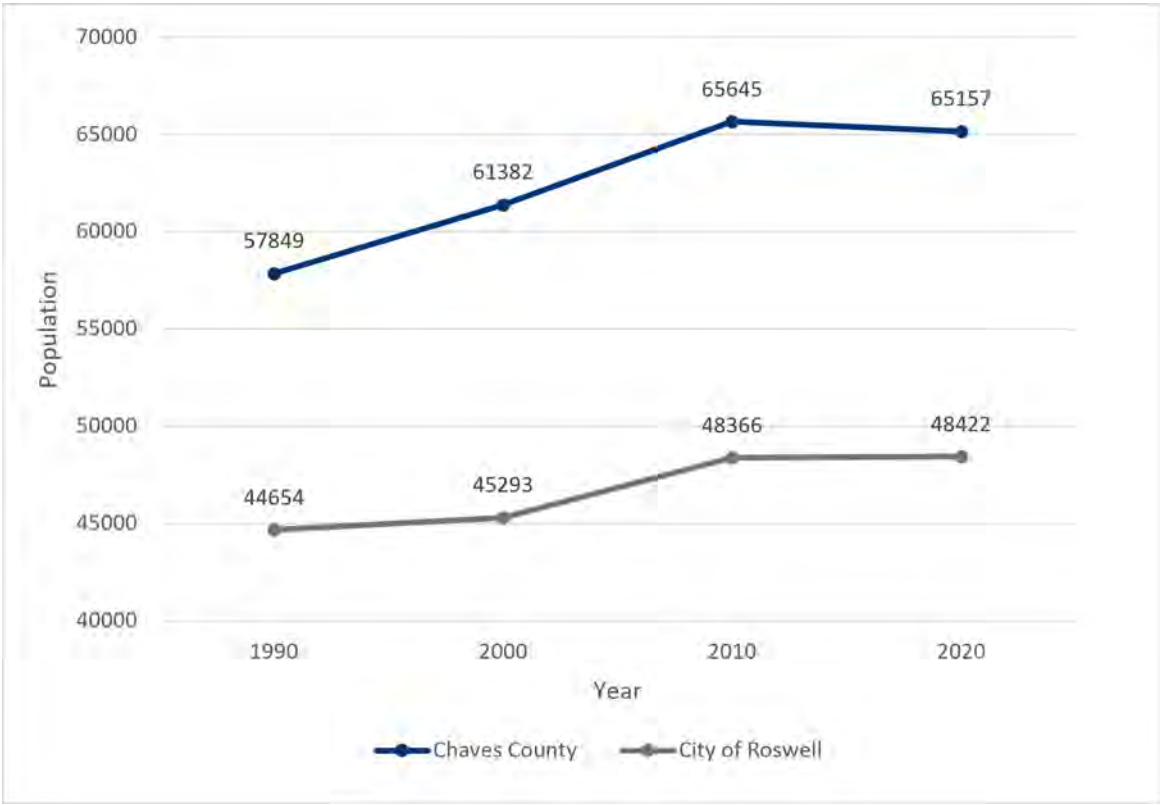

Tumbleweed Solar, L.L.C.
Tumbleweed Transmission Facilities
Figure 6
Surficial Geology
Chaves County, NM
Project Features
Analysis Area
Transportation
U.S. Highway
USGS - Geology
@s
Pat
Qa
Qe/Qp
Qp
TETRA TECH
NOT FOR CONSTRUCTION
Reference Map
UT
CO
KS
OK
AZ
NM
TX
MEXICO
380
@s
Qe/Qp
Qa
Pat
Qp
1:100,000 NAD 1983 StatePlane New Mexico East FIPS 3001 Feet
0 0.5 1 2
Miles
Source: ESRI, USDA NAIP, US CENSUS, BTS, USGS


Harral Rd
Juliet Rd
Tumbleweed Solar, L.L.C.
Tumbleweed Transmission Facilities
Figure 7
Soils
Chaves County, NM
Project Features
Analysis Area
Transportation
Local Road
NRCS Soils Classification
Holloman-Gypsum land complex, 0-3% slopes
Holloman-Gypsum land complex, 3-5% slopes
Reeves-Holloman association
Russler silty clay loam
TETRA TECH
NOT FOR CONSTRUCTION
Reference Map
UT
CO
KS
OK
AZ
NM
TX
MEXICO
1:10,000 NAD 1983 StatePlane New Mexico East FIPS 3001 Feet
0 300 600 1,200
Feet
Source: ESRI, USDA NAIP, US CENSUS, BTS, NRCS


Tumbleweed Solar, L.L.C.
Tumbleweed Transmission Facilities
Figure 8
Existing Facilities in the Vicinity
Chaves County, NM
Project Features
Analysis Area
Transportation
U.S. Highway
State Highway
Local Road
Railroad
NM Department of Transportation
Collector
Major Collector
Minor Arterial
Minor Collector
Principal Arterials
Federal Aviation Administration
Airport
Existing Facilities
EMS Station
Place of Worship
Public School
Substation
Major Oil Pipeline
Natural Gas Pipeline
69kV Transmission Line
115kV Transmission Line
230kV Transmission Line
TETRA TECH
NOT FOR CONSTRUCTION
Reference Map
UT
CO
KS
OK
AZ
NM
TX
MEXICO
Harral Rd
Juliet Rd
US 380
NM 256
NM 254
NM 261
NM 253
NM 409
US 285
US 285 S
Chaves
Fairbanks
Midway
Jenkins
Dexsum
1:150,000 NAD 1983 StatePlane New Mexico East FIPS 3001 Feet
Source: ESRI, USDA NAIP, US CENSUS, BTS, FAA, HILFD, NM DOT, VENTYX

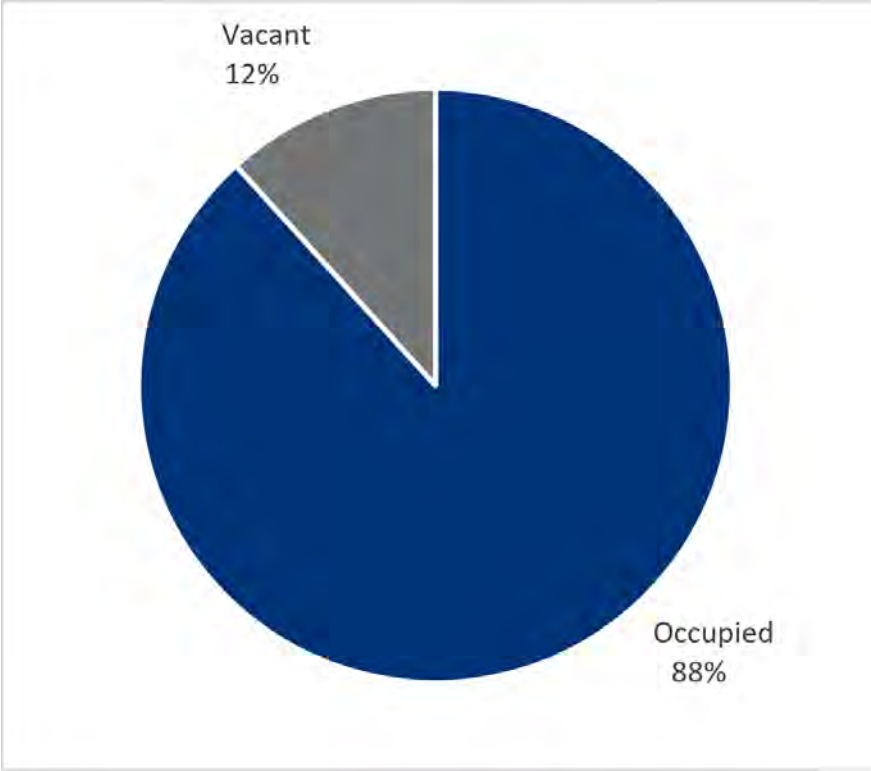

Tumbleweed Solar, L.L.C.
Tumbleweed Transmission Facilities
Figure 9
Mines in
the Vicinity
Chaves County, NM
Project Features
Analysis Area
Transportation
U.S. Highway
U.S. Geological Survey
Mine (MRDS)
TETRA TECH
NOT FOR CONSTRUCTION
Reference Map
UT
CO
KS
OK
AZ
NM
TX
MEXICO
380
1:75,000 NAD 1983 StatePlane New Mexico East FIPS 3001 Feet
0 0.5 1 2
Miles
Source: ESRI, USDA NAIP, US CENSUS, BTS, BLM, USGS


US 380
Bottomless Lakes Rd
Bottomless Lakes State Park
409
Tumbleweed Solar, L.L.C.
Tumbleweed Transmission Facilities
Figure 10
Noise Sensitive Receptors
Chaves County, NM
Project Features
Analysis Area
Study Area (2-Mile Buffer)
Transportation
U.S. Highway
Noise Sensitive Receptor
Inhabited Structure
Protected Areas Database
State Park
TETRA TECH
NOT FOR CONSTRUCTION
Reference Map
UT
CO
KS
OK
AZ
NM
TX
MEXICO
1:40,000 NAD 1983 StatePlane New Mexico East FIPS 3001 Feet
0 0.25 0.5 1 Miles
Source: ESRI, USDA NAIP, US CENSUS, BTS, TETRA TECH



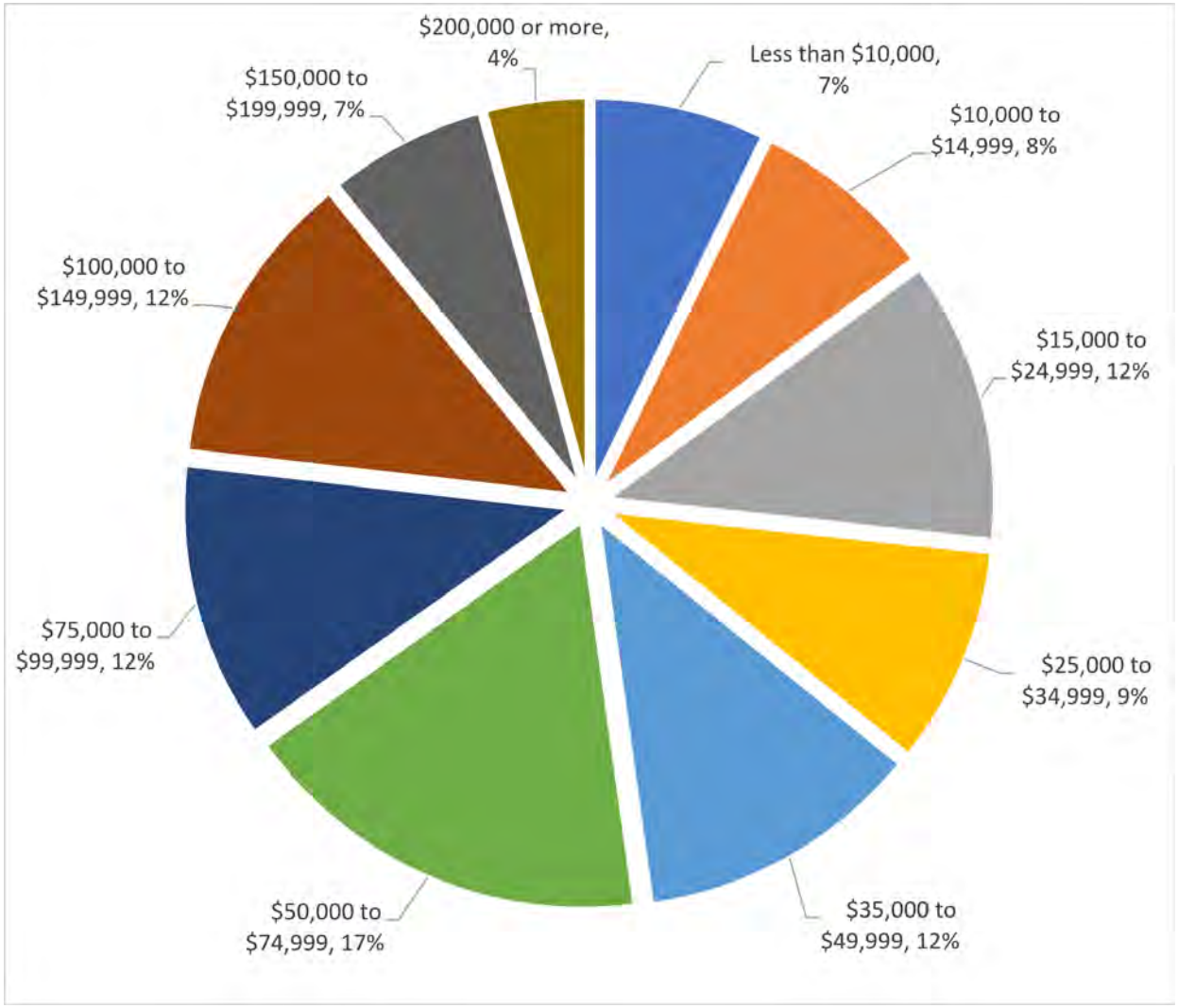
Source: U.S. Census Bureau 1990, 2000, 2010, 2020a Decennial Census DEC Summary Files

Figure 11. Total Population of Chaves County and the City of Roswell



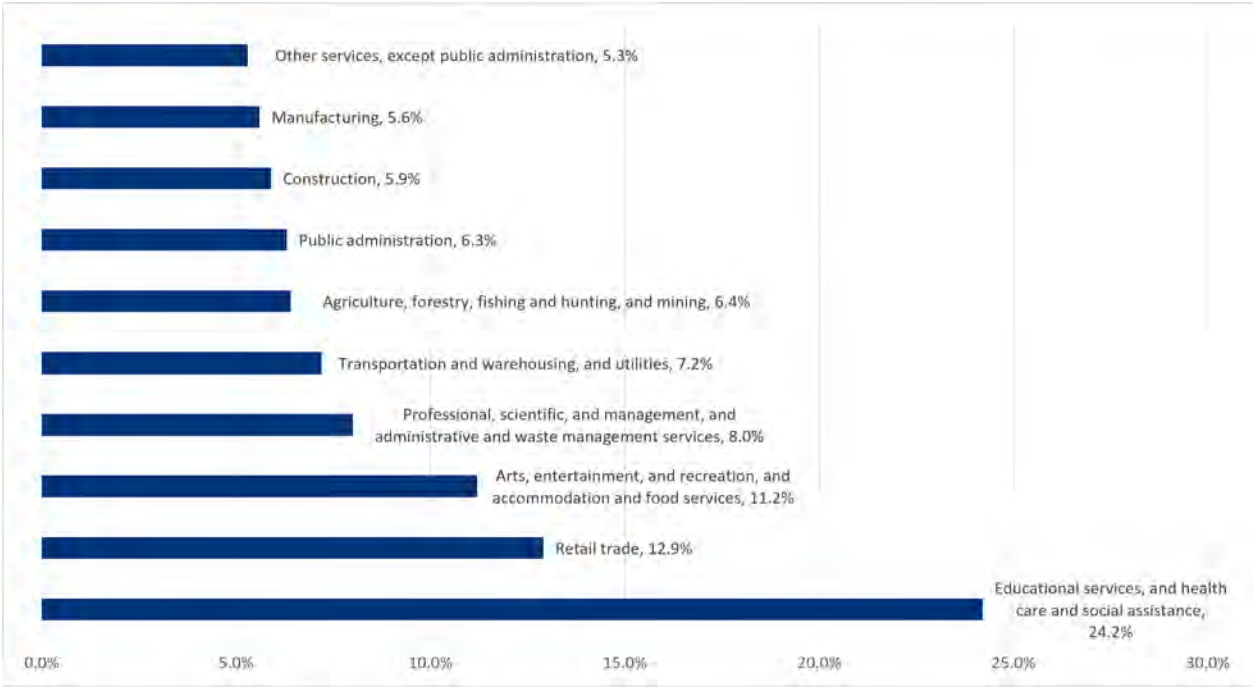
Source: U.S. Census Bureau 2024b

Figure 12. Chaves County Housing Unit Occupancy



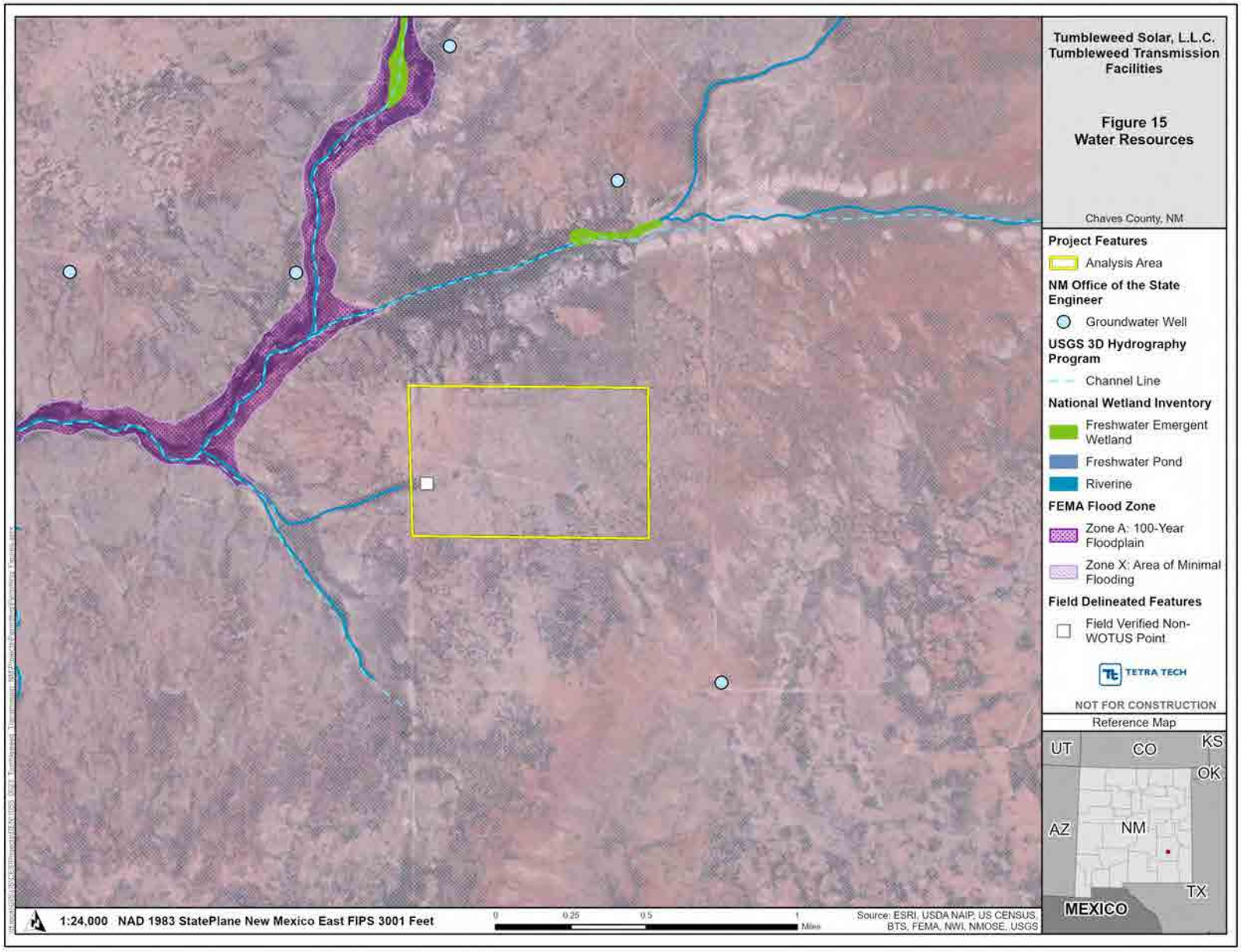
Source: U.S. Census Bureau 2026a.

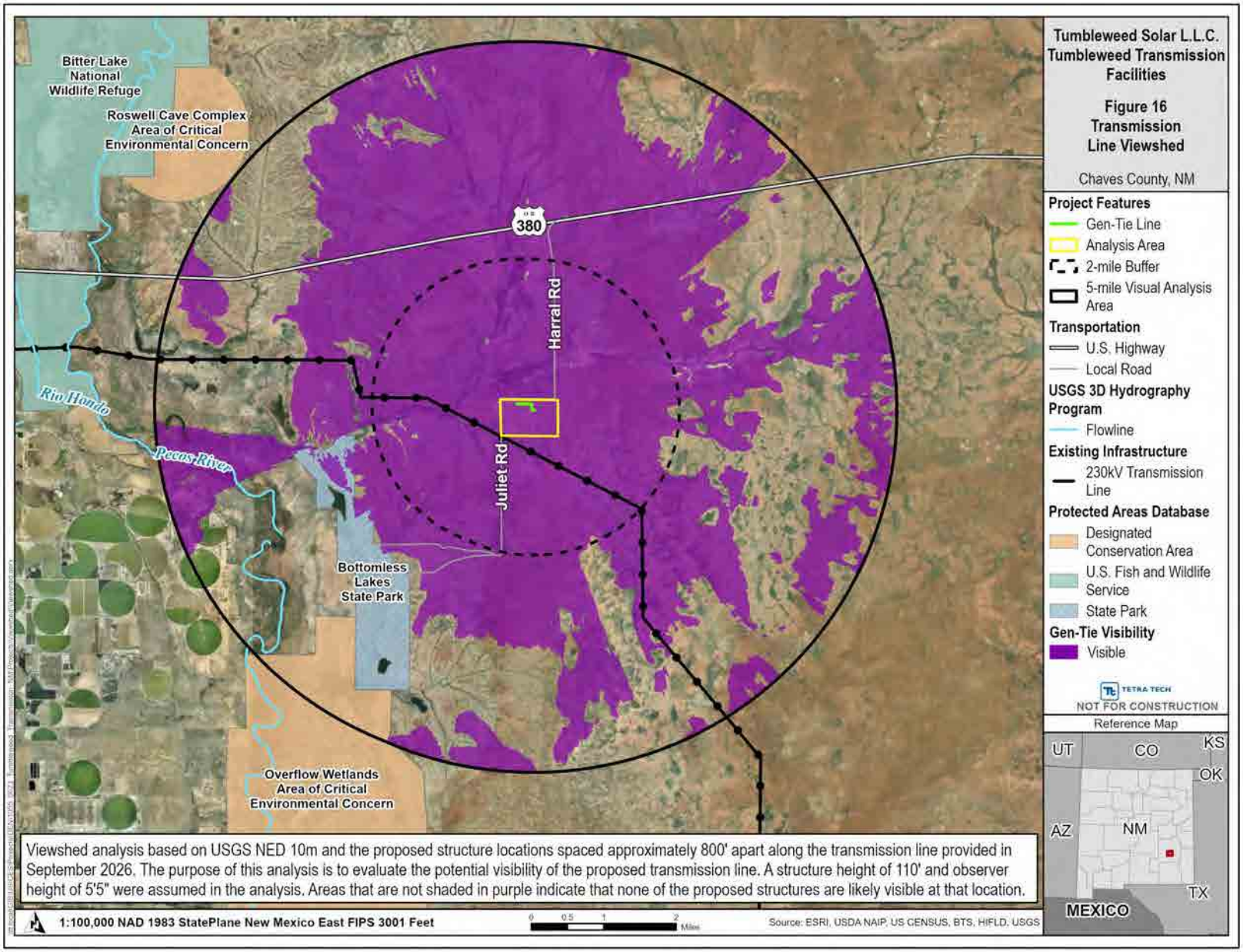
Figure 13. Chaves County Income Distribution



Source: U.S. Census Bureau 2026a.

Figure 14. Chaves County Employment by Industry


Tumbleweed Solar, L.L.C.
Tumbleweed Transmission Facilities
Figure 15
Water Resources
Chaves County, NM
Project Features
Analysis Area
NM Office of the State Engineer
Groundwater Well
USGS 3D Hydrography Program
Channel Line
National Wetland Inventory
Freshwater Emergent Wetland
Freshwater Pond
Riverine
FEMA Flood Zone
Zone A: 100-Year Floodplain
Zone X: Area of Minimal Flooding
Field Delineated Features
Field Verified Non-WOTUS Point
TETRA TECH
NOT FOR CONSTRUCTION
Reference Map
UT
CO
KS
OK
AZ
NM
TX
MEXICO
1:24,000 NAD 1983 StatePlane New Mexico East FIPS 3001 Feet
0 0.25 0.5 1 Miles
Source: ESRI, USDA NAIP, US CENSUS, BTS, FEMA, NWI, NMOSE, USGS


Tumbleweed Solar L.L.C.
Tumbleweed Transmission Facilities
Figure 16
Transmission Line Viewshed
Chaves County, NM
Project Features
Gen-Tie Line
Analysis Area
2-mile Buffer
5-mile Visual Analysis Area
Transportation
U.S. Highway
Local Road
USGS 3D Hydrography Program
Flowline
Existing Infrastructure
230kV Transmission Line
Protected Areas Database
Designated Conservation Area
U.S. Fish and Wildlife Service
State Park
Gen-Tie Visibility
Visible
TETRA TECH
NOT FOR CONSTRUCTION
Reference Map
UT
CO
KS
OK
AZ
NM
TX
MEXICO
Bitter Lake National Wildlife Refuge
Roswell Cave Complex Area of Critical Environmental Concern
380
Harral Rd
Juliet Rd
Rio Hondo
Pecos River
Bottomless Lakes State Park
Overflow Wetlands Area of Critical Environmental Concern
Viewshed analysis based on USGS NED 10m and the proposed structure locations spaced approximately 800' apart along the transmission line provided in September 2026. The purpose of this analysis is to evaluate the potential visibility of the proposed transmission line. A structure height of 110' and observer height of 5'5" were assumed in the analysis. Areas that are not shaded in purple indicate that none of the proposed structures are likely visible at that location.
1:100,000 NAD 1983 StatePlane New Mexico East FIPS 3001 Feet
0 0.5 1 2 Miles
Source: ESRI, USDA NAIP, US CENSUS, BTS, HIFLD, USGS

APPENDIX A LIST OF PROTECTION MEASURES

Air

Air 1: Maintain construction equipment in accordance with manufacturer specifications to minimize combustion-related emissions during construction.

Air 2: Limit idling of construction equipment to the minimum necessary for proper operation.

Air 3: Enforce reduced vehicle speeds within construction areas to minimize the generation of fugitive dust.

Air 4: Implement irrigation with water or other palliatives or other dust control measures to reduce fugitive dust from construction activities.

Air 5: If on-site crushing and screening plants are required, ensure equipment complies with applicable air emission standards under 40 CFR 60 Subpart OOO (NSPS for Nonmetallic Mineral Processing Plants). Pre-NSPS equipment that does not meet these standards shall not be used. At least 90 days prior to use, the appropriate air quality permit (General Construction Permit [GCP] or Part 72 permit) will be obtained in accordance with the New Mexico Air Quality Control Act (NMSA 1978, §§ 74-2-1 et seq.) and 20.7.72 NMAC. Crushing and screening plants previously permitted at another location must obtain relocation approval from the New Mexico Environment Department (NMED) at least 90 days prior to use.

Air 6: If an on-site concrete batch plant is required, the appropriate air quality permit (GCP or Part 72 permit) will be obtained at least 90 days prior to operation, in accordance with the New Mexico Air Quality Control Act and 20.7.72 NMAC. Concrete batch plants previously permitted at a different location must obtain relocation approval from NMED, if applicable, at least 90 days prior to use.

Cultural

Cultural 1: Prepare an Unanticipated Discovery Plan.

Cultural 2: As required by Section 18-6-11.2 of the New Mexico Cultural Properties Act, New Mexico Statutes Annotated 1978, if human remains are encountered during construction, work will cease within 100 feet of the discovery and the New Mexico New Mexico State Historic Preservation Office, local law enforcement agency, and Office of the Medical Investigator will be notified.

Fire

Fire 1: Implement wildland fire prevention measures during construction, including limiting vehicle travel within and to construction areas to essential vehicles only, establishing parking areas, designating approved smoking areas, restricting non-construction flame sources outside of vehicles, and establishing safety requirements for construction-related flame and spark sources.

Fire 2: Coordinate emergency response procedures with local emergency response personnel prior to construction, as appropriate.

Fire 3: Equipment vehicles with fire suppression tools and equipment such as shovels and fire extinguishers, as appropriate.

Land Use

Land Use 1: Restore compacted soils as close as possible to pre-construction conditions as required for ground stabilization and erosion control.

Land Use 2: Obtain building permits from Chaves County.

Land Use 3: Obtain electrical permits from New Mexico Regulation and Licensing Department Construction Industries Division.

Land Use 4: Coordinate with the FAA and Department of Defense facilities as needed.

Noise

Noise 1: Maintain construction tools and equipment in good operating order according to manufacturers' specifications.

Noise 2: Limit use of major excavating and earth moving machinery to daytime hours.

Noise 3: To the extent practicable, schedule construction activity between dawn and dusk on weekdays, when higher sound levels are typically present and are found acceptable. Some limited activities, but not limited to, such as concrete pours, will be required to occur continuously until completion.

Noise 4: Equip any internal combustion engine used for any purpose on the job or related to the job with a properly operating muffler that is free from rust, holes, and leaks.

Noise 5: For construction devices that utilize internal combustion engines, ensure the engine's housing doors are kept closed, and install noise-insulating material mounted on the engine housing consistent with manufacturers' guidelines, if possible.

Safety

Safety 1: Federal and state occupational health and safety standards, including OSHA requirements (29 CFR 1926), will be implemented for the Transmission Facilities.

Safety 2: Prior to construction, a site safety plan will be prepared for contractors. The plan will identify the nearest emergency medical facilities, agency contacts and procedures, and inclement weather protocols.

Soil

Soil 1: Limit construction activities so that activities will not occur during wet conditions when soil is saturated. Following a rain event, work will resume only after the Analysis Area is no longer inundated.

Soil 2: Comply with SWPPP protocols.

Soil 3: Segregate topsoil from subsoils and bedrock during excavation to the extent practicable. Topsoil and subsoils will not be commingled and will be replaced in the reverse order of excavation to the extent practicable.

Soil 4: Minimize erosion through the implementation and maintenance of standard erosion and sediment control measures. These may include certified weed-free straw wattles, bale barriers, and silt fencing. Specific erosion and sediment control measures will be identified in the SWPPP.

Soil 5: Prepare a geotechnical report prior to construction.

Transportation

Transportation 1: Obtain applicable permits needed to transport equipment and materials, including an oversize/overweight permit and utility permit as applicable.

Transportation 2: Prepare a traffic management plan which details the anticipated trip generation, proposed traffic flow, haul routes, and mitigation measures associated with the Transmission Facilities's construction. The traffic management plan will identify hazards, assess risks, and implement control measures to protect workers, contractors, and the public.

Transportation 3: Establish construction speed limits to promote safety and efficiency for all road users.

Vegetation

Vegetation 1: Construction will not be conducted during wet conditions when soils are saturated. After a rain event, construction would commence once the area is no longer inundated and would adhere to Stormwater Pollution Prevention Plan (SWPPP) protocols.

Vegetation 2: Topsoil will be placed separately from sub-soils/bedrock during excavation and not comingled and will be replaced in reverse order of excavation.

Vegetation 3: Erosion will be reduced by applying and maintaining standard erosion and sediment control methods. These may include using certified weed-free straw wattles and bale barriers and silt fencing. Specific erosion and sediment control measures will be specified in a SWPPP.

Vegetation 4: If any vegetated swales form due to heavy rainfall in areas of soil disturbance, then straw 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 after completion of construction. Reseeding shall use native grasses, shrubs, or forbs or as agreed to with landowner.

Vegetation 5: A Noxious Weed Management and Revegetation Plan will be developed and implemented for the control of noxious weeds and invasive species that could occur as a result of new surface disturbance activities at the Analysis Area.

Vegetation 6: If required as part of the SWPPP, a native seed mix will be applied to all temporary disturbance areas, followed by applications of mulch as required to provide additional erosion control.

Visual

Visual 1: Gen-tie structures and associated components will be low-glare finishes and colors that are compatible with the surrounding landscape, where feasible and consistent with applicable safety, engineering, and regulatory requirements.

Visual 2: Lighting, particularly for any necessary nighttime work, will be limited to what is required for safety, security, and emergencies and turned off when not in use.

Waste

Waste 1: Prepare a Spill Prevention, Containment, and Countermeasure Plan.

Waste 2: Prevent discharge of hazardous materials into the ground or into streams, drainage features, or other watercourses.

Waste 3: Remove and dispose of construction waste and other potentially hazardous materials at a facility authorized to accept such materials.

Waste 4: Implement a hazard communication program for onsite hazardous materials, including employee training, proper labeling, and posting of Safety Data Sheets (SDS).

Waste 5: Fuels and petroleum-based products will be stored in approved containers and kept away from excavated areas. Waste motor oil, hydraulic fluid, and liquid gear lubricant will be stored in approved containers in designated isolated areas and removed monthly to an authorized disposal facility in accordance with New Mexico Environment Department (NMED) regulations.

Waste 6: Equipment with hydraulic hoses and cylinders will be inspected for leaks. Equipment found to have petroleum leaks that cannot be repaired immediately will be removed from service and replaced.

Waste 7: Contractors will receive appropriate training for hazardous materials.

Waste 8: Maintain spill kits onsite.

Waste 9: Any leaking equipment will be repaired immediately.

