Fredrikson & BYRON, P.A.

December 1, 2021

VIA FEDERAL EXPRESS

Mr. Steven Kahl
Executive Secretary
North Dakota Public Service Commission
600 E. Boulevard, Dept. 408
Bismarck, ND 58505-0480

RE: OEE XXXI LLC's Application for a Certificate of Site Compatibility for the Dickinson Renewable Diesel Facility Wind Turbine Project
Case No. PU-21-___

Dear Mr. Kahl:

OEE XXXI LLC ("OE 31") respectfully submits herewith an application for a Certificate of Site Compatibility for a small wind energy conversion facility known as the Dickinson Renewable Diesel Facility Wind Turbine Project, to be located in Stark County, North Dakota. OE 31 submits the application pursuant to North Dakota Century Code ("NDCC") Ch. 49-22, North Dakota Administrative Code ("NDAC") Art. 69-06, and NDAC Ch. 69-06-10.

In accordance with NDAC § 69-06-04-01(3), the original and ten (10) copies of the application and this letter are enclosed. Also enclosed are: (1) a USB drive containing a PDF copy of the application (public information only) and this letter; (2) a USB drive containing a PDF of NONPUBLIC Appendix H (cultural resources report); and (3) a USB drive containing GIS data. A check in the amount of $12,000.00 for the filing fee required pursuant to NDCC § 49- 22-22 is also enclosed.

OE 31 requests that, upon determining the application is complete, the North Dakota Public Service Commission ("Commission") schedule a public hearing on the application, rather than issuing a notice of opportunity for hearing. OE 31 anticipates a public hearing would be requested, and believes that scheduling a public hearing at the outset will be a more efficient path forward.

If you have any questions, please let me know.

Sincerely,

MMS/74097442
Enclosures

MOLLIE M. SMITH

cc: Jereme Kent (w/o encls.)
Katie Treadway (w/o encls.)

DICKINSON RENEWABLE DIESEL FACILITY WIND TURBINE PROJECT

APPLICATION FOR A CERTIFICATE OF SITE COMPATIBILITY

Submitted to:

NORTH DAKOTA PUBLIC SERVICE COMMISSION

Submitted by:

OEE XXXI LLC

ONE ENERGY
AN INDUSTRIAL POWER COMPANY
℅ One Energy Enterprises LLC
12385 Township Rd. 215
Findlay, OH 45840

Stark County, North Dakota

DECEMBER 2021

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ACRONYMS

ADLS	AIRCRAFT DETECTION LIGHTING SYSTEM
APE	AREA OF POTENTIAL EFFECT
BNSF	BURLINGTON NORTHERN SANTE FE RAILWAY
BOP	BALANCE OF PLANT
CCR	CALIFORNIA CODE OF REGULATIONS
DNH	DETERMINATION OF NO HAZARD
DOD	DEPARTMENT OF DEFENSE
EMF	ELECTROMAGNETIC FIELD
EPA	ENVIRONMENTAL PROTECTION AGENCY
ESA	ENDANGERED SPECIES ACT
DPR	DAKOTA PRAIRIE REFINING, LLC
FAA	FEDERAL AVIATION ADMINISTRATION
FCC	FEDERAL COMMUNICATIONS COMMISSION
FEMA	FEDERAL EMERGENCY MANAGEMENT AGENCY
FRS	FACILITY REGISTRY SERVICE
GIS	GEOGRAPHIC INFORMATION SYSTEM
ICBM	INTERCONTINENTAL BALLISTIC MISSILE
kV	KILOVOLT
LCFS	LOW CARBON FUEL STANDARD
MDU	MONTANA-DAKOTA UTILITIES COMPANY
MPC	MARATHON PETROLEUM CORPORATION

MW	MEGAWATT
NDAC	NORTH DAKOTA ADMINISTRATIVE CODE
NDBMP	NORTH DAKOTA BEST MANAGEMENT PRACTICES
NDCC	NORTH DAKOTA CENTURY CODE
NDGF	NORTH DAKOTA GAME AND FISH DEPARTMENT
NDPDES	NORTH DAKOTA POLLUTANT DISCHARGE ELIMINATION SYSTEM
NEC	NATIONAL ELECTRICAL CODE
NESC	NATIONAL ELECTRIC SAFETY CODE
NLCD	NATIONAL LAND COVER DATABASE
NRCS	NATURAL RESOURCES CONSERVATION SERVICE
NREL	NATIONAL RENEWABLE ENERGY LAB
NRHP	NATIONAL REGISTER OF HISTORIC PLACES
NWI	NATIONAL WETLANDS INVENTORY
NWR	NATIONAL WILDLIFE REFUGES
OEM	ORIGINAL EQUIPMENT MANUFACTURER
PLOTS	PRIVATE LAND OPEN TO SPORTSMEN
PSC	PUBLIC SERVICE COMMISSION
RCRA	RESOURCE CONSERVATION AND RECOVERY ACT
ROW	RIGHT OF WAY
SCADA	SUPERVISORY CONTROL AND DATA ACQUISITION
SCP	SPECIES OF CONSERVATION PRIORITY
SHPO	STATE HISTORIC PRESERVATION OFFICE
SHSND	STATE HISTORICAL SOCIETY OF NORTH DAKOTA
SSURGO	SOIL SURVEY GEOGRAPHIC DATABASE
STEM	SCIENCE, TECHNOLOGY, ENGINEERING, OR MATH
SWCA	SWCA ENVIRONMENTAL CONSULTANTS
SWPPP	STORM WATER POLLUTION PREVENTION PLAN
USACE	UNITED STATES ARMY CORPS OF ENGINEERS
USFWS	UNITED STATES FISH AND WILDLIFE SERVICE
USGS	UNITED STATES GEOLOGICAL SURVEY
WMA	WILDLIFE MANAGEMENT AREA
WPA	WATERFOWL PROTECTION AREA

1.0 INTRODUCTION

OEE XXXI LLC (OE 31) is submitting this application (Application) for a Certificate of Site Compatibility (Certificate) to the North Dakota Public Service Commission (PSC) for the proposed Dickinson Renewable Diesel Facility Wind Turbine Project (Project) in Stark County, North Dakota.

The Project will encompass a 378.3-acre project area (Project Area) located approximately 3.5 miles southwest of the City of Dickinson, North Dakota. A 3,052.8-acre study area (Study Area), which includes the Project Area, was also analyzed. The Project nameplate capacity will be 11.75 megawatts (MWs) and consist of five 2.35 MW wind turbines. Additional Project facilities include access roads, control equipment enclosure and switching station, transformers, electrical collection and communication systems and cabling, and Aircraft Detection Lighting System (ADLS) components (or other approved light mitigation technology).

This Project is the first of its kind in North Dakota. It is located at, and will power, North Dakota's only operating renewable diesel facility, the Dickinson Renewable Diesel Facility (Renewable Diesel Facility). The Project will directly reduce the carbon intensity of the fuels produced at the Renewable Diesel Facility and further improve its competitive position in a nationwide market. Unlike the wind energy projects typically reviewed by the PSC, this Project is built to serve a single customer and will operate on that single customer's property. Unlike rural wind projects, this Project will be located entirely at an industrial site where the Renewable Diesel Facility is located and adjacent to an operating rail yard.

As North Dakota continues its energy transition and prepares for the next fifty years of liquid fuels, projects like this are an important part of that future. In 2019, Marathon Petroleum Corporation (MPC) invested more than $500,000,000 in the Renewable Diesel Facility. It started producing renewable diesel in November 2020 and is currently the second largest renewable diesel facility in the country. The Renewable Diesel Facility processes nearly 4.5 million acres worth of agricultural feedstocks annually including, but not limited to, corn oil and soy oil. It also enables an entirely new clean liquid fuels economy in North Dakota and the region. This new economy, and the liquid fuels produced by the Renewable Diesel Facility, are valued based on their low carbon intensity. The Project will directly and materially lower that carbon intensity. This Project is good for the thousands of farmers that support the industry, is good for the future of liquid fuels in North Dakota, and is good for the economy of the region and North Dakota as a whole.

The Project is being developed and constructed pursuant to a twenty-year Renewable Energy Agreement between OE 31 and Dakota Prairie Refining, LLC (DPR), an affiliate of MPC and will directly supply power to the Renewable Diesel Facility located in Stark County, North Dakota. The Project will directly interconnect to the Renewable Diesel Facility's electrical system behind the meter and directly supply and satisfy a significant portion of the Renewable Diesel Facility's electric needs. The Project will be located on-site at the Renewable Diesel Facility and on property that is owned by DPR. A letter in support of the Application from Dakota Prairie Refining, LLC can be found in Appendix N.

The Renewable Diesel Facility in Dickinson, ND

The Renewable Diesel Facility in Dickinson, ND at night

Rendering of Project at the Renewable Diesel Facility

OE 31 is an operating subsidiary of One Energy Enterprises LLC (One Energy). One Energy is an industrial power company that helps large energy users build modern, tailored, on-site power facilities. In doing so, One Energy is decarbonizing manufacturing and enabling customer control. As a vertically integrated enterprise, One Energy provides physical solutions including *Wind for Industry*® and ManagedHV™, as well as analytics and commercial offerings to enable end users to fully customize their energy experience. Everyday items are being produced cleaner and more sustainably thanks to *Wind for Industry*® projects – from dishwashers, sliced turkey products, and soda cans, to cement and plastic products. Founded in 2009, One Energy is the largest installer and owner of behind-the-meter wind energy in the United States.

1.1 COMPLIANCE WITH NDCC CH. 49-22 AND NDAC CH. 69-06-10

The North Dakota Energy Conversion and Transmission Facility Siting Act, North Dakota Century Code (NDCC) Chapter 49-22 (Siting Act) requires the owner of a wind energy conversion facility exceeding 0.5 MW to obtain a Certificate from the PSC to locate, construct, and operate the facility in the state of North Dakota. An application for a Certificate must meet certain criteria set forth in the Siting Act. In addition, North Dakota Administrative Code (NDAC) Chapter 69-06-10 sets forth the rules that apply to a wind energy conversion facility designed for or capable of generating no more than twenty MWs of electricity. The siting of energy conversion facilities is to be made in an orderly manner compatible with environmental preservation and the efficient use of resources (NDCC Section 49-22-02).

In this Application, OE 31 presents the information required by the Siting Act and the PSC's siting rules. OE 31 has considered all applicable provisions in statute and rules including exclusion and avoidance areas and the selection criteria in the design of the Project. Information regarding Project design, wind resource, and technical information has been included in this Application to allow a thorough understanding of the

Project and to aid in review by the PSC, regulatory agencies, and the public. Table 1.1-1 provides a summary of information included in this Application and the section of the document in which each siting requirement is addressed.

TABLE 1.1-1: CERTIFICATE COMPLETION CHECKLIST		
STATE AUTHORITY	**DESCRIPTION**	**SECTION**
NDAC SECTION 69-06-04-01 CERTIFICATE OF SITE COMPATABILITY		
SECTION 2: CONTENTS		
a. (1)	A description of the type of energy conversion facility proposed.	1.0, 2.4
a. (2)	A description of the gross design capacity.	1.0, 2.0
a. (3)	A description of the net design capacity.	1.0, 2.0
a. (4)	A description of the estimated thermal efficiency of the energy conversion process and the assumptions upon which the estimate is based.	N/A
a. (5)	A description of the number of acres that the proposed facility will occupy.	1.0, 2.2
a. (6) a	A description of the anticipated time schedule for obtaining the certificate of site compatibility.	2.7
a. (6) b	A description of the anticipated time schedule for completing land acquisition.	2.7
a. (6) c	A description of the anticipated time schedule for starting construction.	2.7
a. (6) d	A description of the anticipated time schedule for completing construction.	2.7
a. (6) e	A description of the anticipated time schedule for testing operations.	2.7
a. (6) f	A description of the anticipated time schedule for commencing commercial production.	2.7
a. (6) g	A description of the anticipated time schedule for beginning any expansions or additions.	2.6
b.	Copies of any evaluative studies or assessments of the environmental impact of the proposed facility submitted to any federal, regional, state, or local agency.	Appendix M
c.	An analysis of the need for the proposed facility based on present and projected demand for the product or products to be produced by the proposed facility, including the most recent system studies supporting the analysis of the need.	1.2

d.	A description of any feasible alternative methods of serving the need.	1.2.2
e.	A study area that includes the proposed facility site, of sufficient size to enable the PSC to evaluate the factors addressed in North Dakota Century Code section 49-22-09.	2.1, 5.1-5.15, 6.0-6.11
f.	A discussion of the utility's policies and commitments to limit the environmental impact of its facilities, including copies of board resolutions and management directives.	Appendix A
g.	A map identifying the criteria that provides the basis for the specific location of the proposed facility within the study area.	Figure 2
h.	A discussion of the criteria evaluated within the study area, including exclusion areas, avoidance areas, selection criteria, design and construction limitations, and economic considerations.	4.0-4.5; 4.8; Appendix L
i.	A discussion of the mitigative measures that the applicant will take to minimize adverse impacts which results from the location, construction, and operation of the proposed facility.	5.1.2, 5.2.2, 5.3.2, 5.4.2, 5.5.2, 5.6.2, 5.7.2, 5.8.2, 5.9.2, 5.10.2, 5.11.2, 5.12.2, 5.13.2, 5.14.3, 5.15
j.	The qualifications of each person involved in the facility site location study.	8.0
k.	A map of the study area showing the location of the proposed facility and the criteria evaluated.	Figure 5
l.	An 8 ½-inch by 11-inch black and white map suitable for newspaper publication depicting the site area.	Figure 11
m.	A discussion of present and future natural resource development in the area.	5.2, 5.8-5.14
n.	Map and GIS requirements. The applicant shall provide information that is complete, current, presented clearly and concisely, and supported by appropriate references to technical and other written material available to the PSC.	Figures 1-11, USB submittal
NDCC SECTION 49-22-08: DESCRIPTION OF APPLICATION REQUIREMENTS		
SECTION 1: AN APPLICATION FOR A CERTIFICATE SHALL BE IN SUCH FORM AS THE PSC MAY PRESCRIBE, CONTAINING THE FOLLOWING INFORMATION:		
a.	A description of the size and type of facility.	1.0, 2.0
b.	A summary of any studies which have been made of the environmental impact of the facility.	5.0-5.14; Appendix M
c.	A statement explaining the need for the facility.	1.2
d.	An identification of the location of the preferred site for any energy conversion facility.	2.0, Figure 1

e.	An identification of the location of the preferred corridor for any transmission facility.	N/A
f.	A description of the merits and detriments of any location identified and a comprehensive analysis with supporting data showing the reasons why the preferred location is best suited for the facility.	1.1, 2.0-2.3, 4.0-4.6, 5.0-5.15, 6.0-6.10
g.	A description of mitigative measures that will be taken to minimize all foreseen adverse impacts resulting from the location, construction, and operation of the proposed facility.	5.1.2, 5.2.2, 5.3.2, 5.4.2, 5.5.2, 5.6.2, 5.7.2, 5.8.2, 5.9.2, 5.10.2, 5.11.2, 5.12.2, 5.13.2, 5.14.3, 5.15
h.	An evaluation of the proposed site or corridor with regard to the applicable considerations set out in section 49-22-09 and the criteria established pursuant to section 49-22-05.1.	1.1, 2.1-2.2, 5.0-5.15, 6.0-6.11
i.	Such other information as the applicant may consider relevant or the PSC may require.	Complete Application including Appendices and Figures
NDCC SECTION 49-22-09(1): FACTORS TO BE CONSIDERED IN EVALUATING APPLICATIONS AND THE DESIGNATION OF SITES, CORRIDORS, AND ROUTES		
a.	Available research and investigations relating to the effects of the location, construction, and operation of the proposed facility on public health and welfare, natural resources, and the environment.	5.0-5.15, 6.1
b.	The effects of new energy conversion and transmission technologies and systems designed to minimize adverse environmental effects.	6.2
c.	The potential for beneficial uses of waste energy from a proposed energy conversion facility.	6.3
d.	Adverse direct and indirect environmental effects which cannot be avoided should the proposed site or route be designated.	6.4
e.	Alternatives to the proposed site, corridor, or route which are developed during the hearing process, and which minimize adverse effects.	6.5
f.	Irreversible and irretrievable commitments of natural resources should the proposed site, corridor, or route be designated.	6.6
g.	The direct and indirect economic impacts of the proposed facility.	6.7
h.	Existing plans of the state, local government, and private entities for other developments at or in the vicinity of the proposed site, corridor, or route.	5.2, 5.9, 6.8

i.	The effect of the proposed site or route on existing scenic areas, historic sites and structures, and paleontological or archaeological sites.	4.1, 4.2, 5.6, 5.7, 6.9
j.	The effect of the proposed site or route on areas unique because of biological wealth or because the areas are habitats for rare and endangered species.	5.14, 6.10
k.	Problems raised by federal agencies, other state agencies, and local entities.	6.11

Table 1.1-1: Certificate Completion Checklist

1.2 NEED FOR PROJECT

1.2.1 Project Need Analysis

The Project is being constructed to directly supply power to the Renewable Diesel Facility, located in Stark County, North Dakota. The Project will interconnect to the Renewable Diesel Facility behind the meter and directly supply and satisfy a significant portion of the Renewable Diesel Facility's electric needs.

Renewable diesel facilities produce low carbon diesel fuel that is functionally equivalent to traditional crude derived diesel. These facilities strive to minimize their carbon footprint at every step of the production and refining process. The ultimate product, renewable diesel, has unique market value because of its low total carbon intensity when it is produced. Reducing carbon intensity drives the need for this on-site project as the Project is imperative to enabling the Renewable Diesel Facility to meet its long-term efficiency and low carbon operational needs. In particular, one of the main drivers of the Project is its ability to enable the Renewable Diesel Facility to generate additional credits under the existing California Low Carbon Fuel Standard (LCFS) program (and future similar laws in other markets that are currently in development). To qualify for the LCFS program credits, a renewable project not located in California must be directly connected through a dedicated line to a facility such that the generation and load are both physically located on the customer side of the utility meter. 17 CCR 95488.8. Because the Project directly powers the Renewable Diesel Facility, it drives down the carbon intensity of the fuels produced by the Renewable Diesel Facility. This makes the liquid fuels and the entire supply chain that supplies the Renewable Diesel Facility more competitive in the growing nationwide clean liquid fuels market. This increased competitiveness has already spurred investment in the area and will continue to do so in the future, boosting the local and statewide economy.

1.2.2 Alternatives

The robust wind resource at the location where the Project is located and the renewable nature of wind as a resource makes wind the most viable and economic energy resource for the Project. To generate a commensurate amount of energy using solar, significantly more land (approximately 160 or more acres) would have had to be utilized given the capacity factor of solar in the area. Additionally, due to solar energy's production profile, the Renewable Diesel Facility's electrical infrastructure would require substantial and costly modifications to accept a solar energy facility that produces the same amount of energy annually as the Project. Wind's 24/7 nature also matches the Renewable Diesel Facility's load profile better than solar, which enables a greater portion of the electricity produced by the Project to be consumed on-site and enables the Project to be a lower nameplate capacity than with solar. Given the amount of land available for the Project and the location of the Project, wind was the most economical energy resource that enabled the Project to generate a sufficient amount of renewable energy for the Renewable Diesel Facility.

Non-renewable alternatives were not considered due to wind energy's cost effectiveness and the Project's purpose of reducing the carbon intensity of the liquid fuels produced by the Renewable Diesel Facility.

1.2.3 Ten-Year Plan

In accordance with NDCC Section 49-22-04 and NDAC Chapter 69-06-02, OE 31 submitted a Ten-Year Plan for years 2021-2031. The Ten-Year Plan is included in Appendix B. OE 31's Ten-Year Plan is consistent with this Application for a Certificate.

2.0 PROJECT DESCRIPTION

The Project will be located southwest of the City of Dickinson in Stark County, in southwestern North Dakota (see Figure 1, Project Location). The nameplate capacity for the Project is 11.75 MW, and it will interconnect behind the meter to directly power the Renewable Diesel Facility. The Project has a projected average output of approximately 37,500 MW hours annually.

The Project is being developed and constructed pursuant to a twenty-year Renewable Energy Agreement between OE 31 and DPR. As discussed in Section 2.4.1, the Project may use an Enercon E-103 EP2 wind turbine with a rated capacity of 2.35 MW. The Project's permanent facilities will include:

- Five wind turbines and associated equipment
- New gravel access roads and improvements to existing DPR roads as needed
- Underground electrical collection and communication lines, with above-ground junction boxes
- ADLS components (or other approved light mitigation technology)
- Control equipment enclosure and Project switching station
- Turbine transformers

2.1 STUDY AREA

The Study Area is based on a 0.5-mile buffer around the Project Area and is comprised of portions of nine sections (19 quarter sections) containing approximately 3,052.8 acres. The Study Area consists mostly of the Renewable Diesel Facility, the Bakken Oil Express rail yard, privately owned agricultural land, and ND Bureau of Reclamation land. Table 2.1-1 provides a list of the townships, sections, and ranges (all in Stark County) that are included in the Study Area. See also Figure 1, Project Location.

TABLE 2.1-1: STUDY AREA LOCATION

TOWNSHIP NAME	TOWNSHIP	RANGE	SECTION(S)
Unnamed	139 N	97 W	9,10,11,14,15,16,21,22,23

Table 2.1-1: Study Area Location

2.2 PROJECT AREA

The Project Area consists of six land parcels owned by DPR and railroad easement (totaling 378.3 acres) southwest of Dickinson, North Dakota, within Stark County. All parcels are located in Township 139N (unnamed) and Range 97W.

TABLE 2.1-2: PROJECT AREA LOCATION			
PARCEL NUMBER	PARCEL SIZE (ACRES)	PARCEL ZONING	SECTION
30000005643000	109	Stark County	15
30000005644150	66.4	Stark County	15
30000005646100	11.3	Stark County	15
30000005646000	87.2	Stark County	15
30000005642000	32.9	Stark County	14
30000005645000	39.1	Stark County	15

Table 2.2-1: Project Area Location

2.2.1 Selection of Project Area

The Project Area was selected because the land that encompasses the Project Area is primarily owned by DPR and is the site of the Renewable Diesel Facility. Selecting this land as the Project Area enables the Project's five wind turbines and associated infrastructure to be located behind the meter on-site at the Renewable Diesel Facility and enables the Renewable Diesel Facility to generate credits under existing LCFS programs while minimizing environmental impacts through co-location with an existing facility and use of previously disturbed land.

2.3 PROJECT LAYOUT

In this Application, OE 31 is providing a Project Site Layout (see Figure 2, Site Layout). The Site Layout includes the locations of five turbines, access roads, a control equipment enclosure and switching station, transformers, and underground collection lines. The Site Layout is designed to accommodate the Enercon E-103 EP2 (turbine model specifications are in Section 2.4.1).

The Site Layout complies with all applicable setback requirements as defined by the PSC and Stark County while avoiding or minimizing environmental, cultural, and economic impacts and maximizing electrical generation and efficiency. A more detailed discussion of compliance with setback requirements can be found in Section 4.0. All turbine, access road, transformer, control equipment enclosure, switching station, and collection line construction will be on previously disturbed land that is primarily owned by DPR.

2.4 PROJECT FACILITIES

The Project facilities include wind turbines, associated facilities, and temporary facilities as discussed in the following sections.

2.4.1 Wind Turbines

OE 31 utilized the Enercon E-103 EP2 turbine for analysis purposes throughout this Application. However, the wind turbine model ultimately selected for the Project may be different, depending on the technology available. Regardless of the turbine model selected, the Project will meet all applicable PSC and County setbacks and other requirements. If a turbine model other than the Enercon E-103 EP2 is selected, OE 31 will provide the PSC with updated turbine specifications, sound modeling, and shadow flicker modeling demonstrating compliance with the applicable siting requirements. Table 2.4-1 describes the characteristics of the Enercon E-103 EP2.

TABLE 2.4-1: WIND TURBINE CHARACTERISTICS	
CHARACTERISTIC	**ENERCON E-103 EP2**
Nameplate Capacity	2,350 kW (2.35 MW)
Hub Height	78.3 m (256.9 ft)
Rotor Diameter	103 m (338 ft)
Total Height	129.8 m (426 ft)
Cut-in Wind Speed	2.5 m/s (5.6 mph)
Rated Capacity Wind Speed	13.5 m/s (30.2 mph)
Cut-out Wind Speed*	25 m/s (55.9 mph) or 34 m/s (76.1 mph) if storm control operating mode is utilized
Wind Swept Area	8,332 sq. m (89,684.9 sq. ft)
*Cut-out wind speed will depend on whether the storm control operating mode is selected for turbine operation.	

Table 2.4-1: Wind Turbine Characteristics

2.4.1.1 Wind Energy Conversion System

The wind energy conversion system converts the kinetic energy contained in the moving wind into electrical energy. It consists of the rotor, the generator, and the nacelle. The rotor diameter of the turbine under current consideration is 103 meters (338 feet). The rotor consists of three fiberglass blades mounted to a hub. The rotor is attached to the generator, which is attached to the nacelle that houses the yaw system and other electrical and mechanical systems. This turbine is a direct-drive turbine that does not require a traditional gearbox. By eliminating the gearbox, this turbine offers a reduced risk of major repairs over its useful life compared to traditional gearbox-based wind turbines.

2.4.1.2 Towers

The towers on which the nacelle is mounted will be constructed of tapered tubular steel, with a hub height of up to approximately 78.3 meters (256.9 feet). All tower welds will be performed according to Prudent Wind Industry Standards. Surfaces of the tower components will be coated by the manufacturer with specialized paint designed to last the life of the turbine and to protect against corrosion. A secured steel door at the base of the tower will provide internal access to the turbine.

2.4.1.3 Foundation

Each turbine will sit atop a concrete foundation. Foundation size and design will be finalized once geotechnical analyses have been completed and the turbine model has been selected.

2.4.1.4 Lightning and Ground Protection

Lightning and ground protection for all wind farm equipment is designed and constructed to be compliant with all applicable requirements. Grounding and shielding components are integrated into the foundation

and structural elements of all equipment and conductor lines. Each wind turbine will include conductive elements in the blades and a complete grounding and shielding network within the turbine, tower, and foundation.

2.4.1.5 Lighting

Turbines will be lit to satisfy minimum Federal Aviation Administration (FAA) requirements. In addition, the Project will comply with the light-mitigating technology system requirements set forth in NDCC Section 49-22-16.4 and NDAC Chapter 69-06-11. The components and specific locations of the ADLS or other approved system will be dependent on the FAA's review of turbine technology, terrain, neighboring industrial infrastructure, and other factors.

Unlike traditional rural wind projects, this Project is co-located with a major industrial facility that is very well lit for safety at all times as part of its operations.

2.4.2 Associated Facilities

Associated facilities include access roads, the electrical collection and communication systems, transformers, and the control equipment enclosure and switching station.

2.4.2.1 Access Roads and Crane Pads

Construction and service access to each turbine location will be facilitated by a compacted gravel road within the Project Area. Access roads have been located to avoid or minimize impacts to land use and the environment including by using existing DPR private roads for the Project where possible. The permanent access roads will be approximately 20 feet wide and constructed with locally sourced gravel, if available. The Project roads will support the size and weight of maintenance vehicles and construction equipment. Following construction, the temporarily affected areas will be restored to pre-construction conditions to the extent practicable. Crane pads will be constructed at each turbine site. Each crane pad will be an approximately 40'x 60' rock pad that is designed to safely distribute the large ground loads created by the cranes that build the turbines. The crane pads will be left in place to enable more efficient service of the turbines over their life.

2.4.2.2 Electrical Collection System and Communication System

An electrical collection system consisting of buried cables will interconnect all turbines to the Project switching station. This system has been sited to minimize cost and land impacts and in consideration of other constraints. The collection system will operate at 34.5 kilovolt (kV). The voltage will be stepped down at the Project switching station to an interconnection voltage of 4.16 kV. Fiber optic cables will be used for communication and condition monitoring and will be run with the electrical cables to interconnect all turbines to the control equipment enclosure at the Project switching station. A small number of cabling junction boxes will be located above ground. Once construction is complete, the land will be returned to pre-construction conditions, to the extent practicable, following installation of the collection system.

2.4.2.3 Transformers

Each turbine will have a high-efficiency padmount step-up transformer that will increase the turbine voltage to the collection line voltage. The padmount transformers will be fully enclosed and locked and will use FR3 natural ester oil instead of traditional mineral oil. FR3 oil is a more expensive alternative to

traditional oil that is both more resistant to fire and is readily biodegradable. Additionally, the switching station will have a transformer that will reduce the collection line voltage to the interconnection voltage of 4.16 kV. The switching station may also include a small grounding transformer for safety, which will also use FR3 oil.

2.4.2.4 Control Equipment Enclosure and Switching Station

The Project's underground collection system will extend from the turbines to the Project switching station. The switching station is located on the existing site of the Renewable Diesel Facility in a previously developed area, approximately 50 feet from the Renewable Diesel Facility substation, where the Project will interconnect to provide power to the Renewable Diesel Facility. In addition to the electrical equipment related to the collection system, the switching station will also include a small control equipment enclosure to house Project monitoring and communication equipment.

2.4.3 Temporary Facilities

Other temporary facilities will be required for the construction phase of the Project including laydown areas for equipment and tool storage and a construction staff trailer, which be located on the existing area of the Renewable Diesel Facility. The temporarily affected areas will be restored to preconstruction conditions to the extent practicable after construction has been completed and in accordance with agreements with the landowner, DPR.

2.4.4 Estimated Permanent and Temporary Impacts

The Project Site Layout includes five turbine locations that meet applicable state and local setbacks, optimize the energy production, and minimize human and environmental impacts. In the table below, OE 31 has identified the approximate temporary and permanent (for the life of the Project) impacts of the Project to the areas outside of the existing Renewable Diesel Facility areas (as measured in acres). OE 31 has also identified the approximate acreage of impacts to the existing Renewable Diesel Facility areas.

TABLE 2.4-2: SUMMARY OF PERMANENT AND TEMPORARY IMPACTS OUTSIDE OF THE EXISTING DPR FACILITY AREAS AND IMPACTS TO EXISTING DPR FACILITY AREAS

PROJECT FACILITY	DESCRIPTION OF FOOTPRINT	TEMPORARY	PERMANENT	EXISTING
Turbines	Turbine construction work area of 170' radius x 5WTG	10.4 AC.		
Access roads and infrastructure located in permanent gravel areas.	Construction for roads 50' x 6028' + (Radius x 5WTG)	5.6 AC.		
	Permanent gravel roads 20' x 6973'		2.7 AC.	
	Permanent gravel area around turbines and turbine foundation pedestals, transformers, crane pads, and turbine towers x 5WTG		3.3 AC.	
	Existing DPR roads utilized for the Project 25' x 6492'			2.6 AC.

Electrical Collection and Communication Lines	Collection line work area 20' x 8061'	3.8 AC.		
Laydown/Staging Areas	Construction area of Laydown/Staging Areas x 2	0.8 AC.		
	Permanent gravel 100' x 150' Laydown/Staging Areas x 2		0.7 AC.	
	Staff Trailer on existing Renewable Diesel Facility area 8' x 40'			0.1 AC.
Switching Station and Control Equipment Enclosure	Switching Station and Control Equipment Enclosure on existing Renewable Diesel Facility area 71' x 56'			0.1 AC.
Total		20.6 AC.	6.7 AC.	2.8 AC.
*Note that negligible sections of electrical collection and communication lines with be located within the existing DPR facility area.				

Table 2.4-2: Summary of Permanent and Temporary Impacts Outside of the Existing DPR Facility Areas and Impacts to Existing DPR Facility Areas

2.5 PROJECT OWNERSHIP

The Project will be developed, owned, and operated by OE 31, a subsidiary of One Energy.

2.6 EXPANSIONS OR ADDITIONS

No additions or expansions have been identified at this time. However, should the opportunity arise for expansion or addition to the proposed Project, OE 31 may develop additional areas. OE 31 would obtain all necessary permits and approvals for any expansion project.

2.7 PROJECT SCHEDULE

OE 31 anticipates that civil construction (construction of roads and laydown yards) could begin as early as first or second quarter 2022, provided that applicable permits and approvals have been obtained. The proposed Project schedule is as follows:

- **Land Acquisition:** OE 31 entered into a contract with the DPR to ensure land rights for the Project in Second Quarter 2021.
- **Certificate of Site Compatibility**: OE 31 anticipates the Certificate will be issued by the PSC in First/Second Quarter 2022.
- **Stark County Zoning**: OE 31 has applied for a conditional use permit from Stark County, North Dakota in July 2021 and anticipates receiving the permit in First Quarter of 2022.
- **Other Permits**: OE 31 will acquire all other permits necessary for construction of the Project prior to conducting the work for which the permit is required (see Section 7.0).
- **Construction**: Project construction is anticipated to begin in the First/Second Quarter 2022 and be completed by the end of 2022.
- **Commissioning**: Upon completion of the Construction phase, the Project will undergo detailed inspection and testing procedures before being commissioned. Inspection and testing will occur

for each individual component of the wind turbines, as well as the associated communication, collection, and Supervisory Control and Data Acquisition (SCADA) system.

- **Commercial Operations**: OE 31 anticipates full commercial operation to occur in Fourth Quarter of 2022.

2.8 PROJECT COST

The estimated total cost to construct the Project, inclusive of all equipment, is approximately $24,000,000.

3.0 PROJECT CONSTRUCTION, OPERATION, AND DECOMMISSIONING

3.1 CONSTRUCTION

3.1.1 Construction Activities

Pre-construction, construction, and post-construction activities for the Project include:

- Pre-construction:
  - Conduct geotechnical analysis
  - Design high-voltage electrical system and Project switching station
  - Design protection and controls for collection system and coordinate those controls with the Renewable Diesel Facility and Montana-Dakota Utilities Company (MDU)
  - Design turbine foundations, access roads, and associated facilities
  - Conduct underground utility searches
  - Procure all necessary turbine and facility components (for example towers, nacelles, blades, transformers, etc.)
- Construction:
  - Construct access roads and temporary laydown yards
  - Install collection lines
  - Construct the Project switching station and control equipment enclosure
  - Accept delivery of turbine and crane components
  - Install turbine foundations
  - Install turbines
  - Terminate all electrical connections and tie in with the Renewable Diesel Facility substation
  - Test and commission the electrical system and each turbine
- Post-construction:
  - Restore disturbed areas not intended for permanent above-ground facilities
  - Begin operating

Haul road permits will be acquired from all necessary state and local authorities. OE 31 will acquire the necessary permits to bore under the Heart River and the Burlington Northern Santa Fe (BNSF) rail line for the installation of collection lines. The existing paved private crossing will be utilized for rail-line crossing; however, grading to and from the private crossing will be improved for the Project.

During construction, equipment and worker vehicles will travel to and from site. Peak construction traffic is anticipated when the majority of the road construction, foundation installation, and turbine component delivery will take place.

OE 31, through its affiliate One Energy Solutions LLC, will be responsible for scheduling, coordinating, and conducting the Project construction activities, including:

- Obtaining all necessary permits
- Performing or coordinating all civil, structural, and electrical engineering
- Coordinating geotechnical analysis
- Conducting surveying
- Procuring construction materials
- Managing subcontractors (expected to be limited to a foundation rebar installation crew, a boring crew, and a protection and controls system commissioning crew)
- Conducting and overseeing all construction tasks, including access road construction, foundation excavation and placement, electrical and communications installation, turbine erection, and system testing

One Energy Solutions LLC will engage in ongoing coordination with local officials throughout construction.

3.1.2 Commissioning

Upon completion of the construction phase, the Project will undergo detailed inspection and testing procedures before being commissioned. Inspection and testing will occur for each individual component of the wind turbines, as well as the associated facilities including communication systems, collection lines, SCADA system, and switching station. The turbine commissioning team will include employees of the turbine manufacturer.

3.2 OPERATION AND MAINTENANCE

One Energy Solutions LLC and the Original Equipment Manufacturer (OEM) of the turbine will provide service and maintenance for the Project.

3.2.1 Supervisory Control and Data Acquisition System

Each wind turbine will communicate directly with the SCADA system for remote performance monitoring, energy reporting, and troubleshooting. The SCADA system provides data on turbine generation and production, availability, meteorology, and communications. The SCADA system allows for 24/7 monitoring of the Project and relays alarms and communication errors to an off-site operations center.

3.2.2 Light-Mitigating Technology

Subject to FAA approval, OE 31 will install and maintain a light-mitigating technology consistent with applicable requirements. See Section 2.4.1.5 above.

3.2.3 Maintenance Schedule

The following schedule is anticipated to be used for scheduled service activities of turbines and associated electrical and communications equipment:

- **500 Hours of Operation Maintenance:**
    - The turbine OEM will perform maintenance per their standards on components including the converter, yaw, pitch, cooling, heating, and auto lubricating systems. OE 31 will coordinate the audit of this work with One Energy Solutions LLC.
- **Semi-Annual Service Inspection** *(continuing annually at 18 months, 30 months, 42 months, etc.)*:

    - The turbine OEM will perform their semi-annual turbine maintenance, including a general turbine inspection, greasing bearings, visually inspecting bolted connections, and functionally testing turbine auxiliary systems and safety chain systems (OE 31 will coordinate the audit of this work with One Energy Solutions LLC).
    - OE 31 will coordinate with One Energy Solutions LLC to perform semi-annual turbine and balance of plant (BOP) inspection and maintenance, including quality control inspections on turbine foundations, turbine operations systems, blades (via drone inspection), BOP equipment, site access roads, etc.
- **Annual Service Inspection** *(continuing annually at 2 years, 3 years, 4 years, years 6-9, etc.)*:
    - The turbine OEM will perform their annual turbine maintenance, including torque checks on 10% of all bolted connections, a general inspection, greasing bearings, function-checking turbine cooling and heating systems, testing the yaw system, and testing the generator (OE 31 will coordinate the audit of this work with One Energy Solutions LLC).
    - OE 31 will coordinate with One Energy Solutions LLC to perform annual maintenance, including a quality-control inspection on wind turbine foundations, turbine operations systems, site access roads, etc. Additionally, detailed BOP equipment inspection and maintenance are performed on transformers, switchgears, junction boxes, and the control-equipment enclosure.
- **Drone Inspections**
    - One Energy Solutions LLC will provide regular, but not less than annual, drone inspections of the exterior of the turbine and its blades. These high-resolution inspections enable early detection of issues that cannot typically be observed at this early stage.

3.3 DECOMMISSIONING AND RESTORATION

Under the agreement between OE 31 and DPR, the Project will initially operate for twenty years. At the end of those twenty years, the Project will either be decommissioned, or the agreement will be renegotiated to extend the term of the contract. When decommissioning does occur, OE 31 will adhere to statutes and rules regarding decommissioning found in NDCC Chapter 49-02-27 and NDAC Chapter 69-09-09. This includes the following (unless waived by the PSC pursuant to NDAC Section 69-09-09-05(2)):

- Dismantling and removal of all towers, turbine generators, transformers, fencing, overhead cables, inverters, switching stations, and other equipment.
- Removal of underground cables to a depth of 24 inches.
- Removal of foundations and ancillary equipment to a depth of four feet.
- Site restoration and reclamation to the approximate original topography that existed prior to construction of the facility with topsoil respread over the disturbed areas at a depth similar to that in existence prior to the disturbance.
- Grading and restoring topsoil of areas disturbed by the facility will be done in accordance with applicable Natural Resources Conservation Service recommendations or according to a procedure approved by the landowner and the PSC.

In accordance with NDAC Section 69-09-09-06, OE 31 will file a decommissioning plan with the PSC prior to the commencement of operation of the Project, and will comply with the applicable financial assurance provisions.

4.0 SITE SELECTION CRITERIA: COMPLIANCE WITH NDAC SECTIONS 69-06-10-3(2)-(5) AND 69-06-08-01

4.1 COMPLIANCE WITH EXCLUSION AREAS[1]

Under NDAC Sections 69-06-10-3(2)-(5), an applicant must provide all supporting documentation regarding exclusion areas and provide written certification that the proposed facility will not affect any known exclusion areas. NDAC Section 69-06-08-01(1) identifies the geographical areas that "must be excluded in the consideration of a site for an energy conversion facility." NDAC Section 69-06-08-01(2) also lists additional geographical areas that "must be excluded in the consideration of a site for a wind energy conversion facility." The applicability of these exclusion areas is summarized below in Table 4.1-1. The exclusion areas in the Study and Project Areas are depicted on Figure 3, Exclusion Areas.

TABLE 4.1-1: SUMMARY OF EXCLUSION AREAS

GENERAL EXCLUSION AREA	PRESENT WITHIN PROJECT AREA?	DESCRIPTION	SECTION ADDRESSED
Designated or registered national: parks; memorial parks; historic sites and landmarks; natural landmarks; historic districts; monuments; wilderness areas; wildlife areas; wild, scenic, or recreational rivers; wildlife refuges; and grasslands	Not Present	NA	5.2, 5.6, 5.7, 5.8, 5.12, 5.13
Designated or registered state: parks; forests; forest management lands; historic sites; monuments; historical markers; archaeological sites; grasslands; wild, scenic, or recreational rivers; game refuges; game management areas; management areas; and nature preserves	Not Present	NA	5.2, 5.6, 5.7, 5.8, 5.12, 5.13
County parks and recreational areas; municipal parks; parks owned or administered by other governmental subdivisions; hardwood draws; and enrolled woodlands.	Not Present	NA	5.8, 5.9
Areas critical to the life stages of threatened or endangered animal or plant species	Not Present	NA	5.14, Appendix M
Areas where animal or plant species that are unique or rare to this state would be irreversibly damaged	Not Present	NA	5.14, Appendix M
Areas within 1,200 feet of the geographic center of an intercontinental ballistic missile (ICBM) launch or launch control facility	Not Present	NA	5.4
Areas within thirty feet (9.14 meters) on either side of a direct line between an ICBM launch facility and a	Not Present	NA	5.4

[1] As defined in NDAC Section 69-06-01-01(8), exclusion criteria are "criteria that remove areas from consideration for energy conversion facility sites and transmission facility routes." Exclusion areas are composed of these limiting criteria.

missile alert or launch control facilities to avoid microwave interference. This restriction only applies to aboveground structures, not to surface features, such as roads, or below-ground infrastructure			
ADDITIONAL EXCLUSION AREAS FOR WIND ENERGY CONVERSION FACILITIES – AREAS WITHIN[1]:	**PRESENT WITHIN PROJECT AREA?**	**DESCRIPTION**	**SECTION ADDRESSED**
1.1x the turbine height from the nearest edge of an interstate or state roadway right-of-way (ROW)	Not Present	NA	4.6
1.1x the turbine height plus 75 feet from the centerline of any county or maintained township roadway	Present	No turbines will be located within these exclusion areas.	4.6
1.1x the turbine height from the nearest edge of railroad ROW	Present	No turbines will be located within these exclusion areas.	4.6
1.1x the turbine height from the neared edge of a 115 kV or higher transmission line ROW	Present	No turbines will be located within these exclusion areas.	4.6
1.1x the turbine height from the property line of a non-participating landowner and 3x the height of the turbine from an inhabited rural residence of a non-participating landowner, unless a variance is granted. A variance may be granted if an authorized representative or agent of the permittee, the nonparticipating landowner, and affected parties with associated wind rights file a written agreement expressing all parties' support for a variance to reduce the setback requirement in this subsection. A nonparticipating landowner is a landowner that has not signed a wind option or an easement agreement with the permittee of the wind energy conversion facility as defined in NDCC Chapter 17-04.	Present	No turbines will be located within these exclusion areas.	4.6
[1] For the purposes of setbacks, OE 31 assumed a turbine up to 80 meters in hub height, with up to a 103-meter rotor diameter, and up to a total tip height of 131.5 meters			

Table 4.1-1: Summary of Exclusion Areas

4.2 COMPLIANCE WITH AVOIDANCE AREAS[2]

Under NDAC Sections 69-06-10-3(2)-(5), an applicant must provide all supporting documentation regarding avoidance areas and provide written certification that the proposed facility will not affect any known avoidance areas. If the proposed facility will affect a known avoidance area, the applicant must provide notice and information regarding the avoidance area expected to be impacted and the reasons why the impact cannot be avoided. Under NDAC Section 69-06-08-01(3), "[t]he following geographical areas may not be approved as a site for an energy conversion facility unless the applicant shows that under the circumstances there is no reasonable alternative. In determining whether an avoidance area should be designated for a facility the PSC may consider, among other things, the proposed management of adverse impacts; the orderly siting of facilities; system reliability and integrity; the efficient use of resources; and alternative sites. Economic considerations alone will not justify approval of these areas. A buffer zone of a reasonable width to protect the integrity of the area must be included. Natural screening may be considered in determining the width of the buffer zone." An additional avoidance area for wind energy conversion facilities is set forth in NDAC Section 69-06-08-01(4). See Table 4.2-1 for a discussion of the criteria outlined in Section 69-06-08-01(3) and (4). In accordance with NDAC Section 69-06-10-03, avoidance areas in the Study and Project Area are depicted in Figure 4, Avoidance Areas.

TABLE 4.2-1: SUMMARY OF AVOIDANCE AREAS

AVOIDANCE AREA	PRESENT WITHIN PROJECT AREA?	DESCRIPTION	SECTION ADDRESSED
Historical resources which are not designated as exclusion areas	Present	OE 31 has completed a Class I cultural resources inventory for the Project Area; as well as a Class III cultural resource inventory of areas that may be impacted by Project construction. OE 31 has also completed a Class II Architectural History reconnaissance survey. Cultural resource sites will be avoided. An Unanticipated Discoveries Plan will be prepared and provided if requested by the State Historical Society of North Dakota (SHSND).	5.7
Areas within the city limits of a city or the boundaries of a military installation	None	NA	5.4, Figure 4
Areas within known floodplains as defined by the geographical boundaries of the hundred-year flood	Present	There are areas of the 100-year floodplain in the Project Area associated with the Heart River. Two small sections of gravel access roads	5.12, Figure 4

[2] As defined in NDAC 69-06-01-01, avoidance criteria are "criteria that remove areas from consideration for energy conversion facility sites and transmission facility routes unless it is shown that under the circumstances there are no reasonable alternatives." Avoidance areas are composed of these limiting criteria.

		and underground collection lines will be located in the 100-year floodplain. As explained further in section 5.12.2.1, there is no reasonable alternative to siting these facilities in the floodplain. There are no turbines sited in the 100-year floodplain.	
Areas that are geologically unstable	None	NA	5.11
Woodlands and Wetlands	Present	Wetlands are present within the Project Area, as are small woodlands along Heart River. No permanent or temporary impacts are expected to occur to wetlands or woodlands. No impacts to trees are expected to occur during construction.	5.9, 5.12, 5.13, Figure 4
Areas of recreational significance which are not designated as exclusion areas	None	NA	5.8
ADDITIONAL AVOIDANCE AREAS FOR WIND ENERGY CONVERSION FACILITIES – AREAS WITHIN:			
A geographic area where, due to the operation of the facility, the sound levels within one hundred feet of an inhabited residence or community building will exceed forty-five decibels (dBA). The sound level avoidance area criteria may be waived in writing by the owner of the occupied residence or the community building	Considered and not present	A sound study for the Enercon E-103 EP2 turbine has been conducted and is included as Appendix F. Sound levels do not exceed 45 dBA within 100 feet of inhabited residences or community buildings.	5.5

Table 4.2-1: Summary of Avoidance Areas

4.3 COMPLIANCE WITH SELECTION CRITERIA[3]

Under NDAC Section 69-06-08-01(5), "[a] site may be approved in an area only when it is demonstrated to the PSC by the applicant that any significant adverse effects resulting from the location, construction, and operation of the facility in that area, as they relate to the following, will be at an acceptable minimum, or that those effects will be managed and maintained at an acceptable minimum." Table 4.3-1 provides a summary of the selection criteria.