Waste 10: If contaminants are released, the Transmission Facilities will comply with the notification requirements set forth in 20.6.2.1203 NMAC.

Water

Water 1: Develop and implement a SWPPP as required by the New Mexico Environment Department Surface Water Quality Bureau and obtain coverage under a National Pollution Discharge Elimination System Construction General Permit from the U.S. Environmental Protection Agency pursuant to Section 402 of the Clean Water Act, 33 United States Code § 1342. The SWPPP may 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 original condition to the extent practicable in order to meet SWPPP requirements for runoff and erosion control. Seed mix and seeding rates will be developed through consultation with the local agency, experts, or landowner preference.

Water 3: Equipment will be properly maintained for fluid leaks.

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

Water 5: Spills will be cleaned up immediately.

Water 6: No facilities shall be located in areas determined to be jurisdictional WOTUS by the USACE.

Water 7: Avoid fill and placing structures in WOTUS and other surface water features.

Water 8: Any new water wells drilled or diversions of existing water rights in the analysis area for the Transmission Facilities shall be appropriately permitted with the New Mexico Office of the State Engineer, and with the agreement of the water rights holder.

Water 9: No substation or gen-tie shall be located in areas mapped as a 100-year floodplain by the Federal Emergency Management Agency. Collection/lines, cables and access roads shall be designed to avoid 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 avoid the floodplain and not affect the base flood elevation.

Water 10: To the extent practicable, access roads shall be designed to avoid all jurisdictional WOTUS and 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. To the extent practicable, temporary access roads shall be designed following existing landform contours, where practicable, and revegetated with native or similar grasses, shrubs or forbs, or as agreed to with landowner.

Wildlife

Wildlife 1: Properly disposing of trash and food debris.

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

Wildlife 3: Providing environmental awareness training to all construction personnel working on the Transmission Facilities.

Wildlife 4: Checking trenches, excavations, and uncapped pipe segments for wildlife (NMDGF 2022).

Wildlife 5: Complying with posted and established Transmission Facilities speed limits.

Wildlife 6: Conducting vegetation clearing outside the nesting season (March 1 to September 15), where feasible, to discourage birds from establishing nests in Transmission Facilities work areas.

Wildlife 7: The worker environmental awareness program will including training specific to avoidance of migratory birds and active migratory bird nests during the nesting season from March 15 to September 15. If active nests are found in the Analysis Area during construction, a biologist will be contacted to evaluate the activity status of the nest. The nest will be avoided until determined inactive by a biologist.

Wildlife 8: Vegetation removal during the breeding season (March 1st–August 31st) could be preceded by a pre-construction nesting survey up to 2 weeks prior to construction to establish the occupancy status of any potentially suitable nests or nesting burrows detected within the Analysis Area. If active nests are found in the Analysis Area, a biologist will be contacted to evaluate the activity status of the nest. The nest will be avoided until determined inactive by a biologist.

Wildlife 9: Facilities are designed to discourage their use as perching or nesting substrates by birds including designing aboveground transmission and facilities to follow established Avian Power Line Interaction Committee (APLIC) guidelines to minimize bird collisions and avoid electrocution of raptors.

Wildlife 10: Species-specific surveys would be conducted to determine the presence of milkweed vegetation in the Analysis Area. These surveys would occur during the period (late April - September) that milkweed is detectable. If milkweed vegetation is present, the revegetation seed mix would include pollinator species such as milkweed. Milkweed vegetation removal will be minimized to the greatest extent possible.

Wildlife - Migratory Birds 1: In accordance with the MBTA, construction activities and vegetation clearing would be conducted outside the peak breeding season (March 1 to September 15 at the Analysis Area) to avoid any adverse effects to migratory birds and their habitat.

Wildlife - Migratory Birds 2: If construction and vegetation clearing occur from March 1 through September 15, active avian nest surveys should be conducted by a biologist no more than 5 days prior to planned construction.

Wildlife - Migratory Birds 3: Some migratory birds may use abandoned mammal burrows found on-site for shelter and rearing of young; additionally, ground-nesting species have the potential to be found on-site. Construction personnel should be made aware of these species, their habits, and regulatory status, and biological monitors clearing areas for construction should take these species into account. They should consider species that will nest in trees and brush as well as ground- and burrow-nesters.

Wildlife - Migratory Birds 4: If migratory birds or their nests are present prior to or during construction, actions should be implemented to ensure migratory birds and their nests, eggs, and young will not be harmed. This can be achieved by establishing buffer distances from active nests. Clearing and construction activities should not occur in the buffer areas until the nests are no longer active. The NMERT results for the Analysis Area (NMDOW 2026) provided the following minimum distances for active nest buffer zones:

- 100 feet from songbird and raven nests;
- 0.25 miles from most raptor nests; and
- 0.50 miles for ferruginous hawk (*Buteo regalis*), golden eagle, peregrine falcon, and prairie falcon (*Falco mexicanus*).

Wildlife - Migratory Birds 5: The worker environmental awareness program will include training specific to avoidance of migratory birds and active migratory bird nests during the breeding season from March 1 to September 15. If active nests are found in the Analysis Area during construction, a biologist will be contacted to evaluate the activity status of the nest. The nest will be avoided until determined inactive by a biologist.

Wildlife - Migratory Birds 6: Facilities are designed to discourage their use as perching or nesting substrates by birds, including designing aboveground transmission and facilities to follow established Avian Power Line Interaction Committee guidelines to minimize bird collisions and avoid electrocution of raptors (APLIC 2026).

Wildlife - Migratory Birds 7: The Project will be in conformance with Avian Power Line Interaction Committee (APLIC) standards, including (but not limited to) clearance space between power lines, insulation on hardware when safe spacing is not possible, and line markings (APLIC 2005; APLIC 2026).

BEFORE THE NEW MEXICO PUBLIC REGULATION COMMISSION

IN THE MATTER OF THE APPLICATION OF TUMBLEWEED SOLAR, L.L.C. FOR LOCATION APPROVAL OF SOLAR GENERATION FACILITIES AND ASSOCIATED TRANSMISSION FACILITIES PURSUANT TO NMSA § 62-9-3; AND RIGHT-OF-WAY WIDTH DETERMINATION PURSUANT TO NMSA § 62-9-3.2	)	**Case No. 26-_____**

ELECTRONICALLY SUBMITTED VERIFICATION

Rebekah Longstreet, under penalty of perjury under the laws of the State of New Mexico, states:

I make this verification pursuant to 1.2.2.10(E) NMAC and New Mexico R. 1-011(B) NMRA.

I have read the foregoing *Direct Testimony of Rebekah Longstreet* and the exhibits attached thereto, and the statements therein are true and correct based on my personal knowledge and belief.

Dated: 10/12/2026

Rebekah Longstreet

Rebekah Longstreet

BEFORE THE NEW MEXICO PUBLIC REGULATION COMMISSION

IN THE MATTER OF THE APPLICATION OF TUMBLEWEED SOLAR, L.L.C. FOR LOCATION APPROVAL OF SOLAR GENERATION FACILITIES AND ASSOCIATED TRANSMISSION FACILITIES PURSUANT TO NMSA § 62-9-3; AND RIGHT-OF-WAY WIDTH DETERMINATION PURSUANT TO NMSA § 62-9-3.2	)	**Case No. 26-_____**

DIRECT TESTIMONY

OF

AMANDA HARGRAVE, CWB®

ON BEHALF OF

TUMBLEWEED SOLAR, L.L.C.

OCTOBER 16, 2026

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Attachments:

Exhibit AH-1: Resume of Amanda Hargrave, CWB®
Exhibit AH-2: Natural Resources Report

Verification of Amanda Hargrave

I. WITNESS INTRODUCTION

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS

A. My name is Amanda Hargrave. My business address is 8100 Capitol of TX Hwy STE 2310, Austin, TX 78759,

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

A. I am employed by Tetra Tech, Inc. ("Tetra Tech") as a Senior Project Manager.

Q. PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND EXPERIENCE.

A. I have over 13 years of experience in natural resource conservation and wildlife ecology. I have been working in renewable energy industry for 11 years as an environmental consultant and project manager. My resume is attached as Exhibit AH-1.

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

A. I am appearing on behalf of Tumbleweed Solar, L.L.C. ("Tumbleweed" or "Applicant").

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. My testimony supports Tumbleweed's application to the New Mexico Public Regulation Commission ("Commission" or "NMPRC") for location approval of the up to 1,700-foot-long 230 kilovolt (kV) generation tie transmission line (“Gen-Tie Line”) and 5-acre Substation (together, the "Transmission Facilities") associated with the Tumbleweed Solar Generation Facility. I address biological and water resources and impact assessment regarding the approximately 252-acre Analysis Area within which the Transmission Facilities will be located.

Q. HAVE YOU TESTIFIED BEFORE ANY REGULATORY AUTHORITIES?

A. No. However, I have provided presentations to regulatory authorities including federal, state, and local authorities.

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

A. I sponsor Exhibit AH-1, which is my resume, and Exhibit AH-2, which is the Natural Resources Report for the Tumbleweed Transmission Facilities.

Q. WERE EXHIBITS AH-1 AND AH-2 PREPARED BY YOU OR UNDER YOUR SUPERVISION?

A. Yes.

Q. ARE EXHIBITS AH-1 AND AH-2 TRUE AND CORRECT COPIES OF THE DOCUMENTS YOU DESCRIBE IN YOUR TESTIMONY?

A. Yes.

II. THE NATURAL RESOURCES STUDIES AND REPORT

Q. PLEASE DESCRIBE THE SCOPE OF THE NATURAL RESOURCES STUDIES.

A. The natural resources studies included identification and assessment of potential impacts on biological resources and aquatic resources within the approximately 252-acre Analysis Area within which the Transmission Facilities are proposed to be located. See Figure 1 in the Natural Resources Report. We performed desktop analyses and field studies regarding biological resources, water resources, surface water drainages, and Waters of the U.S.

Q. PLEASE DESCRIBE THE STUDIES YOU PERFORMED TO IDENTIFY AND ASSESS THE BIOLOGICAL RESOURCES AND WATER RESOURCES IN THE TRANSMISSION FACILITIES ANALYSIS AREA.

A. Tetra Tech was contracted by Tumbleweed to perform desktop and field reconnaissance surveys to assess biological and water resources, and to assess habitat suitability for federal and State of New Mexico special-status species. We first did a desktop analysis and reviewed baseline data for the Analysis Area, including:

- National Hydrography Dataset geographic information system maps (USGS 2026b)
- National Wetlands Inventory maps (USFWS 2026c)
- Natural Resources Conservation Service soil maps (USDA 2026)
- New Mexico Department of Agriculture's Noxious Weed List (NMDA 2020)
- New Mexico Department of Game and Fish Biota Information System of New Mexico data (BISON-M 2026)
- New Mexico Energy, Minerals, and Natural Resources Department website (NM-EMNRD 2026)
- New Mexico Environmental Review Tool (NMDOW 2026)
- New Mexico Rare Plants website (NMRPTC 1999)
- Southwest Regional Gap Analysis Transmission Facilities (SWReGAP 2026)
- U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation system data (USFWS 2026a)
- U.S. Geological Survey topographic maps (USGS 2026a)
- USFWS Critical Habitat Portal (USFWS 2026b)

Based on the baseline information gathered via desktop, we conducted field surveys on November 4 and 5, 2025, December 22, 2025, and March 3, 2026 to assess the natural resources within the Analysis Area. The field surveys utilized pedestrian transects and were conducted via accessible public roads adjacent to and crossing the Analysis Area. We documented readily observable and identifiable plants, habitat, and wildlife occurring within the Analysis Area.

We also evaluated the presence and potential impacts on special status species, which consist of: 1) federally protected (endangered and threatened) species; 2) additional species listed by the U.S. Fish and Wildlife Service ("USFWS") as candidates for listing and proposed listed species; and 3) state listed endangered and threatened species. The

potential for local species occurrence was based on: 1) existing information on species' distribution, and 2) qualitative comparisons of the habitat requirements of each species with vegetation communities, landscape features, and/or water quality conditions in the Analysis Area.

As part of the water resources survey, the Analysis Area was reviewed for the presence of special aquatic sites, potential waters of the United States ("WOTUS"), and other surface drainages. The presence or absence of wetlands, special aquatic sites other than wetlands (sanctuaries, refuges, mud flats, vegetated shallows, and riffle and pool complexes), playas and vegetated depressions, and lotic systems (*e.g.*, creeks, rivers, arroyos, human-made ditches; collectively "streams") was identified in the desktop analysis and the field using routine delineation methods outlined by the U.S. Army Corps of Engineers. The presence or absence of non-WOTUS ephemeral channels was also noted.

Q. PLEASE DESCRIBE THE NATURAL RESOURCES REPORT.

A. The Natural Resources Report, attached as Exhibit AH-2, describes the biological resources and surface drainages within and surrounding the Analysis Area based on our investigations, and reviews expected impacts on these resources due to the location of the Transmission Facilities within the Analysis Area. The impact analyses assume that up to 252 acres within the Analysis Area would be cleared of all vegetation for the Transmission Facilities, and the protection measures identified in the Natural Resources Report would be implemented.

III. <u>BIOLOGICAL RESOURCES</u>

Q. PLEASE CHARACTERIZE THE BIOLOGICAL RESOURCES THAT OCCUR IN THE TRANSMISSION FACILITIES ANALYSIS AREA.

A. As set forth below, the upland scrub, shortgrass prairie, creosote bush, mixed desert, and thorn scrub habitat type within the Analysis Area is common across the regional landscape and is readily available on land adjacent to the Analysis Area. The Analysis Area has been highly disturbed by cattle grazing, and has large expanses of the non-native, introduced Lehmann lovegrass (*Eragrostis lehmanniana*). No unique vegetation, wildlife, or habitat features were identified during the field surveys of the Analysis Area. Representative photos of the Analysis Area are in Appendix A in the Natural Resources Report.

Q. PLEASE DESCRIBE THE VEGETATION IN THE ANALYSIS AREA.

A. The Analysis Area is dominated by Apacherian-Chihuahuan Upland Scrub, followed by Western Great Plains Shortgrass Prairie, and Chihuahuan Creosotebush, Mixed Desert and Thorn Scrub. The Analysis Area is located within the Chihuahuan Basins and Playas Level IV Ecoregion. During the field survey, we determined that the Analysis Area is dominated by creosotebush (*Larrea tridentata*) and honey mesquite (*Prosopis grandulosa*) with various grasses in the understory, which is typical of current vegetation in the ecoregion. The Analysis Area has been highly disturbed by cattle and has large expanses of the non-native, introduced Lehmann lovegrass (*Eragrostis lehmanniana*). Plant species recorded during the biological surveys are listed in Table 3 in the Natural Resources Report. Photographs of the vegetative community are provided in Appendix A of the Natural Resources Report.

During the biological surveys, no U.S. Department of Agriculture-listed noxious weed species were observed within or around the Analysis Area. One New Mexico Department of Agriculture state-listed noxious weed species was observed within the Analysis Area: saltcedar (*Tamarix*).

Q. PLEASE DESCRIBE THE WILDLIFE THAT IS EXPECTED TO OCCUR IN THE ANALYSIS AREA.

A. The Analysis Area and the surrounding area, while degraded due to livestock grazing, provide habitat for a variety of wildlife species. We detected four avian species, six mammals, and one reptile during the field surveys, which are listed in Table 4 of the Natural Resources Report. No active animal burrows were observed within the Analysis Area.

Q. PLEASE CHARACTERIZE THE EXPECTED IMPACTS OF THE TRANSMISSION FACILITIES TO BIOLOGICAL RESOURCES IN GENERAL.

A. For impact assessment purposes, we assume the Analysis Area would be cleared of all vegetation during construction, and the Transmission Facilities would result in up to approximately 252 acres of new surface disturbance. Direct impacts to wildlife from construction would include the removal of existing vegetation, risk of direct mortality of species during construction, loss or degradation of native habitat, and displacement of wildlife species from habitat due to development. Additional potential indirect impacts could include disruption or displacement of species from nesting/birthing and foraging areas, changes in activity patterns due to construction, increased human activity, and noise disturbance.

Further impacts on vegetation would occur as a result of deposition of fugitive dust generated during clearing and grading activities, the use of access roads, and from wind erosion of exposed soils. This could reduce photosynthesis and productivity, increase water loss, and result in injury to leaves on plants near the Analysis Area. Localized fugitive dust could be generated from the areas of disturbed soil from blading associated with construction. Plant community composition could subsequently be altered, resulting in

habitat degradation. Localized impacts on plant populations and communities could occur if seed production in some plant species is reduced.

Construction traffic and equipment brought to the Analysis Area also represent a pathway for the introduction and spread of noxious weeds and invasive plant species. Tumbleweed proposes to implement a Noxious Weed Management and Revegetation Plan, which would align with the control methods for the listed invasive and noxious plant species outlined within the New Mexico State's Troublesome Weeds of New Mexico booklet.

Construction equipment associated with the Transmission Facilities would emit the highest noise levels of the Project. During operation and maintenance, the Analysis Area would be fenced at the perimeter, limiting the types of wildlife that may use the Analysis Area. Operations activities would occasionally include noise disturbances that would temporarily displace wildlife in the Analysis Area and vicinity. These impacts would be short-term, occurring approximately twice per year under routine operations. Affected individuals would be able to move away from the noise to adjacent land. Due to the short-term and temporary nature of construction noise, long-term impacts to wildlife species would be negligible and unlikely to result in population-level effects.

Post-construction and interim reclamation would occur in areas not needed for long-term operations and maintenance. Reclamation would include establishment of native vegetation. Impacts to vegetation from decommissioning activities would be similar to impacts from construction. Once decommissioning is complete, final reclamation of the Analysis Area would reestablish vegetation.

Q. WHAT PROTECTION MEASURES DOES TUMBLEWEED PROPOSE TO IMPLEMENT REGARDING BIOLOGICAL RESOURCES IN GENERAL?

A. Tumbleweed proposes the following Protection Measures regarding biological resources in general:

- Water 2: Temporarily disturbed areas will be revegetated to the extent practicable in order to meet SWPPP requirements for runoff and erosion control. Seed mix and seeding rates will be developed through consultation with the local agency, experts, or landowner preference.
- Land Use 1: Restore compacted soils as close as possible to pre-construction conditions as required for ground stabilization and erosion control.
- Wildlife 1: Properly disposing of trash and food debris.
- Wildlife 2: Allow wildlife that has entered the work area to leave the area on their own.
- Wildlife 3: Providing environmental awareness training to all construction personnel working on the Transmission Facilities.
- Wildlife 4: Checking trenches, excavations, and uncapped pipe segments for wildlife (NMDGF 2022).
- Wildlife 5: Complying with posted and established Transmission Facilities speed limits.
- Wildlife 6: Conducting vegetation clearing outside the nesting season (March 15 to September 15) where feasible to discourage birds from establishing nests in Transmission Facilities work areas.

- Wildlife 7: The worker environmental awareness program will including training specific to avoidance of migratory birds and active migratory bird nests during the nesting season from March 15 to September 15. If active nests are found in the Analysis Area during construction, a biologist will be contacted to evaluate the activity status of the nest. The nest will be avoided until determined inactive by a biologist.
- Wildlife 8: Vegetation removal during the breeding season (March 1st–August 31st) could be preceded by a pre-construction nesting survey up to 2 weeks prior to construction to establish the occupancy status of any potentially suitable nests or nesting burrows detected within the Analysis Area. If active nests are found in the Analysis Area, a biologist will be contacted to evaluate the activity status of the nest. The nest will be avoided until determined inactive by a biologist.
- Wildlife 9: Facilities are designed to discourage their use as perching or nesting substrates by birds including designing aboveground transmission and facilities to follow established Avian Power Line Interaction Committee (APLIC) guidelines to minimize bird collisions and avoid electrocution of raptors.
- Wildlife 10: Species-specific surveys would be conducted to determine the presence of milkweed vegetation in the Analysis Area. These surveys would occur during the period (late April - September) that milkweed is detectable. If milkweed vegetation is present, the revegetation seed mix would include pollinator species such as milkweed. Milkweed vegetation removal will be minimized to the greatest extent possible.

- Vegetation 5: A Noxious Weed Management and Revegetation Plan will be developed and implemented for the control of noxious weeds and invasive species that could occur as a result of new surface disturbance activities at the Analysis Area.
- Vegetation 6: If required as part of the SWPPP, a native seed mix will be applied to all temporary disturbance areas, followed by applications of mulch as required to provide additional erosion control.
- Noise 1: Construction activities will generally be limited to the least noise-sensitive times of day (i.e., daytime between 6 a.m. and 8 p.m.), unless necessary due to weather, safety, or schedule constraints. Construction equipment will be equipped with manufacturers' standard noise control devices or better (e.g., mufflers, engine enclosures).
- General 1: Implement a worker environmental awareness program to train facility personnel regarding their responsibilities to conserve protected resources that are located on-site and associated treatment measures.

Q. IN YOUR OPINION, WILL THE TRANSMISSION FACILITIES UNDULY IMPAIR IMPORTANT ENVIRONMENTAL VALUES REGARDING BIOLOGICAL RESOURCES IN GENERAL?

A. With the implementation of the proposed Protection Measures, the loss of about 252 acres of vegetation and wildlife habitat would not cause undue degradation to general wildlife and vegetation as this habitat type is common across the regional landscape and is readily available on land surrounding the Analysis Area. Our impact assessment takes into account that Tumbleweed proposes to implement protection measures, listed above and discussed

in Section 4 of the Natural Resources Report, to avoid and minimize impacts to environmental values regarding biological resources.

IV. SPECIAL STATUS SPECIES

Q. WHAT ARE SPECIAL STATUS SPECIES?

A. Special-status species evaluated in this investigation consist of: 1) federally protected (endangered and threatened) species pursuant to the Federal Endangered Species Act; 2) additional species listed by the USFWS as candidate and proposed species; 3) state-listed endangered and threatened species; and 4) bald eagles and golden eagles protected under the Migratory Bird Treaty Act ("MBTA") and the Bald and Golden Eagles Protection Act (BGEPA).

Q. ARE SPECIAL STATUS SPECIES LIKELY TO OCCUR IN THE TRANSMISSION FACILITIES ANALYSIS AREA?

A. Tetra Tech reviewed the federally listed and state listed species with the potential to occur within the Analysis Area. Two species federally listed under the Endangered Species Act, the peregrine falcon (*Falco peregrinus*) and monarch butterfly (*Danaus plexippus*), *have the potential* to occur as transient species within the Analysis Area. Possible impacts to these species are evaluated in sections 3.5.3.1 and 3.5.3.2 of the Natural Resources Report. The remaining species set forth in Table 5 of the Natural Resources Report are unlikely to occur in the Analysis Area due to lack of suitable habitat and/or being outside their known geographic range. Table 5 of the Report describes the special-status species with the potential to occur in the Analysis Area, their habitat, and their likelihood to occur in the Analysis Area.

Bald eagles (*Haliaeetus leucocephalus*) and golden eagles (*Aquila chrysaetos*) are protected under the MBTA and the BGEPA. Given bald and golden eagles' nesting preferences (for the northern part of the state), observational data, and lack of suitable nesting locations (*i.e.*, trees, structures, cliffs), neither species is likely to nest within the Analysis Area. Based on a lack of observational data of bald eagles, golden eagles, and their suitable nesting habitat, the risk to these species is low, including after infrastructure installation.

Q. WHAT PROTECTION MEASURES DOES TUMBLEWEED PROPOSE TO IMPLEMENT REGARDING SPECIAL STATUS SPECIES?

A. Tumbleweed proposes implementing the following Protection Measures to avoid, minimize, and mitigate impacts to special status species:

- Wildlife 1: Properly disposing of trash and food debris.
- Wildlife 2: Allow wildlife that has entered the work area to leave the area on their own.
- Wildlife 3: Providing environmental awareness training to all construction personnel working on the Transmission Facilities.
- Wildlife 4: Checking trenches, excavations, and uncapped pipe segments for wildlife.
- Wildlife 5: Complying with posted and established Transmission Facilities speed limits.
- Wildlife 6: Conducting vegetation clearing outside the nesting season (March 15 to September 15) where feasible to discourage birds from establishing nests in Transmission Facilities work areas.
- Wildlife 7: The worker environmental awareness program will including training specific to avoidance of migratory birds and active migratory bird nests during the nesting season

from March 15 to September 15. If active nests are found in the Analysis Area during construction, a biologist will be contacted to evaluate the activity status of the nest. The nest will be avoided until determined inactive by a biologist.

- Wildlife 8: Vegetation removal during the breeding season (March 1st–August 31st) could be preceded by a pre-construction nesting survey up to 2 weeks prior to construction to establish the occupancy status of any potentially suitable nests or nesting burrows detected within the Analysis Area. If active nests are found in the Analysis Area, a biologist will be contacted to evaluate the activity status of the nest. The nest will be avoided until determined inactive by a biologist.
- Wildlife 9: Facilities are designed to discourage their use as perching or nesting substrates by birds including designing aboveground transmission and facilities to follow established APLIC guidelines to minimize bird collisions and avoid electrocution of raptors.
- Wildlife 10: Species-specific surveys would be conducted to determine the presence of milkweed vegetation in the Analysis Area. These surveys would occur during the period (late April - September) that milkweed is detectable. If milkweed vegetation is present, the revegetation seed mix would include pollinator species such as milkweed. Milkweed vegetation removal will be minimized to the greatest extent possible.
- Wildlife - Migratory Birds 1: In accordance with the MBTA, construction activities and vegetation clearing would be conducted outside the peak breeding season (March 1 to September 15 at the Analysis Area) to avoid any adverse effects to migratory birds and their habitat.

- Wildlife - Migratory Birds 2: If construction and vegetation clearing occur from March 1 through September 15, active avian nest surveys should be conducted by a biologist no more than 5 days prior to planned construction.
- Wildlife - Migratory Birds 3: Some migratory birds may use abandoned mammal burrows found on-site for shelter and rearing of young; additionally, ground-nesting species have the potential to be found on-site. Construction personnel should be made aware of these species, their habits, and regulatory status, and biological monitors clearing areas for construction should take these species into account. They should consider species that will nest in trees and brush as well as ground- and burrow-nesters.
- Wildlife - Migratory Birds 4: If migratory birds or their nests are present prior to or during construction, actions should be implemented to ensure migratory birds and their nests, eggs, and young will not be harmed. This can be achieved by establishing buffer distances from active nests. Clearing and construction activities should not occur in the buffer areas until the nests are no longer active. The New Mexico Environmental Review Tool results for the Analysis Area provided the following minimum distances for active nest buffer zones:
    - 100 feet from songbird and raven nests;
    - 0.25 miles from most raptor nests; and
    - 0.50 miles for ferruginous hawk (*Buteo regalis*), golden eagle, peregrine falcon, and prairie falcon (*Falco mexicanus*).
- Wildlife - Migratory Birds 5: The worker environmental awareness program will include training specific to avoidance of migratory birds and active migratory bird nests during

the breeding season from March 1 to September 15. If active nests are found in the Analysis Area during construction, a biologist will be contacted to evaluate the activity status of the nest. The nest will be avoided until determined inactive by a biologist.

- Wildlife - Migratory Birds 6: Facilities are designed to discourage their use as perching or nesting substrates by birds, including designing aboveground transmission and facilities to follow established Avian Power Line Interaction Committee guidelines to minimize bird collisions and avoid electrocution of raptors.

- Wildlife - Migratory Birds 7: The Project will be in conformance with APLIC standards, including (but not limited to) clearance space between power lines, insulation on hardware when safe spacing is not possible, and line markings

Q. WILL THE TRANSMISSION FACILITIES UNDULY IMPAIR SPECIAL STATUS SPECIES?

A. Construction, operations, and maintenance activities associated with the Tumbleweed Transmission Facilities are not expected to unduly impair special status species.

With respect to the monarch butterfly, removal of vegetation in the Analysis Area would reduce the availability of flowering plants and thus possibly impact food sources. However, the vegetation in the Analysis Area is not unique to the surrounding landscape and habitat in the vicinity is uniform and would remain available. In addition, due to their ability to avoid or to move out of areas of human activity, adult butterflies are not likely to be directly harmed. Therefore, the proposed Transmission Facilities could impact individuals but would not likely contribute to a trend toward federal listing or cause a loss of viability to the population or species. In addition, the Transmission Facilities are not

within the direct migration flyway, making it unlikely that significant populations of monarch butterflies will utilize the Analysis Area.

The peregrine falcon is a state threatened species in New Mexico that breeds throughout much of North America and is considered a summer or year-round resident in montane areas of New Mexico. In Chaves County, peregrine falcons are considered rare, occurring during spring and fall migration. The peregrine falcon breeds in southeastern New Mexico, a small portion of southern New Mexico, and in the mountains and canyons of western New Mexico. During migration, peregrine falcons may occur in the Analysis Area. This species typically feeds on avian species such as pigeons and waterfowl. There are documented occurrences of peregrine falcons within 25 miles of the Analysis Area. Based on this data, the Analysis Area is outside the species' breeding range and within its migratory range, and has a moderate likelihood of occurrence within the Analysis Area during spring and fall migration. Further, Tumbleweed proposes to implement Protection Measures for migratory birds.

V. WATER RESOURCES, SURFACE DRAINAGES AND WATERS OF THE U.S.

Q. ARE SURFACE DRAINAGES OR WATERS OF THE U.S. EXPECTED TO OCCUR IN THE ANALYSIS AREA?

A. As part of the water resources survey, the Analysis Area was reviewed for the presence of special aquatic sites and potential WOTUS. Methods for identification of surface drainages and wetlands are set forth in the Natural Resources Report at Section 2.1. According to the National Wetlands Inventory, no special aquatic sites (including wetlands) are known to occur within the Analysis Area (see Natural Resources Report Figure 2). Based on review of the National Hydrography Dataset, no potentially jurisdictional water features intersect

the Analysis Area. During the water resource surveys, Tetra Tech confirmed the absence of surface water features and special aquatic sites within the Analysis Area.

Q. PLEASE CHARACTERIZE THE EXPECTED IMPACTS OF THE TRANSMISSION FACILITIES TO SURFACE DRAINAGES AND WATERS OF THE U.S.

A. Due to the lack of hydrology within the Analysis Area and implementation of protective measures, no direct or indirect impacts to wetlands or surface waters are expected from the construction or operations and maintenance of the Tumbleweed Transmission Facilities. The Protective Measures that Tumbleweed proposes regarding aquatic resources include the following:

- Water 1: A SWPPP will be developed and implemented as required by the New Mexico Environment Department Surface Water Quality Bureau and coverage will be obtained under a National Pollution Discharge Elimination System Construction General Permit from the U.S. Environmental Protection Agency pursuant to Section 402 of the Clean Water Act, 33 United States Code § 1342. The SWPPP may 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 original condition to the extent practicable in order to meet SWPPP requirements for runoff and erosion control. Seed mix and seeding rates will be developed through consultation with the local agency, experts, or landowner preference.
- Water 3: Equipment will be properly maintained for fluid leaks.

- Water 4: Fuels and petroleum will be stored away from excavated areas.
- Water 5: Spills will be cleaned up immediately.
- Water 6: Any new water wells drilled or diversions of existing water rights in the Analysis Area for the Transmission Facilities shall be appropriately permitted with the New Mexico Office of the State Engineer, and with the agreement of the water rights holder.
- Water 7: To the extent practicable, temporary access roads will be designed following existing landform contours, where practicable, and revegetated with native or similar grasses, shrubs, or forbs, or as agreed to with landowner.

VI. CONCLUSION

Q. IN YOUR OPINION, WILL THE LOCATION OF THE TRANSMISSION FACILITIES UNDULY IMPAIR IMPORTANT ENVIRONMENTAL VALUES REGARDING BIOLOGICAL RESOURCES IN GENERAL?

A. I do not expect the location of the Tumbleweed Transmission Facilities to unduly impair important environmental values regarding biological resources in general.

Q. IN YOUR OPINION, WILL THE LOCATION OF THE TRANSMISSION FACILITIES UNDULY IMPAIR IMPORTANT ENVIRONMENTAL VALUES REGARDING SPECIAL STATUS SPECIES?

A. I do not expect the location of the Tumbleweed Transmission Facilities to unduly impair important environmental values regarding special status species.

Q. IN YOUR OPINION, WILL THE LOCATION OF THE TRANSMISSION FACILITIES UNDULY IMPAIR IMPORTANT ENVIRONMENTAL VALUES

REGARDING WATER RESOURCES, SURFACE DRAINAGES, AND WATERS OF THE U.S.?

A. I do not expect the location of the Tumbleweed Transmission Facilities to unduly impair important environmental values regarding water resources, surface drainages and Waters of the U.S.

Q. DOES THIS CONCLUDE YOUR TESTIMONY AT THIS TIME?

A. Yes, it does.

TETRA TECH

Amanda Hargrave, CWB®
Senior Project Manager/ Ecologist

EXPERIENCE SUMMARY

Amanda Hargrave has over 11 years of professional experience in siting and permitting renewable energy generation facilities. Additionally, she has over 13 years in ecology, environmental assessments, and permitting work. She has assisted in the development over 5 GW of renewable energy generation projects across the country with experience in ERCOT, MISO, and SPP territories. She has provided environmental permitting and compliance services for projects in Texas, Arizona, New Mexico, Colorado, Oklahoma, Arkansas, Louisiana, Mississippi, Kansas, and Nebraska. North Dakota, and South Dakota. She is a Certified Wildlife Biologist® with experience monitoring and surveying federally protected wildlife following U.S. Fish and Wildlife Service (USFWS) permit conditions and protocols. She has extensive experience developing habitat models for several species in the southwest part of the United States. She has successfully developed and applied novel methods of avoidance and minimization throughout the country on various oil and gas, dam rehabilitation, transportation, transmission, and renewable energy projects. Additionally, Amanda's experience on the High-speed Rail Project and Corpus Christi Channel Deepening Project has demonstrated her experience coordinating with federal agencies, such as USFWS and U.S. Army Corps of Engineers (USACE) regarding permitting, National Environmental Policy Act (NEPA), and Section 7 consultations. Amanda has managed several renewable energy projects from initial critical issues analyses (CIA) through post construction monitoring. Additionally, she helps with post-construction mortality monitoring (bird and bat identification) for several wind farm sites across the country. Amanda is also involved in Women of Renewable Industries and Sustainable Energy (WRISE) Austin, The Texas Chapter of the Wildlife Society, and American Clean Power.

RELEVANT PROJECT EXPERIENCE

Project Manager, 2025-present, Confidential Proposed Wind Project, Lea County, NM

Provided environmental support for the permitting and compliance of a proposed wind generation facility. Services included a CIA, avian and eagle use surveys, bat acoustic monitoring, and biological resources evaluation. Also provided recommendations on compliance measures and permitting strategy.

Environmental Support, 2026-Present, Goat Mountain Wind, Coke County, TX

Provided environmental support for the permitting and compliance of a wind generation facility, including Texas horned lizard surveys and bird nest surveys. Developed compliance recommendations and permitting strategies.

Environmental Support, 2022-2024, Cedro Hill Repower Project, Duval County, TX

Provided environmental support for the permitting and compliance of a 150 MW wind generation facility. Services included raptor nest surveys, BBCS development, Phase I assessment, wetland analysis, cultural resources review, acoustics analysis, shadow flicker analysis, soil management planning, and wildlife compliance. Also provided recommendations on compliance measures and permitting strategy. Construction compliance support included bird nest surveys, biological monitoring for state-listed species, including the Texas horned lizard, site training, and environmental constraints mapping.

EDUCATION

MS, Wildlife Ecology, Texas State University, 2015

BS, Wildlife Biology, Texas State University, 2012

AREA OF EXPERTISE

Environmental Permitting/Compliance

Renewable Energy

Project Management

Agency Coordination

Geographic Information Systems

Wildlife Ecology

REGISTRATIONS/ CERTIFICATIONS

Certified Wildlife Biologist, The Wildlife Society

HAZWOPER, Environmental Options Inc., 2016

GIS Certificate, Texas State University, 2015

Wetland Delineation Certification, Wetland Training Institute, 2015

USFWS Section 10 Recovery Permit for Golden-cheeked Warbler and Houston Toad; USFWS; 22023

OFFICE

Austin, TX

YEARS OF EXPERIENCE

13

Project Manager, 2023, Morrow Lake Solar Project, Frio County, TX

Provided environmental support for the permitting and compliance of a 200 MW solar generation facility. Services included water resource evaluation, biological resource evaluation, desktop cultural resources evaluation, USACE No Permit Required request support, and wildlife compliance. Also provided recommendations on compliance measures and permitting strategy. Construction compliance support included preconstruction bird nest surveys, biological monitoring for state-listed species, site training, and environmental constraints mapping. Assisted with protection of more than 250 active bird nests and relocation of 8 state-listed species during clearing activities, including the Texas horned lizard.

Project Manager, 2023–2025, Gainer Solar Project, Lea County, NM

Managed environmental due diligence studies to support a proposed BESS and solar site in the Lea County, NM. Tasks included CIA, Water Resources Survey, Biological Resources Surveys, Phase 1 Environmental Assessment, Geotech, Preliminary Hydrology study, and ALTA Boundary survey

Environmental Support, 2023 Starr Solar Project, Starr County, TX

Provided environmental support for the permitting and compliance of a 163 MW solar generation facility. Services included Phase I ESA, SPCC planning, Starr cactus assessment, active and intensive biological monitoring for Texas tortoise, preconstruction nest surveys, and wildlife compliance. Also provided recommendations on compliance measures and permitting strategy. Construction compliance support included avian nest surveys, biological monitoring for state-listed species, site training, and environmental constraints mapping.

Project Manager, 2023–Present, 750 MW Proposed Solar Energy Generation Project, Beaumont, TX

Completed informal coordination with USACE Galveston District. Project Manager for the permitting and compliance effort. Coordinated field surveys. Meets with client to advise during the design phase and communicate any permitting risks for the project. Helps set schedule expectations on agency coordination and timing of activities. Provides recommendations on compliance measures and permitting strategy. Reviews documents and files to ensure high-quality deliverables consistent with the proposed scope of work.

Program Manager, 2023–Present, Eight Proposed Solar Energy Generation Projects, Great Plains, TX

Program Manager for the permitting and compliance effort, including water resource evaluation, biological resource evaluation, desktop cultural evaluation, whooping crane habitat assessment, eagle and raptor nest surveys, phase 1 ESA, NWP self-verification. Coordinated field surveys. Meets with client to advise during the design phase and communicate any permitting risks for the project. Helps set schedule expectations on agency coordination and timing of activities. Provides recommendations on compliance measures and permitting strategy. Reviews documents and files to ensure high-quality deliverables consistent with the proposed scope of work.

Project Manager, 2023–2025, Proposed BESS Projects, Erath and Palo Pinto Counties, TX

Project Manager for the due diligence permitting effort, including CIA, permit matrix, field visit, and Geotech. Coordinated reporting efforts and field surveys. Meets with client to advise on any permitting risks for the project. Helps set schedule expectations on agency coordination and timing of activities. Provides recommendations on compliance measures and permitting strategy. Reviews documents and files to ensure high-quality deliverables consistent with the proposed scope of work.

Project Manager, 2023–2025, BESS Environmental Permitting and Due Diligence, Hidalgo County, TX

Managed environmental due diligence studies to support a proposed BESS site in the Rio Grande Valley of Texas. Tasks included CIA, Water Resources Survey, Biological Resources Surveys, Phase 1 Environmental Assessment, Geotech, Preliminary Hydrology study, and ALTA Boundary survey.

Project Manager, 2017–2022, Horizon Solar Project, Frio County, TX

Project Manager for the 200-megawatt (MW) Horizon Solar site located near Pearsall, Texas, in Frio County. The permitting effort included water resource evaluation, biological resource evaluation, desktop cultural evaluation, Approved Jurisdictional Determination, and No Permit Required request. Also served as Project Manager for the construction compliance effort and biological monitoring. This included nest surveys for migratory birds and biological monitoring for the Texas horned lizard (*Phrynosoma cornutum*) and Texas tortoise (*Gopherus berlandieri*). Coordinated field surveys and staffing. Met with client and construction contractor to advise during the design phase and communicate any permitting risks for the project. Helps to set schedule expectations on agency coordination and timing of activities. Provides recommendations on compliance measures and permitting strategy.

Project Manager, 2022–2022, Texas Solar Nova Project, Kent County, TX

Project Manager for the 450-MW Texas Solar Nova site located near Spur, Texas, in Kent County. Managed the construction compliance effort and biological monitoring. This included nest surveys for migratory birds and biological monitoring for the Texas horned lizard. Coordinated field surveys and staffing. Met with Clearway Energy Group (client) and Mortenson (construction contractor) to advise during the construction phase and communicate any compliance risks for the project. Provides recommendations on compliance measures to avoid and minimize impacts to wildlife. Reviews documents and files to ensure high-quality deliverables consistent with the proposed scope of work. Provided frequent updates to the client and construction contractor on locations of active bird nests and wildlife relocations.

Exhibit AH-2

Natural Resources Report

Tumbleweed Transmission Facilities

Chaves County, New Mexico

September 2026



Prepared for

DESRI

Tumbleweed Solar, L.L.C.
575 5th Avenue, 24th Floor
New York, NY 10017

Prepared by

TETRA TECH

Tetra Tech, Inc.
6121 Indian School Rd NE #205
Albuquerque, New Mexico 87110

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Abbreviations and Acronyms

Analysis Area	proposed 252.50-acres within which the transmission facilities will be located
APLIC	Avian Power Line Interaction Committee
Applicant	Tumbleweed Solar, LLC
MBTA	Migratory Bird Treaty Act
NMERT	New Mexico Environmental Review Tool
NMPRC	New Mexico Public Regulation Commission
NMSA	New Mexico Statutes Annotated
Project	Tumbleweed Transmission Facilities Project
Project Area	approximately 4,155.83 acres of private land and 686.63 acres of state land
SWPPP	Stormwater Pollution Prevention Plan
Tetra Tech	Tetra Tech, Inc.
WOTUS	waters of the U.S.
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service

1.0 INTRODUCTION

Tumbleweed Solar, L.L.C. (Tumbleweed or Applicant) is proposing to site a new 1,700-foot long 230 kilovolt generation-tie (gen-tie) transmission line and 5-acre substation (the Transmission Facilities) to connect the proposed Tumbleweed Solar Generating Facility to the new Bitter Lake Switchyard to be owned by Southwestern Public Service Company (SPS). The Transmission Facilities will be located on 252 acres of privately owned property within unincorporated Chaves County, to the east of Roswell, New Mexico (Analysis Area) (Figure 1).

This Natural Resources Report addresses biological and aquatic resources in the proposed Analysis Area within which the Transmission Facilities would be located. As part of the overall construction, it is assumed that the entire 252-acre Analysis Area would be cleared and graded to facilitate the construction of infrastructure.

Tetra Tech, Inc. (Tetra Tech) was contracted by Tumbleweed to perform a field reconnaissance survey to assess biological and aquatic resources, to assess habitat suitability for federal and State of New Mexico special-status species, and to investigate connectivity for potential waters of the United States (WOTUS). Based on this previous work, Tetra Tech has prepared this Natural Resources Report to support Tumbleweed's application to the New Mexico Public Regulation Commission (NMPRC) for location approval of the Transmission Facilities. Location approval is required when a proposed transmission line has a capacity of 230 kilovolts or greater and is associated with a power plant that itself requires the NMPRC's location approval for new generation of 300 megawatts or greater for sale of electricity to the public (New Mexico Statutes Annotated [NMSA] 1978, Section 62-9-3, the Location Statute). The Location Statute and the NMPRC's Location Rule (17.9.592 New Mexico Administrative Code) provide that the NMPRC shall approve location of transmission facilities, including associated facilities such as the substation, unless the location will result in undue impairment to important environmental values, including biological resources and water resources.

This Natural Resources analysis evaluates the potential effects of the proposed Transmission Facilities on federally threatened and endangered species listed under the Endangered Species Act of 1973, as amended (16 United States Code 1531–1541 et seq.), state threatened and endangered species listed under the New Mexico Wildlife Conservation Act (17-2-41 NMSA 1978), and the state's endangered plant species regulations (75-6-1 NMSA 1978). This report also provides a description of general site characteristics, soils, vegetation, wildlife, and aquatic resources within the Analysis Area.

In summary and as explained in this report, based on the biological and aquatic resources survey, impact analysis, and Tumbleweed's proposed protective measures, the location of the Transmission Facilities are not expected to impair important environmental values regarding biological resources or water resources.

2.0 METHODS

Prior to the survey, Tetra Tech reviewed baseline data for the Analysis Area, including:

- National Hydrography Dataset geographic information system maps (USGS 2026b)
- National Wetlands Inventory maps (USFWS 2026c)
- Natural Resources Conservation Service soil maps (USDA 2026)
- New Mexico Department of Agriculture's Noxious Weed List (NMDA 2020)
- New Mexico Department of Game and Fish Biota Information System of New Mexico data (BISON-M 2026)
- New Mexico Energy, Minerals, and Natural Resources Department website (NM-EMNRD 2026)
- New Mexico Environmental Review Tool (NMDOW 2026)
- New Mexico Rare Plants website (NMRPTC 1999)
- Southwest Regional Gap Analysis Transmission Facilities (SWReGAP 2026)
- U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation system data (USFWS 2026a)
- U.S. Geological Survey topographic maps (USGS 2026a)
- USFWS Critical Habitat Portal (USFWS 2026b)

Based on the information gathered via desktop, a Tetra Tech biologist conducted field surveys on November 4 and 5, 2025, December 22, 2025, and March 3, 2026, to assess the natural resources within the Analysis Area (Tetra Tech 2026a, 2026b). The field survey utilized pedestrian transects and was conducted via accessible public roads adjacent to and crossing the Analysis Area. The biologist documented readily observable and identifiable plants, habitat, and wildlife occurring within the Analysis Area. Observational data were collected with a handheld global positioning system unit capable of submeter accuracy. Representative photographs of habitat, features, and wildlife collected during the field survey are included in Appendix A. Within the duration of the survey, the weather was partly cloudy with light winds (1 to 5 miles per hour) and temperatures ranging from 70 to 85 degrees Fahrenheit.

2.1 Special Aquatic Sites and Other Waters Delineation

As part of the aquatic resources survey, the Analysis Area was reviewed for the presence of special aquatic sites and potential WOTUS. Wetlands are defined by the U.S. Army Corps of Engineers (USACE) as "areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (USACE 1987). According to the USACE (1987), in order for an area to be considered a wetland, it must contain the following three parameters under normal circumstances: 1) the presence of wetland hydrology showing regular inundation, 2) a predominance of hydrophytic (water-loving) vegetation, and 3) soils characteristic of frequent saturation (i.e., hydric soils).

The presence or absence of a wetland was identified in the field using routine on-site delineation methods outlined in the Corps of Engineers Wetlands Delineation Manual (USACE 1987) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region

(Version 2.0) (USACE 2008). The presence/absence of special aquatic sites other than wetlands (sanctuaries, refuges, mud flats, vegetated shallows, and riffle and pool complexes) was determined by visual observation during the aquatic resources survey of the Analysis Area. The presence of playas and vegetated depressions was also investigated. The presence/absence of lotic systems (e.g., creeks, rivers, arroyos, human-made ditches; collectively "streams") was identified in the field using the methods outlined in the USACE's A Field Guide to the Identification of the Ordinary High Water Mark in the Arid West Region of the Western United States (Lichvar and McColley 2008) and the USACE Wetlands Delineation Manual (USACE 1987) and augmented with the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0) (USACE 2008), as necessary.

2.2 Special Status Species Covered in the Evaluation of Potential Impacts

The special-status species evaluated in this report consist of 1) federally protected (endangered and threatened) species (USFWS 2026a); 2) additional species listed by the USFWS as candidates for listing and proposed listed species (USFWS 2026a); and 3) state listed endangered and threatened species (NMDOW 2026). The potential for local species occurrence was based on 1) existing information on species' distribution, and 2) qualitative comparisons of the habitat requirements of each species with vegetation communities, landscape features, and/or water quality conditions in the Analysis Area. The potential for occurrence of a species was identified using the following categories.

- High: the species was documented in the Analysis Area either during or prior to the biological survey by a reliable observer.
- Moderate: The Analysis Area is within the species' currently known range, and vegetation communities, soils, and water quality conditions, among other factors, resemble those known to be used by the species.
- Low: the Analysis Area is within the species' currently known range, but vegetation communities, soils, and water quality conditions, among other factors, only resemble those known to be used by the species marginally.
- Unlikely to occur: the Analysis Area is within the species' currently known range, but vegetation communities, soils, and water quality conditions, among other factors, do not resemble those known to be used by the species, or the proposed Analysis Area is clearly outside the species' currently known range.

The distribution of designated critical habitat was examined using the USFWS Information for Planning and Consultation database and the USFWS Critical Habitat Portal (USFWS 2026a, 2026b).

3.0 RESULTS

3.1 General Characteristics

The average elevation of the Analysis Area is approximately 3,600 to 3,800 feet above mean sea level. The climate for this area, based on the climatic records for the Roswell Industrial Air Park Station in

Roswell, New Mexico, has an average annual maximum temperature of 109 degrees Fahrenheit, and an average annual minimum temperature of 11 degrees Fahrenheit. The average annual rainfall is 10.92 inches, with the majority occurring between June and October, while the average annual total snowfall is 5.1 inches, which largely occurs between October and February (NOAA 2026). Weather during the November 2025 survey was approximately 41 degrees Fahrenheit to 85 degrees Fahrenheit and sunny, with winds of approximately 5 miles per hour. Representative photographs of the Analysis Area are provided in Appendix A.

3.2 Soils

According to the Natural Resources Conservation Service, four soil map units are mapped within the Analysis Area (Table 1; Figure 2). All four soil map units are considered well-drained, non-hydric, and are not Prime Farmland or Farmland of Statewide Importance (USDA 2026).

Table 1. Soils in the Analysis Area

Map Unit Name	Hydric Rating	Drainage Class	Acreage
Reeves-Holloman association	No	Well-drained	10.31
Russler silty clay loam	No	Well-drained	52.71
Holloman-Gypsum land complex, 3 to 5 percent slopes	No	Well-drained	93.76
Holloman-Gypsum land complex, 0 to 3 percent slopes	No	Well-drained	95.72
Total	-	-	252.50

3.3 Vegetation

According to SWReGAP, the Analysis Area is dominated by Apacherian-Chihuahuan Upland Scrub, followed by Western Great Plains Shortgrass Prairie, and Chihuahuan Creosotebush, Mixed Desert and Thorn Scrub (Table 2; SWReGAP 2026). The Analysis Area is located within the Chihuahuan Basins and Playas Level IV Ecoregion (Griffith et al. 2006).

Table 2. Vegetation in the Analysis Area

Vegetation	Acreage
Apacherian-Chihuahuan Mesquite Upland Scrub	222.91
Western Great Plains Shortgrass Prairie	28.28
Chihuahuan Creosotebush, Mixed Desert and Thorn Scrub	1.30
Total	252.50

During the field survey, the biologist determined that the Analysis Area is dominated by creosotebush (*Larrea tridentata*) and honey mesquite (*Prosopis grandulosa*) with various grasses in the understory, which is typical of current vegetation in the ecoregion. The Analysis Area has been highly disturbed by cattle and has large expanses of the non-native, introduced Lehmann lovegrass (*Eragrostis lehmanniana*). Plant species recorded during the biological survey are listed in Table 3. Photographs of the vegetative community are provided in Appendix A.

Table 3. Plant Species Observed during the Biological Survey

Common Name	Scientific Name
Adonis blazingstar	*Mentzelia multiflora*
Annual buckwheat	*Eriogonum annuum*
Alkali sacaton	*Sporobolus airoides*
Blue grama	*Bouteloua gracilis*
Broadleaf milkweed	*Asclepias latifolia*
Broom snakeweed	*Gutierrezia sarothrae*
Burrograss	*Scleropogon brevifolius*
Bush muhly	*Muhlenbergia porteri*
Cane bluesteem	*Bothriochloa barbinodis*
Creosotebush	*Larrea tridentata*
Dwarf desert peony	*Acourtia nana*
Four-wing saltbush	*Atriplex canescens*
Honey mesquite	*Prosopis glandulosa*
Horse crippler cactus	*Echinocactus texensis*
Javelina bush	*Condalia ericoides*
Lehmann lovegrass	*Eragrostis lehmanniana*
Low woollygrass	*Dasyochloa pulchella*
New Mexico prickly pear	*Opuntia phaeacantha*
Nineawn pappusgrass	*Enneapogon desvauxii*
Plains yucca	*Yucca campestris*
Shrubby tiquilia	*Tiquilia canescens*
Silver-leaved nightshade	*Solanum elaeagnifolium*
Soapweed yucca	*Yucca glauca*
Spiny phlox	*Phlox hoodii*
Stinkgrass	*Eragrostis cilianensis*
Tamarisk, saltcedar	*Tamarix* spp.
Tobosagrass	*Pleuraphis mutica*
Torrey's ephedra	*Ephedra torreyana*
Tree cholla	*Cylindropuntia imbricata*
Twisted spined prickly pear	*Opuntia macrorhiza*
Purple prickly pear	*Opuntia macrocentra*
Winged pigweed	*Cycloloma atriplicifolium*
Yellowspine thistle	*Cirsium ochrocentrum*

3.4 Noxious Weeds

During the biological survey, no U.S. Department of Agriculture-listed noxious weed species were observed within or around the Analysis Area (USDA 2010). One New Mexico Department of Agriculture state-listed noxious weed species was observed within the Analysis Area: saltcedar (*Tamarix* spp.; NMDA 2020).

Mitigation measures, such as noxious weed washing stations, can be utilized to reduce the introduction and spread of noxious, invasive, and non-native plants. A Noxious Weed Management and Revegetation Plan would be in place for the proposed Transmission Facilities.

3.5 Wildlife

No critical habitat intersects the Analysis Area; the nearest designated critical habitat is approximately 2 miles west of the Analysis Area for the Pecos pupfish (*Cyprinodon pecosensis*). The Chihuahuan Basins and Playas Level IV Ecoregion provides habitat for a variety of wildlife species. The Tetra Tech biologist detected four avian species, six mammals, and one reptile during the November 2025 biological survey (Table 4). No active animal burrows were observed within the Analysis Area.

Table 4. Wildlife Detected during the Biological Survey

Common Name	Scientific Name
Birds	
Brewers' sparrow	*Spizella breweri*
Chihuahuan raven	*Corvus cryptoleucus*
Red-tailed hawk	*Buteo jamaicensis*
Western meadowlark	*Sturnella magna*
Mammals	
Black-tailed jackrabbit	*Canis latrans*
Cattle	*Bos taurus*
Coyote	*Canis latrans*
Mexican ground squirrel	*Spermophilus mexicanus*
Mule deer	*Odocoileus hemionus*
Pronghorn	*Antilocapra americana*
Reptiles	
Common side-blotched lizard	*Uta stansburiana*

3.5.1 Migratory Bird Treaty Act

Most bird species are protected by the Migratory Bird Treaty Act (MBTA). The MBTA implements various treaties and conventions between the United States and other countries for the protection of migratory birds. Under the MBTA, unless permitted by regulations, it is unlawful to 1) pursue, hunt, take, capture, or kill; 2) attempt to take, capture, or kill; and 3) possess, offer to sell, barter, purchase, deliver, or cause to be shipped, exported, imported, transported, carried, or received any migratory bird, part, nest, egg, or product, manufactured or not. USFWS regulations broadly define "take" under the MBTA to mean "pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to pursue, hunt, shoot, wound, kill, trap, capture, or collect." Under the MBTA, take does not include habitat loss or alteration.

Suitable nesting habitat for migratory birds is present throughout the Analysis Area. However, no passerine or raptor nests were observed during the biological survey because the field survey was performed in winter. To prevent impacts on migratory bird species, Tumbleweed proposes that any vegetation removal during the breeding season (March 1 to September 15) will be preceded by a pre-construction nest clearing survey up to five days prior to vegetation removal to establish the occupancy status of any potentially suitable nests detected within the proposed construction workspace.

3.5.2 Bald and Golden Eagle Protection Act

Bald eagles (*Haliaeetus leucocephalus*) and golden eagles (*Aquila chrysaetos*) are protected under the MBTA and the Bald and Golden Eagle Protection Act.

Bald eagles are found typically in association with water, i.e., lakes, reservoirs, rivers, and wetlands, and sometimes can be found in wooded habitats according to Natural Heritage New Mexico (NHNM 2026). In New Mexico, they typically breed in northern portions of the state (October to July) and are winter visitors in the southeast part of the state (CornellLab 2026, eBird 2026, NHNM 2026). Specifically, in Chaves County, bald eagles are uncommon visitors during winter months (BISON-M 2026).

Golden eagles can be found from the tundra, through grasslands, intermittent forested habitat and woodland-brushlands, and south to arid deserts and canyonlands and are typically found in open country in the vicinity of hills, cliffs, and bluffs (USFWS 2026e). Specifically in New Mexico, golden eagles are an uncommon permanent resident, found in mountains, river canyons, mesas, plains, and deserts statewide. Golden eagles nest on cliffs and escarpments or in the largest trees of forested stands that often afford an unobstructed view of the surrounding habitat at elevations ranging from 4,000 to 12,000 feet above mean sea level; they may also build nests on the ground or in human-made structures, including windmills, observation towers, nesting platforms, and electrical transmission towers (CornellLab 2026, USFWS 2026e). Although golden eagles nest nearly statewide wherever cliffs are available, they are absent only from the southeastern plains (BISON-M 2026).

Both bald and golden eagles are carnivores. Bald eagles are opportunistic feeders, primarily eating fish, but also preying on waterfowls, shorebirds, waterbirds, turtles, snakes, small mammals (including prairie dogs [*Cynomys* spp.]), and carrion (USFWS 2026e). Golden eagles feed mainly on small to mid-sized prey, including mammals (like rabbit, hare, ground squirrel, and prairie dog), as well as invertebrates, carrion, and other wildlife (BISON-M 2026; Stahlecker and Walker 2010).

Given bald and golden eagles' nesting preferences (for the northern part of the state), observational data, and lack of suitable nesting locations (i.e., trees, structures, cliffs), neither species is likely to nest within the Analysis Area. Based on a lack of observational data of bald eagles, golden eagles, and their suitable nesting habitat, the risk to these species is low, including after infrastructure installation. The Analysis Area contains suitable foraging habitat for bald and golden eagles with the

Pecos River and its adjacent wetlands nearby, particularly in winter according to observational data (eBird 2026). No bald or golden eagle individuals were observed during the biological survey.

3.5.3 Special-Status Species

Tetra Tech reviewed the federally listed and state listed species with the potential to occur within the Analysis Area (Table 5; USFWS 2026a; New Mexico Environmental Review Tool [NMERT] 2026). Two species federally listed under the Endangered Species Act, the peregrine falcon (*Falco peregrinus*) and monarch butterfly (*Danaus plexippus*), have the potential to occur within the Analysis Area. Possible impacts to these species are evaluated in Sections 3.5.3.1 and 3.5.3.2. The remaining species are unlikely to occur in the Analysis Area due to lack of suitable habitat and/or being outside their known geographic range. Table 5 describes the special-status species with the potential to occur in the Analysis Area, their habitat, and their likelihood to occur in the Analysis Area.

Table 5. Potentially Occurring Special-Status Species in the Analysis Area

Common Name	Scientific Name	Federal/State Status[1]	Species-Habitat Associations[2]	Likelihood of Occurrence[3]
Birds				
Bell's vireo	*Vireo bellii*	– / ST	Bell's vireo is distributed across the southwestern United States, primarily in shrubby, riparian habitats. The species is known to nest in willows (*Salix* spp.) and honey mesquite (*Prosopis glandulosa*) and prefers low-density vegetation for breeding and foraging.	Breeding: Unlikely Non-breeding: Low The Analysis Area lacks suitable riparian habitat but contains low-density vegetation areas.
Bald eagle	*Haliaeetus leucocephalus*	BGEPA / ST	Bald eagles typically nest in forested areas adjacent to large bodies of water. They perch in tall, mature trees or on poles that afford a wide view of the surroundings. In winter, they can be seen in dry, open uplands if there is access to open water for fishing.	Breeding: Unlikely Non-breeding: Low The Analysis Area is within the wintering range of this species. The Analysis Area does not contain suitable aquatic features typically associated with bald eagles; however, it may contain foraging habitat.
Golden eagle	*Aquila chrysaetos*	BGEPA / –	Grasslands, deserts, tundra, mountains, and rural areas. Usually located in open land near hills, cliffs, and bluffs.	Breeding: Unlikely Non-breeding: Low The Analysis Area is within the wintering range of this species. The Analysis Area does not contain suitable hill, cliff, and bluff features typically associated with golden eagles; however, may contain foraging habitat.

Common Name	Scientific Name	Federal/State Status[1]	Species-Habitat Associations[2]	Likelihood of Occurrence[3]
Northern aplomado falcon	*Falco femoralis septentrionalis*	EXPN / SE	Northern aplomado falcons are found in grassy plains with scattered yuccas (*Yucca* spp.) and mesquites. They are secondary nesters, using abandoned nests of other raptors and ravens (*Corvus* spp.).	Breeding: Unlikely Non-breeding: Low Foraging habitat exists in the Analysis Area. The Analysis Area is within the year-round range of this species. This species has not been documented within Chaves County.
Peregrine falcon	*Falco peregrinus*	FT / –	The peregrine falcon forages in most habitats but is preferential to regions with riparian areas. Chihuahuan desert scrub and Chihuahuan semi-desert grassland are potential foraging habitats. Open stands of creosote, yucca, and large succulents are optimal foraging locations in the desert.	Breeding: Unlikely Non-breeding: Moderate Foraging habitat exists in the Analysis Area.
Piping plover	*Charadrius melodus*	FT / –	Found in coastal habitats including sand spits, small islands, tidal flats, shoals, seasonally emergent seagrass beds, and sandbars with inlets.	Breeding: Unlikely Non-breeding: Unlikely The Analysis Area lacks suitable habitat.
Yellow-billed cuckoo (western population)	*Coccyzus americanus occidentalis*	FT / –	The western population of the yellow-billed cuckoo is associated with riparian areas with large cottonwood galleries. The U.S. Fish and Wildlife Service designated habitat of this species begins approximately west of the Rocky Mountains.	Breeding: Unlikely Non-breeding: Unlikely The Analysis Area is outside of species' range.
Fish				
Pecos bluntnose shiner	*Notropis simus*	FT / SE	The Pecos bluntnose shiner is a fish limited to the Pecos River in New Mexico. It is most often found in the main channel where sandy or gravelly substrates are found.	Unlikely: the Analysis Area does not have a surface water connection to the Pecos River.

Common Name	Scientific Name	Federal/State Status[1]	Species-Habitat Associations[2]	Likelihood of Occurrence[3]
Pecos pupfish	*Cyprinodon pecosensis*	PT / ST	The Pecos pupfish is endemic to the Pecos River drainage in New Mexico and Texas and is currently found primarily in saline springs and gypsum sinkholes on the Bitter Lake National Wildlife Refuge and Bottomless Lakes State Park.	Unlikely: the Analysis Area lacks suitable aquatic habitat.
Insects				
Monarch butterfly	Danaus plexippus	PT / –	Monarchs are found throughout the United States in areas with nectar-bearing flowering plants for foraging and shrubs and trees for roosting. Milkweed (*Asclepias* spp.) acts as an obligatory reproductive host plant for monarch larvae. Monarchs are generational migrants and require milkweed for the development of larvae. Milkweed is found in a variety of habitats and locations throughout the United States.	Moderate: the Analysis Area contains milkweed, creating suitable habitat; however, the Transmission Facilities are not within the direct migration flyway, making it unlikely that significant populations will use the Analysis Area.
Plants				
Pecos sunflower	*Helianthus paradoxus*	FT / SE	This species thrives in rare desert wetland habitats known as ciénegas, which are spring-fed areas with permanently saturated saline or alkaline soils. These wetlands are typically found in arid regions of New Mexico and western Texas, where the sunflower grows along wet meadows, spring seeps, and pond margins. Its survival depends on consistent groundwater flow and minimal disturbance, making it highly sensitive to changes in hydrology, land use, and invasive species.	Unlikely: the Analysis Area lacks suitable habitat.
Reptiles				

Common Name	Scientific Name	Federal/State Status[1]	Species-Habitat Associations[2]	Likelihood of Occurrence[3]
Western ribbon snake	*Thamnophis proximus*	– / ST	This species is native to the central and southern United States, Mexico, and Central America, and it thrives in and around aquatic and semi-aquatic habitats. These include marshes, swamps, ponds, lakes, streams, and rivers, where they are often found basking or hunting for prey like frogs, tadpoles, salamanders, and fish. They may also inhabit grasslands and woodlands, particularly if they are close to water sources, and can be found in roadside ditches that hold water for extended periods.	Low: the Analysis Area contains a perennial wetland that may serve as adequate habitat; however, the quality and quantity of habitat is low.
Western river cooter	*Pseudemys gorzugi*	– / ST	Western river cooters occur in the Rio Grande and Pecos River drainages from New Mexico to Texas and northeastern Mexico. They have recently been detected at several sites along the Black River in southeastern New Mexico. They are often found basking on logs, muddy banks, and overhanging vegetation.	Unlikely: the Analysis Area lacks perennial water features that are required to support this species.

1/ BGEPA = Bald and Golden Eagle Protection Act, EXPN = Experimental Non-Essential, FE = Federally Endangered, FT = Federally Threatened, PT = Proposed Threatened, SE = State Endangered, ST = State Threatened.

2/ Sources: BISON-M 2026; eBird 2026; NMERT (NMDOW 2026), NMRPTC 1999, USFWS 2026a.

3/ Unlikely = little to no habitat in Analysis Area and vicinity; Low = marginally suitable habitat features in Analysis Area and vicinity; Moderate = habitat present in Analysis Area, or species known to occur in similar environments; High = strong species-habitat associations present in Analysis Area, or known populations exist in Analysis Area vicinity.

3.5.3.1 Monarch Butterfly

The monarch butterfly is designated as proposed threatened under the Endangered Species Act. Proposed threatened species are not protected by the "take" prohibitions of Section 9 of the ESA until the rule to list is finalized, but the species is evaluated is evaluated here should it become listed and protected.