[3] As defined in NDAC 69-06-0101, selection criteria are defined as "criteria that guide and govern the selection of energy conversion facility sites and transmission facility corridors and routes in order to minimize adverse human and environmental impact after the exclusion and avoidance criteria have been applied.

TABLE 4.3-1: SUMMARY OF SELECTION CRITERIA		
SELECTION CRITERIA	**POTENTIAL ADVERSE EFFECTS FROM PROJECT**	**SECTION ADDRESSED**
THE IMPACT UPON AGRICULTURE:		
(1) Agricultural production	The Project is anticipated to temporarily impact 16.2 acres of cultivated land or hay/pasture land and 6.0 acres of cultivated land or hay/pasture land for the life of the Project. OE 31 has coordinated with MPC and its tenant liaison to limit impacts to agricultural activities in the Project Area.	5.2, 5.9, 5.10
(2) Family farms and ranches	No family farms and ranches will be directly impacted. There is a tenant who farms and ranches a portion of the DPR land. The Project was designed to minimize impacts to those activities. The Project will impact 6.0 acres of cultivated land or hay/pasture land for the life of the Project. Additionally, approximately 16.2 acres of cultivated land or hay/pasture land would be temporarily disturbed during construction.	5.2, 5.5, 5.9
(3) Land which the owner demonstrates has soil, topography, drainage, and an available water supply that cause the land to be economically suitable for irrigation	Landowners have not expressed concerns related to irrigation on their property, and no known irrigation is present in the Project Area.	NA
(4) Surface drainage patterns and groundwater flow patterns	No adverse impacts are anticipated to surface drainage or groundwater flow patterns.	5.11, 5.12
(5) The agricultural quality of the cropland	No adverse impacts to agricultural quality of cropland are anticipated.	5.2, 5.9, 5.10
THE IMPACT UPON THE AVAILABILITY AND ADEQUACY OF:		
(1) Law enforcement	No adverse impacts to law enforcement are anticipated	5.3
(2) School systems and education programs	No adverse impacts to school systems and education programs are anticipated.	5.3
(3) Governmental services and facilities	No adverse impacts to government services and facilities are anticipated.	5.3
(4) General and mental health care facilities	No adverse impacts to general and mental health care facilities are anticipated.	5.3
(5) Recreational programs and facilities	No adverse impacts to recreational programs and facilities are anticipated.	5.8
(6) Transportation facilities and networks	There will be a temporary increase in truck traffic during construction activities. OE 31 will coordinate with local	5.3

	road authorities regarding haul roads. During Project operations, road use will return to its current state.	
(7) Retail service facilities	No adverse impacts to retail service facilities are anticipated.	5.1, 5.3
(8) Utility services	No adverse impacts to utility services are anticipated.	5.3
THE IMPACT UPON:		
(1) Local institutions	No adverse impacts to local institutions are anticipated.	5.3
(2) Noise-sensitive land uses	There are no sound-sensitive land uses within the Project Area. The only buildings in the Project Area are those associated with the Renewable Diesel Facility, which is a major industrial site, and DPR has contracted directly with OE 31 to develop, install, and operate the Project. The Project will comply with the PSC's sound-avoidance criterion.	5.5
(3) Light-sensitive land uses	Subject to FAA approval, OE 31 will install light-mitigating technology that is consistent with North Dakota law.	3.2.2, 5.6
(4) Rural residences and businesses	OE 31 implemented a minimum setback of 3x the maximum tip height of turbines (1,278 feet) from the nearest inhabited residence and no adverse impacts are anticipated to rural residences or businesses.	4.1, 5.5, 5.6
(5) Aquifers	There are no aquifers located in the Study Area or Project Area; therefore, no adverse impacts to aquifers are anticipated.	5.11
(6) Human health and safety	No impacts to human health and safety are anticipated.	5.4
(7) Animal health and safety	No adverse impacts to domestic animal or livestock health and safety are anticipated. OE 31 will continue its engagement with USFWS and NDGF regarding any potential impacts to wildlife.	5.14
(8) Plant life	Temporary and permanent vegetation impacts will occur during construction. However, all turbines and facilities will be constructed on already disturbed land.	5.13
(9) Temporary and permanent housing	Temporary housing may be utilized in the form of motels or rental housing. Local housing facilities could experience short-term economic benefits. No long-term adverse impacts are anticipated.	5.1
(10) Temporary and permanent skilled and unskilled labor	OE 31 will make efforts to source materials and the construction workforce from within the State of North Dakota and/or areas surrounding the Project within the parameters of the Project's requirements for quality, safety, budget, and schedule. The Project will provide work for up to 20 workers during construction and the	4.5

	turbine OEM will have two to three employees based locally who will maintain the turbines.	
CUMULATIVE IMPACT:		
The cumulative effects of the location of the facility in relation to existing and planned facilities and other industrial development	The Project will be located on land owned by DPR at an industrial site. Impacts to planned facilities and industrial development on the Renewable Diesel Facility site have been minimized in coordination with DPR. No impacts to existing or planned facilities and other industrial development will occur outside of the Project Area. There are two existing oil and gas wells within the Project Area. However, impacts are not anticipated because the two wells in the Project Area are well outside the disturbance area.	5.11

Table 4.3-1: Summary of Selection of Criteria

4.4 DESIGN AND CONSTRUCTION LIMITATIONS

OE 31 considered the following design and construction limitations when determining the Project location: available land on DPR's parcels, wind resource, environmental constraints, applicable setbacks, interconnection, and economics.

The Renewable Diesel Facility's capacity and current site load was also a significant factor in Project design. The Project was sized to maximize economic benefit and minimize the amount of electricity put back on the grid.

Several site-specific limitations also affected the Project's design and construction, including avoidance or minimization of impacts to environmental resources and setback requirements from features, including occupied residences, railroads, existing roads and transmission lines, and non-participating property lines.

See Section 5.0 for a more detailed discussion of the site-specific resources and mitigation measures used.

4.5 ECONOMIC CONSIDERATIONS

The economics of a wind farm are primarily driven by the value of the wind resource. OE 31 has compiled and assessed wind resource data for the area the Project is located in. This included an on-site wind measurement campaign using a LiDAR. The data indicates there is a sufficient wind resource for wind generation with high economic output.

The Project will have direct economic benefits to the Renewable Diesel Facility because the Project enables the Renewable Diesel Facility to generate credits under the California LCFS program and future similar programs in other markets.

Construction of the Project will provide economic benefits to the Stark County community. The Project will provide direct economic benefits of $47,000 per year in taxes. This totals $940,000 for the lifetime of the Project. Additionally, the Project plans to award one $5,000 scholarship per turbine per year, for a total of $25,000 annually. This totals $500,000 in scholarships over 20 years. These scholarships will be awarded annually to local high school students who are pursuing a 2-year or 4-year degree in science, technology, engineering, or math (STEM). The Project will also result in indirect economic benefits to the Dickinson community, including increased retail activity at restaurants, hotels, gas stations, and local purchases of construction materials and supplies, such as concrete, fuel, and aggregate.

4.6 COMPLIANCE WITH SETBACKS

The Project has been sited to comply with the PSC's and Stark County's setback requirements. Table 4.6-1 identifies PSC and Stark County setbacks applicable to the Project. These are also displayed on Figure 5, Project Constraints and Setbacks. Regardless of the turbine model selected, the Project layout will comply with the setback requirements outlined below. Setbacks are measured from the center of the base of the turbine tower to the applicable feature.

TABLE 4.6-1: NORTH DAKOTA PSC AND STARK COUNTY SETBACK REQUIREMENTS

PSC SETBACK TYPE	TURBINE SETBACK[1]
Nearest edge of an interstate or state roadway ROW. NDAC 69-06-08-01(2)(a)(1).	1.1 times the height of the turbine
The geographic center of an ICBM launch or launch-control facility. NDAC 69-06-08-01(1)(f).	1,200 feet
Direct line between an ICBM launch facility and a missile alert or launch-control facilities to avoid microwave interference. NDAC 69-06-08-01(1)(g).	Areas within 30 feet (9.14 meters) on either side of a direct line between an ICBM launch facility and a missile alert or launch-control facilities
County or maintained township roadway. NDAC 69-06-08-01(2)(a)(2).	1.1 times the height of the turbine plus 75 feet from the centerline of the roadway
Nearest edge of a railroad ROW. NDAC 69-06-08-01(2)(a)(3).	1.1 times the height of the turbine
Nearest edge of a 115-kilovolt or higher transmission line ROW. NDAC 69-06-08-01(2)(a)(4).	1.1 times the height of the turbine
Property line of a non-participating landowner. NDAC 69-06-08-01(2)(a)(5).	1.1 times the height of the turbine[2]
Inhabited residence or a community building. NDAC 69-06-08-01(2)(a)(4).	A wind energy conversion site must not include a geographic area where, due to the operation of the facility, the sound levels within 100 feet of an inhabited residence or a community building will exceed 45 dBA[3]
Nonparticipating inhabited rural residence. NDAC 69-06-08-01(2)(a)(5).	3 times the height of the turbine[4]
STARK COUNTY	
Front public roads or access	100 feet from the centerline of the front public road or access
Boundary of residential district	No building or structure shall be located within 1,250 feet from the boundary of a residential district
Enchanted Highway Setback	No structure allowed in a Commercial or Industrial District shall be located within one mile of the centerline of the

	Enchanted Highway and no structure of more than 30 feet in height shall be located within this restricted area
Utility Setback	Underground and overhead utilities shall be a minimum of 75 feet or the existing right-of-way easement, whichever is greater, from all section lines and all roads

[1] Setbacks are based on a turbine up to 80 meters in hub height, with a rotor diameter of up to 103 meters, and a total tip height of up to 131.5 meters.
[2] As set forth in NDAC Section 69-06-08-01(2), a variance may be granted if an authorized representative or agent of the permittee and affected parties with associated wind rights file a written agreement expressing all parties' support for a variance to reduce the setback requirement in this subsection. A non-participating landowner is a landowner that has not signed a wind option agreement or a wind easement with the permittee of the wind energy conversion facility as defined in NDCC Chapter 17-04.
[3] The sound level avoidance area criteria may be waived in writing by the owner of the occupied residence or the community building, as provided in NDAC Section 69-06-08-01(4).
[4] As set forth in NDCC Section 49-22-05.1(3), a variance from this setback requirement may be granted if an authorized representative or agent of the permittee, the nonparticipating landowner, and affected parties with associated wind rights file a written agreement expressing the support of all parties for a variance to reduce the setback requirement. A non-participating landowner is a landowner that has not signed a wind option or an easement agreement with the permittee of the wind energy conversion facility as defined in NDCC Chapter 17-04.

Table 4.6-1: North Dakota PSC and Stark County Setback Requirements

4.7 CERTIFICATION RELATING TO ORDER PROVISIONS

The Certification Relating to Order Provisions is signed and a copy is provided in Appendix C.

OE 31 has adapted the standard certification relating to order provisions for traditional utility-scale wind projects to more specifically apply to the unique aspects of an on-site small wind energy conversion facility that is co-located with an industrial customer facility.

4.8 CERTIFICATION OF COMPLIANCE WITH SITING LAWS AND RULES

In accordance with NDAC Section 69-06-10-03(3), a written, executed certification of compliance with siting laws and rules is provided in Appendix L.

5.0 ENVIRONMENTAL ANALYSIS

5.1 DEMOGRAPHICS

The following sections describe existing demographics, potential impacts, and proposed mitigation.

5.1.1 Existing Conditions

The Project is located on the property of DPR, which is an industrial site in a sparsely populated rural area. The Project land is comprised of cultivated land and is the site of a renewable diesel facility in southeastern North Dakota. The Study Area is within Stark County in Sections 9, 10, 11, 14, 15, 16, 21, 22, and 23 of Township 139 North (unorganized), Range 97 West. The closest incorporated municipality to the Project is Dickinson, which is 3.5 miles northeast. Demographic information for the Project Area is based on data from the U.S. Census Bureau's QuickFacts website (U.S. Census Bureau, 2021a). The data is shown at the county and state levels for comparison purposes. The demographic information is summarized in Table 5.1-1.

The per capita income in Stark County between 2015 and 2019 was $38,103, which is similar to the state level (U.S. Census Bureau, 2021a). The unemployment rate in Stark County is similar to the state level, at 1.8 percent and 1.9 percent, respectively. Approximately 8.8 percent of the people in Stark County are reported living at or below the poverty level, which is lower than the state level of 10.7 percent. The top three industries of employment in the State of North Dakota are 1) educational services, health care, and social assistance; 2) retail trade; and 3) agriculture, forestry, fishing, hunting, and mining (U.S. Census Bureau, 2021b). The top three industries of employment in Stark County are 1) agriculture, forestry, fishing, hunting, and mining; 2) educational services, health care, and social assistance; and 3) retail trade.

TABLE 5.1-1: DEMOGRAPHICS IN THE PROJECT AREA

	STARK COUNTY	NORTH DAKOTA
Population, Census, April 1, 2020 [1]	33,646	779,094
Per Capita Income 2015-2019 (U.S. 2019 Dollars) [1]	$38,103	$36,062
Unemployment Rate (%) [1]	1.8	1.9
Persons Living Below the Poverty Line (%) [1]	8.8%	10.7%
Top 3 Industries [2]	E (25.4%), R (11.4%), Ag (9.3%)	Ag (18.9%), E (17.3%), R (11.5%)

[1] U.S. Census Bureau, 2021a.
[2] U.S. Census Bureau, 2021b.
[3] Industries are defined under the 2012 North American Industry Classification System and abbreviated as follows: Ag = Agriculture, Forestry, Fishing, Hunting, and Mining; E = Educational, Health, and Social Services; R = Retail Trade

Table 5.1-1: Demographics in the Project Area

5.1.2 Demographic Impacts and Mitigation

OE 31 anticipates that the Project will be socioeconomically beneficial to the local population and will not impact long-term population trends or interfere with existing or adjacent land uses. The Project will be socioeconomically beneficial to the Renewable Diesel Facility, local governments, and communities by providing economic benefits, taxes, and scholarships.

Long-term beneficial impacts to the tax base of Stark County, as a result of the construction and operation of the Project, will have a positive impact on the local economy in this area of North Dakota. The Project will provide direct economic benefits of $47,000 per year in taxes. Over twenty years, the Project will generate a total of $940,000 in taxes. Additionally, the Project will award one $5,000 STEM scholarship per turbine per year, for a total of $25,000 annually. Over twenty years, the Project would generate $500,000 in STEM scholarships.

The Project will provide work for up to 20 workers during construction and the turbine OEM will have two to three employees based locally who will maintain the turbines.

Construction of the Project could also provide temporary revenue increases in the area through increased demand for food services, lodging, fuel, and general supplies. Personal income could also be generated by

circulation and recirculation of dollars paid out by the Project as business expenditures and state and local taxes.

Overall, OE 31 anticipates that the Project will be socioeconomically beneficial to the local population and will not impact long-term population trends. This Project supports the Renewable Diesel Facility which consumes more than 2% of the U.S.'s available corn and soy crop. Further, the Project would not result in relocation of residences.

5.2 LAND USE, LAND COVER, AND MANAGED LANDS

The following sections describe the existing land cover and uses in the Study Area and Project Area, potential impacts from construction and operation of the Project, and proposed mitigation measures.

5.2.1 Existing Conditions

5.2.1.1 Land Cover

The Study Area is located in a developed area of rural North Dakota and predominantly consists of developed land, shrub/scrub lands, grasslands, and cultivated land. OE 31 reviewed U.S. Geological Survey (USGS) National Land Cover Data (NLCD) to determine land cover classification types present within the Study Area and the Project Area (USGS, 2019). The results of this review are presented in Table 5.2-1. The predominant NLCD land cover classifications in the Study Area are shrub/scrub, developed, cultivated crops, and grassland/herbaceous. The predominant NLCD land cover classifications in the Project Area are cultivated crops and developed land, which represent 66.6% of the land cover. Figure 10, Land Cover, depicts the land cover classifications within the Study and Project Areas.

TABLE 5.2-1: LAND COVER TYPES AND THEIR RELATIVE ABUNDANCE IN THE STUDY AND PROJECT AREAS

LAND COVER	STUDY AREA		PROJECT AREA	
	ACRES	PERCENT	ACRES	PERCENT
Shrub/Scrub	950.0	31.1	31.7	8.4
Grassland/Herbaceous	507.4	16.6	55.6	14.7
Cultivated Crops	528.3	17.3	94.8	25.0
Developed	532.3	17.4	157.0	41.6
Hay/Pasture	207.7	6.8	6.1	1.6
Emergent Herbaceous Wetlands	151.5	5.0	10.0	2.6
Open Water	97.7	3.2	12.1	3.2
Woody Wetlands	36.1	1.2	5.6	1.5
Deciduous/Evergreen/Mixed Forest	41.6	1.4	5.4	1.4
Barren Land	0.2	0	0	0
Total	**3052.8**	**100**	**378.3**	**100**

Source: USGS 2019.

Table 5.2-1: Land Cover Types and their Relative Abundance in the Study and Project Areas

5.2.1.2 Land Use and Ownership

Land in the Study and Project Areas is predominantly used for renewable diesel production and agricultural production. Table 5.2-2 provides the total acres of federal and state-owned lands in each of these areas and Figure 6, Public Lands and Easements depicts these features.

TABLE 5.2-2: LAND OWNERSHIP IN THE STUDY AND PROJECT AREAS

AGENCY	ACRES IN STUDY AREA	ACRES IN PROJECT AREA
Privately Owned Land[1]	2,333.4	356.0
ND Bureau of Reclamation Land	582.4	0
ND State Land[2]	137.0	22.3

1. Includes 318.5 acres of Mineral Rights Trust Lands in the Study Area and 0 acres in the Project Area.
2. ND State Land is the land area associated with the Heart River.
Source: NDGISHUB 2020a; NDGISHUB 2020b; NDGISHUB 2020c.

Table 5.2-2: Land Ownership in the Study and Project Areas

There are no Bureau of Land Management lands within the Project Area or Study Area (BLM, Undated).

The U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) administers the Conservation Reserve Program (CRP). Agricultural landowners may voluntarily enroll their land into the CRP, essentially taking the land out of production for a given timeframe to protect wildlife and water resources in exchange for annual payments. There are no CRP lands in the Study Area (NDGF, 2019).

The U.S. Fish and Wildlife Service (USFWS) manages Waterfowl Production Areas (WPAs) to protect breeding, forage, shelter, and migratory habitat for waterfowl or wading birds, such as ducks, geese, herons, and egrets. WPAs provide opportunities for viewing wildlife and intact ecosystems. There are no WPAs within the Study Area. The nearest WPA is Southeast of the Project Area in Hettinger County (NDGISHUB, 2018).

The USFWS manages National Wildlife Refuges (NWRs) that are part of a national network of lands and waters for the conservation, management, and, where appropriate, restoration of the fish, wildlife, and plant resources and their habitats. NWRs protect some of the country's most iconic ecosystems and the fish and wildlife that rely on them. There are no NWRs in the Study Area; the nearest NWR is the Lake Ilo NWR northwest of the Project Area in Dunn County (NDGISHUB, 2017).

The USFWS also has wetland easements and grassland easements with landowners in some areas to protect wetlands and grasslands. There are no USFWS wetland easements or grassland easements in the Study Area.

In North Dakota, Private Land Open to Sportsmen (PLOTS) are private lands open to public use for hunting and bird watching (NDGF, 2019). PLOTS lands are administered through an agreement between the North Dakota Game and Fish Department (NDGF) and individual landowners. There are no PLOTS lands present within the Study Area (NDGF, 2019).

NDGF also manages Wildlife Management Areas (WMAs). There are over 200 WMAs in North Dakota, which are generally open to hunting, fishing, and trapping, among other recreational uses. There are no NDGF-managed WMAs present in the Study Area.

No concentrated residential developments are present with the Study or Project Areas though scattered residences are present in the Study Area. There are five residences within the Study Area and none within the Project Area.

OE 31 reviewed publicly available information to identify North Dakota Department of Trust Lands within the Study and Project Areas. No surface trust lands are located within the Study Area or Project Area. Surface trust lands typically generate income through leasing these parcels for grazing or other agricultural uses. Leases for rights-of-way and mining uses are also common on surface trust lands. Mineral rights trust lands within the Study and Project Areas total 318.5 acres and 0 acres, respectively. Mineral rights trust lands typically generate income through leases for oil and gas, coal, potash, and other mineral extraction. The Heart River is also considered state lands. There are 137.0 acres of state lands associated with the Heart River in the Study Area and 22.3 acres of state lands associated with the Heart River in the Project Area.

There are water wells and oil and gas wells within the Study and Project Areas. There are 2 domestic/stock/industrial/observational water wells in the Study Area; of these, 0 are within the Project Area. There is a total of 11 oil and gas wells in the Study Area; 2 of these oil and gas wells are within the Project Area (ND Oil and Gas Division, 2021). OE 31 does not anticipate disturbances because the wells are outside the disturbance area for the Project.

5.2.1.3 Zoning

The Project is located within the Industrial District[4] in Stark County. Under the Stark County Zoning Ordinance, "wind energy generation" is a conditional use in the Industrial District requiring a conditional use permit from the county. OE 31 has applied for a conditional use permit from Stark County.

5.2.2 Land Cover and Use Impacts and Mitigation

Construction of the Project will result in the conversion of a portion of the land within the Project Area from existing land uses to a renewable energy resource for the life of the Project. In addition, temporary land use impacts associated with construction will occur from use of staging and laydown areas and installation of underground collection and communication lines. These temporary land-use impacts will cease following construction and these areas will be returned to pre-construction land uses. Table 5.2-3 presents the anticipated impacts on NLCD land cover categories as a result of construction and operation of the Project. In the table, OE 31 has identified the approximate temporary and permanent (for the life of the Project) impacts of the Project to the areas outside of the existing Renewable Diesel Facility areas (as measured in acres). OE 31 has also identified the approximate acreage of impacts to the existing Renewable Diesel Facility areas.

[4] Note that one parcel owned by the DPR is zoned Agricultural. An application to rezone the parcel from Agricultural to Industrial was submitted to the County with the conditional use permit application.

TABLE 5.2-3: SUMMARY OF LAND COVER IMPACTS			
LAND COVER TYPE	IMPACTS		
	TEMPORARY (ACRES)	PERMANENT (ACRES)	EXISTING DPR FACILITY (ACRES)
Cultivated Crops	16.1	6.0	0
Grassland/Herbaceous	1.2	0.1	0
Shrub/Scrub	0.6	0.1	0
Developed (all categories)	1.9	0.3	2.8
Hay/Pasture	0.1	0	0
Emergent Herbaceous Wetlands*	0.5	0.2	0
Deciduous/Evergreen Forest	0	0	0
Woody Wetlands	0	0	0
Open Water	0.2	0	0
Total	**20.6**	**6.7**	**2.8**
Source: 2019 NLCD			
*No impacts to the river or wetlands will occur during construction or operation of the Project. However, the NLCD database overlapped with one of the temporary disturbance areas. Construction and installation practices will ensure all disturbances will occur to previously disturbed lands.			

Table 5.2-3: Summary of Land Cover Impacts

Construction of the Project will temporarily impact approximately 20.6 acres of land outside of the existing Renewable Diesel Facility area; of this, approximately 2.9 percent of the impacts will occur on land categorized as shrub-scrub in the NLCD, 5.8 percent of the impacts will occur on land categorized as grassland/herbaceous, and 78.2 percent will occur on land categorized as cultivated crop land. Impacts related to construction workspaces at turbine sites and access roads, installation of collection lines, and use of crane paths and laydown yards will be temporary and will terminate with the completion of construction. Impacts from turbines, transformers, crane pads, and access roads will be long-term and will require a conversion of existing land uses to a renewable energy source for the life of the Project. The Project will impact approximately 6.7 acres or less of land outside of the existing Renewable Diesel Facility area from turbine locations, associated access roads, and transformers for the life of the Project. Also, 2.8 acres of the existing Renewable Diesel Facility area will be impacted through use of existing DPR private roads, and placement of the control equipment enclosure, switching station, and staff trailer on the area. OE 31 has co-located linear facilities (access roads, crane paths, and collection lines) to the extent practicable.