Monarch butterflies are experiencing population decline across North America as a result of habitat reduction and fragmentation. This species is important ecologically for plant population stability, as it is an opportunistic pollinator. Monarchs are known to occur throughout New Mexico during migration and breeding seasons in the warmer months of April to October but is not known to overwinter within the state (Cary and DeLay 2016). Monarch butterflies lay their eggs on host milkweed plants (*Asclepias* spp.), and it is their sole source of food for larvae during the caterpillar phase of life.

The Analysis Area provides suitable breeding and foraging habitat for this species due to the presence of milkweed and flowering plants, as observed in the November 2025 biological resource survey (Tetra Tech 2026b). The Analysis Area is not within the direct migration flyway, though monarchs frequent the county (MonarchWatch 2026).

3.5.3.2 Peregrine Falcon

The peregrine falcon is a state threatened species in the New Mexico that breeds throughout much of North America and is considered summer or year-round residents in montane areas of New Mexico. In Chaves County, peregrine falcons are considered rare, occurring during spring and fall migration (BISON-M 2026). The peregrine falcon breeds in southeastern New Mexico, a small portion of southern New Mexico, and in the mountains and canyons of western New Mexico (Avian Conservation Partners NM 2017; Sibley 2014). During migration, peregrine falcons may occur at the Analysis Area (Sibley 2014). This species typically feeds on avian species such as pigeons and waterfowl. There are documented occurrences of peregrine falcons within 25 miles of the Analysis Area (eBird 2026). Based on these data mentioned, the Analysis Area is outside the species' breeding range and within its migratory range and has a moderate likelihood of occurrence within the Analysis Area during spring and fall migration.

3.6 Aquatic Resources

According to the National Wetlands Inventory, no special aquatic sites (including wetlands) are known to occur within the Analysis Area (Figure 3; USFWS 2026c). Based on review of the National Hydrography Dataset (USGS 2026b), no potentially jurisdictional water features intersect the Analysis Area. During the aquatic resource survey in November 2025, Tetra Tech confirmed the absence of surface water features and special aquatic sites within the Analysis Area (Tetra Tech 2026a).

4.0 IMPACT ANALYSIS AND CONCLUSIONS

Impacts on wildlife and vegetation would result from actions that alter wildlife habitats, including changes to vegetation and disturbance. Altering wildlife habitat in ways that would be considered adverse may occur directly (through habitat loss from surface disturbance) or indirectly (through the reduction in habitat quality caused by increased noise levels, increased human activity, and the presence of fugitive dust). Impacts to wildlife and vegetation were based off the assumption that the entire Analysis Area would be cleared of all vegetation during construction, though current Project plans do not anticipate clearing of the full area.. With the implementation of protective measures, the loss of about 252 acres of wildlife habitat would not cause undue degradation to general wildlife and vegetation as this habitat type is common across the regional landscape and is readily available on land adjacent to the Analysis Area. Tetra Tech's impact assessment takes into account that Tumbleweed proposes to implement protective measures, discussed below, to avoid and minimize environmental impacts. In summary, the location of the proposed Transmission Facilities are not expected to unduly impair important environmental values pertaining to biological resources.

4.1 Vegetation and Noxious Weeds

This report has been prepared based off the assumption that the entire Analysis Area would be cleared of all vegetation during construction, though current Project plans do not anticipate clearing of the full area. Further impacts on vegetation would occur as a result of deposition of fugitive dust generated during clearing and grading activities, the use of access roads, and from wind erosion of exposed soils. This could reduce photosynthesis and productivity, increase water loss (Eveling and Bataille 1984), and result in injury to leaves on plants near the Analysis Area. Localized fugitive dust could be generated from the areas of disturbed soil from blading associated with construction. Plant community composition could subsequently be altered, resulting in habitat degradation. Localized impacts on plant populations and communities could occur if seed production in some plant species is reduced.

Construction traffic and equipment brought to the Analysis Area also represent a pathway for the introduction and spread of noxious weeds and invasive species. Tumbleweed proposes to implement a Noxious Weed Management and Revegetation Plan (Tetra Tech 2026c). Tumbleweed's weed management plan would align with the control methods for the listed invasive and noxious plant species outlined within the New Mexico State's Troublesome Weeds of New Mexico booklet (Ashigh et al. 2010).

Post-construction and interim reclamation would occur in areas not needed for long-term operations and maintenance. Reclamation would include establishment of native vegetation. Impacts to vegetation from decommissioning activities would be similar to impacts from construction. Once decommissioning is complete, final reclamation of the Analysis Area would reestablish vegetation.

The Transmission Facilities are within the Chaves Soil and Water Conservation District (Chaves Soil and Water Conservation District 2026, Chaves SWCD). Tumbleweed has coordinated with the Chavez SWCD regarding its noxious weed management plan.

The protective measures that Tumbleweed proposes regarding vegetation include the following:

- Vegetation 1: Construction will not be conducted during wet conditions when soils are saturated. After a rain event, construction would commence once the area is no longer inundated and would adhere to Stormwater Pollution Prevention Plan (SWPPP) protocols.
- Vegetation 2: Topsoil will be placed separately from sub-soils/bedrock during excavation and not comingled and will be replaced in reverse order of excavation.
- Vegetation 3: Erosion will be reduced by applying and maintaining standard erosion and sediment control methods. These may include using certified weed-free straw wattles and bale barriers and silt fencing. Specific erosion and sediment control measures will be specified in a SWPPP.
- Vegetation 4: If any vegetated swales form due to heavy rainfall in areas of soil disturbance, then straw 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 after completion of construction. Reseeding shall use native grasses, shrubs, or forbs or as agreed to with landowner.
- Vegetation 5: A Noxious Weed Management and Revegetation Plan will be developed and implemented for the control of noxious weeds and invasive species that could occur as a result of new surface disturbance activities at the Analysis Area.
- Vegetation 6: If required as part of the SWPPP, a native seed mix will be applied to all temporary disturbance areas, followed by applications of mulch as required to provide additional erosion control.

In conclusion, the location of the proposed Transmission Facilities is not expected to result in undue impairment of important environmental values regarding vegetation.

4.2 General Wildlife

The Transmission Facilities would result in a maximum of 252 acres of new surface disturbance, though current Project plans do not anticipate clearing of the full area. No state or federally listed species were observed in the Analysis Area. Direct impacts to wildlife from construction would include the removal of existing vegetation, risk of direct mortality of species during construction, loss or degradation of native habitat, and displacement of wildlife species from habitat due to development. Additional potential indirect impacts could include disruption or displacement of species from nesting/birthing and foraging areas, changes in activity patterns due to construction, increased human activity, and noise disturbance.

Construction equipment associated with the Transmission Facilities would emit the highest noise levels. During operation and maintenance, the Analysis Area would be fenced at the perimeter, limiting the types of wildlife that may use the Analysis Area. Operations activities would occasionally include noise disturbances that would temporarily displace wildlife in the Analysis Area and vicinity. These impacts would be short-term, occurring approximately twice per year under routine operations. Affected individuals would be able to move away from the noise to adjacent land. Due to the short-

term and temporary nature of construction noise, long-term impacts to wildlife species would be negligible and unlikely to result in population-level effects.

The protective measures that Tumbleweed proposes regarding wildlife include the following:

- Wildlife 1: Properly disposing of trash and food debris.
- Wildlife 2: Allow wildlife that has entered the work area to leave the area on their own.
- Wildlife 3: Providing environmental awareness training to all construction personnel working on the Transmission Facilities.
- Wildlife 4: Checking trenches, excavations, and uncapped pipe segments for wildlife.
- Wildlife 5: Complying with posted and established Transmission Facilities speed limits.
- Wildlife 6: Conducting vegetation clearing outside the nesting season (March 15 to September 15) where feasible to discourage birds from establishing nests in Transmission Facilities work areas.
- Wildlife 7: The worker environmental awareness program will including training specific to avoidance of migratory birds and active migratory bird nests during the nesting season from March 15 to September 15. If active nests are found in the Analysis Area during construction, a biologist will be contacted to evaluate the activity status of the nest. The nest will be avoided until determined inactive by a biologist.
- Wildlife 8: Vegetation removal during the breeding season (March 1st–August 31st) could be preceded by a pre-construction nesting survey up to 2 weeks prior to construction to establish the occupancy status of any potentially suitable nests or nesting burrows detected within the Analysis Area. If active nests are found in the Analysis Area, a biologist will be contacted to evaluate the activity status of the nest. The nest will be avoided until determined inactive by a biologist.
- Wildlife 9: Facilities are designed to discourage their use as perching or nesting substrates by birds including designing aboveground transmission and facilities to follow established Avian Power Line Interaction Committee (APLIC) guidelines to minimize bird collisions and avoid electrocution of raptors.
- Wildlife 10: Species-specific surveys would be conducted to determine the presence of milkweed vegetation in the Analysis Area. These surveys would occur during the period (late April - September) that milkweed is detectable. If milkweed vegetation is present, the revegetation seed mix would include pollinator species such as milkweed. Milkweed vegetation removal will be minimized to the greatest extent possible.

In conclusion, the location of the proposed Transmission Facilities is not expected to result in undue impairment of important environmental values regarding general wildlife.

4.3 Other Migratory Birds

No bald or golden eagles were observed during the biological survey. Activities in the Analysis Area are not expected to impact bald or golden eagles. Due to the lack of suitable nesting habitat for these two species in and surrounding the Analysis Area, the proposed Transmission Facilities are not anticipated to cause take of individual bald or golden eagles, their nests, or their eggs. Adult eagles would not

likely be directly harmed by the Transmission Facilities because of their mobility and ability to avoid areas of human activity.

No major or long-term effects on migratory birds are anticipated from the proposed transmission facilities. Incidental mortality or displacement of migratory bird species is possible on a local scale due to construction disturbance. However, many birds occurring locally would likely move into adjacent habitat in response to disturbance. Adult migratory birds would not likely be directly harmed by the proposed transmission facilities because of their mobility and ability to avoid areas of human activity. Due to the abundance of similar habitat in the surrounding area, the impacts on bird populations that use this habitat type within the Analysis Area would be low. To prevent impacts to migratory birds, Tumbleweed proposes that any vegetation removal during the breeding season (March 1 to August 31) be preceded by a pre-construction avian nest clearance survey up to five days prior to vegetation removal to establish the occupancy status of any potentially suitable nests and/or active burrows detected within the Analysis Area. If active nests are detected, an avoidance buffer would be placed on each nest until the young fledged or the nest was otherwise determined inactive.

Operations activities, including mowing, would cause temporary disturbance to birds, such as occasional noise disturbances, that would temporarily displace migratory birds in the Analysis Area and vicinity. These impacts would be short-term and temporary, occurring approximately twice per year under routine operations. Affected individuals would be able to move to adjacent land. Long-term impacts to migratory bird species would be minimal and unlikely to result in population-level effects.

Tumbleweed proposes the following protective measure regarding the peregrine falcon and other migratory birds:

- Migratory Birds 1: In accordance with the MBTA, construction activities and vegetation clearing would be conducted outside the peak breeding season (March 1 to September 15 at the Analysis Area) to avoid any adverse effects to migratory birds and their habitat.
- Migratory Birds 2: If construction and vegetation clearing occur from March 1 through September 15, active avian nest surveys should be conducted by a biologist no more than 5 days prior to planned construction.
- Migratory Birds 3: Some migratory birds may use abandoned mammal burrows found on-site for shelter and rearing of young; additionally, ground-nesting species have the potential to be found on-site. Construction personnel should be made aware of these species, their habits, and regulatory status, and biological monitors clearing areas for construction should take these species into account. They should consider species that will nest in trees and brush as well as ground- and burrow-nesters.
- Migratory Birds 4: If migratory birds or their nests are present prior to or during construction, actions should be implemented to ensure migratory birds and their nests, eggs, and young will not be harmed. This can be achieved by establishing buffer distances from active nests. Clearing and construction activities should not occur in the buffer areas until the nests are no longer active. The

NMERT results for the Analysis Area (NMDOW 2026) provided the following minimum distances for active nest buffer zones:

  - 100 feet from songbird and raven nests;
  - 0.25 miles from most raptor nests; and
  - 0.50 miles for ferruginous hawk (*Buteo regalis*), golden eagle, peregrine falcon, and prairie falcon (*Falco mexicanus*).

- Migratory Birds 5: The worker environmental awareness program will include training specific to avoidance of migratory birds and active migratory bird nests during the breeding season from March 1 to September 15. If active nests are found in the Analysis Area during construction, a biologist will be contacted to evaluate the activity status of the nest. The nest will be avoided until determined inactive by a biologist.
- Migratory Birds 6: Facilities are designed to discourage their use as perching or nesting substrates by birds, including designing aboveground transmission and facilities to follow established Avian Power Line Interaction Committee guidelines to minimize bird collisions and avoid electrocution of raptors (APLIC 2026).
- Migratory Birds 7: The Project will be in conformance with Avian Power Line Interaction Committee (APLIC) standards, including (but not limited to) clearance space between power lines, insulation on hardware when safe spacing is not possible, and line markings (APLIC 2005; APLIC 2026).

In conclusion, the location of the proposed Transmission Facilities is not expected to result in undue impairment of important environmental values regarding bald and golden eagles, the peregrine falcon and other migratory birds.

4.4 Aquatic Resources

No wetlands or surface water features are located within the Analysis Area. Due to the lack of hydrology within the Analysis Area and implementation of protective measures, no direct or indirect impacts are expected.

The protective measures that Tumbleweed proposes regarding aquatic resources include the following:

- Water 1: A SWPPP will be developed and implemented as required by the New Mexico Environment Department Surface Water Quality Bureau and coverage will be obtained under a National Pollution Discharge Elimination System Construction General Permit from the U.S. Environmental Protection Agency pursuant to Section 402 of the Clean Water Act, 33 United States Code § 1342. The SWPPP may 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: Temporarily disturbed areas will be revegetated to the extent practicable in order to meet SWPPP requirements for runoff and erosion control. Seed mix and seeding rates will be developed through consultation with the local agency, experts, or landowner preference.

- Water 3: Equipment will be properly maintained for fluid leaks.
- Water 4: Fuels and petroleum will be stored away from excavated areas.
- Water 5: Spills will be cleaned up immediately.
- Water 6: Any new water wells drilled or diversions of existing water rights in the Analysis Area for the Transmission Facilities shall be appropriately permitted with the New Mexico Office of the State Engineer, and with the agreement of the water rights holder.
- Water 7: To the extent practicable, temporary access roads will be designed following existing landform contours, where practicable, and revegetated with native or similar grasses, shrubs, or forbs, or as agreed to with landowner.

In conclusion, the location of the proposed Tumbleweed Transmission Facilities is not expected to result in undue impairment of important environmental values regarding aquatic resources.

4.5 Special-Status Species

4.5.1 Monarch Butterfly

One proposed threatened species for federal listing, the monarch butterfly, has the potential to occur in the Analysis Area. Removal of vegetation in the Analysis Area would reduce the availability of flowering plants and thus possibly impact the species' food sources. However, the vegetation in the Analysis Area is not unique to the surrounding landscape and habitat in the vicinity is uniform and would remain available. In addition, due to their ability to avoid or to move out of areas of human activity, adult butterflies are not likely to be directly harmed. Therefore, the proposed Transmission Facilities could impact individuals but would not likely contribute to a trend toward federal listing or cause a loss of viability to the population or species.

As observed in the November 2025 biological resource survey, the Analysis Area contains milkweed, creating suitable habitat (Tetra Tech 2026b). However, the Transmission Facilities are not within the direct migration flyway, making it unlikely that significant populations will utilize the Analysis Area. If milkweed is present in the Analysis Area during a follow-up survey or at the time of construction, milkweed could be added to the revegetation seed mix to prevent breeding habitat loss. Currently, the Tumbleweed Transmission Facilities do not have a federal nexus, so there is no federal regulatory agency requiring the additional survey.

In conclusion, the location of the proposed Transmission Facilities is not expected to result in undue impairment of important environmental values regarding monarch butterflies.

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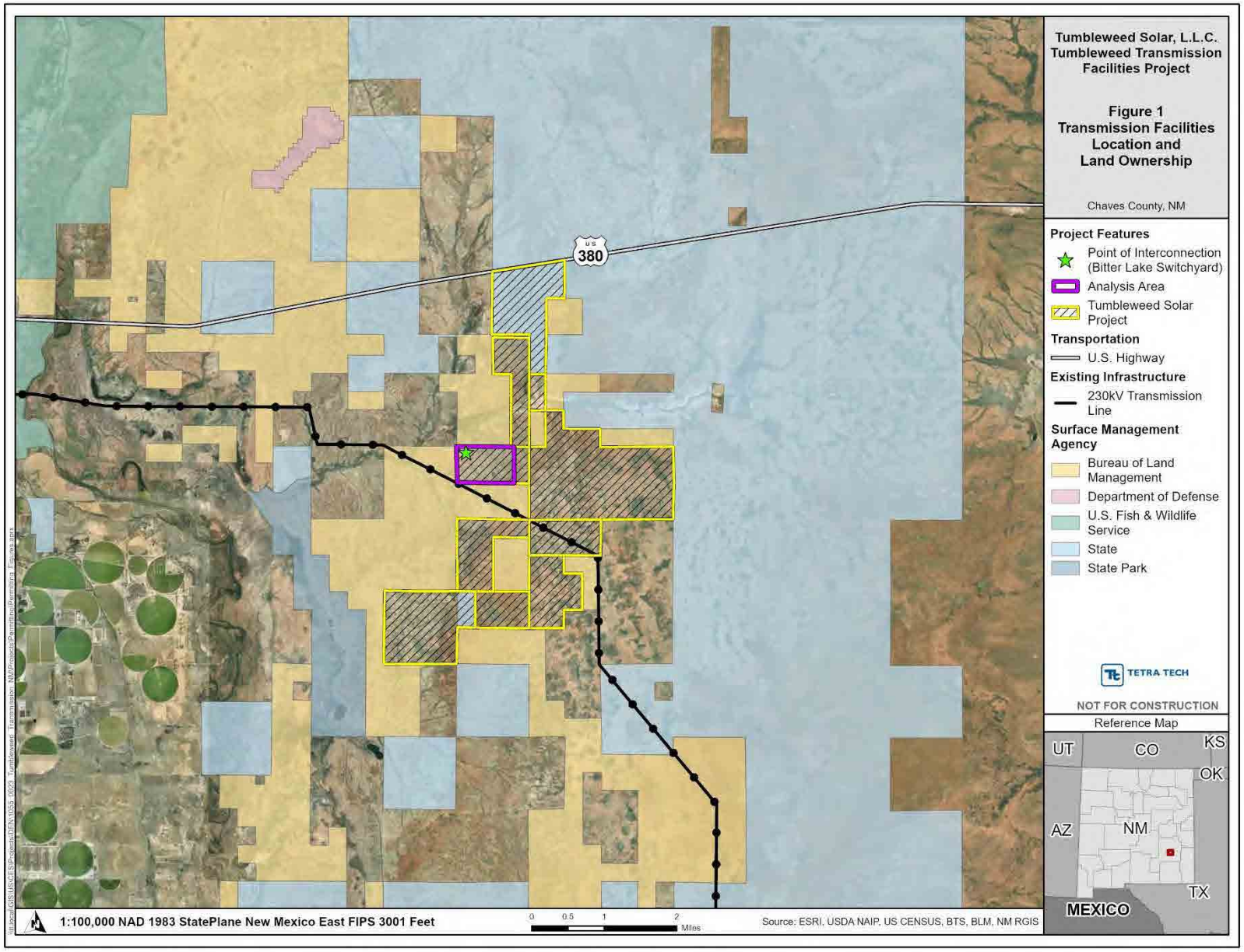
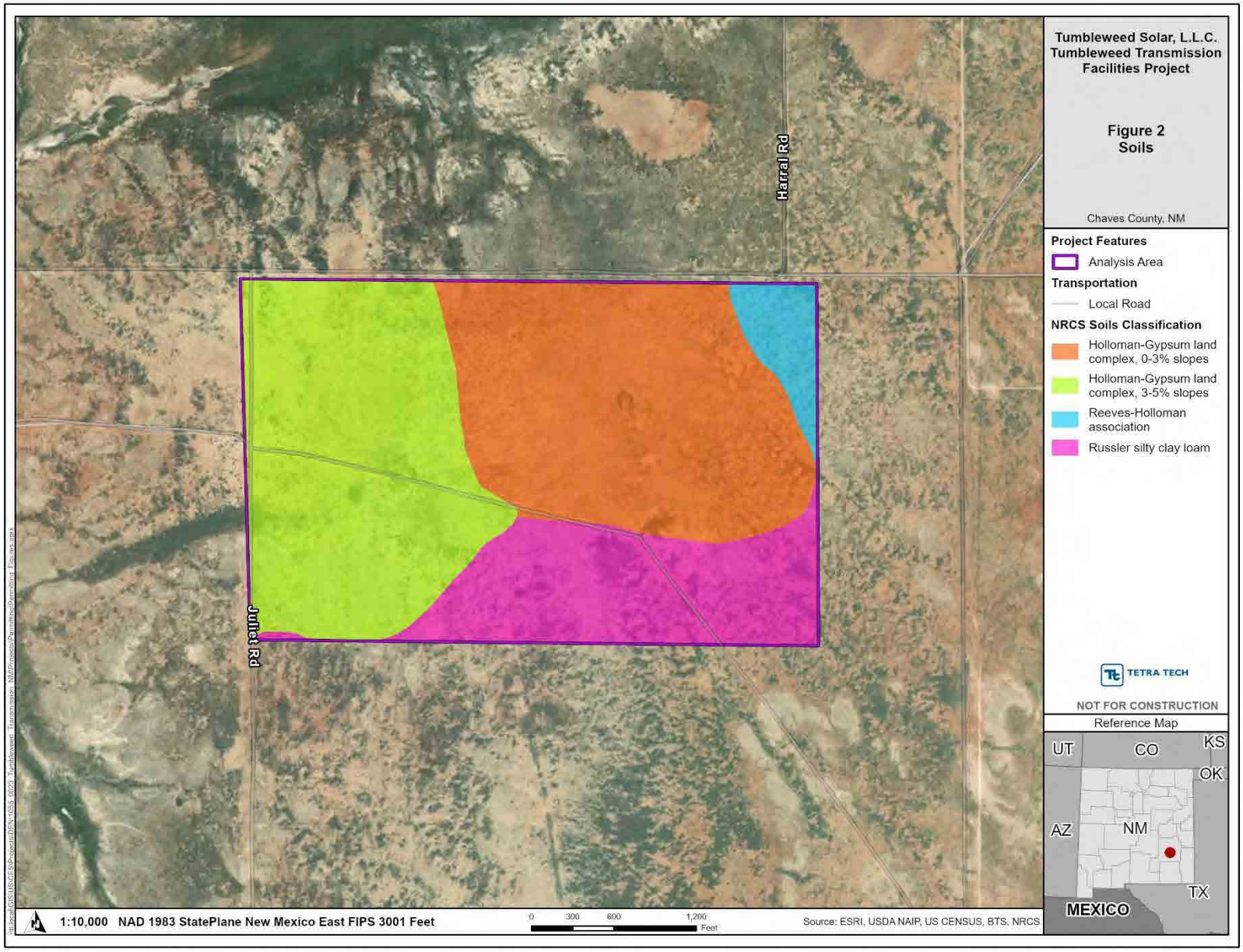
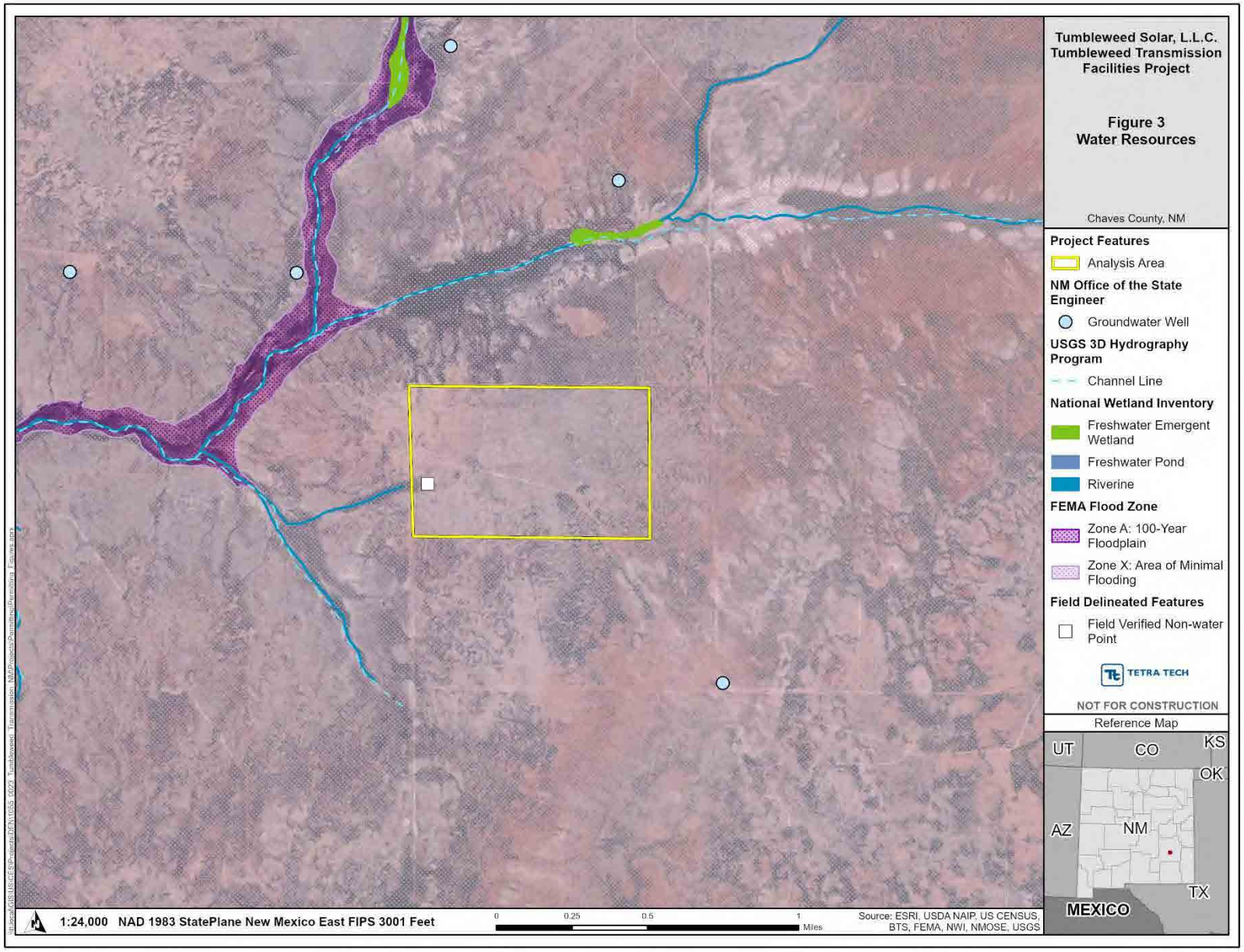
FIGURES


Tumbleweed Solar, L.L.C.
Tumbleweed Transmission Facilities Project
Figure 1
Transmission Facilities Location and Land Ownership
Chaves County, NM
Project Features
Point of Interconnection (Bitter Lake Switchyard)
Analysis Area
Tumbleweed Solar Project
Transportation
U.S. Highway
Existing Infrastructure
230kV Transmission Line
Surface Management Agency
Bureau of Land Management
Department of Defense
U.S. Fish & Wildlife Service
State
State Park
TETRA TECH
NOT FOR CONSTRUCTION
Reference Map
UT
CO
KS
OK
AZ
NM
TX
MEXICO
US 380
1:100,000 NAD 1983 StatePlane New Mexico East FIPS 3001 Feet
0 0.5 1 2
Miles
Source: ESRI, USDA NAIP, US CENSUS, BTS, BLM, NM RGIS


Harral Rd
Juliet Rd
Tumbleweed Solar, L.L.C.
Tumbleweed Transmission Facilities Project
Figure 2
Soils
Chaves County, NM
Project Features
Analysis Area
Transportation
Local Road
NRCS Soils Classification
Holloman-Gypsum land complex, 0-3% slopes
Holloman-Gypsum land complex, 3-5% slopes
Reeves-Holloman association
Russler silty clay loam
TETRA TECH
NOT FOR CONSTRUCTION
Reference Map
UT
CO
KS
OK
AZ
NM
TX
MEXICO
1:10,000 NAD 1983 StatePlane New Mexico East FIPS 3001 Feet
0 300 600 1,200
Feet
Source: ESRI, USDA NAIP, US CENSUS, BTS, NRCS


Tumbleweed Solar, L.L.C.
Tumbleweed Transmission Facilities Project
Figure 3
Water Resources
Chaves County, NM
Project Features
Analysis Area
NM Office of the State Engineer
Groundwater Well
USGS 3D Hydrography Program
Channel Line
National Wetland Inventory
Freshwater Emergent Wetland
Freshwater Pond
Riverine
FEMA Flood Zone
Zone A: 100-Year Floodplain
Zone X: Area of Minimal Flooding
Field Delineated Features
Field Verified Non-water Point
TETRA TECH
NOT FOR CONSTRUCTION
Reference Map
UT
CO
KS
OK
AZ
NM
TX
MEXICO
1:24,000 NAD 1983 StatePlane New Mexico East FIPS 3001 Feet
0 0.25 0.5 1 Miles
Source: ESRI, USDA NAIP, US CENSUS, BTS, FEMA, NWI, NMOSE, USGS

APPENDIX A. ANALYSIS AREA PHOTOGRAPHS

Appendix A – Representative Photographs

Photo: 1 Description: A representative photo of the Analysis Area showing *Tamarix* spp. Orientation / Coordinates: North / (33.369048, -104.301912)	

Photo: 2 Description: A representative photo of the Analysis Area showing mixed grassland / shrub scrub. Orientation / Coordinates: North / (33.367504, -104.295029)	

Photo: 3 Description: A representative photo of the Analysis Area showing mixed grassland / schrub scrub. Orientation / Coordinates: Southwest / (33.367766, -104.302442)	

BEFORE THE NEW MEXICO PUBLIC REGULATION COMMISSION

IN THE MATTER OF THE APPLICATION OF TUMBLEWEED SOLAR, L.L.C. FOR LOCATION APPROVAL OF SOLAR GENERATION FACILITIES AND ASSOCIATED TRANSMISSION FACILITIES PURSUANT TO NMSA § 62-9-3; AND RIGHT-OF-WAY WIDTH DETERMINATION PURSUANT TO NMSA § 62-9-3.2	)	**Case No. 26-_____**

ELECTRONICALLY SUBMITTED VERIFICATION

Amanda Hargrave, under penalty of perjury under the laws of the State of New Mexico, states:

I make this verification pursuant to 1.2.2.10(E) NMAC and New Mexico R. 1-011(B) NMRA.

I have read the foregoing *Direct Testimony of Amanda Hargrave* and the exhibits attached thereto, and the statements therein are true and correct based on my personal knowledge and belief.

Dated: 9/22/2026

Amanda Hargrave

BEFORE THE NEW MEXICO PUBLIC REGULATION COMMISSION

IN THE MATTER OF THE APPLICATION OF TUMBLEWEED SOLAR, L.L.C. FOR LOCATION APPROVAL OF SOLAR GENERATION FACILITIES AND ASSOCIATED TRANSMISSION FACILITIES PURSUANT TO NMSA § 62-9-3; AND RIGHT-OF-WAY WIDTH DETERMINATION PURSUANT TO NMSA § 62-9-3.2	)	**Case No. 26-_____**

DIRECT TESTIMONY

OF

DEBORAH HUNTLEY

ON BEHALF OF

TUMBLEWEED SOLAR, L.L.C.

OCTOBER 16, 2026

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II. Background on Cultural Resources…….2

III. Applicability to the Tumbleweed Transmission Facilities……..……5

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V. Conclusion…….……13

Attachments:

Exhibit DH-1: Resume of Deborah Huntley
Exhibit DH-2: Cultural Resources Inventory Report

Verification of Deborah Huntley

I. WITNESS INTRODUCTION

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Deborah Huntley. My business address is 390 Union Blvd, Suite 400, Lakewood, CO 80228.

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

A. I am employed by Tetra Tech, Inc. ("Tetra Tech") as a Principal Archeologist and Social Scientist.

Q. PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND EXPERIENCE.

A. I have a B.A. degree in Anthropology from the University of Colorado, an M.A. degree in Anthropology with a Certificate in Museum Studies from Arizona State University, and a Ph.D. in Anthropology from Arizona State University. I am a Registered Professional Archeologist and specialize in the U.S. Southwest. I am permitted as a Principal Investigator in New Mexico and meet the Secretary of Interior's Professional Qualifications Standards for Archeology. I have overseen all aspects of field research, data collection, analysis, and report production for a variety of cultural resource survey, monitoring, testing, and excavation projects on federal, state, and private land. My resume is attached as Exhibit DH-1.

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

A. I am appearing on behalf of Tumbleweed Solar, L.L.C. ("Tumbleweed" or "Applicant").

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. My testimony supports Tumbleweed's application to the New Mexico Public Regulation Commission ("Commission" or "NMPRC") for location approval of the up to 1,700-foot-

long 230 kilovolt (kV) generation tie transmission line ("Gen-Tie Line") and the about 5-acre Substation (together, the "Transmission Facilities") associated with the Tumbleweed Solar Generation Project. I address cultural resources and impact assessment regarding the approximately 252-acre Analysis Area within which the Transmission Facilities will be located.