OE 31 does not anticipate the conversion of 6.7 acres of land to a renewable energy source will impact broader existing land use patterns. Operation of the Project does not preclude use of the land in the Project Area for agricultural uses. The Project will not conflict with the existing development plans of state or local

entities within the Project Area. Any impacts on development plans of the landowner, DPR, have been minimized in coordination with the landowner.

Because there are no PLOTS lands within the Study Area, the Project will not impact these resources. The Project will also not impact North Dakota Department of Trust Lands-managed surface trust lands because these lands are not present within the Project Area.

OE 31 will avoid impacts on domestic, stock, industrial, and observational water wells, as well as oil and gas wells and storage tanks. Additional discussion of potential impacts and mitigation measures for water wells and oil and gas wells are discussed in Section 5.11 Geologic and Groundwater Resources.

5.3 PUBLIC SERVICES

The following sections describe existing public services in the Study Area, potential impacts, and proposed mitigation. Figure 7, Infrastructure, depicts existing infrastructure in the Study and Project Areas.

5.3.1 Existing Conditions

5.3.1.1 Local Services

The majority of public services and infrastructure are available in the City of Dickinson, located 3.5 miles northeast of the Project Area. Dickinson contains a hospital, ambulance service, a regional airport, police and fire services, public schools, businesses, mental health facilities, and churches.

5.3.1.2 Electrical Service

Electric service in the Study Area is provided by MDU. Transmission infrastructure includes overhead electrical distribution and transmission lines. Additionally, underground and overhead distribution lines are present going to farmsteads and the Renewable Diesel Facility.

5.3.1.3 Roads

The main road intersecting the Study Area is 116th Avenue SW, which intersects the Project Area and connects to I94. 116th Avenue SW was designed to support the Renewable Diesel Facility operations and has on more than one occasion, had loads in excess of one million pounds travel along the road. Other roadways in the Study Area include well maintained gravel-surfaced county roadways and two-track trails used for residential and agricultural purposes. OE 31 will construct temporary and permanent access roads on DPR's property for the Project. A compact gravel road will provide construction and service access to each turbine location. Permanent access roads will be approximately 20 feet wide. Two access points located on 116th Avenue SW will be used for general construction access.

5.3.1.4 Railroads

There is a BNSF railroad running through the Project Area in an east-west direction.

5.3.1.5 Water Supply

Rural water is supplied to the Study Area by Southwest Water Authority Rural Water District. It is common for rural residences in the area to utilize private wells for alternative uses, such as agriculture. There are two domestic/stock/industrial/observational water wells in the Study Area; of these, zero are within the Project Area (ND Dept. of Water Resources, Undated).

5.3.1.6 Microwave, Telephone, TV, and Radio Communications

Using industry standard procedures and FCC databases, OE 31 conducted a search to determine the presence of any existing microwave paths in the Project Area, as well as any land mobile radio facilities, antenna structures, and AM, FM and TV signals that may be impacted by the Project.

OE 31 also commissioned a microwave link analysis by Spectrum Center. OE 31 provided specific turbine coordinates and dimensions to Spectrum Center for the analysis. Spectrum Center's analysis identified the three closest microwave paths, all of which are outside the Project Area and Study Area (Appendix D - Telecommunications Studies). According to the conclusion of the analysis, all turbines are 100% clear of the 2nd Fresnel Zone (the recommended clearance zone), with the closest turbine being 2,359 meters outside of the 2nd Fresnel Zone. The Project will not interfere with any known microwave paths.

Additionally, Spectrum Center provided One Energy with a letter on August 24, 2021 after slight micrositing changes to two of the proposed turbines. Spectrum Center's letter confirmed no expected interference with any known microwave paths.

OE 31 conducted a search of the FCC database for land mobile radio codes within 1.5 miles of the Project. One land mobile station was identified in this search and is located at the Renewable Diesel Facility. The tower is privately owned by DPR. No other land mobile stations were identified in the area analyzed.

OE 31 also conducted a search of the FCC database for registered antennae structures within 25 km of the proposed Project. The closest identified structure is located 3.75 km away from the closest turbine. Due to the distance from the turbines, interference is not expected.

OE 31 conducted a search of the FCC database for AM, FM, and TV signals. No AM stations were found within a 4 km radius, and therefore no interference is expected. The closest FM station was found to be 11.5 km away from the proposed Project site, and therefore no interference is expected. There were 10 TV facilities found within a 150 km radius of the proposed Project.

5.3.2 Public Service Impacts and Mitigation

The following subsections discuss potential impacts and proposed mitigation.

5.3.2.1 Local Services

Impacts to local services in and around the Project Area are not anticipated; therefore, no mitigation is required.

Construction and operation of the Project is not expected to impact the availability of emergency services. OE 31 has and will continue to coordinate with emergency services providers to determine appropriate safety precautions and standards. OE 31 will also have an Emergency Response Plan to implement these precautions and standards. OE 31 has on-staff EMTs and rope-rescue professionals and will train and equip local fire departments as necessary to ensure that there are multiple levels of adequate responders available throughout the life of the Project. If emergency services are required during construction or operation of the Project, law enforcement, fire departments, ambulance services, and hospitals near the Project Area would be adequate to address Project-related emergency service needs without negatively impacting the availability of these services for the local population. DPR also has an existing on-site full time fire department that will be part of the coordinated effort.

5.3.2.2 Electrical Service

As a behind-the-meter project that will comply with Institute of Electrical and Electronics Engineers (IEEE) 1547, the standard that establishes criteria and requirements for interconnection of distributed energy resources with electric power systems, the Project will not materially alter the existing electrical system, its character, or its reliability for any customers.

5.3.2.3 Roads

Existing roadways within the Project Area will be utilized to the extent feasible; however, construction of new access roads on DPR land will be required to provide access to the proposed tower locations. Newly constructed permanent access roads will be approximately 20 feet wide. Access roads will be constructed in locations which minimize impacts to the environment and/or existing land uses and will support the size and weight of maintenance vehicles. Following construction, the temporarily affected areas will be restored to pre-construction conditions, to the extent practicable.

During the construction phase, material impacts are not anticipated on public roads within the Study Area due to the small project size of five turbines. The total amount of concrete trucks and gravel trucks that will be arriving at site to support road and foundation construction will be well inside normal traffic limits. All construction traffic will use the existing private, county, state, and federal roadway system to access the Project Area and deliver construction materials and personnel.

OE 31's road use will comply with all applicable federal, state, and local laws. Road haul and/or use permits will be acquired from all required authorities.

After construction is complete, traffic impacts during the operations phase of the Project will be minimal. Operation and maintenance activities will not noticeably increase traffic in the Study Area, as these activities tend to be sporadic.

5.3.2.4 Railroads

The railroad will be crossed in two locations. In one location, the railroad will be crossed by construction traffic to build and maintain the northern two turbines. Improvements will be made to the road leading up to and exiting from the railroad, but no changes will be made to the railroad line itself. In another location, a collection line will be bored underneath the BNSF railroad. OE 31 will coordinate with the railroad for a crossing agreement as required. There will not be any direct impacts to the BNSF railroad.

5.3.2.5 Water Supply

OE 31 does not plan to use a material amount of water on site during construction or operations. During construction, water will be used for power washing components and will be sourced from the Renewable Diesel Facility's water system. Turbine siting avoids water wells. The water supply for residents within the Study Area is not anticipated to be affected by the proposed Project.

5.3.2.6 Microwave, Telephone, TV, and Radio Communications

Because of their height, modern wind turbines have the potential to interfere with existing communications systems licensed to operate in the United States. However, given the distance of communication systems from the Project Area, construction and operation of the Project are not expected to impact communication systems, AM/FM radio, or microwave beam paths. One land mobile station was identified in the Project

Area and is located at the Renewable Diesel Facility. The tower is privately owned by DPR and OE 31 is coordinating with the DPR to ensure interference is avoided or minimized. While interference is not expected to AM, FM, and TV signals with the limited footprint of this Project, if interference does occur, mitigation efforts will be pursued with individual landowners. Mitigation options include upgrading reception antennas or providing satellite service.

OE 31 will coordinate with utility companies to determine utility locations and will comply with North Dakota One-Call requirements.

5.4 HUMAN HEALTH AND SAFETY

The following sections describe existing conditions, potential impacts, and proposed mitigation for human health and safety.

5.4.1 Existing Conditions

5.4.1.1 Aviation/Airspace

The FAA regulates federal airspace. Due to their height, wind turbines may have an effect on airports and navigable airspace, both public and military. The FAA evaluates if a tall structure is an obstruction or hazard to the safe and efficient use of navigable airspace near airports or military operations.

The Minot Air Force Base and the Grand Forks Air Force Base are located approximately 130 miles and 270 miles northeast of the Project Area, respectively.

The Theodore Roosevelt Regional Airport is the nearest public-use airport to the Project Area and is located approximately five miles southeast of the Project Area. The Theodore Roosevelt Regional Airport serves general aviation, commercial flights, air taxi, and military flights (AirNav.com, 2021). There are no private airstrips in the Project Area. There are no ICBM sites in Stark County or adjacent counties.

5.4.1.2 Electromagnetic Fields Assessment

The term electromagnetic field (EMF) refers to electric and magnetic fields that are present around any electrical device. Electric fields arise from the voltage or electrical charges, and magnetic fields arise from the flow of electricity or current that travels along transmission lines, power collection (feeder) lines, substation transformers, house wiring, and electrical appliances. The intensity of the electric field is related to the voltage of the line and the intensity of the magnetic field is related to the current flow through the conductors. EMF can occur indoors and outdoors, and there are no discernible health impacts from power lines (NIEHS, 1999).

The source of EMF for the Project will be from buried electrical collection lines, transformers, switchgears, and wind turbines. EMF from electrical collection lines, transmission lines, and transformers dissipates rapidly with distance from the source (NIEHS, 2002).

5.4.1.3 Hazardous Materials/Hazardous Waste Assessment

The land within the Project Area is industrial and used for renewable diesel production and some agricultural production.

OE 31 reviewed the U.S. Environmental Protection Agency's (EPA) Facility Registry Service (FRS) to identify sites that are listed on the Comprehensive Environmental Response, Compensation, and Liability

Information System (also known as Superfund sites); Resource Conservation and Recovery Act (RCRA) Treatment, Storage, and Disposal; RCRA hazardous waste generators; the Assessment, Cleanup, and Redevelopment Exchange System; and the Leaking Underground Storage Tank—American Recovery and Reinvestment Act database (EPA, 2020). OE 31 also reviewed the North Dakota Department of Environmental Quality (NDDEQ) Underground Storage Tank (UST) Program database to identify UST or leaking USTs (LUSTs) in the Project Area (NDDEQ, 2021).

There were no FRS interests identified in the Study and Projects Areas.

There were no USTs or LUSTs in the Study and Project Areas (NDDEQ, 2021).

In addition to the research described above, an ASTM-conforming Phase I Environmental Site Assessment (Phase I ESA) was conducted. The Phase I ESA was completed by Highlands Engineering & Surveying, PLLC on May 5, 2021. The Phase I was completed to identify known recognized environmental conditions or historical recognized environmental conditions that may require additional action prior to or during construction.

5.4.1.4 Security Assessment

The Study Area is in a generally rural area located southwest of the City of Dickinson; no cities or towns are located within the Study Area. The Project Area is located on land owned by DPR. The Renewable Diesel Facility is in the Project Area.

5.4.2 Impacts and Mitigation

5.4.2.1 Aviation/Airspace

OE 31 filed a "Notice of Proposed Construction" with the FAA and received a Determination of No Hazard (DNH) for all five turbines on August 2, 2021. OE 31 filed alternate locations for the two northern turbines of the Project on August 23, 2021 due to the need to shift the turbines slightly and received DNHs for those turbines on September 21, 2021. In addition, the FAA reissued the DNHs for the three southern turbines on October 6, 2021 because of an issue in the way the maps could be viewed on those DNHs.

OE 31 received a letter from the DoD that the Project will have minimal impact on military operations conducted in the area.

OE 31 will mark and light the turbines as required by the FAA and the Project will comply with the light-mitigating technology system requirements set forth in North Dakota law. Given the response of the FAA and DoD and the marking and lighting that will occur, the Project is expected to have minimal impacts to aviation.

5.4.2.2 Electromagnetic Fields Assessments

This Project will not have a substantial or material impact on EMF amounts in the Project or Study Area. The turbines are fully grounded and built inside of a shielded steel tower that substantially eliminates EMFs from being able to propagate from inside to outside of the turbine. Transformers and the switchgear are all located inside shielded and grounded metal enclosures.

The generators are in a grounded, external support system and the entire turbine is tied to a robust grounding grid to ensure that all ground currents and erroneous waves are unable to escape. The

underground collection cables are installed with a concentric neutral conductor built into the cable, this makes the EMF largely unable to escape the cables. The trenches have a trench grounded conductor to ensure there is sufficient grounding capability throughout the entire collection line system. No impacts due to EMF are anticipated and no mitigation specific to EMF is proposed.

5.4.2.3 Hazardous Materials/Hazardous Waste Assessment

There is no expected hazardous waste or materials associated with the construction or operation of the Project, except as outlined below. The proposed turbines are direct-drive turbines without gearboxes and will have five to 20 gallons of hydraulic fluid and grease. This small amount makes the risk of exposure significantly smaller than other wind turbine designs. There is no pendulum oil or other large source of oil. The transformers also contain a small amount of oil. All oil in the padmount transformers is FR3 or an equivalent type of oil, which is readily biodegradable. A diesel fuel tank less than 500 gallons in size will be on-site to fuel vehicles during construction.

OE 31 will comply with the North Dakota Pollutant Discharge Elimination System (NDPDES) Construction General Permit for the Project and develop a Storm Water Pollution Prevention Plan (SWPPP) as part of the NDPDES permit, which will set forth standards for fuel tanks and fuel storage used during construction. Hazardous materials temporarily used and stored for the construction of the Project will be contained according to the NDPDES Permit. Spill containment for any equipment-related spill will be readily available to contain spills in the unlikely event that they occur and all EPA and SWPPP procedures will be followed.

OE 31 hired Highlands Engineering & Surveying to conduct a Phase I ESA, which was completed on May 5, 2021. The Phase I ESA did not identify any known recognized environmental conditions or historical recognized environmental conditions that require additional action prior to or during construction. During construction, if hazardous waste sites are encountered, OE 31 will follow all EPA procedures in that unlikely event.

5.4.2.4 Security Assessment

OE 31 does not anticipate that construction and operation of the Project will impact the security of surrounding residents or communities. During operation of the Project, all facilities, including turbine access doors and the Project switching station, will be locked and have appropriate warning signage.

DPR maintains a 24/7 security team at the Renewable Diesel Facility and the Project will be monitored remotely with multiple security measures including but not limited to cameras and proprietary intrusion detection systems.

5.5 SOUND

The following sections describe existing sound conditions, potential impacts, and proposed mitigation.

5.5.1 Existing conditions

The Project is located on-site of an industrial facility, namely the Renewable Diesel Facility, which generates sound from its operations. Outside of the industrial area, the Renewable Diesel Facility and Project are in a rural setting in southwestern North Dakota. Sound contributors in the Study Area include the Renewable Diesel Facility operations, farm machinery, and roadway traffic and activity.

5.5.2 Sound Impacts and Mitigation

Wind turbines create sound when they are generating electricity due to the rotating blades, generator, and cooling fans. Sound increases as the wind speeds increase until a maximum blade rotational speed is reached, which typically occurs when wind speeds are 13.5 m/s at hub height.

State regulations require that wind turbines be sited such that sound levels within 100 feet of an inhabited residence or community building do not exceed 45 dBA. OE 31 conducted a sound analysis for the Project. The sound analysis assumed that: (i) all five proposed wind turbine locations were operating concurrently and (ii) the turbines were operating at a wind speed resulting in the loudest noise possible being emitted. This modeling concluded there would be no noise levels above the 45 dBA threshold within 100 feet of an inhabited residence or community building. The Sound Analysis is in Appendix F – Sound Analysis Report.

5.6 VISUAL RESOURCES

The following sections describe existing conditions, potential impacts, and proposed mitigation for the visual environment, including potential effects of shadow flicker.

5.6.1 Existing Conditions

The following sections describe existing aesthetic conditions and shadow flicker.

5.6.1.1 Aesthetics

Given the existing Renewable Diesel Facility that is co-located with the Project, there is significant infrastructure (storage tanks, a flare, tall towers, communication towers) already visible within the Project Area and Study Area. The Renewable Diesel Facility's tallest tower reaches approximately 184 feet above ground level.

Outside of the Project Area and the Renewable Diesel Facility, the landscape is primarily rural open space and viewsheds are generally broad and uninterrupted with scattered areas where they are interrupted by topography and vegetation. The settlements in the vicinity are residences and farm buildings scattered along rural county roads. There are very few settlements within the Study Area and none within the Project Area.

5.6.1.2 Shadow Flicker

Shadow flicker occurs when the rotating blades of a wind turbine are directly between an observer and the sun, causing alternating light and shadow. Shadow flicker intensity and frequency at a given receptor are determined by several interacting factors including sun angle and sun path, turbine and receptor locations, cloud cover and degree of visibility, wind direction, wind speed, obstacles, contrast, and local topography. Shadow flicker decreases and ultimately disappears with distance from the turbine and is also eliminated by obstacles between the observer and the turbine, such as trees or terrain. Shadow flicker is predictable, and it can be minimized through turbine site selection. Shadow flicker is harmless to humans, though it may be considered by some to be an annoyance (Appendix G – Shadow Flicker Analysis Report).

5.6.2 Visual Impacts and Mitigation

Visual and aesthetic impacts would result from construction of the proposed Project.

5.6.2.1 Aesthetics

The five-turbine Project is located on-site at one of the largest industrial facilities in the state, the Renewable Diesel Facility. The Renewable Diesel Facility operates 24/7 and is lit significantly at night to ensure safety of the work area. There is also a flare stack at the Renewable Diesel Facility for emergency purposes. Unlike wind projects located solely in rural landscapes, the industrial setting of the Project makes it such that the aesthetic contrast of the Project from the area in which it is located is notably less than traditional wind farms. In addition, the relatively small size of the Project at 11.75 MW and five turbines means the aesthetic impact of the Project will be significantly smaller in scope than with traditional wind farms.

With that in mind, the Project will have aesthetic impacts, some of which will be temporary and some of which will exist for the life of the Project. During construction, visual impacts associated with the Project facilities will include the removal of existing vegetation and the exposure of bare soils, as well as earthwork and grading associated with heavy equipment tracks, trenching, presence of machinery and tool storage, along with turbine erection activities.

During Project operation, and for the life of the Project, visual impacts associated with the Project include five visible wind turbines, the movement of the rotor blades, shadow flicker, and other ancillary structures. Additionally, the FAA requires obstruction lighting or marking of structures more than 200 feet above ground level to provide safe air navigation, which is synchronized flashing of red lights for wind turbines (FAA, 2005). However, the Project will coordinate with the FAA on implementation of light-mitigating technology system requirements (e.g., ADLS), which is consistent with North Dakota law and will reduce the aesthetic impact of the Project. The components and specific locations of the ADLS system or other approved system will be dependent on the FAA's review of turbine technology, terrain, and other factors. In addition, the Project will be located in a well-lit industrial area, which will reduce the visual impact of any FAA lighting that is required.

Temporary aesthetic impacts and impacts for the life of the Project will vary depending on a number of factors including: the viewer's proximity and orientation to the turbines (i.e., someone standing within the Project Area vs. outside the Project Area and the direction someone is facing), the presence of obstructions such as tree lines and topography of the land that impedes the view of the Project, the viewer's duration around the Project Area (i.e., a resident vs. a car passing through the Project Area), and the viewer's personal preferences.

OE 31 will implement the following additional mitigation measures for visual resources:

- Wind turbines will exhibit visual uniformity in the shape, color, and size of rotor blades, nacelles, and towers.
- Collection cables or lines on the site will be buried in a manner that minimizes additional surface disturbance (e.g., collocating them with access roads, where feasible).
- For ancillary buildings and other structures, low-profile structures will be chosen whenever possible to reduce their visibility.
- Turbine foundations and roads have been designed to minimize and balance cuts and fills.
- Lighting for facilities will not exceed the minimum required for safety and security, and full-cutoff designs that minimize upward light pollution will be selected. OE 31 will comply with applicable light-mitigating technology requirements.

5.6.2.2 Shadow Flicker

A shadow flicker analysis was completed for occupied residences within approximately one mile of the Project turbines (27 receptors) using TAILS 3.0 software (Appendix G - Shadow Flicker Analysis Report), a proprietary software package owned by One Energy, the parent company of OE 31. The analysis was validated with Continuum, an open-source software. In addition, concurrence letters were obtained from two third-party firms, which confirmed the methodologies used, and found the studies were free from material defect or error. Those concurrence letters can be found in Appendix G.

TAILS 3.0 assumes clear skies 100% of the time and then cloudy to partly cloudy days are excluded to provide realistic hours of shadow flicker. All five wind turbine locations were modeled. TAILS 3.0 calculates the number of hours per year which a given receptor could expect to be exposed to shadow flicker from nearby wind turbines. The maximum realistic shadow flicker modeled (hours per year taking into account cloudy and partly cloudy days) for a residence is 12 hours. Fourteen of the 27 residences have zero hours of modeled shadow flicker. The modeled shadow flicker is generally low at all residences due in part to the minimum 1,278-foot residence setback (the Project minimum setback for non-participating inhabited residences under PSC rules). Also, all private residences where the model expects any hours of shadow flicker are greater than 2,000 feet from the turbines and at this distance the perception of shadow flicker is likely less noticeable due to light dispersion and elongated shadows. These effects make the model even more conservative in its estimated hours of shadow flicker. The Project's turbines have been sited to minimize impacts to residences. Based on the results of the Project's shadow flicker modeling, no mitigation is currently proposed.

5.7 CULTURAL AND ARCHAEOLOGICAL RESOURCES

The following sections describe existing cultural and archaeological resources, potential impacts, and proposed mitigation.

5.7.1 Existing Conditions

OE 31 hired SWCA Environmental Consultants (SWCA) to conduct the background literature review and surveys recommended by the State Historical Society of North Dakota (SHSND). SWCA discussed the Project with SHSND. SHSND recommended that OE 31 conduct a Class I Literature Review and a Class III Intensive Cultural Resources Pedestrian Survey of areas that may be affected by the Project. SHSND recommended that the area of potential effect (APE) subject to the Class III Pedestrian Survey be defined as any ground surface area that has the potential to be disturbed by any construction or installation activities associated with the Project.

Additionally, SHSND recommended a Class II Architectural History Survey within a two-mile visual APE of the turbine array. The two-mile visual APE for the Class II Architectural History Survey includes documentation of all buildings, structures, and objects 45 years of age or older from the survey date.

SWCA conducted a Class I Literature Review of the Project plus a one-mile buffer from the Project facilities at the SHSND in June 2021. The review included relevant records holdings at the SHSND regarding previously conducted cultural resource inventories and previously recorded historic and prehistoric sites. In addition, SWCA searched historical survey maps of the inventory area. The historic Land Office survey map dated to 1914 shows no trails, structures or features within the Project inventory area, which is the area that has the potential to be disturbed by the Project. The records search results identified 12 previous

cultural inventories that have been conducted within one mile of the Project between 1980 and 2017. Thirty previously recorded cultural resources were identified within one mile of the Project facilities.