Q. HAVE YOU TESTIFIED BEFORE ANY REGULATORY AUTHORITIES?

A. Yes, I have testified before the Arizona Commission of Environmental Compatibility for an application for a Certificate of Environmental Compatibility for a transmission project.

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

A. I sponsor Exhibit DH-1, which is my resume, and Exhibit DH-2, which is the Cultural Resources Inventory Report for the Tumbleweed Transmission Facilities.

Q. WERE EXHIBITS DH-1 AND DH-2 PREPARED BY YOU OR UNDER YOUR SUPERVISION?

A. Yes.

Q. ARE EXHIBITS DH-1 AND DH-2 TRUE AND CORRECT COPIES OF THE DOCUMENTS YOU DESCRIBE IN YOUR TESTIMONY?

A. Yes.

II. BACKGROUND ON CULTURAL RESOURCES

Q. WHAT ARE CULTURAL RESOURCES?

A. The terms "cultural properties" and "cultural resources" generally refer to structures, places, sites or objects having historic, archeological, scientific, architectural or other cultural significance. A cultural resource "site" is defined as the physical location of past human activities or events. New Mexico Historic Preservation Division ("HPD") standards

stipulate that an archaeological site is 50 or more years old and may contain one or more features in association with other cultural materials or have the potential for subsurface features or cultural deposits. An "Isolated Occurrence" ("IO") generally has fewer than 10 artifacts, a single-episode trash dump, or a single, un-datable feature. Isolated occurrences are frequently found to be redeposited material lacking locational context and are unrelated to other nearby IOs or sites.

Q. ARE THERE STATE AND FEDERAL LAWS IN PLACE REGARDING CULTURAL RESOURCE PROTECTION?

A. Yes, there are state and federal laws in place regarding cultural resources, although the level of protection depends upon the significance of the cultural resource itself, the land tenure status, and/or whether federal or state permits are required.

Q. PLEASE EXPLAIN THE STATE LAWS REGARDING CULTURAL RESOURCES.

A. The New Mexico Cultural Properties Act, NMSA 1978 § 18-6-1 *et seq*. ("NMPCA") provides for the preservation, protection, and enhancements of, among other things, archeological sites and historic buildings on state lands. The NMPCA and its implementing regulations require state agencies and political subdivisions of the state to notify the New Mexico State Historic Preservation Office ("SHPO") of their activities that may affect a significant cultural property listed on the State Register of Cultural Properties ("State Register" or "SRHP"). The NMPCA also affords protection to marked and unmarked human burials on state and private lands. As long as marked burials are avoided, construction may proceed without consultation with the SHPO. If an unmarked burial were to be encountered during construction, construction activities in the vicinity of the burial

must cease while consultation with the SHPO occurs. Depending on the location, changes to the proposed layout of facilities may be made to avoid disturbing the burial site.

Q. PLEASE EXPLAIN THE FEDERAL LAWS REGARDING CULTURAL RESOURCES.

A. The National Historic Preservation Act, 54 U.S.C. 300101 *et seq*. ("NHPA"), requires federal agencies to take into account the effects of certain activities and programs on significant cultural resources listed on or eligible for listing on the National Register of Historic Places ("National Register" or "NRHP"). When a federal agency funds, licenses, or permits an activity that may affect cultural resources listed on or eligible for listing on the National Register (an "undertaking"), the agency must consult with the SHPO in cooperation with the Advisory Council on Historic Preservation in Washington, D.C. to comply with Section 106 of the NHPA.

Q. PLEASE EXPLAIN THE CRITERIA FOR LISTING AND ELIGIBILITY FOR LISTING ON THE NATIONAL REGISTER.

A. Tetra Tech's recommendations for eligibility for listing on the National Register are based on the following criteria codified in Title 36 Code of Federal Regulations Part 60.4:

> The quality of significance in American history, architecture, archaeology, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:
>
> A. that are associated with events that have made a significant contribution to the broad patterns of our history; or
> B. that are associated with the lives of persons significant in the past; or
> C. that embody the distinctive characteristics of a type, period, or method of construction, or that represents the work of a master, or that possess high artistic value, or that represent a significant or distinguishable entity whose components may lack individual distinction; or

D. that have yielded, or are likely to yield, information important in prehistory or history.

Cultural resource sites that are recommended as eligible for listing in the National Register are those that meet one or more of the above criteria for eligibility. In addition, sites recommended as eligible must retain integrity of location, design, setting, materials, workmanship, feeling, and/or association.

Cultural resource sites recommended as not eligible for listing in the National Register do not meet any of the eligibility criteria and/or have lost physical integrity. For example, eroded or otherwise heavily disturbed sites lacking physical integrity are generally not considered eligible. Sites that are recommended not eligible may: have experienced marked deflation from wind and water erosion and thus lack integrity; lack association between features and artifacts; and/or have features and/or artifacts unlikely to provide data to inform on cultural affiliation, site occupation dates, site function, changes in settlement patterns through time, technology, and/or subsistence practices.

Isolated Occurrences ("IOs"), as a category, are typically considered ineligible for listing in the National Register. Exceptions are made under unusual circumstances, such as when the archaeological record is lacking in data, or the IO is considered rare or unusual or may be associated with rare or unusual events.

The same criteria are used for eligibility for listing on the State Register.

III. APPLICABILITY TO THE TUMBLEWEED TRANSMISSION FACILITIES

Q. WILL THE TUMBLEWEED TRANSMISSION FACILITIES BE LOCATED ON STATE OR FEDERAL LANDS?

A. No.

Q. WILL THE TUMBLEWEED TRANSMISSION FACILITIES COMPLY WITH THE NMPCA?

A. Yes. Based on our investigation, the Tumbleweed Transmission Facilities will not adversely impact any significant cultural resources listed on or eligible for listing on the State Register, and will avoid human burials.

Q. DO THE TUMBLEWEED TRANSMISSION FACILITIES REQUIRE REVIEW UNDER THE NHPA?

No. No federal undertaking regarding the Transmission Facilities is proposed or required, therefore Section 106 of the NHPA is not triggered. In addition, our investigation found no cultural resources in the Analysis Area that are listed on or eligible for listing on the National Register.

Q. DO THE TRANSMISSION FACILITIES REQUIRE CONSIDERATION OF POTENTIAL IMPACTS TO CULTURAL RESOURCES AS PART OF THE COMMISSION'S LOCATION APPROVAL?

A. Yes. I understand that the New Mexico Location statute, NMSA 1978, §61-9-3, requires the Commission to consider whether the Transmission Facilities will unduly impair important environmental values, including cultural resources.

IV. CULTURAL RESOURCES IN THE ANALYSIS AREA

Q. PLEASE PROVIDE AN OVERVIEW OF THE PROCESS YOU USED TO IDENTIFY CULTURAL RESOURCES IN THE TRANMISSION FACILITIES ANALYSIS AREA.

A. The purposes of the cultural resources investigation were to establish the presence or absence of cultural resources within the Analysis Area, to evaluate the significance of those

resources for listing in the State Register or the National Register, and to evaluate whether the location of the Transmission Facilities within the Analysis Area would unduly impair important environmental values with respect to cultural resources.

The investigation included a records search and literature review to identify the presence of previously documented archaeological sites and surveys within the Analysis Area. This investigation also included a 100-percent archaeological survey of the Analysis Area. Tetra Tech evaluated the significance of all cultural resources located within the Analysis Area and provided an assessment of possible impacts to said resources, along with recommendations for avoidance where applicable.

Tetra Tech staff conducted the records search using the New Mexico Cultural Resource Information System ("NMCRIS") online Geographic Information System ("GIS") database, which includes records of previous archaeological investigations and previously documented cultural resources (prehistoric, historic archaeological sites, and historic architectural resources). The NMCRIS search was supplemented with a review of the National Park Service ("NPS") online database of properties listed in the State Register and the National Register. Tetra Tech also reviewed historic New Mexico General Land Office ("GLO") records to determine whether vestiges of trails, transportation routes, homesteads, or other potential historic resources were present in the Analysis Area.

Tetra Tech also conducted field surveys incorporating standard procedures developed in accordance with New Mexico HPD guidelines and *The Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation*. Systematic pedestrian surface surveys at 50-foot (15-meter) interval transects were conducted to determine the presence of artifacts or features on the surface. Pedestrian surveys covered

100 percent of the approximately 252-acre Analysis Area. The survey consisted of three mobilizations: 1) in December 2025, Tetra Tech surveyed 64.68 acres of the Analysis Area as part of NMCRIS 160424; 2) in June 2026, Tetra Tech surveyed 58.83 acres adjacent to the initial area; and 3) in July 2026, Tetra Tech surveyed an additional 128.88 acres.

If IOs, artifact scatters, or features were identified during the pedestrian survey, an intensive surface survey of the area was conducted at 16- or 33-foot (5- or 10-meter) interval transects to delineate the site's surficial boundaries. In general, a site boundary can be delineated when no artifacts can be found within 50 feet (15 meters) in any direction from the last artifact on the site periphery. Each site identified in the field was photographed and recorded on a Laboratory of Anthropology ("LA") Site Record form and supplemental forms by the field crew. IOs were photographed and recorded by documenting location, artifact or feature type and description, and measurements.

Tetra Tech assigned cultural-temporal affiliation to sites identified during the pedestrian survey when possible, following the NMCRIS Users Guide (NMCRIS 2018). Cultural-temporal affiliation could be determined for unambiguous site types, such as prehistoric artifact scatters with culturally diagnostic material. Sites of indeterminate cultural affiliation or multicomponent sites (sites with both prehistoric/protohistoric and historic components) were noted as such. Consistent with NMCRIS, Tetra Tech uses the term "Unknown Aboriginal" for clearly Native American sites lacking culturally or temporally distinctive aspects.

Further background is provided in Exhibit DH-2.

Q. PLEASE DESCRIBE THE FINDINGS REGARDING CULTURAL RESOURCES.

A. Findings of the Records Search

The records search indicated that there has been one previous cultural resource investigation within the Analysis Area. This was a Class III Cultural Resource Inventory for the Kirby 3-D Seismic Grid, which covered five 100-foot wide linear corridors across the Analysis Area, and documented no cultural resources in the Analysis Area. Further, there are no cultural resources within the Analysis Area that are currently listed in the State Register or National Register.

Findings of the Pedestrian Survey

During the pedestrian survey, the Tetra Tech crew recorded two newly documented archaeological sites (LA 208242 and LA 209339). *See* Table 6-1 of Exhibit DH-2. Three isolated occurrences were also recorded as set forth in Table 6-6 of Exhibit DH-2.

Archeological Site LA 208242

LA 208242 was first recorded by Tetra Tech in December 2025 (NMCRIS 160424). No change was observed at LA 208242 when it was visited during the July 2026 survey. LA 208242 is the remains of a mid- to late-1900s Euro-American ranching activity area that may have included a small ranch house. The site contains a historic artifact scatter with some domestic refuse and three features—a rock concentration, an earthen berm, and a circular depression that may have been a small stock tank. The 1945 BLM GLO map notes a structure and windmill at this location, while the Bottomless Lakes, NM (1950) USGS 7.5-minute quadrangle map notes two structures.

LA 208242 is a historic ranching site containing a rock pile/concentration (Feature 1), an earthen berm (Feature 2), a circular depression (Feature 3), and an associated artifact scatter. The landscape in the site vicinity is subject to wind and water erosion, bioturbation and cattle trampling. The site covers an area of about 19,586 m^2.

All feature descriptions are found in Table 6-2 of Exhibit DH-2. Diagnostic artifacts include a Duraglas colorless glass base with an Owens-Illinois maker's mark (FS-1) that measures 3 inches in diameter and dates to A.D. 1929–1954. The artifact scatter consists of 46 metal artifacts, 241 glass shards, and seven ceramic sherds. Table 6-3 of Exhibit DH-2. Additionally, there is one area of the site that contains a glass scatter of about 300 to 400 colorless, green, brown, and amber glass shards that were not included in the artifact tally. No subsurface deposits are expected. Site features and artifacts are consistent with what would be expected of an area associated with ranching activities. Based on the diagnostic artifacts observed, LA 208242 is assigned a Statehood–WWII to Recent age range (A.D. 1912–Present).

The site is not clearly associated with any significant event or person in Chaves County, nor the nation's history. The site does not embody any distinctive characteristics of an architectural style, architect or school, and does not exhibit high artistic value. The site has been impacted by mechanical blading, roadway expansion, and livestock trampling. Features are deflated and soils are shallow and unlikely to contain buried deposits. For these reasons, the site is not able to contribute additional information important to our understanding of late twentieth century ranching activities. Tetra Tech recommends this site as not eligible for the National Register or the State Register under any criteria, and no management considerations are recommended.

Archeological Site LA 209339

LA 209339 is a historic oil activity area containing a water pipe (Feature 1), a pipe for an unknown use (Feature 2), a discharge scar (Feature 3), a slag stain (Feature 4), a wooden post alignment (Feature 5), and an associated artifact scatter. The site is located

along a relatively flat plain of open rangeland. An unnamed two-track road runs northwest-southeast along the western edge of the site. The landscape in the site vicinity is subject to wind erosion, water erosion, and bioturbation. The site covers an area of about 15,862 m^2.

All feature descriptions are listed in Table 6-2 of Exhibit DH-2. Diagnostic artifacts include a Duraglas brown glass base with an Owens Illinois maker's mark (ca. 1929 to 1960, Lockhart et al. 2026), amber glass (ca. 1860s to Present, Horn 2005), and cobalt blue glass (ca. 1890s to Present, Horn 2005). The artifact scatter consists of 150 metal artifacts, eight ceramic sherds, 66 glass shards, and 55 pieces of milled lumber (Table 6-3, Exhibit DH-2). As there is one pipe (Feature 1) that is still in the ground, subsurface deposits are present but not anticipated to provide any additional information. Site features and artifacts are consistent with what would be expected of an area associated with oil production activities. Based on the diagnostic artifacts observed, LA 209339 is assigned a U.S. Territorial to Recent age range (A.D. 1860s–Present).

Diagnostic artifacts place the site in the 1940-50s. The 1946 BLM GLO map and the Bottomless Lakes, NM (1950) USGS 7.5-minute quadrangle map do not show any structures at or near the site location. The site is estimated to be approximately 60-percent intact.

Although the well, water pipe, and wooden posts are partially buried and indicate that subsurface features are present at the site, these deposits are not expected to contribute additional information important to our understanding of recent extractive mining activities. The site is not clearly associated with any significant event or person in Chaves County nor the nation's history. The site does not embody any distinctive characteristics of an architectural style, architect or school, and does not exhibit high artistic value. Tetra

Tech concludes that documentation of the surface artifacts and features has exhausted the data potential of the site. Therefore, Tetra Tech recommends the site is not eligible for listing on either the National Register or the State Register, and no further management considerations are recommended.

Isolated Occurrences

Three IOs were newly recorded in the Analysis Area (see Table 6-6 of Exhibit DH-2), including one prehistoric isolate and two historic isolates. Tetra Tech concludes that thorough in-field documentation of the three isolates has exhausted their information potential, they are not eligible for listing in the National Register or the State Register, and no further management considerations are recommended.

Q. DID YOUR REVIEW FIND ANY CEMETERIES OR HUMAN REMAINS IN THE TRANSMISSION FACILITIES ANALYSIS AREA?

A. No.

Q. HOW WILL THE PROJECT DEAL WITH UNANTICIPATED DISCOVERIES DURING CONSTRUCTION?

A. Tetra Tech developed an Unanticipated Discovery Plan for Cultural Resources and Human Remains that outlines procedures to be followed in the event artifacts or human remains are inadvertently discovered during construction activities. I understand that the Unanticipated Discoveries Plan is attached to the Direct Testimony of Meghan Knudsen as Exhibit MK-10.

Human remains are protected under federal law and under Section 18-6-11.2 of the New Mexico Cultural Properties Act, NMSA 1978. If human remains are encountered during construction, all work must cease within 100 feet of the discovery, and the New

Mexico SHPO, local law enforcement agency, and Office of the Medical Investigator must be notified.

V. CONCLUSION

Q. IN YOUR OPINION, WILL THE LOCATION OF THE TUMBLEWEED TRANSMISSION FACILITIES UNDULY IMPAIR IMPORTANT ENVIRONMENTAL VALUES REGARDING CULTURAL RESOURCES?

A. No. Tetra Tech's investigations found no cultural resources that are listed on or eligible for listing on the State Register or the National Register. With the implementation of the Unanticipated Discoveries Plan, the Transmission Facilities are not expected to unduly impair important environmental values regarding cultural resources.

Q. DOES THIS CONCLUDE YOUR TESTIMONY AT THIS TIME?

A. Yes, it does.

TETRA TECH

Deborah Huntley, PhD, RPA
Principal Archaeologist/Social Scientist

EXPERIENCE SUMMARY

Dr. Deborah Huntley is a Registered Professional Archaeologist who specializes in the U.S. Southwest. Dr. Huntley is permitted as a Principal Investigator in New Mexico and meets the Secretary of Interior's Professional Qualifications Standards for Archaeology. She has overseen all aspects of field research, data collection, analysis, and report production for a variety of cultural resource survey, monitoring, testing, and excavation projects on federal, state, and private land. Dr. Huntley has prepared numerous research designs, management plans, and technical reports, including evaluation and nomination of cultural properties for inclusion in the National Register of Historic Places. She has experience with Section 106 of the National Historic Preservation Act, Native American Graves Protection and Repatriation Act, Archaeological Resources Protection Act, and National Environmental Policy Act (NEPA) impact analyses for cultural resources in environmental assessment (EA), environmental impact statements (EIS), and critical issues analyses (CIAs)/desktop studies. Dr. Huntley has consulted with State Historic Preservation Offices, Native American tribes, and local cultural resources specialists throughout the western United States. She has presented many papers and posters at professional conferences and has built an extensive publication record. Dr. Huntley's research interests include the late prehistoric and early Spanish colonial period in the American Southwest, the organization of Southwestern pottery production and exchange, and migration and long-distance interaction.

EDUCATION

PhD, Anthropology, Arizona State University, 2004

MA, Anthropology with Certificate in Museum Studies, Arizona State University, 1995

BA, Anthropology, University of Colorado, 1991

AREA OF EXPERTISE

Anthropologically Trained Archaeologist; Specialty – U.S. Southwest

Principal Investigator – Arizona, Colorado, New Mexico, and North Dakota

Meets the Secretary of Interior's Professional Qualifications Standards for Archaeology

REGISTRATIONS/ CERTIFICATIONS

Registered Professional Archaeologist, Number 28685995, Earned 6/22/99

OFFICE

Denver, CO

YEARS OF EXPERIENCE

34

YEARS WITHIN FIRM

10

CORPORATE PROJECT EXPERIENCE

Principal Investigator, June 2026–Present
XGS Energy, South Baldy Geothermal Project Socorro County, NM

Supervised Class III pedestrian cultural resources inventory of 4,850 acres for a proposed geothermal facility on private land. Reporting in progress.

Principal Investigator, July 2026–Present
Mesquite Solar, LLC, Mesquite Solar Project, Doña Ana County, NM

Supervised Class III pedestrian cultural resources inventory of approximately 1,000 acres for a proposed solar facility on private land. Reporting in progress.

Principal Investigator, April 2026–Present
Agate Solar LLC, Agate Solar Project, Luna County, NM

Supervised GIS archaeological sensitivity modeling, Class III pedestrian cultural resources inventory of 443 acres on New Mexico State Land Office (NMSLO) -administered land and approximately 500 acres on private land for a proposed solar facility. Reporting in progress.

Principal Investigator, April 2026–Present
Innergex Renewable Development USA, LLC, Desert Valley BESS Project, Doña Ana County, NM

Supervised Class III pedestrian cultural resources inventory of approximately 17 acres for a proposed BESS facility on private land. Documented four historic archaeological sites and one historic isolated find.

Principal Investigator, May–December 2025
Plains Oryx Permian Basin, LLC, Lynch to Jal Pipeline Project, Lea County, NM

Supervised Class III pedestrian survey, agency consultation, and reporting tasks in support of a proposed pipeline project on 667 acres administered by the BLM's Las Cruces District Office and 417 acres administered by the NMSLO. Documented 20 prehistoric and historic archaeological sites and 37 prehistoric and historic isolated finds.

Cultural Resource Specialist, May–December 2025
Tularosa Basin Telephone Company and JSI, Tularosa Wave II Fiber Optics Project, Otero and Lincoln Counties, NM

Supervised Class III pedestrian survey, agency consultation, and reporting tasks in support of a proposed fiber optics line on approximately 164 acres administered by the BLM's Las Cruces District Office, the Lincoln National Forest, and the New Mexico Department of Transportation (NMDOT). Documented 11 prehistoric and historic archaeological sites.

Principal Investigator, January 2024– December 2025
Tri-State Frontier-Picacho Phase 7 Project, Sierra and Doña Ana Counties, NM

Supervised Class III pedestrian survey, agency consultation, archaeological monitoring, and reporting tasks in support of a proposed transmission line project on 117 acres administered by the BLM's Las Cruces District Office and 7.6 acres administered by the NMSLO. Documented 20 prehistoric and historic archaeological sites and 37 prehistoric and historic isolated finds.

Principal Investigator, December 2022– January 2023
Summit Ridge Energy, Three Community Solar Projects, Doña Ana, Eddy, and Valencia Counties, NM.

Supervised Class III pedestrian survey and reporting tasks in support of three small proposed solar facilities under the Community Solar Act (SB84) and following the guidelines of the New Mexico Public Regulation Commission (Title 17, Chapter 9, Part 573 New Mexico Administrative Code). Documented ten prehistoric and historic archaeological sites and nine isolated artifacts.

Principal Investigator, August 2022–January 2024
Carne Solar Development, LLC, Carne Solar Project, Luna County, NM

Supervised GIS archaeological sensitivity modeling, Class III pedestrian survey, agency consultation, site mitigation, and reporting tasks in support of proposed 1,380-acre solar facility on private land, as well as on land administered by the NMSLO and BLM Las Cruces District Office. Documented 16 prehistoric and historic archaeological sites and 53 isolated artifacts.

Principal Investigator, November 2022–January 2024
Marathon Petroleum Company LP, Pipeline Repair and Maintenance, Chaves and Otero Counties, NM

Supervised Class III pedestrian survey, archaeological monitoring, agency consultation, and reporting tasks in support of various pipeline repair and maintenance projects on NMSLO lands and lands managed by the BLM's Las Cruces District Office and Carlsbad Field Office.

Principal Investigator, January 2022–January 2024
Department of Energy, Waste Isolation Pilot Plant Supplemental Environmental Impact Statement, Eddy County, NM

Supervised Class I (3,840 acres) and Class III (640 acres) cultural resources inventory for the Department of Energy Carlsbad Field Office in support of waste isolation pilot plant operations.

Principal Investigator, March 2021–March 2022
Confidential Client, Confidential Solar Energy Project, Cultural Resource Survey, Valencia County, NM

Supervised due diligence pedestrian archaeological survey of 2,280 acres for proposed solar energy facility. Recorded 48 archaeological sites and 28 isolated finds and conducted subsurface testing at three prehistoric archaeological sites.

Principal Investigator, 2020–2022
Confidential Client, Confidential Solar Energy Project, Otero County, NM

Supervised Class III pedestrian cultural resources inventory of approximately 2,700 acres for a proposed solar facility on NMSLO-administered lands. Documented 51 prehistoric and historic archaeological sites and 66 isolated artifacts.

Exhibit DH-2

Cultural Resources Inventory Report

Tumbleweed Solar Transmission Facilities, Chaves County, New Mexico

September 2026



Prepared for:

Tumbleweed Solar, L.L.C.
575 Fifth Ave., 24th Fl.
New York, NY 10017

Prepared by:

TETRA TECH

390 Union Blvd, Suite 400
Lakewood, CO 80228

Exhibit DH-2

Cultural Resources Inventory Report
Tumbleweed Solar Transmission Facilities
Chaves County, New Mexico

Prepared for

Tumbleweed Solar, L.L.C.
575 Fifth Ave., 24th Fl.
New York, NY 10017

Prepared by
Berenika Byszewski, MA
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TETRA TECH

Tetra Tech, Inc.
390 Union Blvd, Suite 400
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Principal Investigator
Berenika Byszewski, MA

NMCRIS Investigation Numbers 160424 and 161488
Permit Number NM-27-287-S

September 2026

Exhibit DH-2

EXECUTIVE SUMMARY

On behalf of Tumbleweed Solar, L.L.C. (Tumbleweed), a subsidiary of DESRI Renewables, L.L.C., Tetra Tech, Inc. (Tetra Tech) conducted a cultural resource investigation of privately owned lands for the proposed Tumbleweed Solar generation tie transmission line (Gen-Tie Line) and substation (together, the Transmission Facilities) in Chaves County, New Mexico. Tetra Tech conducted this investigation to support Tumbleweed's application to the New Mexico Public Regulation Commission (Commission or NMPRC) for location approval of the proposed Transmission Facilities associated with the Tumbleweed Solar Generation Facilities, pursuant to New Mexico Statutes Annotated (NMSA) 1978, Section 62-9-3 and the NMPRC's Location Rule, New Mexico Administrative Code (NMAC) 17.9.592.10.

This report documents cultural resources investigations of about 252 acres of private land within which the Transmission Facilities are proposed to be located (referred to herein as the Analysis Area) and was prepared under New Mexico Cultural Resource Information System (NMCRIS) Investigation Numbers 160424 and 161488.

The Analysis Area for the Transmission Facilities is located approximately 12.8 miles east of Roswell, New Mexico, in Section 13 of Township 11 South, Range 26 East and covers approximately 252 acres. Archival research included a records search, review of previous survey reports, and review of historic maps. The research indicated that one previous archaeological survey covered a portion of the Analysis Area, and that no cultural resources were previously documented in the Analysis Area.

Tetra Tech conducted an intensive, 100-percent pedestrian survey of the approximately 252-acre Analysis Area during three mobilizations. In December 2025, Tetra Tech surveyed 64.68 acres of the Analysis Area as part of NMCRIS 160424 and documented LA 208242; in June 2026, Tetra Tech surveyed 58.83 acres of the Analysis Area and revisited LA 208242; and in July 2026, Tetra Tech surveyed 128.88 additional acres of the Analysis Area under NMCRIS 161488 and documented LA 209339.

A total of two archaeological sites and three isolated occurrences (IOs) were found in the Analysis Area (Table ES-1). Tetra Tech recommends LA 208242 as not eligible for listing in the National Register of Historic Places (NRHP) under any criteria. No further management is recommended for this resource. Tetra Tech recommends LA 209339 as not eligible for listing in NRHP under any criteria. No further management is recommended for this resource. Tetra Tech recommends the three IOs as not eligible for listing in NRHP under any criteria, and no further management is recommended for these resources.

In addition, Tetra Tech recommends developing an Unanticipated Discovery Plan (UDP) prior to the commencement of any ground disturbing activities for the Transmission Facilities. The UDP would outline procedures to be followed in the event artifacts or human remains are inadvertently discovered during construction activities. Human remains are protected under federal law and under Section 18-6-11.2 of the New Mexico Cultural Properties Act, New Mexico Statutes Annotated (NMSA) 1978. If human remains are encountered during construction, all work must cease within 100 feet of

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the discovery, and the New Mexico State Historic Preservation Officer (SHPO), local law enforcement agency, and Office of the Medical Investigator must be notified.

Table ES-1. Cultural Resources Identified within the Analysis Area

Resource Number	Time Period	Description	NRHP Eligibility	Management Recommendation
Sites				
LA 208242	Historic	Ranching Site	Recommended Not Eligible	None
LA 209339	Historic	Oil Activity Area	Recommended Not Eligible	None
Isolated Occurrences (IOs)				
TS4-HW-IF-01	Prehistoric	Chert projectile point tip and midsection with random flaking, edge retouch. 24.23 millimeters long by 17.64 millimeters wide and 3.29 millimeters thick.	Recommended Not Eligible	None
TS4-HW-IF-02	Historic	Threaded water pipe with “C ¼” etched into the connection. 5 inches in diameter by 1 foot long.	Recommended Not Eligible	None
TS4-HW-IF-03	Historic	Artifact scatter with one crushed oil can, five colorless glass shards, two pieces of rebar, two pieces of milled lumber, one metal trap, one metal bolt, and one piece of fine earthenware.	Recommended Not Eligible	None

LA = Laboratory of Anthropology; NRHP = National Register of Historic Places

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Acronyms and Abbreviations

°F	degrees Fahrenheit
Analysis Area	The approximately 252-acre area within which the Tumbleweed Transmission Facilities are proposed to be located
A.D.	Anno Domini
B.C.	Before Christ
BLM	Bureau of Land Management
BP	before present (ca. 1950)
ca.	Circa
cal years	calendrical years
DESRI	DESRI Renewables, L.L.C.
FS	Field Specimen
GIS	geographic information system
GLO	General Land Office
HPD	New Mexico Historic Preservation Division
IO	isolated occurrence(s)
LA	Laboratory of Anthropology
m^2	square meter
NHPA	National Historic Preservation Act
NMAC	New Mexico Administrative Code
NMCRIS	New Mexico Cultural Resource Information System
NMSA	New Mexico Statutes Annotated
NMSLO	New Mexico State Land Office
NPS	National Park Service
NRHP	National Register of Historic Places
SHPO	State Historic Preservation Officer
SRCP	State Register of Cultural Properties
Tetra Tech	Tetra Tech, Inc.
Transmission Facilities	The proposed Tumbleweed Solar generation tie transmission line (Gen-Tie Line) and Substation

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UDP	Unanticipated Discovery Plan
USDA	U.S. Department of Agriculture
USGS	U.S. Geological Survey

Exhibit DH-2

1.0 INTRODUCTION

On behalf of Tumbleweed Solar, L.L.C. (Tumbleweed), a subsidiary of DESRI Renewables, L.L.C., Tetra Tech, Inc. (Tetra Tech) conducted cultural resource investigations on privately owned lands for the proposed Tumbleweed Solar generation tie transmission line (Gen-Tie Line) and Substation (together, the Transmission Facilities) in Chaves County, New Mexico. The Transmission Facilities would be located approximately 12.8 miles east of Roswell, in Section 13 of Township 11 South, Range 26 East (Figure 1-1). The Transmission Facilities are proposed to be located within an area of private lands totaling approximately 252 acres(Analysis Area) (Figure 1-2). This 252-acre Analysis Area was subjected to a 100-percent pedestrian survey by Tetra Tech between December 2025 and July 2026.

This report documents due diligence cultural resources surveys of privately owned land. The purpose of this cultural resources inventory is to determine whether the location of the Transmission Facilities would unduly impair important environmental values regarding cultural resources. The goals of the report are to:

- Identify and describe archaeological and historic built environment resources within the Analysis Area,
- Provide a cultural context for the Analysis Area,
- Identify any adverse effects that may occur as a result of proposed activities in the Analysis Area, and
- Develop recommendations to mitigate any undue impairment of cultural resources.

1.1 Regulatory Context

The Analysis Area discussed herein is located on private property where Tumbleweed proposes to locate electrical Transmission Facilities associated with the Tumbleweed Solar Generation Facilities. Tumbleweed will submit an application for location approval to the NMPRC for these facilities. This cultural resources investigation has been conducted in support of Tumbleweed's application, pursuant to New Mexico Statutes Annotated (NMSA) 1978, Section 62-9-3 and the PRC's Location Rule, New Mexico Administrative Code (NMAC) 17.9.592.10. Tetra Tech conducted the cultural investigation in accordance with the State of New Mexico Cultural Properties Act of 1969 (New Mexico Statutes Sections 18-6-1 to 18-6-17, New Mexico Statutes Annotated [NMSA] 1978 as amended 2005) and Title 4, Chapter 10, Part 15 Standards for Survey and Inventory of the New Mexico Administrative Code (NMAC 4.10.15).

1.2 Definition of the Analysis Area

The Analysis Area is defined as the approximately 252 acres of private land proposed for location of the Tumbleweed Transmission Facilities An additional survey buffer was not added since the Transmission Facilities' design will not encompass the entire land parcel and an appropriate buffer is already included in the 252 acre Analysis Area.

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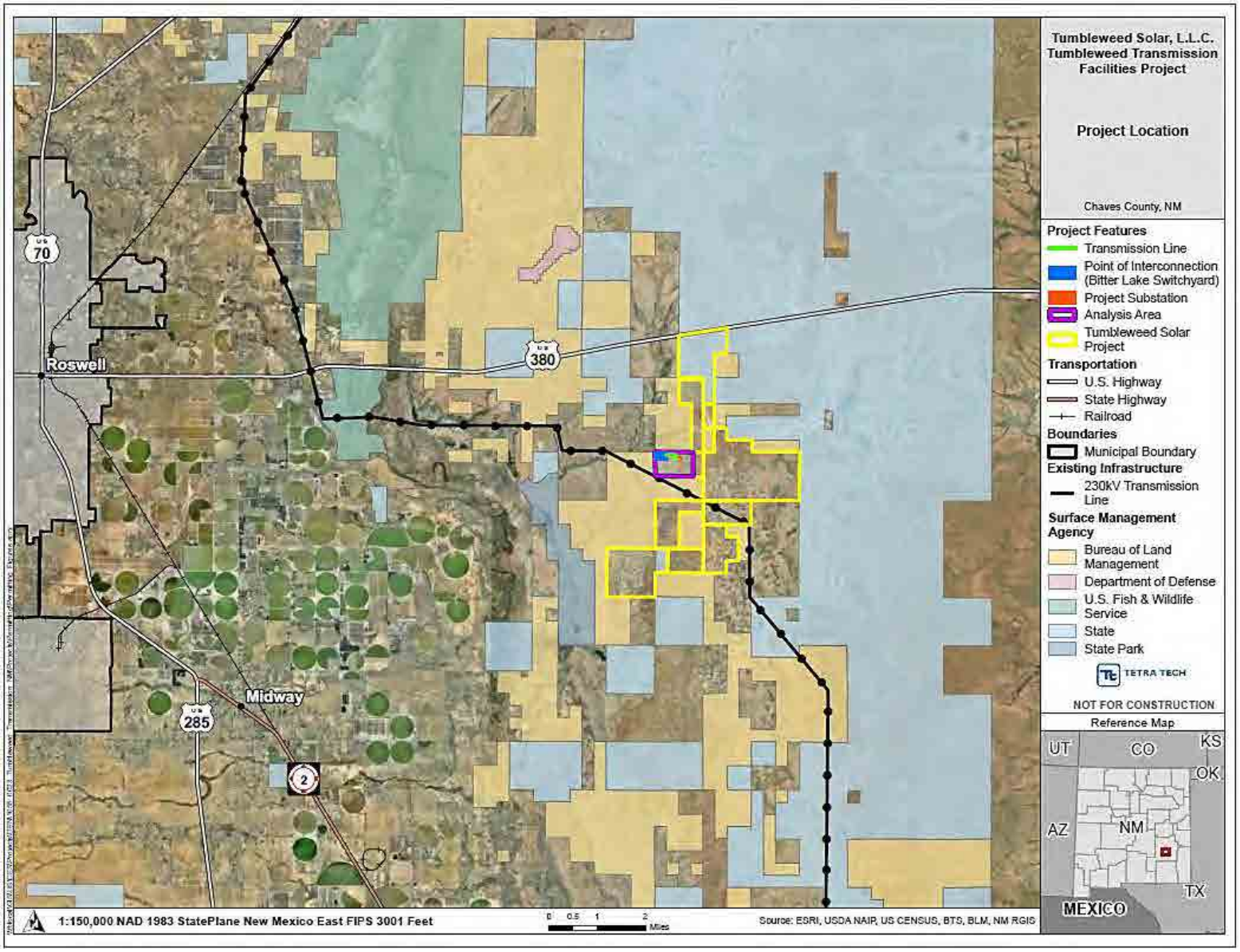

Figure 1-1. Tumbleweed Solar, L.L.C., Project Location Overview

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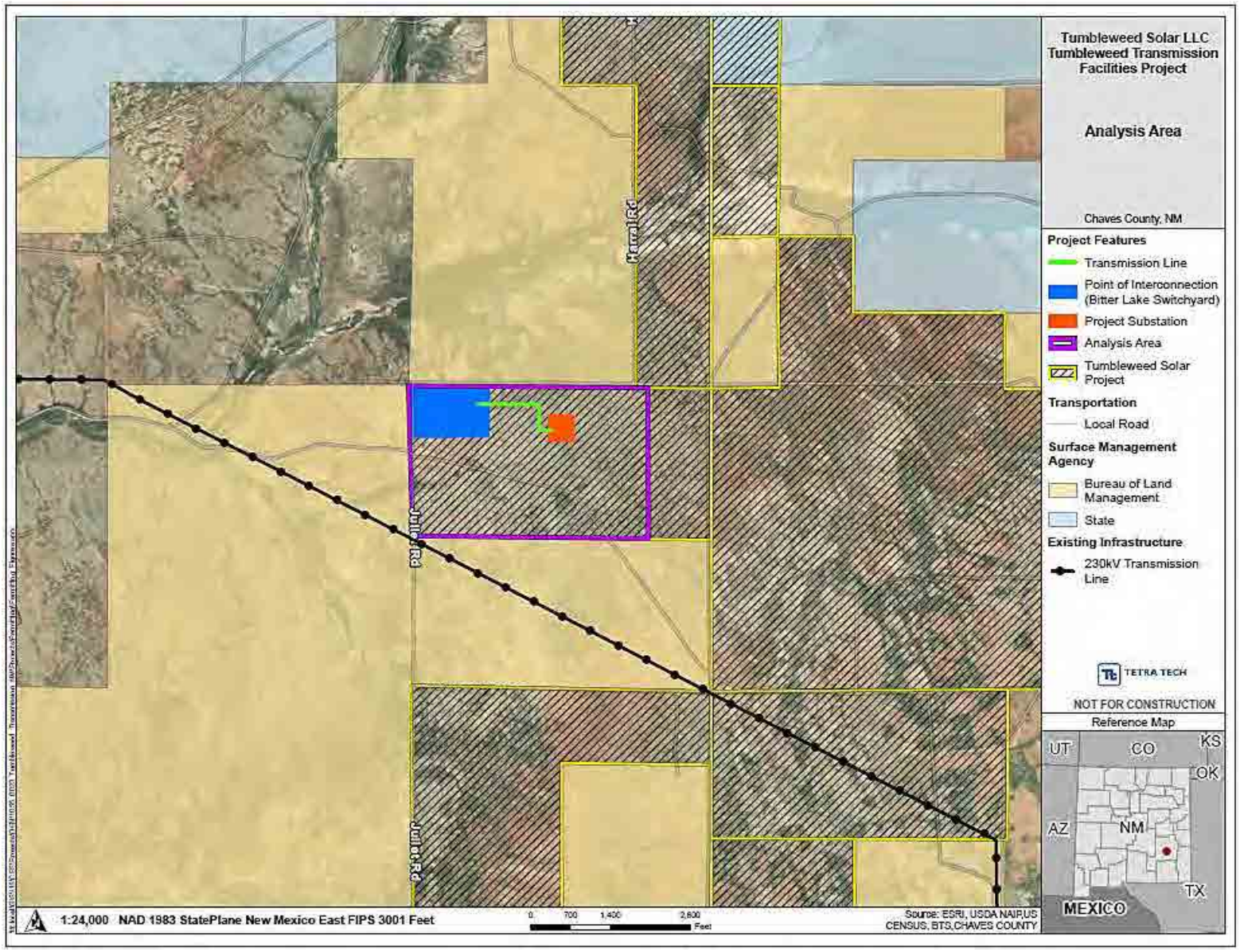

Figure 1-2. Tumbleweed Solar, L.L.C., Analysis Area

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1.3 Project Personnel

The field crew for the pedestrian survey included Field Director Jonathan Schaefer with crew member Haley Wilkerson. Berenika Byszewski is listed as a Principal Investigator/Project Director on Tetra Tech's New Mexico General Archaeological Investigation Permit. Jessica DeMaso and Berenika Byszewski prepared this report. Aliceia Schubert managed the geographic information system (GIS) data and prepared the report maps.

1.4 Report Organization

This report summarizes the environmental and cultural background of the proposed Analysis Area and surrounding area, presents research methodology, results of the pre-field literature review, field survey results, and management recommendations.

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2.0 ENVIRONMENTAL SETTING

A brief overview of environmental conditions (past and present) in the Analysis Area and vicinity is necessary to provide a foundation for understanding past human subsistence and settlement patterns. Understanding how environmental variables (i.e., availability of food, water, fuel, and tool materials) affected past decision-making processes can lead to a greater awareness of an area's cultural resources. Tetra Tech prepared as Environmental Report in accordance with the requirements of New Mexico Administrative Code (NMAC) § 17.9.592.10. The following information is drawn from that report.

According to the Western Regional Climate Center's (2026) period of record for the Roswell Industrial Air Park, New Mexico (COOP Station No. 297610), the closest station to the Analysis Area, the average annual maximum temperature is 75.9 degrees Fahrenheit (°F). The average annual minimum temperature is 46.6 °F. Annual precipitation ranges from 6 to 20 inches with an average annual total precipitation of 12.55 inches. Summer monsoon thunderstorms bring much of the precipitation to the area, while winters are considered cool to cold and dry. Average annual total snowfall is 11.5 inches, which typically occurs in the months of November to March.

The Analysis Area is within the Chihuahuan Basins and Playas Level IV Ecoregion (Griffith et al. 2014). This portion of West Texas and Southeast New Mexico is mostly below 4,500 feet in elevation and is characterized by alluvial fans, internally drained basins, and river valleys. These low elevation areas are some of the hottest and most arid habitats in the state. The playas and basin floors have saline or alkaline soils and areas of salt flats, dunes, and windblown sand that support typical desert shrubs and grasses capable of withstanding large seasonal and diurnal ranges in temperature, low available moisture, and a high evapotranspiration rate. Typical shrubs and grasses in the Chihuahuan Basins and Playas ecoregion include creosote bush (*Larrea tridentata*), tarbush (*Flourensia cernua*), fourwing saltbush (*Atriplex canescens*), *Acacia* spp., gyp grama (*Bouteloua breviseta*), and alkali sacaton (*Sporobolus airoides*); horse crippler (*Echinocactus texensis*) and other cacti are also common. Vegetation observed during the natural resources survey included honey mesquite (P*rosopis glandulosa*), blue grama (*Bouteloua gracilis*), Russian thistle (*Salsola tragus*), and winterfat (*Krascheninnikovia lanata*). The Analysis Area and surrounding landscape have been previously disturbed by grazing, as well as several dirt access roads and an existing transmission line.

The Chihuahuan Basins and Playas Level IV EPA Ecoregion supports numerous wildlife species. Common mammals found in this ecoregion include bighorn sheep (*Ovis canadensis*), black-tailed jackrabbit (*Lepus californicus*), coyote (*Canis latrans*), and Merriam's kangaroo rat (*Dipodomys merriami*) (Natural Atlas 2026). Birds in the ecoregion include raptors, woodpeckers, songbirds, ravens (*Corvus* spp.), and quail (*Callipepla* spp.). Reptiles found in the ecoregion include the common side-blotched lizard (*Uta stansburiana*), horned lizards (*Phrynosoma* spp.), and the western diamondback rattlesnake (*Crotalus atrox*).

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3.0 CULTURAL SETTING

Human occupation of southeastern New Mexico spans at least 13,400 years (Cordell and McBrinn 2012; Meltzer 2021). The archaeological and historical record reflects long-term changes in subsistence, settlement, technology, social organization, and land use. These changes include the arrival of highly mobile Paleoindian groups, the development of broad-spectrum Archaic hunting and gathering, Formative-period experimentation with pottery and agriculture, Protohistoric use by mobile Native American groups, and historic settlement by Spanish, Mexican, Hispanic, and Anglo-American populations. Cultural resources identified within the Analysis Area should therefore be understood within a broader cultural landscape shaped by ranching, farming, homesteading, railroad construction, military activity, oil and gas production, potash mining, and continuing agricultural use. Because the pedestrian survey of the Analysis Area identified primarily historic cultural resources, the prehistoric discussion is necessarily brief, with greater attention is given to historic Euroamerican activities after A.D. 1540.

3.1 Prehistoric Narrative (pre A.D. 1540)

The prehistoric era is generally divided into the Paleoindian, Archaic, Formative, and Late Prehistoric periods. These periods represent broad shifts in technology, subsistence, mobility, and settlement patterns.

The Paleoindian Period, dating from approximately 13,400 to 8,000 calendar years before present (cal years BP), represents the earliest known human occupation in the American Southwest. Paleoindian groups were generally highly mobile and relied heavily on hunting, including the pursuit of large Ice Age animals. Archaeological evidence largely consists of distinctive projectile points and small scatters of chipped-stone artifacts. Although Paleoindian sites are uncommon in Chaves County, they are documented. For example, a Clovis projectile point was recovered from an archaeological site in the county in association with a mammoth tusk, and additional Clovis artifacts have been reported Haystack Mountain area near Roswell. Folsom Complex evidence has also been identified in the county (Bond 1979; Brown 1998; Phippen et al. 2000).

After approximately 12,000 years ago, environmental conditions changed as grasslands and associated large fauna declined and effective moisture decreased. Late Paleoindian groups appear to have followed smaller bison herds across much of New Mexico. During this time, regional populations developed increasingly diverse material cultures, although late Paleoindian adaptations remain less well understood and more difficult to date than the earlier Clovis and Folsom complexes (Meltzer 2021; Stuart 1986a).

The Archaic Period, dating from approximately 8,500 to 1,750 or 1,550 cal years BP, was the longest major period in Southwestern prehistory and is well represented throughout southeastern New Mexico (Kilby and McNally 1994; Sebastian and Larralde 1989; Katz and Katz 2001). The Archaic Period is commonly divided into Early, Middle, and Late phases. Archaic lifeways emphasized broad-spectrum hunting and gathering rather than dependence on large game. People relied on diverse plant resources, seeds, small game, and larger animals. Key tools included the spear and atlatl, a

range of projectile point styles, and milling implements. Pottery and agriculture were generally absent during the earlier portions of the period (Huckell 1996; Jennings 1964; Fowler and Jennings 1982).

As environmental conditions changed following the Ice Age, people diversified their diets and adapted their settlement patterns to locally available resources. By the Late Archaic, some groups had begun experimenting with maize horticulture. These developments, along with new technologies and patterns of landscape use, established important foundations for later Formative-period societies (Miller 2018; Vierra 2018).

The Formative Period, approximately A.D. 500 to 1450, was characterized in many parts of the Southwest by the introduction of pottery and the bow and arrow, increasingly permanent settlements, more complex architecture, expanded trade, and greater agricultural production (Lehmer 1948; Sebastian and Larralde 1989; Rocek 2018). Maize, and to a lesser extent beans, became important crops in many areas, while regional trade and social interaction increased (Miller et al. 2018). In southeastern New Mexico, however, archaeological evidence indicates limited evidence of agricultural dependence until after approximately A.D. 1275 (Sebastian and Larralde 1989; Stuart and Gauthier 1988). The Early Formative period, approximately A.D. 500 to 1150, included the introduction of unpainted pottery and bow-and-arrow technology. Some locations were occupied for longer seasonal periods or perhaps year-round, and communities appear to have relied more heavily on mesquite and other local resources (Miller and Kenmotsu 2004; Roney 1985). During the Late Formative period, approximately A.D. 1150 to 1450, settlement patterns, subsistence strategies, and interregional relationships changed more substantially. By the end of the period, permanent settlements had disappeared across much of southeastern New Mexico. This transition likely resulted from a combination of environmental conditions, population reorganization, and broader social and economic changes across the Southwest (Cordell and McBrinn 2012; Foster 2012; Rocek and Kenmotsu 2018).

3.2 Protohistoric Period and Historic Native American Groups (ca. A.D. 1450/1550 to 1750)

The Protohistoric Period in southeastern New Mexico began with the abandonment of Formative settlements and the movement of populations out of the area. It may have continued beyond the arrival of the Spanish and, in some remote portions of the region, into the eighteenth or nineteenth centuries (Gilpin and Phillips 1998; Ravesloot and Whittlesey 1987; Railey 2016; Sheridan et al. 2015). Spanish records identify numerous Native American groups in southern New Mexico, including the Querecheros, Teyas, Vaqueros, Escanxaques, Faraones, Jumanos, Suma, Manso, and Apache. The identities and relationships of these groups are difficult to establish because Spanish terminology was inconsistent and the same names may have been applied to different populations.

Southeastern New Mexico was particularly associated with the Mescalero Apache. Mescalero territory extended from the Rio Grande eastward toward the Llano Estacado and south toward the Big Bend region. Mescalero bands based in the Sierra Blanca, Guadalupe, and Davis Mountains traveled onto the southern Plains to hunt bison. Mescal harvesting and processing was also a significant subsistence

activity and became central to the group's name. Although Mescalero groups occasionally practiced limited agriculture, hunting and gathering remained their principal economic strategies (Mails 1974; Welch et al. 2017). Apache archaeological sites are often difficult to identify because they may lack distinctive diagnostic artifacts (Cordell and McBrinn 2012).

3.3 Historic European and American Narrative (post A.D. 1540)

The historic period began with European exploration and the introduction of European goods, domesticated animals, and institutions. Spanish activity in the region began with the travels of Álvar Núñez Cabeza de Vaca around A.D. 1536. His reports helped prompt later expeditions, including those of Fray Marcos de Niza and Francisco Vázquez de Coronado in 1539 and 1540. Additional expeditions led by Francisco Sánchez Chamuscado and Father Agustín Rodríguez in 1581, followed by Antonio de Espejo in 1582, helped establish the basis for later Spanish colonization (Betancourt 1980; Sánchez et al. 2013).

In 1598, New Mexico became a missionary province of the Franciscan order. During the early colonial period, southeastern New Mexico contained few permanent Spanish or Pueblo settlements but served as a travel corridor to areas farther north and west. Missionization, forced labor, disease, and conflict contributed to severe population losses among Pueblo communities. These pressures culminated in the Pueblo Revolt of 1680, which temporarily removed the Spanish and their allies from the Rio Grande Valley and displaced them toward present-day El Paso (Scurlock 1986a, 1986b).

By the early eighteenth century, Spanish settlers had established small subsistence farms and ranches. Relations with Indigenous populations varied but were described as generally peaceful in some areas. Trade routes with Mexico expanded, although foreign participation was restricted until Mexican independence from Spain in 1821. By approximately 1850, Hispanic families—many of them sheep herders—had established small placitas along regional rivers (Oakes 1983; Simmons 1982).

The region became part of the United States through the Treaty of Guadalupe Hidalgo in 1848 and the Gadsden Purchase in 1853. These political changes brought increased military activity, Anglo-American immigration, and settlement. The Homestead Act of 1862 further encouraged private land ownership and westward expansion (Carrillo et al. 2011).

During the late nineteenth century, the local economy centered on sheep and cattle ranching, homesteading, and farming. Large ranching operations included the Chisum Ranch, LFD Ranch, Diamond A, and Eddy & Bissell Livestock Company. Mexican-American families also moved across the Sacramento Mountains, establishing ranches and small towns. Competition for land, water, and grazing resources produced conflict, particularly during severe droughts in the late 1880s. Drought damaged grasslands, forced some ranching operations to move east, and made additional land available to homesteaders (Julyan 1996).

Railroad development beginning in the 1880s accelerated settlement and economic integration. The Pecos Valley Railway reached Roswell from the south in 1894 and was extended northeastward to Amarillo in 1899. Railroads brought additional settlers and expanded cattle production, while also

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increasing competition between agricultural and ranching interests. Chaves County was organized in 1891, Roswell was incorporated that same year, and the city was reorganized in 1903 (Carrillo et al. 2011; Shinkle 1964).

New Mexico entered the Union as the forty-seventh state in January 1912. Homesteading expanded during the 1910s and 1920s following the Enlarged Homestead Act of 1909 and the Stock Raising Act of 1916. Windmills, barbed wire, and steel plows made settlement and agricultural production more feasible in the arid environment. Nevertheless, many homesteads were short-lived because of drought, dust storms, and the Great Depression. Agriculture continues to be important to the Roswell-area economy (Lintz et al. 1988).

The discovery of oil in Eddy County in 1909 marked another major change in southeastern New Mexico. Productive shallow wells were developed during the 1910s, followed by deeper exploration in the 1920s. This activity led to the establishment of numerous small oil-field communities. Potash was also discovered east of Carlsbad during the 1920s, making the area an important producer in national markets (Julyan 1996). Oil and gas development during the 1920s and 1930s resulted in company-supported communities known as oilfield camps. These camps typically consisted of uniform frame houses arranged in rows near oil wells, refineries, and related facilities. Companies such as Phillips, Conoco, Marathon, Texaco, and El Paso Natural Gas provided housing for workers and their families. Later camps, particularly those constructed after World War II, generally used improved materials and insulation. These communities document the transition of southeastern New Mexico from a primarily agricultural and ranching economy to one increasingly shaped by petroleum, mining, transportation, and industrial development (Steely and Newsome 2008)..

Exhibit DH-2

4.0 METHODOLOGY

The purpose of this investigation was to establish the presence or absence of cultural resources within the Analysis Area, to evaluate the significance of those resources for listing in the New Mexico State Register of Cultural Properties (SRCP) or the NRHP, and to assess whether the location of the Transmission Facilities would unduly impair important environmental values regarding cultural resources. The investigation included a records search and literature review to identify the presence of previously documented archaeological sites and surveys within the Analysis Area. This investigation also included a 100-percent archaeological survey of the Analysis Area. Tetra Tech evaluated the significance of all cultural resources located within the Analysis Area and provided an assessment of possible impacts to said resources, along with recommendations for avoidance where applicable.

4.1 Records Search and Archival Research

Tetra Tech staff conducted the records search using the New Mexico Cultural Resource Information System (NMCRIS) online GIS database, which includes records of previous archaeological investigations and previously documented cultural resources (prehistoric, historic archaeological sites, and historic architectural resources). The GIS shapefiles for previous investigations and documented cultural resources in the Analysis Area were downloaded on June 11, 2026. The NMCRIS search was supplemented with a review of the National Park Service (NPS) online database (NPS 2026b) of properties listed in the NRHP and the New Mexico SRCP (HPD 2026). Tetra Tech also reviewed historic New Mexico General Land Office (GLO) records to determine whether vestiges of trails, transportation routes, homesteads, or other potential historic resources were present in the Project Area.

4.2 Field Methods

The following survey methodology incorporates standard Tetra Tech procedures developed in accordance with New Mexico HPD (HPD 2005) guidelines and *The Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation* (48 *Federal Register* 44716-44740 [NPS 1983]).

Systematic pedestrian surface surveys at 50-foot (15-meter) interval transects were conducted to determine the presence of artifacts or features on the surface. Pedestrian surveys covered 100 percent of the approximately 252-acre Analysis Area. A tablet operating Field Maps for ArcGIS® was used to navigate the Analysis Area. The GIS shapefiles for the Analysis Area were provided by DESRI. The survey consisted of three mobilizations: 1) in December 2025, Tetra Tech surveyed 64.68 acres of the Analysis Area as part of NMCRIS 160424; 2) in June 2026, Tetra Tech surveyed 58.83 acres in the Analysis Area; and 3) in July 2026, Tetra Tech surveyed an additional 128.88 acres in the Analysis Area. The field crew typically worked 10-hour days.

4.3 Cultural Resource Site Delineation

A cultural resource "site" is defined as the physical location of past human activities or events. New Mexico HPD standards (HPD 2005:1) stipulate that an archaeological site is 50 or more years old and

may contain one or more features in association with other cultural materials or have the potential for subsurface features or cultural deposits. An isolated manifestation or isolated occurrence (IO) generally has fewer than 10 artifacts, a single-episode trash dump, or a single, undatable feature. Isolated occurrences are frequently found to be redeposited material lacking locational context and are unrelated to other nearby IOs or sites.

If IOs, artifact scatters, or features were identified during the pedestrian survey, an intensive surface survey of the area was conducted at 16- or 33-foot (5- or 10-meter) interval transects to delineate the site's surficial boundaries. In general, a site boundary can be delineated when no artifacts can be found within 50 feet (15 meters) in any direction from the last artifact on the site periphery.

4.4 Site and Isolate Documentation

A Tetra Tech GIS Specialist designed a geodatabase specifically for the Analysis Area that was used to capture data in the field using the Geode Global Navigation Satellite System Receiver, as well as to manage and display features for quality control and electronic client deliverables. The geodatabase prepared by the GIS Specialist contained three feature classes for data capture: artifact, feature, and site. Additional attribute data built into the geodatabase are present as drop-down menus, which allow specific feature information to be gathered in the field. Within the geodatabase, various attributes are described, including, but not limited to, recorder, date, topography, vegetation cover, land use, site condition, site type, measurements, affiliation, and avoidance recommendations. Site boundaries were flagged and recorded with a submeter-accurate Geode unit in Universal Transverse Mercator coordinates referenced to the 1983 North American Datum. The locations of temporally or culturally diagnostic artifacts and features were also recorded and assigned Field Specimen (FS) numbers, and they were subsequently photographed, measured, and their Universal Transverse Mercator coordinates recorded. Photographic documentation included photographs from cardinal directions, and photographs of features or temporally or culturally diagnostic materials in situ. Each site was recorded on a Laboratory of Anthropology (LA) Site Record form by the field crew. Supplemental Tetra Tech prehistoric and historic artifact tabulation forms were also used.

Isolated occurrences were recorded by documenting location, artifact or feature type and description, and measurements. Diagnostic isolated artifacts and features were photographed.

4.5 Assigning Cultural and Temporal Affiliation

Tetra Tech assigned cultural-temporal affiliation to sites identified during the pedestrian survey when possible, following the NMCRIS Users Guide (NMCRIS 2018). Cultural-temporal affiliation could be determined for unambiguous site types, such as prehistoric artifact scatters with culturally diagnostic material. Sites of indeterminate cultural affiliation or multicomponent sites (sites with both prehistoric/protohistoric and historic components) were noted as such. Consistent with NMCRIS, Tetra Tech uses the term "Unknown Aboriginal" for clearly Native American sites lacking culturally or temporally distinctive aspects.

Exhibit DH-2

4.6 Site Evaluation Criteria

Tetra Tech's recommendations for eligibility are based on the following criteria codified in Title 36 Code of Federal Regulations Part 60.4 and specified below:

> *The quality of significance in American history, architecture, archaeology, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:*
>
> *A. that are associated with events that have made a significant contribution to the broad patterns of our history; or*
>
> *B. that are associated with the lives of persons significant in the past; or*
>
> *C. that embody the distinctive characteristics of a type, period, or method of construction, or that represents the work of a master, or that possess high artistic value, or that represent a significant or distinguishable entity whose components may lack individual distinction; or*
>
> *D. that have yielded, or are likely to yield, information important in prehistory or history.*

Sites that are recommended as eligible for listing in the NRHP are those that meet one or more of the above criteria for eligibility. In addition, sites recommended as eligible must retain integrity of location, design, setting, materials, workmanship, feeling, and/or association.

Sites recommended as not eligible for listing in the NRHP do not meet any of the eligibility criteria and/or have lost physical integrity. For example, eroded or otherwise heavily disturbed sites lacking physical integrity are generally not considered eligible. Sites in the Analysis Area that are recommended not eligible may: have experienced marked deflation from wind and water erosion and thus lack integrity; lack association between features and artifacts; and/or have features and/or artifacts unlikely to provide data to inform on cultural affiliation, site occupation dates, site function, changes in settlement patterns through time, technology, and/or subsistence practices.

Sites without eligibility recommendations ("Unevaluated" or "Undetermined") may conform to eligibility criteria but require additional data to determine NRHP status. These are known or suspected prehistoric sites with either suspected buried materials or where additional research is necessary to assess integrity and determine cultural importance.

Isolated occurrences, as a category, are typically considered ineligible for listing in the NRHP. Exceptions are made under unusual circumstances, such as when the archaeological record is lacking in data, or the IO is considered rare or unusual or may be associated with rare or unusual events. Isolated occurrences identified during the pedestrian survey do not meet these criteria and are unlikely to produce new information that would contribute substantially to the prehistoric or historic culture history of the region.

Exhibit DH-2

4.7 Collection Strategies

In keeping with the conditions of Tetra Tech's New Mexico Annual State Land Archaeological Survey Permit (NM-27-287-S), no artifacts were collected during the pedestrian survey.

Exhibit DH-2

5.0 RECORDS SEARCH RESULTS

5.1 Previous Archaeological Investigations

The records search indicates that there has been one previous cultural resources investigation (NMCRIS 90053) within the Analysis Area. This was a Class III Cultural Resource Inventory for the Kirby 3-D Seismic Grid, which covered five 100-foot wide linear corridors across the Analysis Area and documented no cultural resources in the Analysis Area.

5.2 Previously Documented Cultural Resources

The review identified no previously documented archaeological site within the Analysis Area.

5.3 State and National Register Properties

Cultural resources that are listed on or determined to be eligible for listing on the NRHP or SCRP are referred to as historic properties or historic resources. There are no historic resources within the Analysis Area that are currently listed in the SRCP or NRHP.

5.4 Historic Atlas, Map, and Aerial Photograph Review

Review of historic cartographic resources can help determine whether vestiges of trails, transportation routes, homesteads, or other historic features may be present within the Analysis Area. The Analysis Area is on the Bottomless Lakes, New Mexico (1950) U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle map within Township 11 South, Range 26 East, Section 13. The USGS topo map shows two structures and an unnamed north-south road at the western edge of the Analysis Area. The Bureau of Land Management (BLM) GLO 1945 survey plat also shows this road and indicates that one of the structures is a windmill. These structures are at the approximate location of newly documented site LA 208242, while the north-south road is still in use and is currently known as Juliet Road. An additional unnamed road shown on the USGS topo and 1945 survey plat runs from west to east at the boundary of Section 13 and Section 12; this road is currently in use but remains unnamed. Finally, the BLM GLO 1881 survey plat shows a north-south unnamed road bisecting Section 13, which does not appear on the other historic maps. This road is no longer extant in the Analysis Area.

Exhibit DH-2

6.0 SURVEY RESULTS

During the pedestrian survey of the Analysis Area, the Tetra Tech crew recorded two newly documented archaeological sites (LA 208242 and LA 209339) (Table 6-1). Three isolated occurrences were also recorded (see Section 6.2).

Table 6-1. Archaeological Sites in the Analysis Area

Agency Number	Field Number	Site Type	Cultural Affiliation	Time Period
LA 208242	TS-HW-01	Ranching Site	Anglo/Euro-American	Statehood – WWII to Recent (A.D. 1912–Present)
LA 209339	TS4-HW-01	Oil Activity Area	Anglo/Euro-American	U.S. Territorial to Recent (A.D. 1860s–Present)

LA = Laboratory of Anthropology; NRHP = National Register of Historic Places

6.1 6.2 Newly Documented Sites

6.1.1 LA 209339

Field Number: TS4-HW-01
NRHP Eligibility: Recommended Not Eligible
Site Type: Oil Activity Area
Site Size: 208 meters east-west by 92 meters north-south (15,862 m^2)
Cultural Affiliation: Anglo/Euro-American
Temporal Affiliation: U.S. Territorial to Recent (A.D. 1860s–Present)

DESCRIPTION

LA 209339 (Figure 6-1 and Figure 6-2) is located along a relatively flat plain of open rangeland. An unnamed two-track road runs northwest-southeast along the western edge of the site. The landscape in the site vicinity is subject to wind erosion, water erosion, and bioturbation. The site covers an area of about 15,862 m^2. Surface sediment is a light brown loam. Vegetation in the site vicinity consists of New Mexico feathergrass, broom snakeweed, yucca, pigweed, and various bunchgrasses. Surface visibility ranges from 51 to 75 percent throughout.

LA 209339 is a historic oil activity area containing a water pipe (Feature 1), a pipe for an unknown use (Feature 2), a discharge scar (Feature 3), a slag stain (Feature 4), a wooden post alignment (Feature 5), and an associated artifact scatter. All feature descriptions are found in Table 6-2. Diagnostic artifacts include a Duraglas brown glass base with an Owens Illinois maker's mark (ca. 1929 to 1960, Lockhart et al. 2026), amber glass (ca. 1860s to Present, Horn 2005), and cobalt blue glass (ca. 1890s to Present, Horn 2005). The artifact scatter consists of 150 metal artifacts, eight ceramic sherds, 66 glass shards, and 55 pieces of milled lumber (Table 6-3). As there is one pipe (Feature 1) that is still in the ground, subsurface deposits are present but not anticipated to provide any additional information. Site features and artifacts are consistent with what would be expected of an area associated with oil production activities. Based on the diagnostic artifacts observed, LA 209339 is assigned a U.S. Territorial to Recent age range (A.D. 1860s–Present).