SWCA conducted a Class III Intensive Cultural Resources Pedestrian Inventory of a 400-foot by 400-foot area surrounding each of the five proposed wind turbine locations, 100-foot-wide corridors centered on the proposed access road alignments, and 50-foot-wide corridors centered on the proposed collection lines, as well as laydown areas and temporary workspaces, with a total inventory area of 45.07 acres in June and August 2021. As recommended by the SHSND, the Class III inventory area was designed to cover ground surface area that has the potential to be disturbed by any construction or installed activities associated with the Project. The current proposed layout for the Project is within the area surveyed. The Class III inventory resulted in the recording of two segments of a previously recorded resource, which is considered eligible for the NRHP. Avoidance is recommended for this cultural site.

SWCA also conducted a Class II Architectural History Survey of a two-mile radius from the turbine sites in July 2021. The survey methodology conformed to the North Dakota SHPO guidelines for considering indirect effects of wind turbine projects and included documentation of all buildings, structures, and objects 45 years of age or older from the survey date. The Class II survey resulted in identification of 11 historic architectural sites within two miles of the turbine sites; one resource is recommended as eligible for listing in the NRHP. SWCA concluded that the proposed Project will have no adverse effect on the resource considering that industrial components associated with a railyard and the Renewable Diesel Facility are already visible from the ROW and the new wind turbines will not further diminish the integrity of the setting. Additionally, a windbreak along the west obscures the industrial components from the viewshed of the contributing resources.

The SWCA survey report, which includes detailed information on the methodologies and results of the Class I literature search and the Class III and Class II surveys, is provided in Appendix H and Appendix I, respectively.

5.7.2 Impacts and Mitigation

Ground disturbing activities during construction of the Project have the potential to impact known or unknown cultural resources. Because the Project involves the construction and operation of wind turbines, if historic architectural resources are present in the area, the presence of wind turbines could affect the visual setting of these resources.

OE 31 has sited the Project facilities to avoid archeological sites identified and recommended for avoidance as a result of the Class I Literature Review and Class III Pedestrian Survey. Therefore, the Project would not affect historic properties eligible for or listed in the NRHP.

None of the 11 historic architectural resources identified in the Class II Architectural History Survey will be directly affected by construction or operation of the Project. SWCA notes in its report that the visual setting of these resources already includes modern infrastructure such as the Renewable Diesel Facility and a railyard. Therefore, the wind turbines associated with the current Project would be similar to existing modern developments already present within the visual setting of these resources. Additionally, a windbreak along the west side of the resource would obscure the view of the Project's components. the industrial components from the viewshed of the contributing resources. For these reasons, SWCA concluded that the Project will have no adverse effect on historic architectural resources.

Class I, II, and III survey work for the Project is complete and the survey report and site forms were submitted to the SHSND for review in September 2021. SDSND concurred with the determination of "No Historic Properties Affected" for the Class I and Class III Cultural Resource Inventory and "No Adverse Effect" determination for the Class II Study. An Unanticipated Discoveries Plan will be prepared and provided if requested by the SHSND.

5.8 RECREATIONAL RESOURCES

The following sections describe existing recreational resources in the Study Area, potential impacts, and proposed mitigation.

5.8.1 Existing Conditions

There are no designated recreation areas, public or private parks, or designated trails located in the Study Area (Dickinson Parks and Recreation, Undated).

5.8.2 Recreational Resources Impacts and Mitigation

As there are no designated recreational areas within the Study Area, OE 31 does not expect there to be any impacts to these resources and no mitigation is proposed.

5.9 EFFECTS ON LAND-BASED ECONOMIES

The following sections describe existing conditions, potential impacts, and proposed mitigation for agriculture and woodlands.

5.9.1 Existing Conditions

The following sections describe existing agriculture and woodlands in the Study and Project Areas.

5.9.1.1 Agriculture

As noted in Table 5.2-1, agricultural areas classified as cultivated crops or hay/pasture in the NLCD data are present within the Project Area. Approximately 100.9 acres or 26.6 percent of the total Project Area falls into these categories.

5.9.1.2 Woodlands

As noted in Table 5.2-1, areas classified as Deciduous/Evergreen/Mixed Forest in the NLCD data are present within the Project Areas. Approximately 1.4 percent of the total Project Area falls into this category.

5.9.2 Land-Based Economies Impacts and Mitigation

The following sections describe impacts and proposed mitigation to agriculture and woodlands.

5.9.2.1 Agriculture

The construction of the Project could cause minimal, temporary impacts to agricultural land from soil compaction and rutting, crop damage, and temporary disruption to normal farming activities. OE 31 will repair and restore temporary impacts and will not significantly impact use of land for agricultural production. Agricultural practices will continue in the Project Area, excluding areas in direct proximity of Project construction, during both Project construction and operation. OE 31 prioritized siting the Project in previously disturbed agricultural land while minimizing impacts to the tenant. The Project will impact 6.0 acres of agricultural land for the life of the Project. Additionally, approximately 16.2 acres would be

temporarily disturbed during construction. After the Project is installed and during operation, the tenant may continue to plant crops and graze livestock near and up to the turbine pads and access roads.

OE 31 reviewed the Project layout with MPC including its tenant liaison to discuss siting concerns, particularly related to agricultural activities.

The loss of agricultural land for operation of the Project will reduce the amount of land that can be cultivated in the Project Area; however, the Project will cause less than two percent of the Project Area (6.0 acres) to be converted to non-agricultural land use (i.e., wind turbines, access roads). This represents minimal impact to agricultural land in the Project Area and will not significantly alter agricultural production in the Project Area or Stark County.

The Project also supports the Renewable Diesel Facility, which buys oils derived from more than 4.5 million acres of corn and soy crops and is highly beneficial to the agricultural community.

5.9.2.2 Woodlands

Trees are sparsely located throughout the Project Area. No trees are expected to be removed for the construction or operation of the Project.

5.10 SOILS

The following sections describe existing soil conditions, potential impacts, and proposed mitigation.

5.10.1 Existing Conditions

Soil characteristics within the Study Area and Project Area were assessed using the Soil Survey Geographic Database (SSURGO) database (USDA NRCS, 2019). The SSURGO database is a digital version of the original county soil surveys developed by NRCS for use with geographic information systems (GIS). It provides the most detailed level of soils information for natural resource planning and management. Soil maps are linked in the SSURGO database to information about the component soils and their properties (USDA NRCS, Undated).

There are 15 soil types found within the Project Area and 49 within the Study Area (USDA NRCS, 2019). Due to the quantity of soil types, they are provided separately in Appendix K – Soil Types, including farmland classification. Farmland classifications, including prime farmland, are described below.

Farmland Classification

Prime farmland is defined as land that has the best combination of physical and chemical characteristics for producing food, feed, fiber, and oilseed crops, and is also available for these uses (the land could be cropland, pasture, woodland, or other lands). Urbanized land and open water cannot be designated as prime farmland. Prime farmland typically contains few or no rocks, is permeable to water and air, is not excessively erodible or saturated with water for long periods and is not subject to frequent or prolonged flooding during the growing season. Soils that do not meet the above criteria may be considered prime farmland if the limiting factor is mitigated (e.g., by draining or irrigating) (USDA NRCS, Undated).

The NRCS also recognizes farmlands of statewide importance, which are defined as lands other than prime farmland that are used for production of specific high-value food and fiber crops (e.g., citrus, tree nuts, olives, fruits, and vegetables). Farmlands of statewide importance have the special combination of soil quality, location, growing season, and moisture supply needed to economically produce sustained high quality or high yields of specific crops when treated and managed according to acceptable farming

methods. Farmland of statewide importance is similar to prime farmland but with minor shortcomings such as greater slopes or less ability to store soil moisture. The methods for defining and listing farmland of statewide importance are determined by the appropriate State agencies, typically in association with local soil conservation districts or other local agencies.

Table 5.10-1 lists the soils considered prime farmland and soils of statewide or local importance within the Study Area and Project Area.

TABLE 5.10-1: FARMLAND CLASSIFICATIONS WITHIN STUDY AND PROJECT AREAS

FARMLAND CLASSIFICATION	PROJECT AREA (ACRES)	PERCENTAGE OF PROJECT AREA	STUDY AREA (ACRES)	PERCENTAGE OF STUDY AREA
Prime Farmland	27.2	7.2	86.5	2.9
Farmland of Statewide Importance	173.3	45.8	965.5	31.6
Not Prime Farmland	177.7	47.0	2000.2	65.5
Total	**378.2**	**100.0**	**3052.2**	**100.0**

Soil Survey Staff, 2019
*There are slight discrepancies in the total acreage of the Study and Project Areas due to the nature of the SSURGO tool.

Table 5.10-1: Farmland Classifications within Study and Project Areas

5.10.2 Soils Impacts and Mitigation

Surface disturbance caused by construction of the wind turbines and infrastructure improvements would result in the soil surface becoming more prone to erosion and the use of heavy equipment could result in soil compaction. However, any such impacts to site soils will be localized and BMPs associated with the Project's SWPPP will be implemented to minimize these impacts. Existing access roads will be used to the extent practicable to prevent further soil disturbance and fragmentation of the landscape.

Less than two percent of the total land in the Project Area that could be considered prime farmland or farmland of statewide importance will be impacted for the life of the Project. As such, the acreage of prime farmland and farmland of statewide importance removed from use for the life of the Project will have a negligible impact on agricultural production.

TABLE 5.10-2: SUMMARY OF PERMANENT IMPACTS TO PRIME FARMLAND (ACRES)		
PRIME FARMLAND CLASSIFICATION	**# TURBINES**	**ACRES**
Prime Farmland	0	0.0
Farmland of Statewide Importance	3	3.4
Not Prime Farmland	2	3.3
Total	**5**	**6.7**
Acreage of impacts includes all permanent facilities (permanent grave access roads, turbine pedestals, transformers, crane pads, and gravel laydown and staging areas). No permanent impacts to farmland take place in the Renewable Diesel Facility area.		

Table 5.10-2: Summary of Permanent Impacts to Prime Farmland (Acres)

5.11 GEOLOGIC AND GROUNDWATER RESOURCES

The following sections describe existing geologic and groundwater resources, potential impacts, and proposed mitigation. Figure 8, Geologic and Groundwater Resources depicts the existing geologic and groundwater resources in the Study and Project Areas.

5.11.1 Existing Conditions

The Study Area is located in a region of North Dakota known as the Missouri Slope, an area of sandstone and shale that was largely unaffected by glaciers that covered the eastern half of North Dakota. The area has an irregular topography with the occasional butte rising above the landscape. Surface geology within the Study Area is composed of Sentinel Butte, which is characterized by sediment between 300 and 700 feet in thickness (Figure 8, Geologic and Groundwater Resources).

The geology of western North Dakota, including Stark County, has created a rich environment for oil and gas development. There are two existing oil and gas wells within the Project Area. However, impacts are not anticipated because the wells are outside of the disturbance area for the Project.

According to the publicly available ND Department of Water Resources MapService, there is one aquifer located in the northeast corner of Stark County (ND Dept. of Water Resources, Undated). The aquifer is not located near the Project Area or Study Area. There are two domestic/stock/industrial/observational water wells in the Study Area; of these, none are within the Project Area (ND Dept. of Water Resources, Undated).

5.11.2 Geologic and Groundwater Impacts and Mitigation

OE 31 does not anticipate any impacts to bedrock during construction or operation of the Project as bedrock within the Project Area is at depths much greater than proposed foundation depths of six-to-eight feet deep. Similarly, OE 31 does not expect any impacts to groundwater resources as there are no aquifers or water wells in the Project Area (NDGISHUB, 2019; ND Dept. of Water Resources, Undated).

OE 31 does not plan to use material amounts of water on site during construction or operations. During construction, water will be used for power washing components and will be sourced from the Renewable Diesel Facility's water system. Turbine siting avoids water wells. The water supply for residents within the Study Area is not anticipated to be affected by the Project.

OE 31 does not anticipate any impacts to oil and gas production because the two wells in the Project Area are outside the disturbance area (North Dakota Oil and Gas Division, 2021). Therefore, no mitigation is proposed.

5.12 SURFACE WATER, FLOODPLAIN, AND WETLANDS RESOURCES

The following sections describe existing surface water, wetlands, and floodplain resources, potential impacts, and proposed mitigation. Figure 9, Water Resources depicts the water resources in the Study and Project Areas.

5.12.1 Existing Conditions

5.12.1.1 Surface Water and Floodplains

The Study Area is located in the Upper Heart River watershed. This watershed is within the western mixed-grass/short-grass prairie region. This region contains few natural wetland basins, but small creeks and streams are present (Figure 9, Water Resources). Wetlands in this area are typically associated with creeks and streams instead of isolated "potholes."

There are 128.8 acres of 100-year floodplain in the Project Area (Figure 9, Water Resources). These floodplains are associated with Heart River, which runs through the Project Area from northwest to southeast (FEMA, Undated).

5.12.1.2 Wetlands

Wetlands are areas with hydric (wetland) soils, hydrophilic (water-loving) vegetation, and wetland hydrology (inundated or saturated much of the year). Wetland types include marshes, swamps, bogs, and fens. Wetlands vary widely due to differences in soils, topography, climate, hydrology, water chemistry, vegetation, and other factors.

Wetlands within the Project Area were identified using the National Wetlands Inventory (NWI). There are 23.6 acres of wetlands in the Project Area, most of which are associated with lakes and riverines (USFWS, 2021).

In addition, a field wetland delineation was completed by SWCA on June 11, 2021. Wetlands were delineated within a survey corridor that included any ground surface area that has the potential to be disturbed by any construction or installation activities associated with the Project. The purpose of the wetland delineation was to determine if there were any aquatic resources impacted by construction or operation of the Project that could qualify as waters of the U.S. and be subject to permitting by the U.S. Army Corps of Engineers (USACE). The SWCA wetland biologist identified no wetlands within the area surveyed. Three bends of the Heart River waterbody were delineated within the survey area, but no impacts to those areas will occur during development of the Project. The wetland Technical Memorandum written by SWCA showing these results can be found in Appendix J.

5.12.2 Surface Water, Floodplain, and Wetland Resources Impacts and Mitigation

5.12.2.1 Surface Water and Floodplain Resources Impacts and Mitigation

Project facilities have been designed to avoid or minimize impacts to surface water resources to the extent practicable.

If a project results in work over, in, or under navigable waters (Section 10 of the Rivers and Harbors Act) or the discharge of dredged or fill materials into water of the United States (Section 404 CWA), a Section 10 and/or Section 404 permit needs to be acquired from the USACE. The Heart River runs through the Project Area. Placement of collection lines for the Project will require boring under the Heart River. The surface area of the Heart River will not be impacted and no dredged or discharged material will be discharged into the Heart River. However, the bore under the river may implicate Section 10 of the Rivers and Harbors Act and necessitate OE 31 obtaining coverage under a USACE Nationwide Permit and a Sovereign Lands Permit from the State of North Dakota. OE 31 anticipates that impacts to Section 10 waters will be permitted under the Nationwide Permit program. The Project is not expected to cause a discharge of dredge or fill into waters of the United States, so the Project will not require a permit under Section 404 of the Clean Water Act.

As can be seen in Figure 9, some areas of the collection line will be located in the 100-year floodplain. However, impacts caused by the collection line will be temporary and limited to construction. In addition, impacts will be minimized through construction practices. As Figure 9 also shows, two small sections of gravel access road will also be located in the floodplain. One of these access roads is being used to access a public road that is located in the floodplain (116th Avenue). Therefore, there is no reasonable alternative but for a small section of access road to be located in the floodplain to access the public road. In addition, one other small area of access road will be located in the floodplain. This access road is located at the gate of a DPR-owned and controlled fence in the Project Area for security purposes. There is no reasonable alternative but to have the access road go through the security gate. Moving the gate and access road to the west out of the floodplain would route traffic through areas of the Renewable Diesel Facility that are heavily used by DRP contractors and experience high volumes of vehicular and pedestrian traffic. This area is the site of a contractor trailer yard and parking area and includes existing infrastructure including electrical systems to enable contractors to operate in that area. Routing additional traffic through this area for construction and operation of the Project would increase safety risk for both vehicles and pedestrians in the area and require significant infrastructure to be relocated.

5.12.2.2 Wetland Impacts and Mitigation

The Project has been designed to avoid impacts to delineated wetlands. SWCA concluded that since no impacts will occur to wetlands through development of the Project, the Project will not need coverage under a USACE Nationwide Permit. Given there will be no impacts to wetlands, mitigation was not warranted.

5.13 VEGETATION

The following sections describe existing vegetation, potential impacts, and proposed mitigation.

5.13.1 Existing Conditions

SWCA conducted an analysis of the vegetation present. SWCA identified that the Project is situated within the northwestern Great Plains ecoregion, characterized by native grasslands over rolling plains. Vegetation typical to the northwestern Great Plains ecoregion includes such species as blue grama (Bouteloua gracilis), western wheatgrass (Pascopyrum smithii), little bluestem grasses (Schizachyrium scoparium), and prairie sandreed (Calamovilfa longifolia). SWCA surveyed vegetation located in a survey corridor that included any ground surface area that has the potential to be disturbed by any construction or installed activities associated with the Project. Vegetation observed within the area surveyed included such species as sweet

clover (Melilotus officinalis), Kentucky bluegrass (Poa pratensis), Canada thistle (Cirsium arvense), prickly pear cactus (Opuntia fragilis), western snowberry (Symphoricarpos occidentalis), yarrow (Achillea millefolium), silver buffaloberry (Shepherdia argentea), fringed sagewort (Artemisia frigida), wild bergamot (Monarda fistulosa), crested wheatgrass (Agropyron cristatum), and goldenrod (Solidago canadensis).

As shown in Table 5.2-1, based on NLCD data, shrub/scrub covers approximately 31.1 percent of the Study Area and 8.4 percent of the Project Area, grassland/herbaceous covers approximately 16.6 percent of the Study Area and 14.7 percent of the Project Area, and cultivated crops make up 17.3 percent of the Study Area and 25.0 percent of the Project Area. Areas classified as Deciduous/Evergreen/Mixed Forest in the NLCD data are present within the Project Areas. Approximately 1.4 percent of the total Project Area falls into this category, which is discussed in Section 5.9.1.2.

5.13.2 Impacts and Mitigation

According to the NLCD, the Project will impact 6.4 acres of vegetation, 93.8 percent of which is agricultural (cultivated crops and hay/pasture; see Table 5.2-3) for the life of the Project. There are an additional 5.0 acres of impacts to land classified as developed. Construction of the Project will temporarily impact 18.5 acres of vegetation. Following construction, the temporarily disturbed areas will be re-vegetated with a seed mixture consistent with the surrounding vegetation or reopened for cultivation. Once re-vegetated, these areas will be available for their present use (e.g., cultivation and grazing).

OE 31 has minimized disruptions to vegetative communities to the extent practicable by utilizing existing roads, driveways, edge of field lines, or other previously disturbed areas for proposed facility access road locations to the extent possible. OE 31 has also co-located linear facilities (crane paths, collection lines, and access roads) as much as possible.

5.14 WILDLIFE

5.14.1 Existing Conditions

The U.S Fish and Wildlife Service (USFWS) Land-Based Wind Energy Guidelines (WEG) and Wind Energy Development in North Dakota Best Management Practices (NDBMP) served as a basis for the approach taken regarding wildlife studies for the Project and set forth the BMPs that will be implemented to minimize impacts to wildlife (USFWS, 2012; NDGF, 2021). OE 31 coordinated with both USFWS and NDGF on the approach taken regarding studies and requested information regarding known species near the Project from both agencies and the ND Parks and Recreation Department.

It is important to note that both the USFWS WEG and NDBMP are voluntary guidelines and primarily designed with large utility-scale wind projects in mind. The USFWS WEG specifically acknowledge that while the general tiered approach of the USFWS WEG should be followed for both utility and community scale projects, the size and geographic scope of distributed and community-scale projects often make study beyond Tier 1 and Tier 2 unnecessary (USFWS, 2012).

Figure 1 of the USFWS WEG shows the general framework of the tiered approach to guide the decision-making process for a project (USFWS, 2012).

Figure 1. General Framework of Tiered Approach

TIER 1

A. Species of concern known to be present?
   1. No ..... proceed to Tier 2
   2. Unknown - Insufficient or inconclusive data ..... proceed to Tier 2
   3. Yes..... abandon site or proceed to Tier 2

TIER 2

A. Probability of significant adverse impacts?
   1. Unknown - Insufficient or inconclusive data ..... proceed to Tier 3
   2. Low..... proceed to obtain state and local permit (if required), design, and construction following BMPs
   3. Moderate ..... proceed to Tier 3 and mitigate
   4. High, and:
      a. can be adequately mitigated....modify project and proceed to Tier 3
      b. cannot be adequately mitigated..... abandon project

TIER 3

A. Probability of significant adverse impacts?
   1. Low ..... proceed to Tier 4
   2. Moderate to high, and:
      a. certainty regarding mitigation ..... proceed to Tier 4
      b. uncertainty regarding mitigation ..... proceed to Tier 4
   3. High, and:
      a. can be adequately mitigated..... proceed to Tier 4
      b. cannot be adequately mitigated ..... modify or abandon project

TIER 4a (See Table 2, pg 39)

A. Tier 3 studies indicate low probability of significant adverse impacts
   1. Documented fatalities are equal to or lower than predicted..... no further studies or mitigation needed
   2. Documented fatalities are higher than predicted, but not significant, and:
      a. comparable data are available that support findings of not significant..... no further studies needed
      b. comparable data not available to support findings of not significant..... additional year(s) of monitoring recommended
   3. Documented fatalities are higher than predicted and are significant..... communicate with Service

Figure 1 of the USFWS WEG. (USFWS, 2012).

The Tier 1 study uses publicly available information to determine whether the project area proposed is in a region where development poses a significant risk to species of concern or their habitats, screens sites for those with the highest habitat values, and determines if a single site poses serious risk to species of concern or their habitats (USFWS, 2012). The Tier 2 study involves a focus on site-specific information and a reconnaissance survey by a knowledgeable biologist at the site to determine if a known species of concern or habitat is present at the site, and whether the landscape contains areas where development is precluded by law or sensitive areas, among other items (USFWS, 2012). If there are no species of concern known to be present (or insufficient or inconclusive data regarding species present) and a low probability of significant adverse impacts, then the framework advises the developer may proceed with the project and permit, design, and construct the project using BMPs (USFWS, 2012).

Following this approach, OE 31 contacted NDGF, the ND Parks and Recreation Department, and USFWS to determine if there were known species in the area. These agencies responded with the following:

An email on August 3, 2021, from NDGF stated the following:

> We do not have a grouse census block in the area so we have no information to provide on grouse leks. We don't know of any known bald eagle nests in the area either, but we do know of one golden eagle nest that is approximately 3.5 miles outside of the project boundary.

A letter on July 27, 2021 from The North Dakota Parks and Recreation Department stated the following:

> The North Dakota Natural Heritage biological conservation database has reviewed the project to determine if any current or historical plant or animal species of concern or other significant ecological communities are known to occur within an approximate one-mile radius of the project area. Based on this review, we have no known rare species or significant ecological communities documented within or immediately adjacent to the project site. Because the Natural Heritage information is not based on a comprehensive inventory, there may be species of concern or otherwise significant ecological communities in the area that are not represented in the database. The absence of data may indicate that the project area has not been surveyed rather than confirm that it lacks natural heritage resources.

USFWS responded that it did not have any information in addition to what NDGF would have.

In addition to reaching out to agencies to find information on known species in the area, OE 31 contracted with SWCA to conduct a Tier 1 Preliminary Site Evaluation and a Tier 2 Site Characterization Report. The full study is found in Appendix M of the application. The study provides a comprehensive analysis regarding existing conditions in the area for species including, but not limited to, avian species, prairie grouse species/ground-based grouse leks, mammals, bat species, special status lands, lands of biological significance, species of conservation priority, and threatened and endangered species (including the Northern Long-Eared Bat and Whooping Crane). After conducting its study, SWCA concluded the following:

> Based on information obtained during the Tier 1 and 2 assessments, overall risk to wildlife, including northern long-eared bat and whooping crane, is considered relatively low. The Project has a rated capacity of 11.75 MW and is thus considered to be a community-scale wind project under the USFWS's Land-Based Wind Energy Guidelines. Those guidelines state that "The Service anticipates that many distributed or community facilities will not need to follow the Guidelines beyond Tiers 1 and 2."