Exhibit DH-2

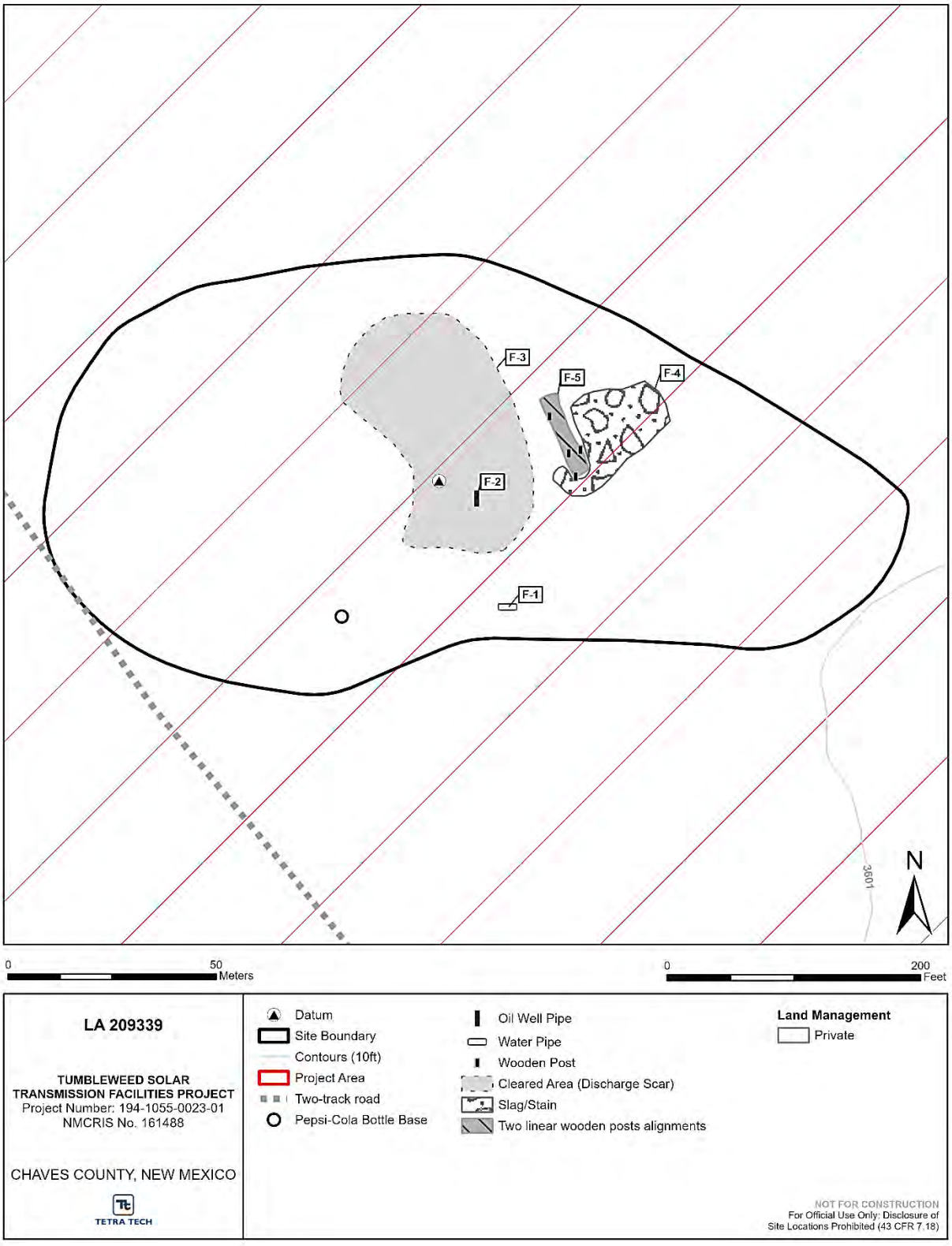

Figure 6-1. LA 209339 sketch map.

Exhibit DH-2



Figure 6-2. LA 209339; Feature 4, slag stain, view to the northwest.

Table 6-2. LA 209339 Features

Feature No.	Feature Type	Dimensions	Description	Associated Artifacts
1	Water Pipe	3.5 inches in diameter x 33 inches tall	A very eroded metal water pipe that has been bent back. Unknown depth.	--
2	Pipe	4.5 inches in diameter x 59.5 inches tall	Capped metal pipe with "RICHFIELD. FED. #1" on one side, and "E.A. HANSON" on the other. Pipe has been torn out of the ground and placed on the ground. Located within the Discharge scar (Feature 3).	Milled lumber, round head nails, bolts, washers, wire fragments, and miscellaneous metal (included in Table 6-6).
3	Discharge Scar	185.7 feet long north-south x 128.6 feet wide east-west	Discharge scar with associated artifacts typical of oil production activity. The linear posts (Feature 5) distinctly separate the discharge scar (Feature 3) from the slag stain (Feature 4).	Wire fragments, round head nails, milled lumber, bolts, washers, metal hinge fragment, colorless glass, and miscellaneous metal fragments (included in Table 6-3).
4	Slag Stain	106.2 feet long northeast-southwest x 79 feet wide northwest-southeast	Slag stain that is possibly a refuse pie from the oil production activity. Ceramics are eroding out of the feature. The linear posts (Feature 5) distinctly separate the discharge scar (Feature 3) from the slag stain (Feature 4).	White glazed fine earthenware.
5	Post Alignment	66.6 feet long north-south x 13.1 feet wide east-west	Four buried wooden posts in a linear, northwest-southeast trending direction. The linear posts (Feature 5) distinctly separate the discharge scar (Feature 3) from the slag stain (Feature 4).	--

Exhibit DH-2

Table 6-3. LA 209339, Historic Artifacts

Artifact Type	Description	Quantity
Metal		
Hinge bar	Fragment	1
Washer		8
Double hole washer		3
Metal pipe	Fragment	1
Cast iron spigot		1
Pipe attachment		1
Round head nail		45
Bolt		4
Wire	Fragments	8
Sheet metal		2
Braided cable	60 ft long	1
Miscellaneous metal		75
	Total	150
Ceramics		
Fine earthenware	White glazed	8
	Total	8
Glass		
Amber	ca. 1860s to Present (Horn 2005)	40
Colorless		14
Cobalt blue	ca. 1890s to Present (Horn 2005)	2
Pepsi soda bottle	Fragments	8
Pepsi soda bottle	Base fragment	1
Duraglas brown bottle	Fragment with Owen's Illinois maker's mark (ca. 1929 - 1960, Horn 2005)	1
	Total	66
Other		
Milled lumber	Fragments	55
	Total	55
Total of All Artifacts		279

DISCUSSION AND RECOMMENDATION

LA 209339 is a newly recorded Euro-American oil activity area with a water pipe (Feature 1), a pipe for an unknown use (Feature 2), a discharge scar (Feature 3), a slag stain (Feature 4), a wooden post alignment (Feature 5), and an associated artifact scatter.

The BLM GLO land patent from 1941 notes that William E. Clements (b. July 12, 1908, d. February 2, 1992) owned the land and was married to Minnie Clements (b. March 14, 1902, d. September 1982) (FindAGrave.com 2026a, FindAGrave.com 2026b). Together they had six children, Cecil, Chlora, Bobby, Donald, Mary Lou, and an unnamed baby boy (FindAGrave.com 2026a). No significant information was found about William E. Clements or his family; there is no indication they made significant contributions to local or regional history.

Diagnostic artifacts place the site in the 1940-50s. The 1946 BLM GLO map and the *Bottomless Lakes, NM* (1950) USGS 7.5-minute quadrangle map do not show any structures at or near the site location.

Exhibit DH-2

The site is estimated to be approximately 60-percent intact. Although the well, water pipe, and wooden posts are partially buried and indicated that subsurface features are present at the site, these deposits are not expected to contribute additional information important to our understanding of recent extractive mining activities.

The site is not clearly associated with any significant event (Criterion A) or person (Criterion B) in Chaves County, nor our nation's history. The site does not embody any distinctive characteristics of an architectural style, architect, or school, and does not exhibit high artistic value (Criterion C). Tetra Tech contends that documentation of surface artifacts and features has exhausted the data potential of the site (Criterion D). Therefore, Tetra Tech recommends LA 209339 as not eligible for NRHP listing. No further management considerations are recommended.

6.1.2 LA 208242

Field Number:	TS-HW-01
NRHP Eligibility:	Recommended Not Eligible
Site Type:	Ranching Site
Site Size:	191 meters southwest-northeast by 125 meters east-west (19,586 m^2)
Cultural Affiliation:	Anglo/Euro-American
Temporal Affiliation:	Statehood – WWII to Recent (A.D. 1912–Present)

DESCRIPTION

LA 208242 was previously recorded by Tetra Tech in December 2025 (NMCRIS 160424) (Byszewski et al. 2026). No change was observed at LA 208242 when it was visited during the July 2026 survey.

LA 208242 (Figure 6-3 and Figure 6-4) is located along a relatively flat plain of open rangeland with two roads bisecting the site. Juliet Road runs north-south through the western portion of the site, while another unnamed road runs east-west through the site. The landscape in the site vicinity is subject to wind and water erosion, bioturbation and cattle trampling. The site covers an area of about 19,586 m^2. Surface sediment is a brown loam with calcium carbonate and gypsum. Vegetation in the site vicinity consists of ephedra, prickly pear, snakeweed, mesquite, and various bunch grasses. Surface visibility ranges from 51 to 75 percent throughout.

LA 208242 is a historic ranching site containing a rock pile/concentration (Feature 1), an earthen berm (Feature 2), a circular depression (Feature 3), and an associated artifact scatter. All feature descriptions are found in Table 6-4. Diagnostic artifacts include a Duraglas colorless glass base with an Owens-Illinois maker's mark (FS-1) that measures 3 inches in diameter and dates to A.D. 1929–1954 (Horn 2005). The artifact scatter consists of 46 metal artifacts, 241 glass shards, and seven ceramic sherds (Table 6-5). Additionally, there is one area of the site that contains a glass scatter of about 300 to 400 colorless, green, brown, and amber glass shards that were not included in the artifact tally. No subsurface deposits are expected. Site features and artifacts are consistent with what would be expected of an area associated with ranching activities. Based on the diagnostic artifacts observed, LA 208242 is assigned a Statehood–WWII to Recent age range (A.D. 1912–Present).

Exhibit DH-2

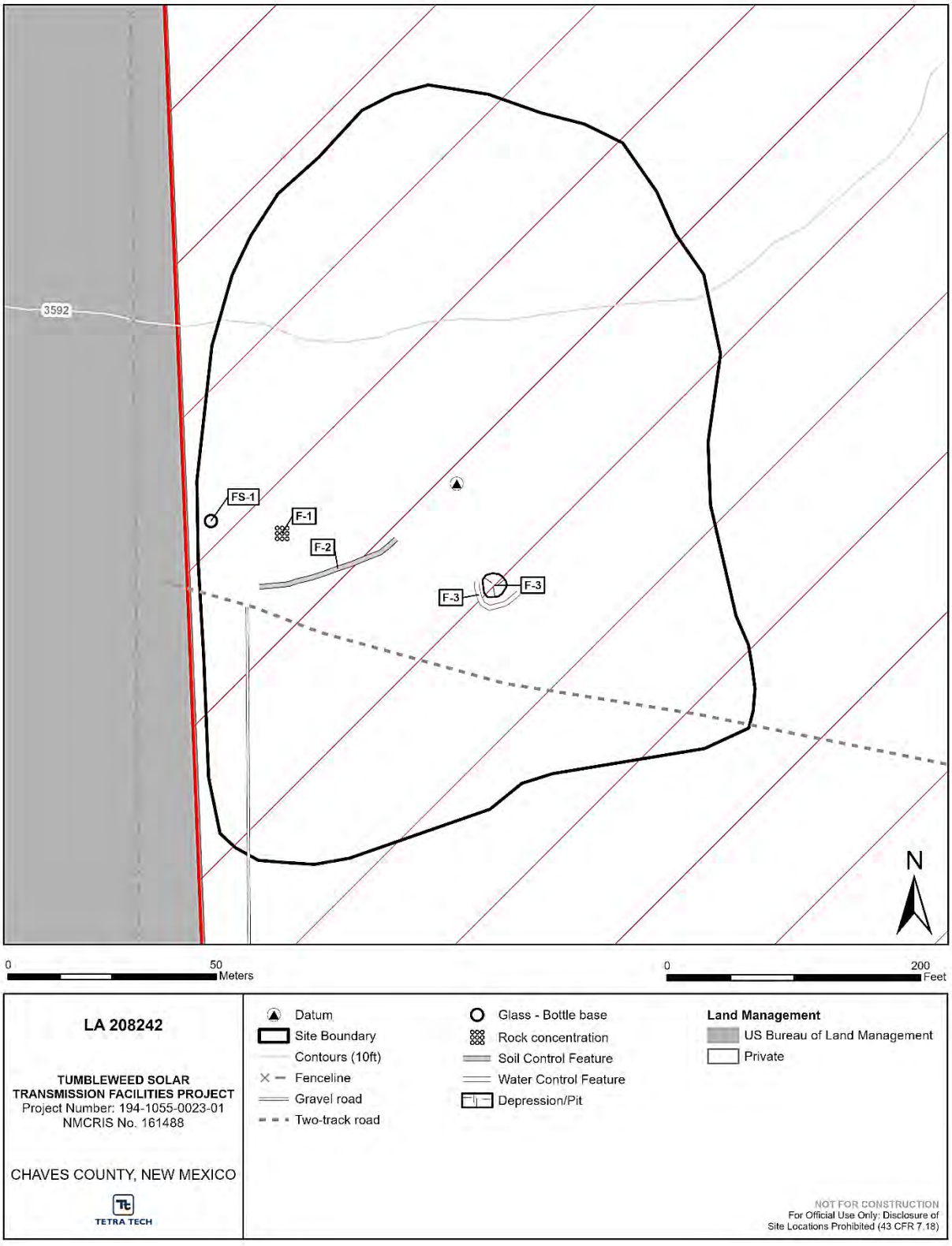

Figure 6-3. LA 208242 sketch map.

Exhibit DH-2



Figure 6-4. LA 208242; Feature 3, depression, view to the northwest.

DISCUSSION AND RECOMMENDATION

LA 208242 is the remains of a mid- to late-1900s Euro-American ranching activity area that may have included a small ranch house. The site contains a historic artifact scatter with some domestic refuse and three features—a rock concentration, an earthen berm, and a circular depression that may have been a small stock tank. The 1945 BLM GLO map notes a structure and windmill at this location, while the *Bottomless Lakes, NM* (1950) USGS 7.5-minute quadrangle map notes two structures.

Table 6-4. LA 208242 Features

Feature No.	Feature Type	Dimensions	Description	Associated Artifacts
1	Rock Pile/ Concentration	8 feet 5 inches long x 7 feet 8 inches wide x 11 inches tall	Circular rock pile/concentration containing about 50 limestone, sandstone, gypsum, and selenite cobbles with some chert pebbles. Unknown function. About 32 feet west-northwest of earthen berm (Feature 2).	--
2	Earthen Berm	116 feet long x 1 foot wide x 3-10 inches tall	Narrow earthen berm that is slightly curved. Possibly used as a stabilizing base for a fence.	Barbed wire, wood fragments, square head nail, wire nail, glass (milk glass, aqua, green, clear), and metal pipe segment.
3	Depression	18 feet long x 16 feet 4 inches wide x 5 inches deep	Circular depression that may have been a water source at some point. About 75 feet southeast of the earthen berm (Feature 2).	Glass (clear, cobalt blue, solarized amethyst, milk glass, amber, pink, aqua), metal fragments, metal water pipe segment, and wire.

Exhibit DH-2

Table 6-5. LA 208242, Historic Artifact Scatter

Artifact Type	Description	Quantity
Metal		
Sanitary can	ca. 1904 to Present (Horn 2005)	2
Wheel		1
Bolt		4
Bucket		1
Fence staple		2
Pipe fragment		2
Spring		1
Washer		4
Jar lid		1
Barbed wire	4 feet total length	5
Unknown hardware		1
Wire nail		1
Miscellaneous metal		21
	Total	46
Glass		
Amber	ca. 1860s to Present (Horn 2005)	16
Aqua	ca. 1800 to 1920s (Horn 2005)	1
Colorless		155
Cobalt blue	ca. 1890s to Present (Horn 2005)	2
Green	ca. 1860s to Present (Horn 2005)	2
Green	Coca Cola bottle	1
Green	Glass marble	1
Opaque		9
Orange opaque		1
Pink		2
Solarized amethyst	ca. 1885 to 1920 (Horn 2005)	9
White milk glass	ca. 1890s to Present (Horn 2005)	42
	Total	241
Ceramic		
Fine earthenware		6
Pipe fragment		1
	Total	7
Total Artifacts		294

The BLM GLO land patent from 1941 notes that William E. Clements (b. July 12, 1908, d. February 2, 1992) owned the land and was married to Minnie Clements (b. March 14, 1902, d. September 1982) (FindAGrave.com 2026a, FindAGrave.com 2026b). Together they had six children, Cecil, Chlora, Bobby, Donald, Mary Lou, and an unnamed baby boy (FindAGrave.com 2026a). No significant information was found about William E. Clements or his family; there is no indication they made significant contributions to local or regional history.

The site is not clearly associated with any significant event (Criterion A) or person (Criterion B) in Chaves County, nor our nation's history. The site does not embody any distinctive characteristics of an architectural style, architect, or school, and does not exhibit high artistic value (Criterion C).

Exhibit DH-2

The site has been impacted by mechanical blading, roadway expansion, and livestock trampling. Features are deflated and soils are shallow and unlikely to contain significant buried deposits. For these reasons, the site is not able to contribute additional information important to our understanding of late twentieth century ranching activities (Criterion D). Tetra Tech recommends LA 208242 as not eligible for listing in the NRHP under any criteria. No further management considerations are recommended.

6.2 Isolated Occurrences

Three IOs were newly recorded in the Analysis Area (Table 6-6), including one prehistoric projectile point fragment and two historic isolates. Tetra Tech submits that thorough in-field documentation of the three isolates has exhausted their information potential, and they are not eligible for listing in the NRHP. No further management is recommended.

Table 6-6. Isolated Occurrences in the Analysis Area

Temp Number	Isolate Type	Cultural Affiliation	Time Period
TS4-HW-IF-01	Chert projectile point tip and midsection with random flaking, edge retouch. 24.23 millimeters long by 17.64 millimeters wide and 3.29 millimeters thick.	Unknown Aboriginal	Unspecific Prehistoric (9500 B.C.–A.D. 1550)
TS4-HW-IF-02	Threaded water pipe with “C ¼” etched into the connection. 5 inches in diameter by 1 foot long.	Anglo/Euro-American	U.S. Territorial to Recent (A.D. 1860s–Present)
TS4-HW-IF-03	Artifact scatter with one crushed oil can, five colorless glass shards, two pieces of rebar, two pieces of milled lumber, one metal trap, one metal bolt, and one piece of fine earthenware. Appears to be the remains of single episode dump.	Anglo/Euro-American	Statehood – WWII to Recent (A.D. 1912–Present)

B.C. = Before Christ

7.0 SUMMARY AND RECOMMENDATIONS

Survey efforts for the proposed Analysis Area have recorded two new sites (LA 209339 and LA 208242) and three IOs. This chapter summarizes eligibility statements and management recommendations for cultural resources in the Analysis Area.

7.1 Eligibility Recommendations

Tetra Tech's evaluations of NRHP eligibility are provided in Table 7-1. Tetra Tech's recommendations are based on surface manifestations and limited background research. Tetra Tech recommends sites LA 208242 and LA 209339 as not eligible for listing in the NRHP. In addition, all three IOs are recommended not eligible for listing in the NRHP.

Table 7-1. NRHP Eligibility Evaluations and Management Recommendations

Resource Number	Description	NRHP Eligibility/Criteria	Management Recommendation
Sites			
LA 208242	Ranching Site	Recommended Not Eligible	None
LA 209339	Oil Activity Area	Recommended Not Eligible	None
Isolates			
TS4-HW-IF-01	Chert projectile point tip and midsection with random flaking, edge retouch. 24.23 millimeters long by 17.64 millimeters wide and 3.29 millimeters thick.	Recommended Not Eligible	None
TS4-HW-IF-02	Threaded water pipe with "C ¼" etched into the connection. 5 inches in diameter by 1 foot long.	Recommended Not Eligible	None
TS4-HW-IF-03	Artifact scatter with one crushed oil can, five colorless glass shards, two pieces of rebar, two pieces of milled lumber, one metal trap, one metal bolt, and one piece of fine earthenware.	Recommended Not Eligible	None

LA = Laboratory of Anthropology; NRHP = National Register of Historic Places

7.2 Potential Effects

Section 800.5(2) of 36 CFR 800, *Protection of Historic Resources*, provides a useful discussion of potential adverse effects on historic properties that can be used to assess potential impacts of the location of the Transmission Facilities in the Analysis Area. Applicable potential effects include physical destruction of or damage to all or part of a historic property, and change of the character of the historic property's footprint use or of physical features within the historic property's setting that contribute to its historic significance, as well as introduction of visual, atmospheric, or audible elements that diminish the integrity of the historic property's significant historic features. Effects on cultural resources are normally considered permanent, as these resources are finite, and disturbance of them, particularly archaeological sites, cannot be reversed. However, effects on historic landscapes or the viewsheds of historic or other significant areas can be temporary if the facilities do not permanently impact associated resources and are removed at a future date.

Exhibit DH-2

Tetra Tech recommends that none of the resources recorded in the Analysis Area qualify as historic properties, and, therefore, an historic properties effects analysis is not provided for these resources. However, it is assumed that the entire Analysis Area would be cleared and graded, thus these cultural resource sites and IOs would likely be destroyed.

7.3 Management Recommendations

LA 209339 is recommended not eligible for the NRHP, and no further management of this resource is recommended.

LA 208242 is recommended not eligible for the NRHP, and no further management of this resource is recommended.

It is Tetra Tech's opinion that thorough in-field documentation of the three IOs has exhausted their information potential and that they are not eligible under any of the other three NRHP eligibility criteria. No further management considerations are necessary or recommended for the IOs.

In addition, Tetra Tech recommends developing an Unanticipated Discovery Plan (UDP) prior to the commencement of any ground disturbing activities for the Transmission Facilities. The UDP would outline procedures to be followed in the event artifacts or human remains are inadvertently discovered during construction activities. Human remains are protected under federal law and under Section 18-6-11.2 of the New Mexico Cultural Properties Act, NMSA 1978. If human remains are encountered during construction, all work must cease within 100 feet of the discovery, and the New Mexico SHPO, local law enforcement agency, and Office of the Medical Investigator must be notified.

If these recommendations are followed, Tetra Tech concludes there would be no historic properties affected by the Transmission Facilities, and the location of the Transmission Facilities would not unduly impair important environmental values regarding cultural resources.

Exhibit DH-2

8.0 REFERENCES

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BEFORE THE NEW MEXICO PUBLIC REGULATION COMMISSION

IN THE MATTER OF THE APPLICATION OF TUMBLEWEED SOLAR, L.L.C. FOR LOCATION APPROVAL OF SOLAR GENERATION FACILITIES AND ASSOCIATED TRANSMISSION FACILITIES PURSUANT TO NMSA § 62-9-3; AND RIGHT-OF-WAY WIDTH DETERMINATION PURSUANT TO NMSA § 62-9-3.2	)	**Case No. 26-_____**

ELECTRONICALLY SUBMITTED VERIFICATION

Deborah Huntley, under penalty of perjury under the laws of the State of New Mexico, states:

I make this verification pursuant to 1.2.2.10(E) NMAC and New Mexico R. 1-011(B) NMRA.

I have read the foregoing *Direct Testimony of Deborah Huntley* and the exhibits attached thereto, and the statements therein are true and correct based on my personal knowledge and belief.

Dated: _10/7/2026_____ _ _____

Deborah Huntley

BEFORE THE NEW MEXICO PUBLIC REGULATION COMMISSION

IN THE MATTER OF THE APPLICATION OF TUMBLEWEED SOLAR, LLC FOR LOCATION APPROVAL OF SOLAR GENERATION FACILITIES AND ASSOCIATEDTRANSMISSION FACILITIES PURSUANT TO NMSA § 62-9-3; AND RIGHT-OF-WAY WIDTH DETERMINATION PURSUANT TO NMSA § 62-9-3.2	)))))))	**Case No. 26-_____**

DIRECT TESTIMONY OF

KEVIN HEGLUND

ON BEHALF OF

TUMBLEWEED SOLAR, L.L.C.

OCTOBER 16, 2026

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Attachments:

Exhibit KH-1: Resume of Kevin Heglund
Exhibit KH-2 Tumbleweed Solar 230 kV ROW Width Determination Report

Verification of Kevin Heglund

I. WITNESS INTRODUCTION

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Kevin Heglund. My business address is 10170 Church Ranch Way, Suite 201 Westminster, CO 80021.

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

A. I am employed by Westwood Professional Services as Lead Transmission Engineer.

Q. PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND EXPERIENCE.

A. I have a B.S. degree in Mechanical Engineering from Michigan Technological University and a M.Eng. in Mechanical Engineering from Boise State University. I have many years of experience as lead transmission engineer for a variety of project. My primary technical background in in overhead transmission line design. My resume is attached as Exhibit KH-1.

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

A. I am testifying on behalf of the applicant, Tumbleweed Solar, LLC ("Tumbleweed" or "Applicant").

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. My testimony supports the Applicant's application to the New Mexico Public Regulation Commission (“Commission”) for right-of-way (“ROW”) width determination for the generation tie transmission line (“Gen-Tie Line”) associated with the Tumbleweed Solar Generation Project (the “Project”).

Q. ARE YOU A PROFESSIONAL ENGINEER LICENSED IN NEW MEXICO?

A. Yes. As noted on my resume in Exhibit KH-1, I am a professional engineer ("PE") licensed in several states, including New Mexico.

Q. **HAVE YOU TESTIFIED BEFORE ANY REGULATORY AUTHORITIES?**

A. No.

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

A. I sponsor Exhibit KH-1, which is my resume; and Exhibit KH-2, which is our report regarding Gen-Tie Line ROW width for the Project's Gen-Tie Line.

Q. WERE EXHIBITS KH-1 AND KH-2 PREPARED BY YOU OR UNDER YOUR SUPERVISION?

A. Yes.

Q. ARE EXHIBITS KH-1 AND KH-2 TRUE AND CORRECT COPIES OF THE DOCUMENTS YOU DESCRIBE IN YOUR TESTIMONY?

A. Yes.

II. ROW WIDTH EVALUATION

Q. PLEASE EXPLAIN THE OBJECTIVE OF YOUR ROW WIDTH EVALUATION.

A. The objective of our evaluation was to determine the necessary ROW width for the Gen-Tie Line based on the required ampacity, conductor size, extreme wind conditions, and electrical clearances for the Project rating as prescribed by the National Electric Safety Code ("NESC") and best practices.

Q. PLEASE DESCRIBE IN GENERAL TERMS HOW THE PROJECT WILL CONNECT TO THE EXISTING GRID.

A. I understand that the Project includes a new Gen-Tie Line approximately 1,700 feet long that would interconnect the Tumbleweed Solar Generation and Substation to the proposed

Southwestern Public Service Company ("SPS") Bitter Lake Switchyard at the point of interconnection to SPS's grid.

Q. PLEASE EXPLAIN THE BASIC DESIGN CRITERIA AND ASSUMPTIONS YOU APPLIED IN YOUR EVALUATION.

A. The purpose of the evaluation was to establish the ROW width for the Gen-Tie Line to comply with NESC. The width is governed by how far the energized conductors can move laterally under wind, plus the electrical clearance that must be maintained between a wind-displaced conductor and whatever may exist beyond the edge of the ROW.

I understand the Project expects to include two to up to four transmission structures for the Gen-Tie Line. To capture the worst-case conductor blowout, the evaluation modeled the line as two braced line post ("BLP") tangent structures on a common centerline spaced 800 feet apart – the maximum design span and least laterally restrained support condition anticipated on the line. Tangent structures provide the least restraint of the conductor, and 800 feet exceeds the longest span anticipated on the line, so the modeled arrangement produces a larger mid-span displacement – and therefore a wider ROW width – than the line will actually see. The width determined here is an upper bound applicable to the full length of the Gen-Tie Line. Design criteria and the analysis approach are summarized in Section 2 of the attached report.

Q. WHAT ARE THE RESULTS OF YOUR CALCULATIONS?

A. Our calculations and results are shown in Exhibit KH-2. Based on the calculations, I recommend use of a 1272 kcmil "Bittern" conductor at a 7,500-pound design tension, braced line post delta framing with the outer phase conductors 8.0 feet from centerline and

the highest attachment at approximately 73 feet, spans no longer than 800 feet, and a right-of-way width of 120 feet.

III. CONCLUSION

Q. BASED ON YOUR ANALYSIS, WHAT IS THE ROW WIDTH NECESSARY TO COMPLY WITH ELECTRICAL AND SAFETY CODES?

A. While a minimum ROW width of 64 feet would comply with NESC, I recommend a ROW width of 120 feet as shown in my report in Exhibit KH-2. This will provide sufficient ROW width for variation in design and final placement while addressing electrical safety code requirements. This width accommodates micro-siting of the centerline to avoid environmental, cultural, or landowner constraints without expanding the ROW width; spans longer than modeled; small line angles, where the resultant conductor position shifts toward the outside of the angle; guy and anchor placement if guyed structures are used at any location; and construction and maintenance access along the line.

Q. DOES THIS CONCLUDE YOUR TESTIMONY AT THIS TIME?

A. Yes, it does.

Westwood

Kevin Heglund, PE

Lead Transmission Engineer

Kevin supports Westwood's Renewables Division as a lead transmission engineer for a variety of projects. He has a depth of experience in overhead transmission line design from distribution voltages up to 345 kV and is fully proficient in PLS-CADD. His primary technical background is in overhead transmission line design but he also has experience in overhead/underground distribution.

His project experience includes a wide variety of work, including rebuilds, reconductors, reroutes, and greenfield designs.

Kevin has worked at all stages of a project including, cost estimating, pre-engineering/permitting, preliminary engineering, detailed engineering, constructability, and project management. He has a large amount of experience bringing utility projects through construction. He has regularly communicated with stakeholders and the construction team, overseen tasks, and successfully executed multi-discipline projects.

Experience

POWER DELIVERY

Westwood Professional Services – Grover Hill Wind Farm, OH – Was the transmission engineer on a greenfield 138kV Transmission line to support a new wind farm in western Ohio. This project included design stages from initial routing through construction support. Design included direct embed and self supporting steel poles with redundant fiber. Energization was completed in 2026.

Westwood Professional Services – Heritage Prairie Wind Farm, IL – Was the lead transmission engineer on a greenfield 345kV Transmission line to support a new wind farm in central Illinois. This transmission line is 18 miles in length and ties into 3x different substations before interconnecting with he ComEd power grid. Design included direct embed and self supporting steel poles with dual OPGW. Responsibilities included steel pole fabrication drawing review, line modeling, and QAQC.

NorthWestern Energy – Rimrock Substation, MT – Was the transmission engineer on a new Substation project in Billings Montana. This included cutting in 2x 230kV (4 circuits end product), 3x 100kV, 69kV and 50kV lines. He developed a in

depth workplan to allow for construction of the 230kV lines while keeping 1 of the 2x 230kV circuits energized at all times. He worked with the FAA to permit the new steel poles due to the proximity to the Billings Airport.

NorthWestern Energy – Line Creek to Red Lodge Reconductor , MT – Was the senior transmission engineer through design and construction of this project. Project consisted of a full rebuild and reconductor of 22 line miles across difficult to access terrain. Line is a 50kV line that was built for a potential cutover to 100kV. He designed the line using ACSS/TW conductor at an increased operating temperature to allow for future loading increases. Line was designed and constructed using ductile iron poles and increased phase spacing for avian protection. He developed a construction plan that allowed for feeding of the rural substations during the duration of the 2 year construction process.

NorthWestern Energy – Missoula City Substation, MT – Was the lead transmission engineer on this 100kV substation rebuild. His design included 2x double circuit 100kV rebuilds that crossed the Clark Fork river on self supporting steel poles. He developed a cutover scheme to allow for the use of portable substations to keep downtown Missoula in power. Project included ACSS/TW conductor, OPGW, and 3rd Party communications. His design reduced the river crossing corridors along a popular recreation area from 4 to 2 alignments. Among other duties, he performed steel pole fabrication drawing review, QA/QC of the work, and construction support.

NorthWestern Energy – Conductor Rating Standard – Created internal standard for conductor rating involving Copper, ACSR, ACSS, and ACCC conductors. Standard is utilized for uprating and reconductoring projects and FAC-008 compliance.

Education

Boise State University – Boise , M.Eng. in Mechanical Engineering
Michigan Technological University – Houghton, BS in Mechanical Engineering

Registrations

Professional Mechanical Engineer: Montana, Michigan, Oregon, New Mexico

Chronology

Westwood Professional Services, Jan 2024 – Present
NorthWestern Energy, Sept 2013 – Dec 2023
PAR, Feb 2013-August 2013

Exhibit KH-2

TRANSMISSION TECHNICAL MEMORANDUM

Tumbleweed Solar
230kV ROW Width Determination

October 5, 2026

Prepared by Westwood Professional Services, Inc.

PREPARED FOR:

DESRI

KEVIN W. HEGLUND
NEW MEXICO
32284
PROFESSIONAL ENGINEER

10/5/2026

PREPARED BY:

Westwood

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Executive Summary

Westwood Professional Services (Westwood) has determined the minimum and recommended right-of-way (ROW) widths for the proposed 230kV generation tie line (gen-tie) serving DESRI's Tumbleweed Solar Project in Chaves County, New Mexico. The line was modeled in PLS-CADD using 1272 kcmil "Bittern" ACSR conductor at a design tension of 7,500 pounds under NESC Rule 250B Medium loading district conditions, final after creep. To capture the worst-case conductor blowout, the study models two braced line post (BLP) tangent structures in a delta configuration spaced 800 feet apart on a common centerline — the maximum design span and least laterally restrained support condition anticipated on the line.

The governing condition is the NESC Rule 234A2 displaced-conductor case: the conductor blown out by a 6 psf wind at final sag at 60°F, plus the horizontal clearance required between the displaced conductor and the edge of the ROW. Under this condition the outer phase conductor displaces 11.0 feet from its at-rest position 8.0 feet off centerline, and the addition of a 12.2-foot clearance buffer places the controlling envelope 31.2 feet from centerline. Rule 234A2 further requires that the displacement include deflection of the supporting structure where the highest conductor attachment is 60 feet or more above grade; adding a 1.0-foot allowance for that deflection yields a half-width of 32.2 feet and a **minimum ROW width of 64.4 feet** on Westwood's recommended clearance criteria. That minimum is conditional on the 1.0-foot deflection allowance; each additional foot of structure deflection adds two feet to the minimum width. The narrowest width is approximately **60 feet** — the swept width of the conductor under NESC Rule 250C extreme wind, including the same structure deflection allowance, beyond which the conductor itself would leave the easement. That floor is set by the extreme wind case rather than by the Rule 234 clearance, and it carries no clearance to the ROW edge and no allowance for survey or construction tolerance.