Following the responses to the information request and Tier 1 and Tier 2 studies, OE 31 applied the WEG general framework as follows:

1. Tier 1, Are species of concern known to be present? – NO, Proceed to Tier 2
2. Tier 2, Probability of significant adverse impacts? LOW, proceed to obtain state and local permits (if required) design, and construction following BMPs.

OE 31 coordinated with USFWS and NDGF on its approach taken and provided both agencies with the wetland delineation study, the Tier 1 and Tier 2 studies, and OE 31's application of the WEG general framework as explained in this Application. USFWS provided OE 31 with a letter in response, which stated USFWS's:

> foremost recommendation to all wind energy development companies in North Dakota is to avoid grasslands and wetlands.—two primary types of habitat in the state that support native species. The proposed site is sited entirely on tilled land which greatly increases the potential to avoid and reduce direct/indirect impacts to wildlife habitat. However, as we have stated in telephone conversations and emails, the presence of permanent and intermittent streams near the project area indicate the potential presence of bats, eagles, and other migratory birds. For utility scale wind projects, we would typically have preconstruction survey data that would provide some information about wildlife presence and use. In the absence of this data, One Energy will implement the 27 best management practices (BMP) recommended by the WEG for new wind turbine construction and the 18 BMPs recommended in *Wind Energy Development in North Dakota Best Management Practices.* One Energy will also pay for and operate two thermal camera data collection systems in coordination with the National Renewable Energy Lab (NREL) to complement existing research about bat behavior around community wind projects. The Service agrees that this information will be valuable to inform other wind projects regarding siting and avoidance and minimization measures for bats. We would also respectfully request that incident reports and data form the cameras be submitted to us periodically throughout the process. Note that the implementation of BMPs and thermal cameras does not absolve liability for take under the Endangered Species Act (16 U.S.C 1531 *et seq.*), the Migratory Bird Treaty Act (16 U.S.C. 703 *et seq.*), or the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d, 54 Stat. 250).

The complete letter from USFWS can be found in Appendix E.

OE 31 received a letter from NDGF on November 9, 2021 (also found in Appendix E), which stated the following:

> The Project is a unique case, as most of the research and recommendations regarding wind development have been focused on large scale, commercial projects. There is much uncertainty of the risk small, community projects pose and very few recommendations on how to mitigate that risk. However, as the Department recommends in all cases, avoiding native habitats (grasslands, woodlands, and wetlands) is essential for creating a sustainable balance of energy development and wildlife conservation. With all 5 turbines being cited in already disturbed land, the developer has taken an important first step in reducing risk.
>
> However, the project falls within both the State Wildlife Action Plan's (SWAP) Priority Areas and the High Impact to Native Wildlife and Habitat area in the Department's Wind Energy Development in North Dakota Best Management Practices. This is due to the high concentration of (riparian) woodland and wetland habitats in the area. The project is encircled by the Heart River and impacts to species that depend on the river and associated riparian woodlands may be negatively impacted by the development of turbines, specifically species of conservation priority such as the little brown bat. In our early guidance letter, the Department recommended that the developer conduct pre-construction surveys to better understand the risk to bats and eagles. It is our understanding that One Energy has been working closely with the United States Fish and Wildlife Service (Service), along with the National Renewable Energy Lab (NREL), on developing post construction monitoring protocols to better understand the risk of small-scale projects on these species in the absence of pre-construction data. The Department is supportive of the

recommendations the Service has made and asks to remain informed by receiving incident reports and data from post construction surveys.

5.14.2 Wildlife Impacts

5.14.2.1 Avian Species

Raptors and eagles

Raptors and eagles may be impacted directly or indirectly as a result of the construction and operation of wind facilities. Direct impacts may result from collision with operating turbines and from the clearing and construction of the Project. Indirect impacts on birds may occur through displacement or avoidance of habitat.

In its Tier 1 and Tier 2 study, SWCA found that based on range and distribution, there is the potential for raptors and eagles to be present in the Development Area (the area where the Project infrastructure would be located that was studied by SWCA) and a one-mile buffer. It also found relatively few mature trees are present within the Development Area that could provide nesting habitat for tree nesting raptors, though mature trees suitable for nesting were observed within a 1-mile buffer. SWCA did not observe suitable trees for nesting bald eagles in the Development Area but did observe them within a one-mile buffer. SWCA had no incidental observations of bald or golden eagles or their nests during the site reconnaissance visit but had one observation of a red-tailed hawk. NDGF indicated no known bald eagle nests were located within two miles of the Development Area for the Project but that one known golden eagle nest is located approximately 3.5 miles away. SWCA identified no important eagle use areas, migration concentration sites, or communal eagle roost sites within the Development Area or 1-mile buffer.

Prairie grouse species/ground-based grouse leks

In its Tier 1 and Tier 2 study, SWCA found the Development Area consists of primarily cultivated cropland and as such is not likely to support nesting sharp-tailed grouse, though sharp-tailed grouse may forage within the area. SWCA did observe suitable nesting and foraging habitat within the 1-mile buffer during site reconnaissance. As such, SWCA found the potential exists for sharp-tailed grouse leks and individuals to occur within the Development Area and 1-mile buffer but sharp-tailed grouse are not expected to nest within the Development Area.

5.14.2.2 Mammals

The Development Area and 1-mile buffer are outside of the established range for elk, bighorn sheep, and moose in North Dakota. However, the Development Area and 1-mile buffer are within the established range for white-tailed deer, pronghorn, and mule deer. Pronghorn and mule deer are unlikely to be present in the Development Area due to range and habitat characteristics. White-tailed deer and other mammals may be impacted directly or indirectly by ground clearing activities associated with construction of the turbines and associated facilities. Permanent impacts to land for the life of the Project would also result from the direct conversion of habitat and areas for foraging.

5.14.2.3 Bat Species

In its Tier 1 and Tier 2 study, SWCA found that eleven bat species are known to occur in North Dakota and six species may occur in Stark County. Potential impacts to bat species from the construction and operation of the Project include direct impact due to collision with operating turbines and infrastructure.

5.14.2.4 Special-Status Lands and Lands of Biological Significance

SWCA identified no critical habitats within the Development Area, or within five miles of the Development Area. SWCA also identified no Important Bird Areas, Western Hemisphere Shorebird Reserve Network sites, Wetlands of International Importance (Ramsar Sites), Wilderness Areas, Wild and Scenic Rivers, National Wildlife Refuges, or state parks within the Development Area, or within five miles of the Development Area. As such, there are no impacts anticipated to these special-status lands and lands of biological significance.

5.14.2.5 Species of Conservation Priority

SWCA found 48 species categorized as SCP may occur within the Development Area or 1-mile buffer, including two federally listed species and bald and golden eagles. None of these species were observed within the Development Area or 1-mile buffer during the field reconnaissance visit. All remaining SCP species assessed were determined to be unlikely to occur within the Development Area or 1-mile buffer based on range and habitat characteristics.

5.14.2.6 Threatened and Endangered Species

Two federally listed species, whooping crane and northern long-eared bat, may occur within the Development Area and 1-mile buffer. Based on the species' habitat and range requirements, anticipated use of the Development Area or 1-mile buffer by these species is expected to be occasional or rare.

5.14.3 Mitigation of Wildlife Impacts

To mitigate the Project's impacts to wildlife, OE 31 will implement and comply with all 45 of the BMPs contained in the USFWS WEG and NDBMP. Details of this implementation and compliance are set forth below:

USFWS WEG BMPs

Chapter 7 of the WEG contain 27 best management practices for new wind turbine construction. This Project complies with all 27 best management practices as detailed below:

TABLE 5.14-1: SUMMARY OF COMPLIANCE WITH USFWS WEG BMPs

#	UWFWS WEG BMP	PROJECT COMPLIANCE	✓
1	Minimize, to the extent practicable, the area disturbed by pre-construction site monitoring and testing activities and installations.	The Project is designed using the minimum possible disturbed area. Existing roads are being used to the extent possible.	✓
2	Avoid locating wind energy facilities in areas identified as having a demonstrated and unmitigatable high risk to birds and bats.	Based on the conclusions of the Tier 1 and 2 studies and data requests with appropriate agencies there are no high-risk areas in the Project Area.	✓

3	Use available data from state and federal agencies, and other sources (which could include maps or databases), that show the location of sensitive resources and the results of Tier 2 and/or 3 studies to establish the layout of roads, power lines, fences, and other infrastructure.	OE 31 has obtained all known sensitive resource data for the Project Area. OE 31 has designed the Project to avoid undisturbed native lands and streams. The specific project design was considered during the Tier 1 and Tier 2 studies.	✓
4	Minimize, to the maximum extent practicable, roads, power lines, fences, and other infrastructure associated with a wind development project. When fencing is necessary, construction should use wildlife compatible design standards.	The Project was designed with the minimum number of roads, powerlines, and other infrastructure. No new fences will be constructed.	✓
5	Use native species when seeding or planting during restoration. Consult with appropriate state and federal agencies regarding native species to use for restoration.	The only disturbed area will be already disturbed land and land used for farming. The disturbed areas without permanent facilities will be replanted and returned to farmland following project installation.	✓
6	To reduce avian collisions, place low and medium voltage connecting power lines associated with the wind energy development underground to the extent possible, unless burial of the lines is prohibitively expensive (e.g., where shallow bedrock exists) or where greater adverse impacts to biological resources would result: a. Overhead lines may be acceptable if sited away from high bird crossing locations, to the extent practicable, such as between roosting and feeding areas or between lakes, rivers, prairie grouse and sage grouse leks, and nesting habitats. To the extent practicable, the lines should be marked in accordance with Avian Power Line Interaction Committee (APLIC) collision guidelines. b. Overhead lines may be used when the lines parallel tree lines, employ bird flight diverters, or are otherwise screened so that collision risk is reduced. c. Above-ground low and medium voltage lines, transformers and conductors should follow the 2006 or most recent APLIC "Suggested Practices for Avian Protection on Power Lines."	All power lines are underground.	✓
7	Avoid guyed communication towers and permanent met towers at wind energy project sites. If guy wires are necessary, bird flight diverters or high visibility marking devices should be used.	There are no guyed towers associated with this Project.	✓
8	Where permanent meteorological towers must be maintained on a project site, use the minimum number necessary.	There is no permanent meteorological tower for this Project.	✓

9	Use construction and management practices to minimize activities that may attract prey and predators to the wind energy facility.	One Energy Solutions LLC's construction team will ensure that attractive conditions are not created during Project construction.	✓
10	Employ only red, or dual red and white strobe, strobe-like, or flashing lights, not steady burning lights, to meet Federal Aviation Administration (FAA) requirements for visibility lighting of wind turbines, permanent met towers, and communication towers. Only a portion of the turbines within the wind project should be lighted, and all pilot warning lights should fire synchronously.	The wind turbines will each have a single red light (as required by the FAA). All lights will be synchronized. Based on the Project size, it is not prudent to light only some of the turbines. In addition, the Project will comply with the light-mitigating technology system requirements set forth in NDCC Section 49-22-16.4 and NDAC Chapter 69-06-11.	✓
11	Keep lighting at both operation and maintenance facilities and substations located within half a mile of the turbines to the minimum required: a. Use lights with motion or heat sensors and switches to keep lights off when not required. b. Lights should be hooded downward and directed to minimize horizontal and skyward illumination. c. Minimize use of high- intensity lighting, steady-burning, or bright lights such as sodium vapor, quartz, halogen, or other bright spotlights. d. All internal turbine nacelle and tower lighting should be extinguished when unoccupied.	No new exterior lighting will be added for this Project, except the lights required by the FAA.	✓
12	Establish non-disturbance buffer zones to protect sensitive habitats or areas of high risk for species of concern identified in pre-construction studies. Determine the extent of the buffer zone in consultation with the Service and state, local and tribal wildlife biologists, and land management agencies (e.g., U.S. Bureau of Land Management (BLM) and U.S. Forest Service (USFS)), or other credible experts as appropriate.	Based on the conclusions of the Tier 1 and 2 studies and data requests with appropriate agencies, there are no known sensitive habitats or areas of high risk inside the Project Area or the disturbed area.	✓
13	Locate turbines to avoid separating bird and bat species of concern from their daily roosting, feeding, or nesting sites if documented that the turbines' presence poses a risk to species.	The turbines directly surround a major industrial facility. There is no known condition for this Project where the wind turbines create a separation condition.	✓
14	Avoid impacts to hydrology and stream morphology, especially where federal or state-listed aquatic or riparian species may be involved. Use appropriate erosion control measures in construction and operation to	The Project will have a single boring under the Heart River. There will be no direct impacts to hydrology or stream morphology. The Project will have and comply with a SWPPP including associated BMPs.	✓

	eliminate or minimize runoff into water bodies.		
15	When practical use tubular towers or best available technology to reduce ability of birds to perch and to reduce risk of collision.	The Project uses tubular steel towers.	✓
16	After project construction, close roads not needed for site operations and restore these roadbeds to native vegetation, consistent with landowner agreements.	The Project will close any roads not needed for site operation. The Project will only disturb land used for farming and already disturbed land. However, in the event roadbeds did disturb native vegetation, roadbeds will be restored to native vegetation consistent with landowner agreements.	✓
17	Minimize the number and length of access roads; use existing roads when feasible.	The Project uses the existing Renewable Diesel Facility's access roads to the extent possible.	✓
18	Minimize impacts to wetlands and water resources by following all applicable provisions of the Clean Water Act (33 USC 1251-1387) and the Rivers and Harbors Act (33 USC 301 et seq.); for instance, by developing and implementing a storm water management plan and taking measures to reduce erosion and avoid delivery of road-generated sediment into streams and waters.	The Project will have a SWPPP to control surface water flow and will fully comply with the Clean Water Act and the Rivers and Harbors Act. The Project is not expected to generate any sediment into streams.	✓
19	Reduce vehicle collision risk to wildlife by instructing project personnel to drive at appropriate speeds, be alert for wildlife, and use additional caution in low visibility conditions.	The existing speed limit for the entire industrial facility is 20 mph or less. The Project will comply with that speed limit.	✓
20	Instruct employees, contractors, and site visitors to avoid harassing or disturbing wildlife, particularly during reproductive seasons.	The employees will be so instructed.	✓
21	Reduce fire hazard from vehicles and human activities (instruct employees to use spark arrestors on power equipment, ensure that no metal parts are dragging from vehicles, use caution with open flame, cigarettes, etc.). Site development and operation plans should specifically address the risk of wildfire and provide appropriate cautions and measures to be taken in the event of a wildfire.	The Renewable Diesel Facility has robust rules related to fire hazard given the nature of its operations. The Project team will take multiple precautions to avoid creating conditions where a fire could exist or be ignited.	✓
22	Follow federal and state measures for handling toxic substances to minimize danger to water and wildlife resources from spills. Facility operators should maintain Hazardous Materials Spill Kits on site and train personnel in the use of these.	This community-scale Project is relatively small and will have a minimal amount of hazardous substances involved in its construction. The Project will have multiple spill kits on site and One Energy Solutions LLC personnel are trained in spill response. The site will also comply with a full SWPPP plan.	✓

23	Reduce the introduction and spread of invasive species by following applicable local policies for invasive species prevention, containment, and control, such as cleaning vehicles and equipment arriving from areas with known invasive species issues, using locally sourced topsoil, and monitoring for and rapidly removing invasive species at least annually.	No new topsoil will be brought into the site. Vehicles will not be permitted on site if they arrive dirty from an out-of-region site.	✓
24	Use invasive species prevention and control measures as specified by county or state requirements, or by applicable federal agency requirements (such as Integrated Pest Management) when federal policies apply.	In the event that invasive weeds are encountered in the cultivated fields, OE 31 will comply with county guidelines and prudent practices.	✓
25	Properly manage garbage and waste disposal on project sites to avoid creating attractive nuisances for wildlife by providing them with supplemental food.	It is anticipated there will be a single Project dumpster and it will be frequently emptied. If the dumpster is found to attract wildlife during construction, OE 31 will ensure that the emptying frequency will be increased and/or the dumpster will be covered.	✓
26	Promptly remove large animal carcasses (e.g., big game, domestic livestock, or feral animal).	Will comply if condition arises.	✓
27	Wildlife habitat enhancements or improvements such as ponds, guzzlers, rock or brush piles for small mammals, bird nest boxes, nesting platforms, wildlife food plots, etc. should not be created or added to wind energy facilities. These wildlife habitat enhancements are often desirable but when added to a wind energy facility result in increased wildlife use of the facility which may result in increased levels of injury or mortality to them.	Will comply. No enhancements will be added.	✓

Table 5.14-1: Summary of Compliance with USFWS WEG BMPs

NDBMP

Beginning on page 18 of the NDBMP, 18 best management practices are provided for new wind turbine construction. This Project complies with all 18 best management practices as detailed below:

TABLE 5.14-2: SUMMARY OF COMPLIANCE WITH NDBMP			
#	**NDBMP**	**PROJECT COMPLIANCE**	✓
1	Avoid disturbance to native, unbroken habitats (grasslands, wetlands, and woodlands). a. Site turbines, roads, and other infrastructure on areas already disturbed land (tilled or otherwise broken) as often as possible. b. Avoid siting turbines, roads, or other infrastructure in areas that will fragment large, contiguous tracts of native habitats.	This Project will not disturb any native, unbroken habitats. The entire Project is sited on already disturbed land and will not fragment native habitats or impact any wetlands.	✓

	c. Avoid siting turbines, roads, or other infrastructure in wetland dense areas.		
2	Avoid disturbance to land enrolled in CRP SAFE.	There are no CRP SAFE areas in the Project Area.	✓
3	Minimize, to the extent possible, the amount of area disturbed for siting and construction activities. a. Use pre-existing roads and minimize, to the extent possible, the length of new roads needed to be created.	The Project is designed using the minimum possible disturbed area. Existing roads are being used to the extent possible.	✓
4	Avoid siting turbines or other infrastructure within the Greater Sage-Grouse Priority Conservation Areas (PCA): https://gf.nd.gov/sites/default/files/publications/nd-sage-grouse-plan-2014_0.pdf	There are no Greater Sage-Grouse Priority Conservation Areas inside the Project Area.	✓
5	Avoid siting turbines in nesting habitat within a 2-mile buffer of Greater Prairie- Chicken and Sharp-tailed Grouse leks and within a 4-mile buffer of Greater Sage- Grouse leks. a. Moreover, due to the fragile status of these Greater Sage-Grouse and Greater Prairie-Chicken in our state, we prefer developers to avoid any limiting habitat within these two species' ranges. In particular, we are concerned with developments in the remaining habitat patches that are >= 0.5 square miles, or where smaller patches accumulate to over 0.5 miles without barriers to movement between patches. Critical limiting habitat for Greater Sage-Grouse consists of grassland tracts with >5% Big Sagebrush (Artemesia tridentata). Critical limiting habitat for prairie chickens consists of tallgrass prairie.	The Project Area is outside of the species range for the Greater Prairie-Chicken and Greater Sage-Grouse in North Dakota. As discussed in the Tier 1 and Tier 2 study, the disturbed area for the Project consists primarily of cultivated cropland and as such is not likely to support nesting sharp-tailed grouse. There are no known Greater Prairie-Chickens, Greater Sage-Grouse, or Sharp-tailed Grouse leks within four miles of the Project Area.	✓
6	Avoid siting utility lines in nesting habitat within a 1-mile buffer of any prairie grouse lek.	There are no known Prairie Grouse leks within one mile of the Project Area. As discussed in the Tier 1 and Tier 2 study, the disturbed area for the Project consists primarily of cultivated cropland and as such is not likely to support nesting sharp-tailed grouse. All utility lines are being constructed underground.	✓
7	Restrict construction within the above buffer zones during the lekking and nesting seasons (March 15-July 15).	There are no known buffer zones that affect this Project.	✓
8	Place utility lines along existing roads as often as possible.	All utility lines are being constructed underground. To the extent possible, the lines run along existing infrastructure.	✓
9	Avoid siting turbines or other infrastructure within Bighorn Sheep habitat modeled and mapped by the Department.	There is no Bighorn Sheep habitat in the Project Area.	✓

10	Minimize, to the extent possible, placing turbines or associated infrastructure in areas that will have serious, detrimental impacts to flora or fauna listed under the Endangered Species Act.	The turbines and associated infrastructure are located entirely on previously disturbed areas. There are no known flora or fauna listed under the Endangered Species Act in the disturbed area.	✓
11	Utility lines that are constructed across wetlands should be marked to decrease bird strikes and mortality.	No utility lines are being constructed across wetlands.	✓
12	To reduce eagle and raptor mortality from electrocution, utility line construction should follow recommendations by the Avian Power Line Interaction Committee (www.aplic.org).	There are no new above-ground utility lines associated with this Project.	✓
13	The following table provides distance and seasonal restrictions, which if implemented, should assure that impacts to nesting raptors will be minimal. Development activities should not occur within the spatial buffer during the identified breeding period, which includes courtship and nest building, egg laying, fledgling, and through the post-fledgling dependency on the nest. (Table omitted here)	Based on the conclusions of the Tier 1 and 2 studies and data requests with appropriate agencies, the Project Area does not contain any of buffer zones detailed in the table.	✓
14	Minimize the number of permanent meteorological towers needed at the project site.	There is no permanent meteorological tower for this Project.	✓
15	Avoid impacts to the hydrological function of wetlands as often as possible and follow all applicable provisions of the Clean Water Act (33 USC 1251-1387) and the Rivers and Harbors Act (33 USC 301 et seq.).	The Project will have a SWPPP to control surface water flow and will fully comply with the Clean Water Act and the Rivers and Harbors Act. The Project is not expected to generate any sediment into streams or wetlands.	✓
16	Avoid siting turbines within Game and Fish owned and/or operated lands.	There are no Game and Fish owned or operated lands in the Project Area.	✓
17	Avoid sitting turbines on any Private Land Open To Sportsmen (PLOTS) land without prior consultation with the Department's private land section.	There are no PLOTS lands in the Project Area.	✓
18	Avoid any other state or federally owned wildlife or recreational lands (i.e. waterfowl production areas, national wildlife refuges, state parks, and national parks).	There are no state or federally owned wildlife or recreational lands in the Project Area.	✓

Table 5.14-2: Summary of Compliance with NDBMP

In addition, OE 31 is working with NREL to advance bat research related to community-scale wind projects. OE 31 will pay for and operate two thermal camera data collection systems at a site that NREL selects. These systems were designed by NREL to collect information about bat behavior around community wind projects. One Energy will support NREL in analyzing the data and publishing their findings. These systems will be deployed at operating community-scale wind projects owned by One Energy. This research will complement existing research being done by NREL for utility-scale projects. OE 31 will provide both USFWS and NDGF with the results of the studies when they are completed.

5.15 SUMMARY OF IMPACTS AND MITIGATION

Table 5.15-1 provides a summary of Project impacts and proposed mitigation.