The NESC Rule 250C extreme wind case (90 mph) was run as a worst-case physical blowout check — not a clearance check — to confirm the conductor itself stays inside the ROW under the most severe wind the line is designed for. It displaces the conductor 21.0 feet, reaching 29.0 feet from centerline — approximately 30.0 feet with the structure deflection allowance — which is inside the governing envelope.

Westwood **recommends a 120-foot-wide ROW** (60 feet either side of centerline). This provides 27.8 feet of margin beyond the governing envelope on each side and accommodates centerline micrositing, spans longer than modeled, small line angles, guy and anchor placement where required, and construction and maintenance access — all without additional ROW acquisition. Westwood also confirmed that 1272 "Bittern" ACSR is the appropriate conductor for this application: it carries the project's full output with thermal margin, and it provides comfortable margin against the corona onset gradient at this site elevation, where the smaller conductors more commonly stocked for lower-voltage work do not. This memorandum reflects a conceptual-level analysis of right-of-way width; the recommendation rests on the design criteria set out in Sections 2.0 through 4.0.



10/5/2026

1.0 Project Description

Westwood has been retained by DESRI to support design of the Tumbleweed Solar Project, a 350 MW (nameplate) solar facility in Chaves County, New Mexico. The project will interconnect by way of a new 230kV overhead gen-tie line, approximately 1,700 feet long, running from the project substation to the point of interconnection (POI). Project coordinates are referenced to EPSG:6531 — NAD83(2011) / New Mexico East (ftUS). Site elevation along the conceptual gen-tie centerline is 5,300 feet above mean sea level. The centerline used for location and elevation reference is conceptual; the ROW width determined here is independent of the final alignment.

The purpose of this memorandum is to establish the ROW width for the gen-tie. That width is governed by how far the energized conductors can move laterally under wind, plus the electrical clearance that must be maintained between a wind-displaced conductor and whatever may exist beyond the edge of the ROW.

This study models the line as two BLP tangent structures on a common centerline spaced 800 feet apart. Tangent structures provide the least lateral restraint of the conductor, and 800 feet remains the maximum design span on the current routing, so the modeled arrangement produces a larger mid-span displacement — and therefore a wider ROW — than the line will actually see. The width determined here is an upper bound applicable to the full length of the gen-tie.

2.0 Design Criteria & Analysis Approach

2.1 Design Basis

Table 1: Design basis

Parameter	Value
Project	Tumbleweed Solar Project
Client	DESRI
Location	Chaves County, New Mexico
Coordinate system	EPSG:6531 — NAD83(2011) / New Mexico East (ftUS)
Design elevation	5,300 ft above mean sea level (Xcel Standard)
Nameplate rating	350 MW
Nominal voltage	230 kV
Design maximum current	Approximately 925 A (350 MW at 0.95 power factor)
Gen-tie length	Approximately 1,700 ft
Phase conductor	1272 kcmil 45/7 “Bittern” ACSR — 1.345 in diameter, 1.434 lb/ft, 34,100 lb rated breaking strength
Conductors per phase	One (1)

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PROFESSIONAL ENGINEER
10/5/2026

Parameter	Value
Maximum conductor operating temperature	100°C (212°F)
Design tension	7,500 lb (22.0% RBS) at NESC Rule 250B Medium loading district, final after creep
Structure type	Braced line post (BLP) tangent, delta configuration on a single steel pole
Outer phase offset	±8.0 ft from centerline
Conductor attachment heights	Approximately 60 ft (lower phase pair) and 73 ft (upper phase)
Design span (this study)	800 ft, tangent to tangent
Extreme wind	90 mph, 3-second gust, per the NESC Rule 250C extreme wind map
Design code	National Electrical Safety Code (NESC), ANSI C2-2023

The 7,500-pound design tension is 22.0 percent of the conductor's 34,100-pound rated breaking strength at the NESC Medium standard loaded condition — well within the 50 percent limit recommended for that condition by RUS Bulletin 1724E-200, Table 9-3. The tension is deliberately conservative for open, wind-exposed terrain, consistent with the lower tensions RUS recommends where aeolian vibration is a concern and no dampers are used.

2.2 Structure Configuration and PLS-CADD Model

For the purposes of ROW evaluation, the gen-tie was modeled in PLS-CADD with an 800-foot span between two BLP tangent structures on a common centerline, 800 feet being the maximum potential design span on the current routing. The three phases are arranged in a delta configuration on a single steel pole: two phases on braced line posts at the lower level, one each side of the pole, and the third phase on a braced line post 13 feet above them. Each conductor attaches approximately 8 feet from the pole centerline, so the outer phase conductors sit ±8.0 feet off centerline. The lower phase attachments are approximately 60 feet above grade and the upper phase attachment approximately 73 feet. Figure 1 shows the arrangement, based on Westwood's standard 230kV BLP tangent light-duty steel pole framing.

The actual interconnection design is likely to differ from the span that was modeled (more poles, shorter spans, etc), but these assumptions will provide a maximum ROW width.

Blowout was evaluated at the weather cases summarized in Table 2. PLS-CADD reports the wind-displaced conductor position at mid-span for each case; those positions are the basis of the ROW determination in Section 4.0.



Table 2: Weather cases evaluated

Case	Wind pressure	Ice	Conductor temperature	Purpose
NESC Rule 250B — Medium loading district	4 psf	0.25 in radial	15°F	Design tension and sag basis — 7,500 lb, final after creep
NESC Rule 234A2 — displaced conductor	6 psf	None	60°F, final sag	Wind-displaced conductor position for clearance to the edge of the ROW
NESC Rule 250C — extreme wind, 90 mph	20.74 psf *(see note)*	None	60°F, final sag	Worst-case physical blowout; confirms the conductor stays within the ROW

Note on the extreme wind pressure. The 20.74 psf shown for the Rule 250C case is the unfactored velocity pressure for a 90 mph 3-second gust. NESC Rule 250C allows that pressure to be modified by the velocity pressure exposure coefficient, gust response factor, and shape factor, which at this attachment height and span give approximately 19 psf. The unreduced 20.74 psf is carried in the PLS-CADD model as a conservative simplification. The Rule 250C result is used only as a physical check on the conductor position and does not affect the governing ROW width.

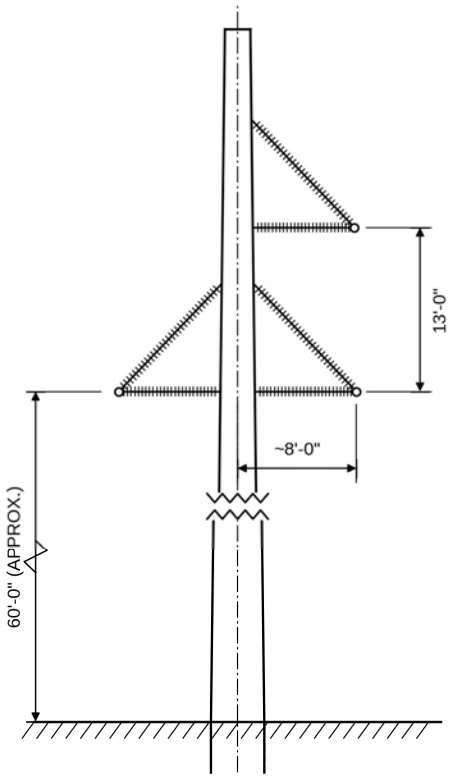

Figure 1: Tangent structure framing elevation — 230kV braced line post delta configuration on a single steel pole

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2.3 Clearance Criteria

Horizontal clearance to the edge of the ROW. NESC Rule 234 governs the clearance between an energized conductor and buildings, signs, and other installations adjacent to the line, and requires that two separate conditions both be satisfied: the conductor at rest (Rule 234A1) and the conductor wind-displaced (Rule 234A2). Rule 234A2 defines the displaced condition as the conductor "displaced from rest toward the installation by a 6 lb/ft² (290 Pa) wind at final sag at 60 °F (15 °C)," and requires that the displacement include deflection of a flexible structure where the highest conductor attachment is 60 feet or more above grade. The NESC does not itself prescribe a right-of-way width; carrying the Rule 234 clearance outboard of the blowout envelope to the edge of the ROW is a design convention that assumes a building could be erected immediately outside the easement.

From Table 234-1, row 1a, the base horizontal clearance from an open supply conductor to a building is 7.5 feet at rest and, per footnote 10, 4.5 feet when the conductor is wind-displaced. Rule 234G1 increases that base clearance by 0.4 inch per kilovolt above 22 kV, on the phase-to-ground maximum operating voltage, and Rule 234G2 increases the additional clearance by 3 percent for each 1,000 feet of elevation above 3,300 feet:

$$C_H = C_{\text{base}} + (V_{pg} - 22) \times \frac{0.4}{12} \times 1.03^{(E-3300)/1000}$$

For a 230kV line the maximum operating voltage is 242 kV, giving V_{pg} = 242 ÷ √3 = 139.7 kV, and at E = 5,300 feet the elevation factor is 1.061. The additional clearance is 4.16 feet, so the required horizontal clearance is **8.7 feet for the wind-displaced conductor** and 11.7 feet at rest. **Westwood recommends the addition of a 3.5-foot buffer** to the 8.7-foot code minimum, giving the **12.2-foot clearance** applied to the displaced position in this study. The two conditions have to be compared as envelopes rather than as clearances, because the conductor is in a different position in each. At rest the outer phase sits 8.0 feet from centerline, so the Rule 234A1 envelope falls 19.7 feet from centerline. Wind-displaced, the same conductor reaches 19.0 feet from centerline (Section 4.1), so the Rule 234A2 envelope falls 31.2 feet from centerline with the 12.2-foot clearance applied. The displaced condition therefore governs by a wide margin and satisfies the at-rest condition inherently. The 12.2-foot value is carried through the remainder of this memorandum.

Clearance to vegetation. The Rule 234 clearance above is a clearance to buildings and other installations. Vegetation at the edge of the ROW is addressed separately. RUS Bulletin 1724E-200, Table 5-2, gives a radial operating clearance of 2.7 feet for a 230kV line, to which RUS adds a 1.5-foot design adder for survey and installation tolerance and a 0.26-foot elevation correction at 5,300 feet — 4.5 feet in total — plus a vegetation adder set by the designer to cover anticipated tree movement, species growth rates, and local climate. Unlike the Rule 234 clearance, which RUS ties to the 6 psf wind at 60°F, this clearance is applied at all rated operating conditions, with the designer selecting the applicable conductor temperature and wind. At the 6 psf, 60°F condition the 12.2-foot clearance carried in this study accommodates the 4.5-foot radial requirement with approximately **7.7 feet remaining for the vegetation adder**. Blowout is greater at higher conductor temperatures, so the margin available for the adder is smaller at the maximum operating temperature; the 12.2-foot clearance still exceeds the 4.5-foot radial requirement in either case. The Rule 234 clearance therefore governs the ROW width and no separate vegetation allowance is added.

Ground clearance. Vertical clearance to ground is not a ROW-width driver, but it sets the structure heights and is noted here for completeness. From NESC Table 232-1, row 4, the base clearance for open

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supply conductors over land traversed by vehicles — cultivated, grazing, and similar lands — is 18.5 feet. Rule 232C1a applies the same 0.4 inch per kilovolt adder and Rule 232C1b the same elevation correction, giving 22.7 feet, rounded to 23 feet. **Westwood recommends the addition of a 5-foot buffer** for a **28-foot design ground clearance**. For comparison, RUS Bulletin 1724E-200, Table 4-1, recommends a design ground clearance of 24.9 feet for a 230kV line over cultivated and grazing land, so the 28-foot value used here is materially more conservative than the RUS recommendation. Confirming that the clearance is met at the maximum operating temperature is part of the line profile design and is not carried further in this memorandum.

3.0 Conductor Adequacy

1272 kcmil "Bittern" ACSR was specified as the phase conductor for this project. Because conductor diameter, weight, and tension all drive the blowout envelope — and therefore the ROW width — Westwood confirmed the conductor selection is appropriate before determining ROW width. Three checks were made: thermal capacity, corona, and blowout behavior. This is a screening-level confirmation, not a full conductor selection study.

3.1 Thermal Capacity (Ampacity)

At 350 MW and a 0.95 power factor the gen-tie carries approximately 925 amperes at 230 kV (~879 amperes at unity power factor). Steady-state ampacity was computed per IEEE Std 738 for a 2 ft/s crosswind perpendicular to the line, emissivity and solar absorptivity of 0.5, full solar heating at the project latitude, and the 5,300-foot design elevation.

Table 3: Steady-state ampacity per IEEE Std 738 (2 ft/s crosswind, full sun, 5,300 ft). The 100°C / 40°C column governs this line.

Conductor	Diameter	75°C conductor, 40°C ambient	75°C conductor, 25°C ambient	100°C conductor, 40°C ambient
795 kcmil 26/7 "Drake" ACSR	1.108 in	647 A	821 A	908 A
954 kcmil 54/7 "Cardinal" ACSR	1.196 in	719 A	917 A	1,016 A
1272 kcmil 45/7 "Bittern" ACSR — recommended	**1.345 in**	**853 A**	**1,089 A**	**1,211 A**

Against a 100°C maximum operating temperature and a 40°C (104°F) design ambient with full sun, 1272 Bittern carries 1,211 amperes — comfortably above the 925-ampere design current, at which the conductor runs at approximately 79°C. Smaller conductors would be thermally marginal: 795 Drake would have to run essentially at its 100°C limit to carry the design current on a hot, low-wind, sunny afternoon, which is precisely the condition under which a solar project is at full output. The 0.5 emissivity and absorptivity values represent a relatively new conductor; weathered values raise the conductor temperature at 925 amperes to approximately 85°C, still within the 100°C rating.

3.2 Corona

At 230kV the practical lower bound on conductor size is usually set by corona rather than by ampacity. Corona performance was evaluated with Westwood's standard corona calculation, which follows *IEEE*

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Std 605-2008 and accounts for site elevation and air temperature through the relative air density. The two gradients that govern the check are explained below, and Table 4 summarizes the result for the conductors considered.

Two values govern the result. **E_m** is the maximum electric field gradient at the surface of the conductor — a measure of how hard the air immediately surrounding the conductor is stressed at the maximum operating voltage. **E_o** is the corona onset gradient — the gradient at which that air begins to ionize and corona forms. A conductor is corona-free when E_m is less than E_o. E_m is set by the operating voltage, the phase spacing, and the conductor diameter, and it falls as diameter increases. E_o does not depend on voltage: it is set by air density — that is, by site elevation and air temperature — together with the conductor surface condition and the conductor radius. Corona is therefore controlled by selecting a conductor of sufficient diameter.

E_o also depends on the surface irregularity factor m, which accounts for stranding, scratches, and surface contamination: 0.85 represents a new, clean conductor, 0.75 a weathered stranded conductor in service, and 0.60 a heavily contaminated one. Table 4 is evaluated at m = 0.75, the appropriate in-service value.

Table 4: Corona check per IEEE Std 605-2008 — 230kV, one conductor per phase, 5,300 ft elevation

Conductor	Diameter	Maximum gradient E_m	Onset gradient E_o at m = 0.75	Result
795 kcmil “Drake” ACSR	1.108 in	17.9 kV/cm	16.2 kV/cm	Exceeds onset — not acceptable
954 kcmil “Cardinal” ACSR	1.196 in	16.8 kV/cm	16.1 kV/cm	Exceeds onset — not acceptable
1272 kcmil “Bittern” ACSR — recommended	**1.345 in**	**15.2 kV/cm**	**15.9 kV/cm**	**Meets criterion, 0.7 kV/cm margin**
1590 kcmil “Falcon” ACSR	1.545 in	13.6 kV/cm	15.7 kV/cm	Meets criterion, larger than required

On this basis both 795 Drake and 954 Cardinal exceed the corona onset gradient and are not acceptable at this voltage and elevation. **1272 Bittern clears the onset gradient by 0.7 kV/cm and is the conductor Westwood recommends**: the margin covers surface contamination in service and hotter-than-design days without relying on a favorable assumption, and the same conductor carries the project’s full output with thermal headroom (Section 3.1). 1590 Falcon would provide more margin still but is larger than this application requires.

3.3 Blowout Behavior

How far a conductor swings out under wind depends on two things. The first is the angle it swings through, which is set by the balance between the wind pushing sideways on the conductor and the weight of the conductor holding it down. That angle does not depend on how tightly the conductor is strung. The second is how much conductor is available to swing, which is set by sag — and sag does depend on tension. A conductor strung tighter sags less and blows out less; a conductor strung looser sags more and blows out more.

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The 7,500-pound design tension used on this project (Section 2.1) is deliberately conservative for open, wind-exposed terrain, and it is what produces the 11.0-foot mid-span displacement reported in Section 4.1. Stringing the line tighter would narrow the blowout envelope and reduce the required ROW width, at the cost of higher structure loads and greater exposure to aeolian vibration.

4.0 Right-of-Way Width Determination

4.1 Conductor Blowout Results

Table 5 summarizes the wind-displaced conductor positions reported by the PLS-CADD model for the 800-foot span.

Table 5: Conductor blowout results, 800-foot span

Wind condition	Purpose	Blowout at mid-span	Distance from centerline
6 psf wind (NESC Rule 234A2)	**Sets the required clearance — governs the ROW width**	**11.0 ft**	**19.0 ft**
90 mph extreme wind (NESC Rule 250C)	Confirms the conductor stays inside the ROW	21.0 ft	29.0 ft

Both cases are evaluated at final sag at 60°F. The distance from centerline is the conductor's movement plus the 8.0-foot at-rest offset of the outer phase from the pole centerline. These are conductor positions only; structure deflection is added separately in Section 4.2.

Under the Rule 234A2 condition the outer phase displaces 11.0 feet laterally at mid-span, placing the conductor 19.0 feet from centerline; with the 12.2-foot clearance the controlling envelope sits 31.2 feet from centerline. This case governs the ROW width.

The Rule 250C extreme wind case is run for a different purpose. Rule 250C is a loading case paired with the strength requirements of NESC Section 26, and the Section 23 clearances are not required to be met concurrently with it. It is used here as a worst-case check that the physical conductor — with no clearance allowance added — remains inside the right-of-way under the most severe wind the line is designed for. At 29.0 feet from centerline — approximately 30.0 feet once the structure deflection allowance of Section 4.2 is added — it does, with 30 feet to spare against the recommended 120-foot ROW.

4.2 Minimum Right-of-Way Width

The distance from centerline to the edge of the ROW is the sum of the outer phase conductor offset from centerline (C_{AR}), the conductor blowout at the governing condition (C_B), the required horizontal clearance to the edge of the ROW (C_H), and the lateral deflection of the structure at the conductor attachment (δ). The framing is laterally symmetric, so the minimum ROW width is twice that distance. This is the form given in RUS Bulletin 1724E-200, Equation 5-3; the insulator length term in that equation is zero for braced line post construction, so no insulator swing is added.

$$\text{ROW} = 2 \times (C_{AR} + C_B + C_H + \delta)$$

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Table 6: Minimum ROW width build-up, 800-foot worst-case span

Component	Symbol	Value
Outer phase conductor offset from centerline	C_{AR}	8.0 ft
Conductor blowout at mid-span, 6 psf at 60°F final	C_B	11.0 ft
Required horizontal clearance to edge of ROW (NESC Rule 234)	C_H	12.2 ft
Structure deflection at the conductor attachment	δ	1.0 ft
Centerline to edge of ROW	—	**32.2 ft**
Minimum ROW width	**ROW**	**64.4 ft**

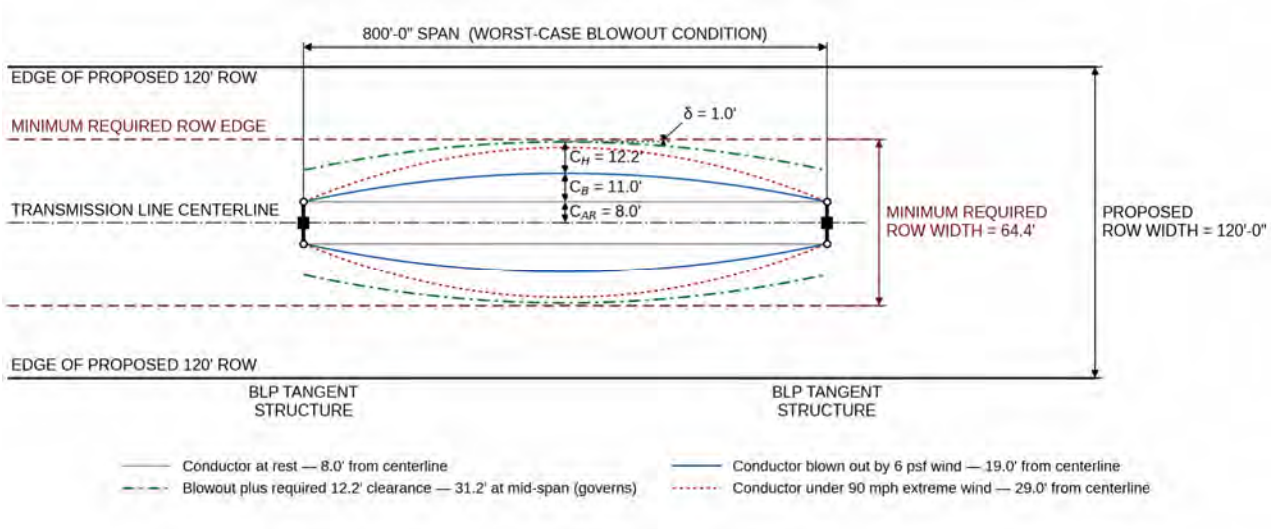

Figure 2: Right-of-way width determination — blowout envelopes and clearance build-up at the 800-foot worst-case span, shown against the recommended 120-foot ROW

Figure 2 shows the resulting geometry against the recommended 120-foot ROW. Structure deflection is included in the build-up because both the NESC and RUS require it. NESC Rule 234A2 requires the displacement of a wind-displaced conductor to account for deflection of a flexible structure wherever the highest conductor attachment is 60 feet or more above grade; the upper phase attaches at approximately 73 feet, so the requirement applies. RUS Bulletin 1724E-200, Figure 5-1, defines δ specifically as the structure deflection *under the 6 psf wind condition* — not the everyday no-wind condition from which the familiar 1-percent-of-height serviceability figure is taken. Neither document sets a numeric deflection limit; δ is an output of the pole design.

A **1.0-foot allowance** — about 1.4 percent of the 73-foot attachment height — is carried here. If the selected structure deflects more than 1.0 foot under the 6 psf condition, each additional foot adds two feet to the minimum ROW width; the 120-foot ROW recommended in Section 5.0 accommodates that variation.

Per Westwood's recommended clearance criteria the minimum ROW width is **64.4 feet**, and the recommendation in Section 5.0 is based on that value.

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At the narrow end of the range the governing case changes. Reducing the clearance toward the NESC Rule 234 code minimum would give a width narrower than the conductor's own swept path under extreme wind, so below roughly 60 feet it is the **NESC Rule 250C extreme wind case, not the Rule 234 clearance, that limits the ROW width**. Under that case the conductor reaches 29.0 feet from centerline; adding the same 1.0-foot structure deflection allowance places it approximately 30.0 feet from centerline, for a swept width of approximately **60 feet** — the narrowest width at which the conductor itself remains inside the easement. The 90 mph wind deflects the structure further than the 6 psf wind does, so the actual floor is somewhat wider than 60 feet and cannot be fixed until the pole design is complete. In any case the figure carries no clearance to the edge of the ROW and no allowance for survey or construction tolerance, and is stated only as the physical floor — not as a recommendable width.

5.0 Conclusion & Recommendation

Westwood recommends a **120-foot-wide right-of-way**, centered on the gen-tie centerline (60 feet each side), for the following reasons:

- The governing conductor envelope — the Rule 234A2 blowout position plus the 12.2-foot Rule 234 clearance and 1 foot of structure deflection — extends 32.2 feet from centerline, giving a minimum ROW width of 64.4 feet. A 120-foot ROW provides 27.8 feet of additional margin on each side.
- Under NESC Rule 250C extreme wind the physical conductor reaches 29.0 feet from centerline — approximately 30.0 feet with the structure deflection allowance — leaving 30 feet inside the recommended ROW edge. At the 64.4-foot minimum width the same envelope would clear the boundary by only 2.2 feet, which is thin margin for a land-rights boundary.
- The margin accommodates micrositing of the centerline to avoid environmental, cultural, or landowner constraints without re-acquiring ROW; spans longer than modeled; small line angles, where the resultant conductor position shifts toward the outside of the angle; guy and anchor placement if guyed structures are used at any location; and construction and maintenance access along the line.

If ROW acquisition cost or constrained parcels make the full 120 feet impractical in a particular reach, the width may be reduced toward the 64.4-foot minimum, provided that at each reduced location the span length, structure type, and line angle are checked against the criteria in this memorandum. Westwood does not recommend reducing the ROW below 64.4 feet on the design presented here.

Where a narrower ROW is unavoidable, the better approach is to change the design rather than accept less clearance. Three options reduce the required width directly:

- Change the framing from the delta arrangement to a vertical arrangement. This brings the outer phase offset from 8.0 feet to zero and reduces the required ROW width by approximately 16 feet.
- Shorten spans. Blowout at mid-span is proportional to sag, so reducing span length reduces the blowout envelope directly.
- String the conductor tighter. Less sag means less blowout, at the cost of higher structure loads and greater exposure to aeolian vibration.



Any of these can be applied locally, in the reach where the constraint exists, without changing the design of the remainder of the line.

This recommendation rests on the design criteria and structure configuration set out in Sections 2.0 through 4.0: 1272 kcmil "Bittern" ACSR at a 7,500-pound design tension under NESC Rule 250B Medium loading, braced line post delta framing with the outer phase conductors 8.0 feet from centerline and the highest attachment at approximately 73 feet, spans no longer than 800 feet, and the clearance criteria of Section 2.3. Where the final design departs materially from any of these — a longer span, a wider phase arrangement, a different clearance basis, or a structure that deflects more than 1.0 foot under the 6 psf condition — the ROW width should be re-checked using the method in Section 4.2.

6.0 References

- National Electrical Safety Code (NESC), ANSI C2-2023 — Rule 232 and Table 232-1 (vertical clearance to ground), Rule 234, Table 234-1 and Rules 234A1, 234A2, 234G1 and 234G2 (clearance to buildings and other installations), Rule 250B (combined ice and wind district loading), and Rule 250C (extreme wind loading).
- RUS Bulletin 1724E-200 (2015), Design Manual for High Voltage Transmission Lines — Table 4-1 (recommended design ground clearance), Figure 5-1, Equation 5-1 and Equation 5-3 (horizontal clearance, structure deflection, and right-of-way width), Table 5-2 (radial operating clearances to vegetation), Table 9-2 (NESC district load constants), and Table 9-3 (recommended conductor tension limits).
- IEEE Std 605-2008, Guide for Bus Design in Air Insulated Substations — corona onset and conductor surface gradient method, as implemented in Westwood's corona calculation.
- IEEE Std 738, Standard for Calculating the Current-Temperature Relationship of Bare Overhead Conductors.
- PLS-CADD, Power Line Systems, Inc. — line model prepared for this study.

Appendix A: Assumptions, Limitations, and Risks

- Blowout values are taken from the PLS-CADD model of a single 800-foot span between two BLP tangent structures on a common centerline, which is the maximum design span and least laterally restrained support condition anticipated on the line. The 800-foot maximum has been re-confirmed against the current gen-tie routing. Any span longer than 800 feet, and any location with a line angle, should be checked against the criteria in this memorandum.
- The outer phase conductor offset of 8.0 feet from centerline, the 13-foot vertical phase separation, and the 60-foot and 73-foot attachment heights are taken from the standard BLP tangent framing shown in Figure 1. A wider phase arrangement increases the required ROW width foot for foot.
- Structure deflection is carried as a 1.0-foot conceptual-level allowance. RUS Figure 5-1 defines this term as the deflection under the 6 psf wind condition; the actual value is an output of the pole design and depends on the selected structure and foundation. Each additional foot of deflection adds two feet to the minimum ROW width.



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- The approximately 60-foot physical floor discussed in Section 4.2 applies the same 1.0-foot structure deflection allowance used for the governing case. Deflection under the 90 mph Rule 250C wind will be larger than deflection under the 6 psf condition, so the actual floor is somewhat wider than 60 feet. It is stated for reference only; the recommendation is based on the 64.4-foot Rule 234 minimum.
- Blowout is evaluated at final sag at 60°F, the condition NESC Rule 234A2 prescribes. Sag, and therefore blowout, is greater at higher conductor temperatures. A displaced-conductor case at the 100°C maximum operating temperature was not modeled and is not required by Rule 234A2; the 27.8 feet of margin between the 32.2-foot governing envelope and the 60-foot half-width recommended in Section 5.0 accommodates that effect at this level of design.
- Applying the NESC Rule 234 clearance at the edge of the right-of-way is a design convention. The NESC does not prescribe right-of-way widths, and Rule 234 governs clearance to buildings, signs, and other installations.
- The 12.2-foot clearance applied outboard of the blowout envelope comprises the 8.7-foot NESC Rule 234A2 displaced-conductor minimum plus a 3.5-foot buffer recommended by Westwood. The buffer is not a code requirement and could be adjusted at DESRI's discretion, subject to the extreme wind floor discussed in Section 4.2. The same 12.2 feet also covers the 4.5-foot radial vegetation clearance of RUS Table 5-2, with approximately 7.7 feet available for the vegetation adder at the 6 psf, 60°F condition and less at higher conductor temperatures.
- Ampacity assumes emissivity and solar absorptivity of 0.5, representative of a relatively new conductor. Weathered values reduce the rating by roughly 15 percent. Results are steady-state IEEE Std 738 values intended to confirm conductor adequacy, not to establish a facility rating.
- The corona results assume one conductor per phase, the delta geometry of Figure 1, a surface irregularity factor of 0.75, and a 104°F air temperature. A dirtier conductor surface or a hotter day reduces the corona onset gradient and erodes the margin shown in Table 4.
- Site elevation is taken as 5,300 feet, the Westwood transmission standard minimum.
- The gen-tie centerline used for location and elevation reference is conceptual, and the POI location is not yet fixed. ROW width is independent of alignment, but ground clearance, structure spotting, and material quantities are not.
- No survey, geotechnical, land, environmental, or cultural resource data was reviewed in the preparation of this memorandum. Public LiDAR data was used to establish ground points in the proposed project area.

This memorandum presents Westwood's right-of-way width recommendation for the Tumbleweed 230kV gen-tie, developed at a conceptual level of design from the criteria and structure configuration set out in Sections 2.0 through 4.0. Where the final design departs materially from those criteria, the right-of-way width should be re-checked using the method in Section 4.2.



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BEFORE THE NEW MEXICO PUBLIC REGULATION COMMISSION

IN THE MATTER OF THE APPLICATION OF TUMBLEWEED SOLAR, L.L.C. FOR LOCATION APPROVAL OF SOLAR GENERATION FACILITIES AND ASSOCIATED TRANSMISSION FACILITIES PURSUANT TO NMSA § 62-9-3; AND RIGHT-OF-WAY WIDTH DETERMINATION PURSUANT TO NMSA § 62-9-3.2	)	**Case No. 26-_____**

ELECTRONICALLY SUBMITTED VERIFICATION

Kevin Heglund, under penalty of perjury under the laws of the State of New Mexico, states:

I make this verification pursuant to 1.2.2.10(E) NMAC and New Mexico R. 1-011(B) NMRA.

I have read the foregoing *Direct Testimony of Kevin Heglund* and the exhibits attached thereto, and the statements therein are true and correct based on my personal knowledge and belief.

Dated: 10/5/2026 */s/ Kevin Heglund*

Kevin Heglund

BEFORE THE NEW MEXICO PUBLIC REGULATION COMMISSION

IN THE MATTER OF THE APPLICATION OF TUMBLEWEED SOLAR, L.L.C. FOR LOCATION APPROVAL OF SOLAR GENERATION FACILITIES AND ASSOCIATED TRANSMISSION FACILITIES PURSUANT TO NMSA § 62-9-3; AND RIGHT-OF-WAY WIDTH DETERMINATION PURSUANT TO NMSA § 62-9-3.2	)	**Case No. 26-_____**

CERTIFICATE OF SERVICE

I CERTIFY that on this date I caused to be sent to the individuals and entities as listed below a true and correct courtesy copy of the ***Application of Tumbleweed Solar, L.L.C. for Location Approval and Right-of-Way Width Determination***, the ***Direct Testimony of Meghan Knudsen***, the ***Direct Testimony of Rebekah Longstreet***, the ***Direct Testimony of Amanda Hargrave***, the ***Direct Testimony of Deborah Huntley***, the ***Direct Testimony of Kevin Heglund,*** and their accompanying exhibits**.**

***BY EMAIL*:**

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DATED this October 16, 2026.

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