TABLE 5.15-1: SUMMARY OF IMPACTS

RESOURCE	POTENTIAL IMPACT	PROPOSED MITIGATION	SECTION
Demographics	The Project will be socioeconomically beneficial to the Renewable Diesel Facility, local governments, and communities by providing economic benefits, taxes, and scholarships. No long-term changes to demographics are anticipated.	No mitigation is proposed.	5.1
Land Use, Ownership, and Management	The Project will convert approximately 6.7 acres of land in the Project Area into a renewable, alternative energy source for the life of the Project and would result in 20.6 acres of temporary impacts. The Project will also impact 2.8 acres of the existing Renewable Diesel Facility.	Areas of temporary disturbance will be made available for agricultural purposes following construction. Areas of disturbance to agriculture for the life of the Project will be minimal. Project infrastructure is located on previously disturbed land to minimize impacts of the Project.	5.2
Public Services	Construction of the Project will temporarily increase traffic on haul roads. One land mobile station owned by DPR was identified in the Project Area at the Renewable Diesel Facility. No impacts to AM, FM, or TV signals are expected.	OE 31 will utilize North Dakota One Call prior to construction to identify existing utilities. Roadways will be returned to pre-existing conditions unless otherwise requested by authorities during coordination. All applicable road permits will be obtained from the applicable authority. OE 31 will coordinate with DPR to minimize impacts to the land mobile station. No impacts to AM, FM, or TV signals are expected, but if they occur, they will be mitigated.	5.3
Human Health and Safety	No adverse impacts are anticipated.	Wind turbines adhere to required setback distances, collection lines will be buried to a depth of at least four feet outside of the immediate Renewable Diesel Facility, and the Project will meet applicable sound avoidance requirements.	5.4

		Minimal amounts of oil, hydraulic oil, and fuel will be located on-site and will be stored as required by law. DNHs were obtained for all turbines and FAA lighting will be installed in compliance with state and federal law.	
Sound	A sound assessment was completed, and sound levels are modeled below 45 decibels within 100 feet of inhabited residences and community buildings.	No mitigation is proposed.	5.5
Visual	The Project will have visual and potential aesthetic impacts. A detailed shadow flicker analysis was performed and indicated that the maximum modeled realistic shadow flicker at an inhabited residence is 12 hours/year.	Use of setbacks, uniformity of turbines, use of underground collection lines, minimum FAA lighting and marking requirements, and light mitigation required by ND law are anticipated to minimize visual impacts. OE 31 does not propose any mitigation for shadow flicker as all residences are well below 30 hours per year.	5.6
Cultural and Archaeological Resources	Identified cultural resources sites recommended for avoidance will be avoided; no historic properties will be affected.	A Class III Pedestrian Survey has been conducted and wind turbines, access roads, and associated facilities have been sited to avoid known/existing archaeological sites. If cultural resources are discovered during construction or operation, work shall immediately be stopped, the affected site secured, and the SHSND notified.	5.7
Recreational Resources	There are no designated recreation areas, public or private parks, or designated trails in the Project Area.	NA	5.8
Land Based Economies	Some agricultural land will be converted for the life of the Project and other agricultural land will be converted temporarily.	Areas of temporary disturbance will be made available for agricultural purposes following construction. Areas of disturbance to agriculture for	5.9

		the life of the Project will be minimal.	
Soils	During construction the soil surface may be more prone to wind and water erosion and soil compaction.	Erosion and sediment control measures will be utilized during and after construction in accordance with the Project's SWPPP.	5.10
Geological and Groundwater Resources	No adverse impacts anticipated.	No mitigation is proposed.	5.11
Surface Water and Floodplain Resources	No impacts to surface water are anticipated. Some areas of the collection line will be located in the 100-year floodplain. Two small sections of gravel access road will be located in the 100-year floodplain. One of these gravel access roads is being used to access a public road that is located in a floodplain (116th Ave.). The other small area of access road will be located in the floodplain to utilize an existing gate at the Renewable Diesel Facility and avoid unsafely routing traffic into an area with high vehicular and pedestrian traffic.	The Project will use BMPs such as silt fence, straw wattles, earth berms, and/or culverts to avoid impacts to surface water. Impacts to floodplains caused by the collection line will be temporary, limited to construction, and limited through construction practices. There is no reasonable alternative but to install the access road in the floodplain to access the public road in the floodplain. There is no reasonable alternative to routing the access road through the security gate to avoid creating an unsafe condition for vehicular and pedestrian traffic.	5.12
Wetlands	No wetlands will be impacted by the Project.	No mitigation is proposed.	5.12
Vegetation	The Project will result in temporary and permanent vegetation impacts.	Following construction, temporarily disturbed cropland will be returned to cropland. No impacts to vegetation other than cropland are anticipated. If impacts occur, those areas will be re-vegetated with a seed mixture consistent with the surrounding vegetation.	5.13
Wildlife - Mammals	The Project may impact potential habitat for ground dwelling mammals and increase potential for bat strikes with turbine blades.	To mitigate the Project's impacts to wildlife, OE 31 will implement and comply with all 45 of the BMPs contained in the USFWS WEG and NDBMP. Details of this implementation and	5.14

		compliance are set forth in Section 15.14.3.	
Wildlife - Avian Species	The Project may result in impacts to avian species through increasing the potential for bird strikes with the turbine blades.	To mitigate the Project's impacts to wildlife, OE 31 will implement and comply with all 45 of the BMPs contained in the USFWS WEG and NDBMP. Details of this implementation and compliance are set forth in Section 15.14.3.	5.14
Threatened and Endangered Species & State Species of Concern	Whooping cranes may occur in the Project Area and the Northern Long Eared Bat is unlikely to be present in the Project Area. Impacts to state species of concern would be similar to those for wildlife.	To mitigate the Project's impacts to wildlife, OE 31 will implement and comply with all 45 of the BMPs contained in the USFWS WEG and NDBMP. Details of this implementation and compliance are set forth in Section 15.14.3.	5.14

Table 5.15-1: Summary of Impacts

6.0 COMPLIANCE WITH NDCC SECTION 49-22-09 FACTORS

The Siting Act (see NDCC Section 49-22-09) lists the following factors to guide the PSC in assessing and designating the site for the proposed facility.

6.1 PUBLIC HEALTH AND WELFARE, NATURAL RESOURCES, AND THE ENVIRONMENT

The preceding sections and Appendices of this Application provide extensive research and investigations regarding the Project's potential impacts on public health and welfare, natural resources, and the environment. Those sections demonstrate the Project will have minimal negative impacts to natural resources and the environment due to a number of factors including: the relatively small Project size, the Project being situated in previously disturbed lands, the Project being on-site at an industrial facility, and the implementation of all 45 of the USFWS WEG BMPS and NDBMP as further outlined in Sections 5.14 and 5.15. The Project will also have significant positive economic benefits to the local community and State of North Dakota that will positively affect the public welfare.

6.2 TECHNOLOGIES TO MINIMIZE ADVERSE ENVIRONMENTAL EFFECTS

OE 31 has utilized or will utilize the most current technologies available to site, construct, and operate the Project to optimize energy production and minimize potential adverse environmental impacts. Examples of this include the utilization of LiDar technology as opposed to MET towers, the utilization of underground as opposed to overhead collection lines, and the utilization of wind turbines with no gearboxes. Further examples are identified within Section 5.0, Environmental Analysis.

6.3 POTENTIAL FOR BENEFICIAL USES OF WASTE ENERGY

Because wind energy does not create material amounts of waste energy, there would be no use of waste energy associated with this Project.

6.4 UNAVOIDABLE ADVERSE ENVIRONMENTAL EFFECTS

Unavoidable adverse environmental effects of the Project are minimal and are described for each resource category in Section 5.0. The relatively small size of the Project, the siting of the Project on previously disturbed land, the siting of the Project on-site of an existing industrial facility, and the implementation of all 45 of the USFWS WEG BMPS and NDBMP as further outlined in Sections 5.14 and 5.15 all reduce the number of unavoidable adverse environmental effects of the Project.

6.5 ALTERNATIVES TO THE PROPOSED SITE

OE 31 analyzed various siting options for the Project. Selecting this land as the Project Area enables the Project's five wind turbines and associated infrastructure to be located on-site at the Renewable Diesel Facility, which minimizes environmental impacts and allows the Project to meet its intended purpose. OE 31 also selected the proposed Project Area based on wind resource assessment, site-specific studies, agency coordination, and avoidance of exclusion and avoidance areas. As sited, the Project has limited environmental and land use impacts and OE 31 believes the proposed site is the best location for the Project.

6.6 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF NATURAL RESOURCES

Renewable energy projects (such as the Project) cause relatively few irreversible and irretrievable commitments of natural resources. Natural resources will be used in the fabrication and preparation of Project and construction materials, such as concrete, steel, and aggregate, and the vehicles traveling to and from the site during construction will use fuel. While these materials may not be retrievable after use, their use in this Project will not have an adverse effect on the availability of these resources. The anticipated benefits of the Project will balance the irretrievable commitment of resources for the Project.

6.7 DIRECT AND INDIRECT ECONOMIC IMPACTS

The Project will provide extensive economic benefits. It will provide economic benefits to local governments and communities through taxes and scholarships. Over twenty years, the Project would generate a total of $940,000 in taxes and $500,000 in STEM scholarships. The Project will also directly support the Renewable Diesel Facility, which is a significant employer in community and the purchaser of a significant amount of agricultural products. Development and construction of the Project will also provide increase demand for food services, lodging, fuel, and general supplies. Personal income could also be generated by circulation and recirculation of dollars paid out by the Project as business expenditures.

6.8 EXISTING DEVELOPMENT PLANS OF THE STATE, LOCAL GOVERNMENT AND PRIVATE ENTITIES AT OR IN THE VICINITY OF THE SITE

The Project does not conflict with existing development plans of state, local, or private entities within the Project Area. The Project is only located on land owned by DPR and coordination with DPR has taken place to avoid conflicts with DPR's development plans. The Project will comply with applicable provisions of the Stark County Zoning Ordinance.

6.9 EFFECT OF SITE ON CULTURAL RESOURCES

The Project will be sited to avoid archaeological sites, traditional cultural properties, and historic resources. If additional cultural resources are discovered, OE 31 will work with SHSND to avoid or mitigate impacts. See Section 5.7 for further discussion of cultural resource survey efforts and SHSND consultation.

6.10 EFFECT OF SITE ON BIOLOGICAL RESOURCES

OE 31 has made significant efforts to avoid or minimize impacts to biological resources, including wildlife, through Project development and will continue to do so throughout construction and operation of the Project. This includes through practices such as complying with all BMPs of NDGF and USFWS regarding the development of wind energy, burying collection lines underground, placing the Project in previously disturbed land, not removing trees, not impacting any wetlands, and other practices outlined in Section 5.

6.11 AGENCY COMMENTS

A summary of agency correspondence and collaboration to date is provided in this section below. Copies of substantive agency correspondence are provided in Appendix E.

6.11.1 Federal Aviation Administration (FAA)

OE 31 has been in communication with the FAA since May 2021 to provide information regarding the Project and obtain DNHs for each of the turbine locations for the Project. The DNHs were obtained for the Project in August and September 2021 and are included in Appendix E.

6.11.2 U.S. Department of Defense (DoD) Military Aviation and Installation Assurance Siting Clearinghouse

In April 2021, OE 31 requested an informal review of the Project through the DoD Siting Clearinghouse. OE 31 submitted the requested documents that described the turbine locations, turbine dimensions, and area where the Project would be located. On June 4, 2021, OE 31 received a Review Response Letter from the Military Aviation and Installation Assurance Siting Clearing House. The letter stated the Project as proposed would have minimal impact on military operations conducted in the area and is included in Appendix E.

6.11.3 Wildlife Agencies (U.S. Fish and Wildlife Service, North Dakota Field Office and North Dakota Game and Fish)

OE 31 began coordinating with wildlife agencies in May 2021. Correspondence, information requests, and reviews with USFWS and NDGF have helped to identify survey needs for the Project, determine the scope of potential environmental impact for the Project, and identify mitigative steps. A summary of this correspondence and exchanges are found below.

NDGF

July 2021 NDGF Communications

OE 31 called NDGF to introduce the Project, discuss the way the department would view a project that is community scale or a distributed wind project, confirm that this was the first project of this type in North Dakota, and ask what the coordination process going forward would be. NDGF followed up with contact information and attached a link to North Dakotas BMPs. OE 31 sent NDGF a KMZ file along with the description of the Project and asked for any information on known species (bald eagles, golden eagles, raptors, etc.) of concern in the area. OE 31 also informed NDGF that OE 31 would give NDGF notice when the Tier 1 and 2 studies for the Project were complete.

August 2, 201 NDGF Communication

NDGF emailed OE 31 the Department's early guidance letter for the Project. The letter stated that the Department was encouraged by the Project being located on already disturbed land and not impacting native prairie. The letter also noted that the Project fell inside the State Wildlife Action Plan Priority Area and High Impact to Native Wildlife and Habitat area and provided recommendations regarding bat and bald eagle/raptor nest studies. The letter is included in Appendix E.

Additional August 2021 NDGF Communications

NDGF emailed OE 31 and stated they do not know of bald eagle nests in the area but do know of a golden eagle nest that is approximately 3.5 miles outside of the Project boundary. OE 31 requested more detailed information on high impact areas and the eagle nest locations. After securing the necessary agreement to obtain the information, NDGF sent OE 31 an email with Key Native Wildlife and Habitat Areas along with the confidential location of a golden eagle nest more than three miles away from the area of the Project.

September 2021 NDGF Communications

OE 31 sent the completed Tier 1 and 2 Studies for the Project along with additional materials to NDGF and requested that NDGF review the documents and contact OE 31 with follow-up.

October 2021 NDGF Communications

OE 31 had a call with NDGF on October 27, 2021 to discuss NDGF's feedback after receiving the completed Tier 1 and 2 Studies for the Project. In the call, NDGF stated it had a discussion with USFWS and the letter NDGF will provide to the PSC in advance of the PSC hearing will generally align with the USFWS letter. NDGF also stated that it would issue a letter to the same effect sometime in mid-November so that it could be provided to local officials in the local zoning process. A letter was provided by NDGF to OE 31 on November 9, 2021 and is included in Appendix E.

USFWS

May 2021 USFWS Communications

A call was held between OE 31 and USFWS regarding general background and information on the Project. OE 31 followed up by emailing a KMZ file for the turbine locations and general Project information. A follow-up call took place to further discuss the Project.

June 2021-August 2021 USFWS Communications

Additional calls were held between OE 31 and USFWS to discuss the Project and how the Land-Based WEGs applied to community-scale wind energy projects.

After receiving information from NDGF regarding the location of bald eagle and golden eagle nests in the area, OE 31 emailed USFWS asking if it had any additional information that NDGF did not have. USFWS responded that it did not believe it had any additional information regarding species in the area.

September 2021 USFWS Communications

OE 31 sent the completed Tier 1 and 2 studies for the Project along with additional materials to USFWS and requested that USFWS review the documents and contact OE 31 with follow-up.

October 2021 USFWS Communications

OE 31 had a call with USFWS to discuss the Tier 1 and 2 studies performed for the Project and to provide an update with status. OE 31 and USFWS also discussed whether USFWS would provide a letter as part of its review of the studies undertaken and the approach taken. USFWS responded that it would provide a letter and did not expect any issues given the approach taken, implementation of all North Dakota and USFWS BMPs, and research that is being done with NREL. A letter was provided by USFWS to OE 31 on October 26, 2021 and is included in Appendix E.

6.11.4 North Dakota Parks & Recreation

OE 31 had a call with Parks and Recreation regarding the Project and ND Natural Heritage Inventory requests. OE 31 then sent KMZ files and drawings of the Project, informed Parks and Recreation that OE 31 was going to have Tier 1 and 2 studies completed for the Project, and requested an environmental review for the Project. Parks and Recreation responded with an environmental review response letter on July 27, 2021. The letter can be found in Appendix E.

6.11.5 State Historical Society of North Dakota

SWCA, who was contracted by OE 31 to conduct cultural resource studies for the Project, has coordinated with the SHSND on the Project since June 2021. SWCA confirmed that OE 31 should conduct a Class I Literature Review and a Class III Intensive Cultural Resources Pedestrian Survey of all areas that may be affected by the Project, as per standard SHSND guidelines. The SHSND recommended that the APE for the Class III Pedestrian Survey be defined as any ground surface area that has the potential to be disturbed by any construction or installed activities associated with the Project. Additionally, the SHSND recommended a visual impacts assessment within a 2-mile visual APE of the Project, as per their standard guidelines. The visual impacts assessment included documentation within the 2-mile visual APE of all buildings, structures, and objects 45 years of age or older at the time of survey. The Project has been designed to avoid impacts to cultural and architectural resources. SHSND's concurrence with the determination of "No Historic Properties Affected" for the Class I Literature Review and for the Class III Intensive Cultural Resources Pedestrian Survey and "No Adverse Effect" determination for the Class II visual impact assessment can be found in Appendix E.

6.11.6 Stark County

OE 31 initiated communication with Stark County in May 2021 and communication with the County has been ongoing since. OE 31 has been communicating with the Stark County Planning and Zoning Director and County Commissioners on the zoning requirements in the County, the procedural aspects of obtaining a conditional use permit, and any information requests from the Zoning Director. OE 31 filed a conditional use application and rezoning request associated with the Project in July 2021.

In September 2021, the Planning and Zoning Commission conducted a public hearing on the rezoning request (separate from the conditional use permit application). Following the public hearing, the Planning and Zoning Commission recommended denial of the rezoning request, indicating it wanted additional environmental information. OE 31 then withdrew the rezoning request and requested the hearing date for the conditional use application be postponed to allow OE 31 time to obtain information requested by the Planning and Zoning Commission. The hearing date is not yet officially set for the conditional use permit application and the rezoning request, but OE 31 has asked that they be considered concurrently at the January 27, 2022 Planning and Zoning Commission meeting. OE 31 will continue to communicate with Stark County throughout the development, construction, and operation of the Project.

6.11.7 Stark County Emergency Services

OE 31 has had calls and meetings with the Director of Emergency Services in Stark County to explain the Project and to discuss the safety and emergency trainings, programs, licenses, and certifications of One Energy Solutions LLC. OE 31 also discussed emergency planning for the Project and the training One Energy Solutions LLC would offer to local emergency responders. OE 31 will continue to communicate with Stark County Emergency Services throughout the development, construction, and operation of the Project.

6.11.8 Stark County Airport Authority

OE 31 has been communicating with the Dickinson Theodore Roosevelt Regional Airport since July 2021. In July 2021, OE 31 had a phone call with Kelly Braun, the Airport Manager to discuss the Project and inform him that a Notice of Proposed Construction (7460-1) was filed with the FAA for five wind turbines on May 10, 2021. On August 18, 2021, OE 31 emailed Mr. Braun to let him know that the five turbines received DNHs from the FAA. On August 31, 2021, OE 31 emailed Mr. Braun to let him know two of the turbine locations needed to be resubmitted to the FAA due to micro-siting. Mr. Braun acknowledged the receipt of the information. In September 2021, OE 31 informed Mr. Braun that the two micro-sited turbines had received DNHs from the FAA. OE 31 will continue to keep the Airport updated on the status of the FAA process and Project throughout development, construction, and operation of the Project.

6.11.9 Public Participation

OE 31 and MPC have actively participated in the community since the announcement of the Project in May 2021. OE 31 and MPC have hosted numerous meetings with the community, residents, and public officials and have held an open house. OE 31 and MPC also sent materials explaining the Project to all residences within two miles of the Renewable Diesel Facility and ran educational social media ads that made 40,000 impressions (impressions are the number of times an ad is visible on a screen). OE 31 and MPC will continue to participate in the community throughout development, construction, and operation of the Project.

7.0 POTENTIAL GOVERNMENT PERMITS AND APPROVALS

The potential government permits or approvals that may be required for the construction and operation of the Project are shown in Table 7.0-1. Copies of agency correspondence to date are provided in Appendix E.

TABLE 7.0-1: POTENTIAL GOVERNMENT PERMITS AND APPROVALS

ADMINISTERING AGENCY	PERMIT, APPROVAL, OR CONSULTATION	APPLICABILITY TO THE PROJECT	STATUS
FEDERAL			
U.S. Army Corps of Engineers	Section 10 Permit (Rivers and Harbors Act of 1899) (Nationwide Permit 51(wind) (or other approved permit i.e. Permit 57(utilities)))	Boring under navigable waters.	To be obtained prior to construction.
Environmental Protection Agency	Spill Prevention Control and Countermeasure Plan	Required if any facility associated with the Project has oil storage of more than 1,320 gallons.	To be prepared prior to construction, if necessary.
Federal Communications Commission (FCC)	Radio Station Authorization/License	May be required for operation of communications tower associated with ADLS or other approved system.	If needed, prior to operation of ADLS communications tower or other approved system.
Federal Energy Regulatory Commission	QF Self-Certification via FERC Form 556		To be filed at least 90 days prior to operation of the Project.
Federal Aviation Administration	Form 7460-1 Notice of Proposed Construction or Alteration (Determination of No Hazard)	Construction or alteration of structures standing higher than 200 feet above ground level.	Determinations of No Hazard to Air Navigation obtained on 8/2/2021 and 9/21/2021.
	Notice of Actual Construction or Alteration (Form 7460-2)	Supplemental notice required either 10 days before construction start or within five days of reaching maximum height.	To be provided after structures reach maximum height as required.
	Marking & Lighting Recommendations	Required for approval of ADLS.	7460-1 filing will include standard red/white synchronized lights but the FAA filings will be modified to request approval of ADLS or other approved technology prior to construction.

STATE OF NORTH DAKOTA APPROVALS			
North Dakota Public Service Commission	Certificate of Site Compatibility	Construction of energy conversion facility with greater than 0.5 MW nameplate capacity.	In progress.
North Dakota State Water Commission	Sovereign Land Permit	Required for construction activities that impact an island or bed of a navigable waterway or stream (e.g., boring under a state-navigable waterway).	To be obtained prior to activities that would impact the area(s) subject to permit, if necessary.
North Dakota Department of Environmental Quality	North Dakota Pollutant Discharge Elimination System (NDPDES) General Permit for Stormwater Discharge Related to Construction (includes Storm Water Pollution Prevention Plan and Notice of Intent submission)	For stormwater discharges from construction activities with disturbances greater than one acre.	To be obtained prior to construction activities for which the permit is required, if necessary.
North Dakota Highway Patrol	Oversize/ Overweight Permit	Required to transport oversize/overweight loads on state-maintained roads.	To be obtained prior to transport of oversize/overweight loads.
North Dakota State Historic Preservation Office (SHPO)/State Historical Society of North Dakota (SHSND)	Cultural and Historic Resources Review and Review of State and National Register of Historic Sites and Archeological Survey	Consultation required in connection with other agency permitting requirements, such as the PSC.	Class I, II, and III survey work and reporting for the Project is complete. Concurrence from SHSND received 9/15/2021.
LOCAL APPROVALS			
Stark County	Conditional use permit	Required for wind energy generation in an industrial district.	Filed July 2021.
	Building application	Required for locating a structure in the county.	To be obtained prior to construction.
	Right-of-Way Approach Permit	Installation of approach roads.	To be obtained prior to installation of approaches, as needed.
	Road Crossing/Right-of-Way Encroachment/Utility Permit	Installation/maintenance of facilities on, across, or adjacent to county right-of-way.	To be obtained prior to construction work in roadway ROW, if necessary.

	Road haul/use permits	Using local roadways for haul roads.	To be obtained as necessary prior to use of haul roads.

Table 6.11-1: Potential Government Permits and Approvals

8.0 QUALIFICATIONS OF CONTRIBUTORS TO SITING STUDIES

The qualifications of contributors to the Application are shown in Table 8.0-1.

TABLE 8.0-1: QUALIFICATIONS OF CONTRIBUTORS TO SITING STUDY

NAME AND PROJECT ROLE	EDUCATION AND PROFESSIONAL EXPERIENCE
Jereme Kent CEO and General Manager One Energy Enterprises LLC.	Jereme Kent is the CEO and General Manager at One Energy. Prior to founding One Energy in 2009, Jereme ran construction of several of the world's largest wind projects for utility-scale construction firms including RMT, M.A. Mortensen, and D.H. Blattner, and has overseen more than half a billion dollars in wind turbine construction projects. Jereme developed several safety, quality, and production methods that are considered standard within the utility-scale wind industry. He also pioneered the concept of just-in-time construction for utility-scale wind turbine projects. Jereme studied Civil Engineering at the University of Michigan's College of Engineering. Jereme is a Certified Tower Rescue Instructor, Advanced EMT, Crane Operator, Crane and Rigging Inspector, and Principal Inventor on multiple United States patents.
Katie Treadway SVP, Head of Regulatory Affairs One Energy Enterprises LLC.	Katie Treadway is the SVP and Head of Regulatory Affairs at One Energy. Katie leads One Energy's regulatory compliance and government affairs efforts at both the state and national levels. Katie is a former Assistant Attorney General for the Office of the Ohio Attorney General and represented the Public Utilities Commission of Ohio and the Ohio Power Siting Board. Katie received her Bachelor of Science degree in Economics from Otterbein University and her Juris Doctor from Vermont Law School.
Jessica Grosso SVP, Head of Project Planning and Technology One Energy Enterprises LLC.	Jessica Grosso is the SVP and Head of Project Planning and Technology at One Energy. Jessica is One Energy's wind project development and feasibility expert. She developed the algorithms, methods, and processes used to take *Wind for Industry*® projects from first conception through the project groundbreaking. This includes remote sensing data campaigns and One Energy's proprietary software for site-specific feasibility studies including shadow flicker, sound propagation, icing, and a Monte Carlo statistical energy production analysis. Jessica's team has become the leading developer of on-site wind energy in the country. Jessica earned her Bachelor of Science in Engineering: Earth Systems Science and Engineering, with a Climate Physics Concentration, and her Master of Science in Atmospheric Science from the University of Michigan. She is a member of the American Meteorological Society and runs One Energy's weather risk team.
Chelsea Bumb SVP, Head of Construction	Chelsea Bumb is the SVP and Head of Construction at One Energy. She is a Licensed Professional Engineer who is responsible for all of One Energy's construction projects and self-perform construction team. Chelsea built One Energy's self-perform team and has pioneered One

One Energy Enterprises LLC.	Energy's systematic approach to project engineering and construction. Chelsea has built more than 30 MW of on-site wind generation facilities, including three of the largest behind-the-meter wind projects in the country. Chelsea earned her Bachelor of Science in Civil Engineering from The Ohio State University. She is a Certified EMT, Tower Rescue Instructor, Crane Operator and is co-author of a United States patent.
Carly Good Senior Analyst One Energy Enterprises LLC.	Carly Good is a Senior Analyst at One Energy. Carly is a technical lead for the development of One Energy's *Wind for Industry®* projects. Carly is responsible for ensuring projects are sited responsibly and in accordance with all applicable standards and laws. Carly also conducts site feasibility studies for projects. Carly earned her Bachelor of Science in Environment, Economy, Development, and Sustainability from The Ohio State University.
Claire Hanrahan Field Engineer One Energy Enterprises LLC.	Claire Hanrahan is a Field Engineer at One Energy. Claire is an Engineer in Training. She currently leads One Energy's GIS Operations. Claire earned her Bachelor of Science in Agricultural and Biological Engineering at the University of Illinois at Urbana-Champaign.
Mollie Smith Attorney at Law Fredrikson & Byron, P.A.	Mollie Smith assists clients with wind farm, transmission line, and pipeline permitting matters in North Dakota, South Dakota, and Minnesota. At the state level, Mollie represents clients in certificate of corridor compatibility, route permit, certificate of site compatibility and rulemaking proceedings before the North Dakota Public Service Commission; energy facility permit proceedings before the South Dakota Public Utilities Commission; and certificate of need, route permit and site permit proceedings before the Minnesota Public Utilities Commission. At the local level, Mollie advises and assists clients with a variety of permitting-related matters, including obtaining conditional use/special exception permits, variances and subdivision approvals, and participating in zoning ordinance amendment processes. Mollie has a Bachelor of Arts in English from Northern State University, Aberdeen, SD; a Master of Arts in Literature from Colorado State University, Fort Collins, CO; and a Juris Doctor from the University of Minnesota Law School, Minneapolis, MN.
Bridget Duffus Attorney at Law Fredrikson & Byron, P.A.	Bridget Duffus assists clients with wind farm, solar farm, transmission line, and pipeline permitting matters in North Dakota and Minnesota. At the state level, Bridget represents clients in certificate of corridor compatibility, route permit, and certificate of site compatibility proceedings before the North Dakota Public Service Commission; and certificate of need, route permit and site permit proceedings before the Minnesota Public Utilities Commission. At the local level, Bridget advises and assists clients with a variety of permitting-related matters, including obtaining conditional use permits and variances. Bridget has a B.A. in Psychology from the University of St. Thomas, St. Paul, MN; and a J.D. from the University of St. Thomas School of Law, Minneapolis, MN.
Griffin Bachhuber, B.S. Natural Resources Project Manager	Griffin Bachhuber is a biologist and project manager in SWCA's Bismarck, North Dakota, office and has completed projects in power generation, transmission, oil and gas, Department of Transportation, and residential and commercial land development throughout the Midwest, central, and western United States. His work has been heavily focused on all facets of pre-construction renewable energy

	development in the wind and solar industries including natural resources reporting, permitting, wetland delineation, ecological and threatened and endangered species assessments, and due diligence. As part of his work in renewable energy development, he has supported Public Utilities Commission/Public Service Commission site permit applications for large-scale wind farms in Minnesota, North Dakota, South Dakota, and Iowa.
Cole Reagan, M.S. Wetland and Vegetation Specialist	Cole Reagan is a wetland specialist for SWCA's Bismarck, North Dakota, office. He frequently performs environmental work in western North Dakota. He is experienced conducting wetland delineations in accordance with the U.S. Army Corps of Engineers' 1987 manual and the Great Plains regional supplement. He is also skilled at identifying ordinary high-water marks for problematic, ephemeral, and intermittent streams within the arid West. He has prepared several functional assessments for wetlands and streams within Wisconsin, the George Washington National Forest, and the Monongahela National Forest. Additional experience includes graduate work developing models to predict nutrient flow and storage within wetland soils, treatment of wetland vegetation, and peatlands, and developing lake chemistry and stream discharge sampling plans; conducting on-site environmental inspections of drainage systems to ensure compliance with stormwater pollution prevention plans (SWPPPs), spill prevention, control, and countermeasures (SPCC) plans, and state and local environmental regulations; and identifying native, invasive, rare, and endangered plant species within wetland territories.
Andrea Hannan, B.S. Biologist	Andrea Hannan is a biologist in SWCA's Bismarck office. She has conducted wildlife and botanical surveys across the Intermountain West. She has collected biological field data for various wildlife species, including burrowing owl, mountain plover, pygmy rabbit, and white-tailed prairie dog; collected raptor flight pattern data and conducted raptor nest surveys; conducted threatened, endangered, and sensitive (TES) plant surveys, including surveys for Ute ladies'-tresses (Spiranthes diluvialis), Wheeler's angelica (Angelica wheelerii), and Clay phacelia (Phacelia argillaceae); and conducted habitat assessments and fire and rangeland monitoring. She has additional experience in invasive and noxious weed mapping.
Michael Retter, M.A., RPA Principal Investigator and Project Manager	Michael Retter is a principal investigator and project manager. He is responsible for all aspects of project completion and leads teams through all project components, including research design, performance, results analysis, final reporting, and project oversight and review. Mr. Retter has more than 21 years of experience reviewing and managing National Historic Preservation Act (NHPA) Section 106 and National Environmental Policy Act (NEPA) projects in Arizona, California, Colorado, Indiana, Kansas, Minnesota, Missouri, Montana, Nebraska, New Hampshire, New Mexico, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, South Dakota, Texas, Utah, Washington, West Virginia, and Wyoming, as well as Ontario Heritage Act–compliance projects in Ontario, Canada. He conducts full-spectrum projects on the cultural environment through application of his expertise in anthropology, archaeology, historic archaeology, tribal consultation, and cultural landscapes, particularly for NHPA Section 106 and Section 110 compliance. He also works with diverse teams on multi-disciplinary projects, including those with NEPA requirements.

Jolene Schleicher, B.SC. Cultural Resources Project Manager	Jolene Schleicher is an archaeologist and project manager in SWCA's Bismarck, North Dakota office. As a project manager and assistant project manager, she is responsible for coordination of all project tasks, including fieldwork and report writing for multiple projects. As an archaeologist, she leads cultural resource survey and site recording projects, and prepares cultural resource reports. Ms. Schleicher has more than 12 years of professional environmental consulting experience. Ms. Schleicher has served as a project manager, assistant project manager, field lead, and crew member for a number of projects, including dozens in North Dakota and Montana. Additional responsibilities include GPS/GIS data collection and interpretation and conducting cultural resource monitoring for construction projects.
Hannah Curry, M.S. Historic Preservation Specialist/Architectural Historian	Hannah Curry is a Secretary of the Interior's qualified historic preservation professional/architectural historian and serves as an architectural history project manager for SWCA's Central/East Region. She has experience in cultural resources surveys and inventories of historic buildings and structures, National Register of Historic Places (NRHP) evaluations and nominations, and the development of historic contexts. Ms. Curry has successfully completed over 10 NRHP nominations as multiple state and local landmark applications. She is also skilled in regulatory compliance under Section 106 of the National Historic Preservation Act, the Antiquities Code of Texas, and local preservation ordinances, ensuring client compliance under federal, state, and/or local law. Ms. Curry is the regional expert on state and federal historic preservation tax credits and the application of the Secretary of the Interior's Standards for the Treatment of Historic Properties.
Laci Paul, M.A. Archaeological Field Director	Laci Paul is an archaeologist in SWCA's Bismarck office and has worked as a field director, crew chief, and technician on crews throughout North Dakota, South Dakota, Nebraska, Texas and New Mexico. Her responsibilities as an archaeologist with SWCA include all aspects of logistics, inventory, evaluative testing, mapping, artifact analysis, site forms, and report writing. As a cultural resource specialist, Ms. Paul has expertise in National Historic Preservation Act (NHPA) – Section 106 actions and compliance and Secretary of Interior's Guidelines. Ms. Paul specializes in prehistoric archaeology and the Native American Graves Protection and Repatriation Act (NAGPRA).

Table 6.11-1: Qualifications of Contributors to Siting Study

9.0 RESOURES

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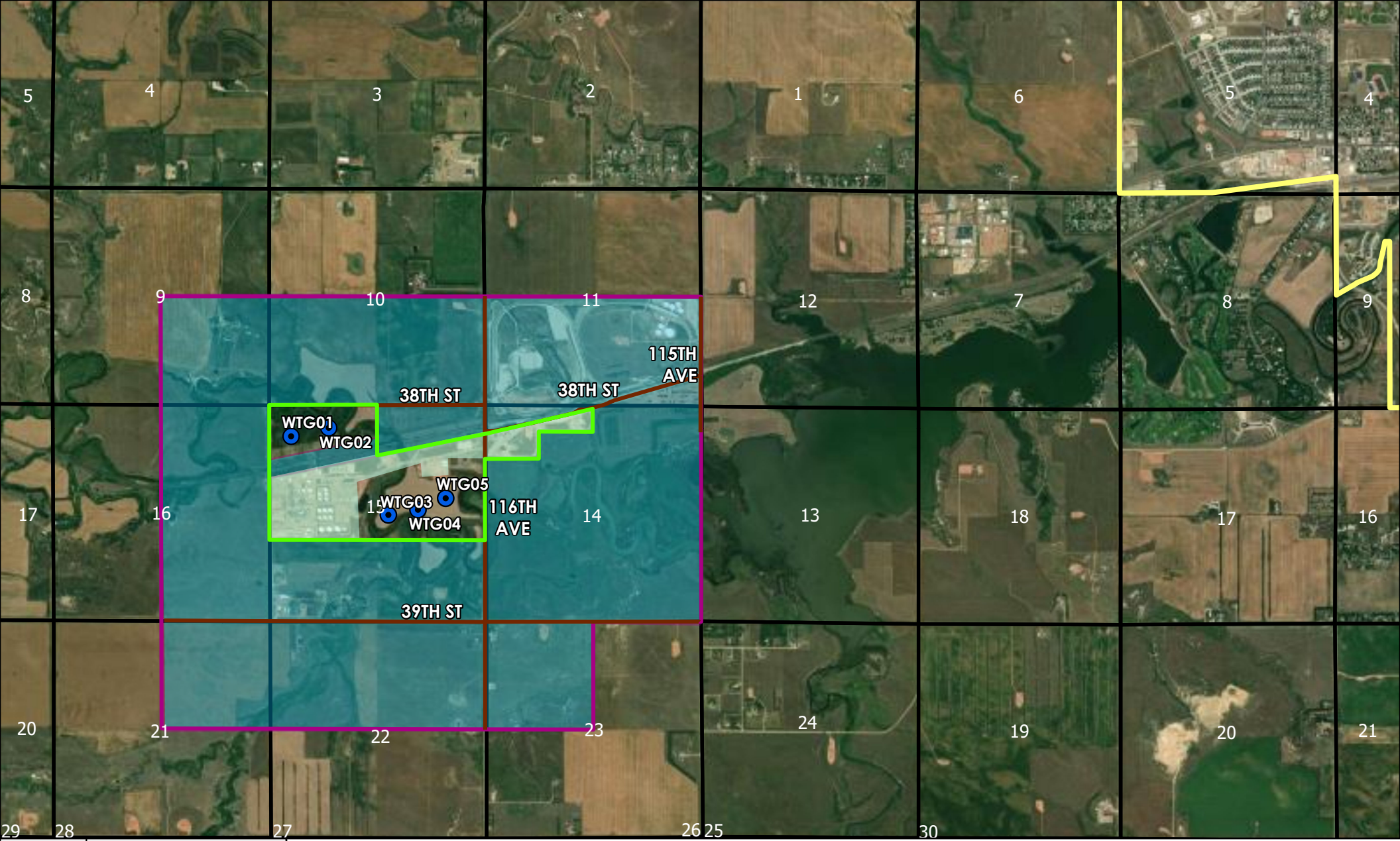
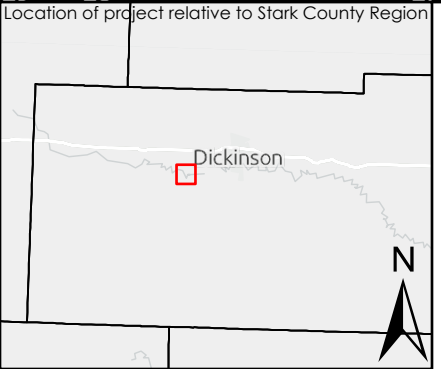


Location of project relative to Stark County Region



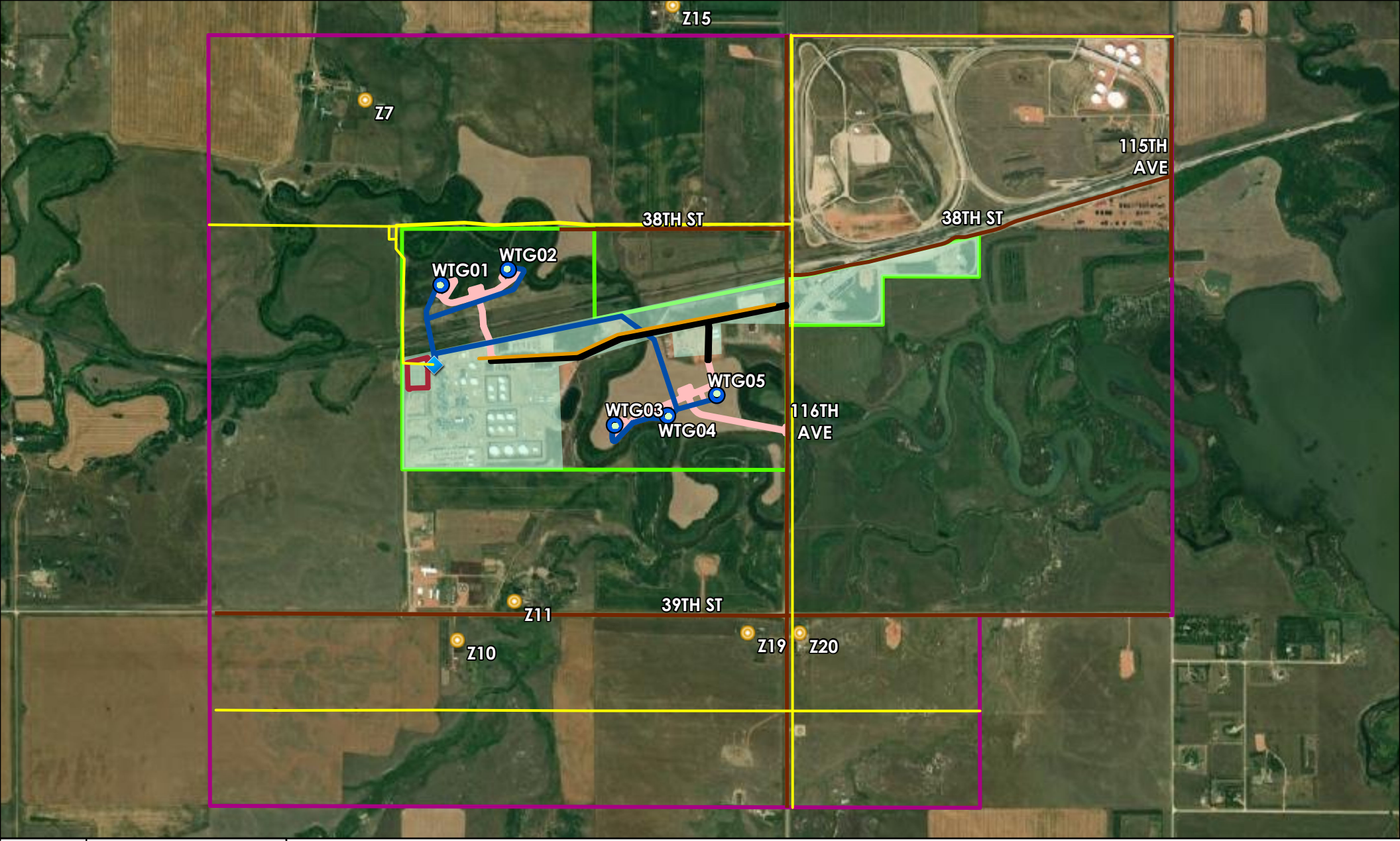
ONE ENERGY

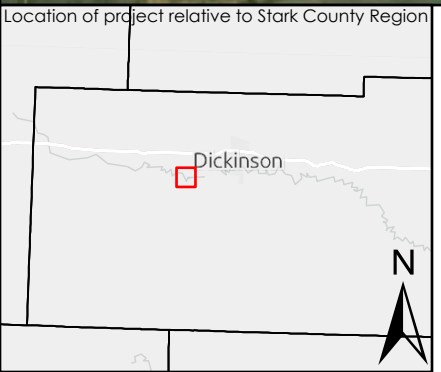
Dickinson Renewable Diesel Wind Turbine Project

- Proposed Turbine
- County Road
- City of Dickinson
- Renewable Diesel Facility
- Project Area
- Study Area
- Nonparticipating Landowners
- Township 139N Sections

0 0.33 0.65 1.3 1.95 2.6 Miles

Figure 1: Project Location





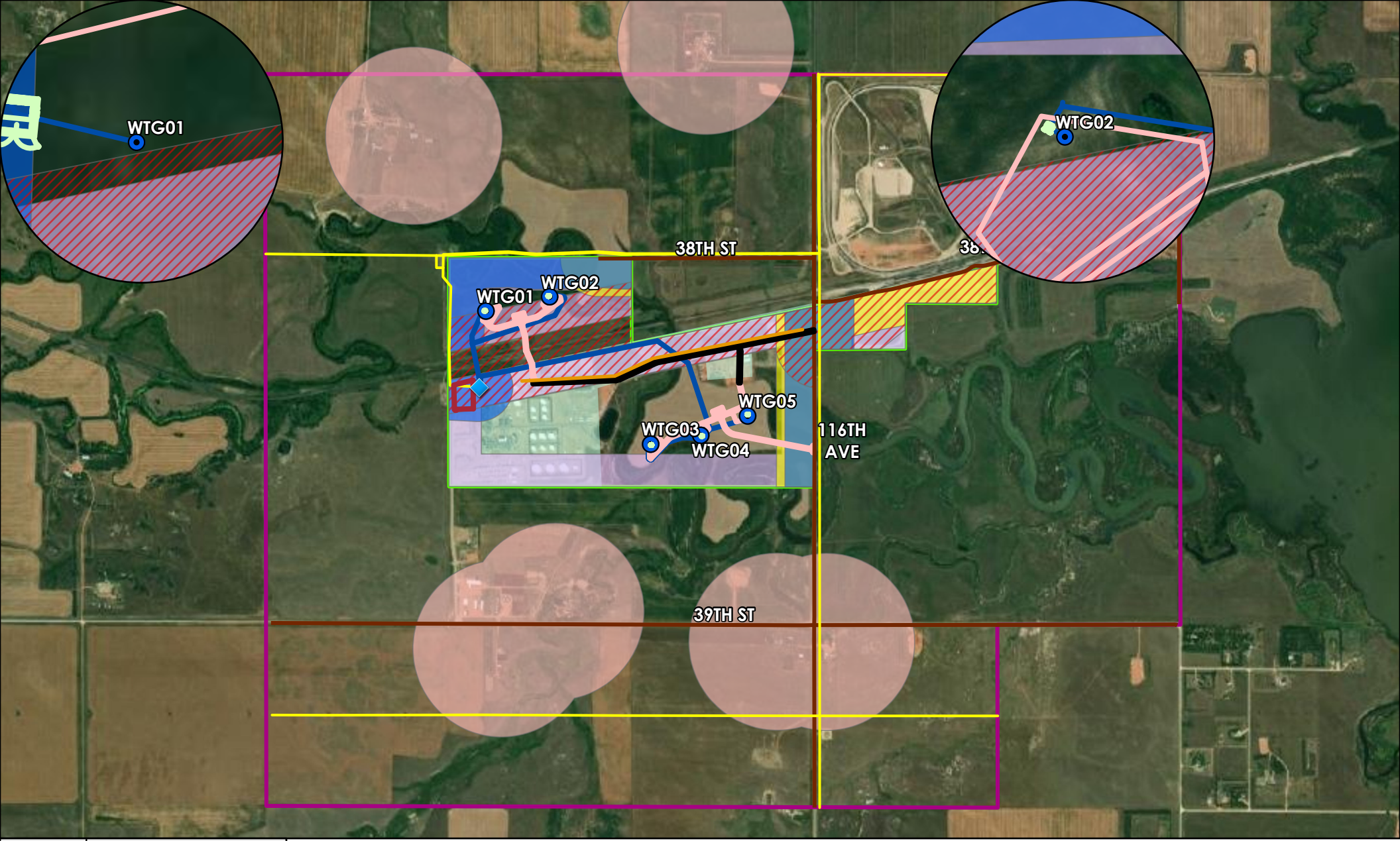
ONE ENERGY

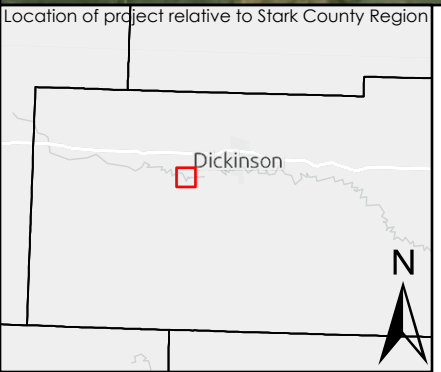
Dickinson Renewable Diesel Wind Turbine Project

- Proposed Turbine
- Residences within 1 Mile
- Proposed Control Equipment Enclosure and Switching Station
- County Road
- Existing DPR Road
- Existing Substation
- Existing Overhead Power Line
- Existing DPR Overhead Power Line
- Proposed Transformer
- Proposed Access Road
- Proposed Underground Collection Line
- Renewable Diesel Facility
- Project Area
- Study Area

0 0.17 0.35 0.7 1.05 1.4 Miles

Figure 2: Site Layout





ONE ENERGY

Dickinson Renewable Diesel Wind Turbine Project

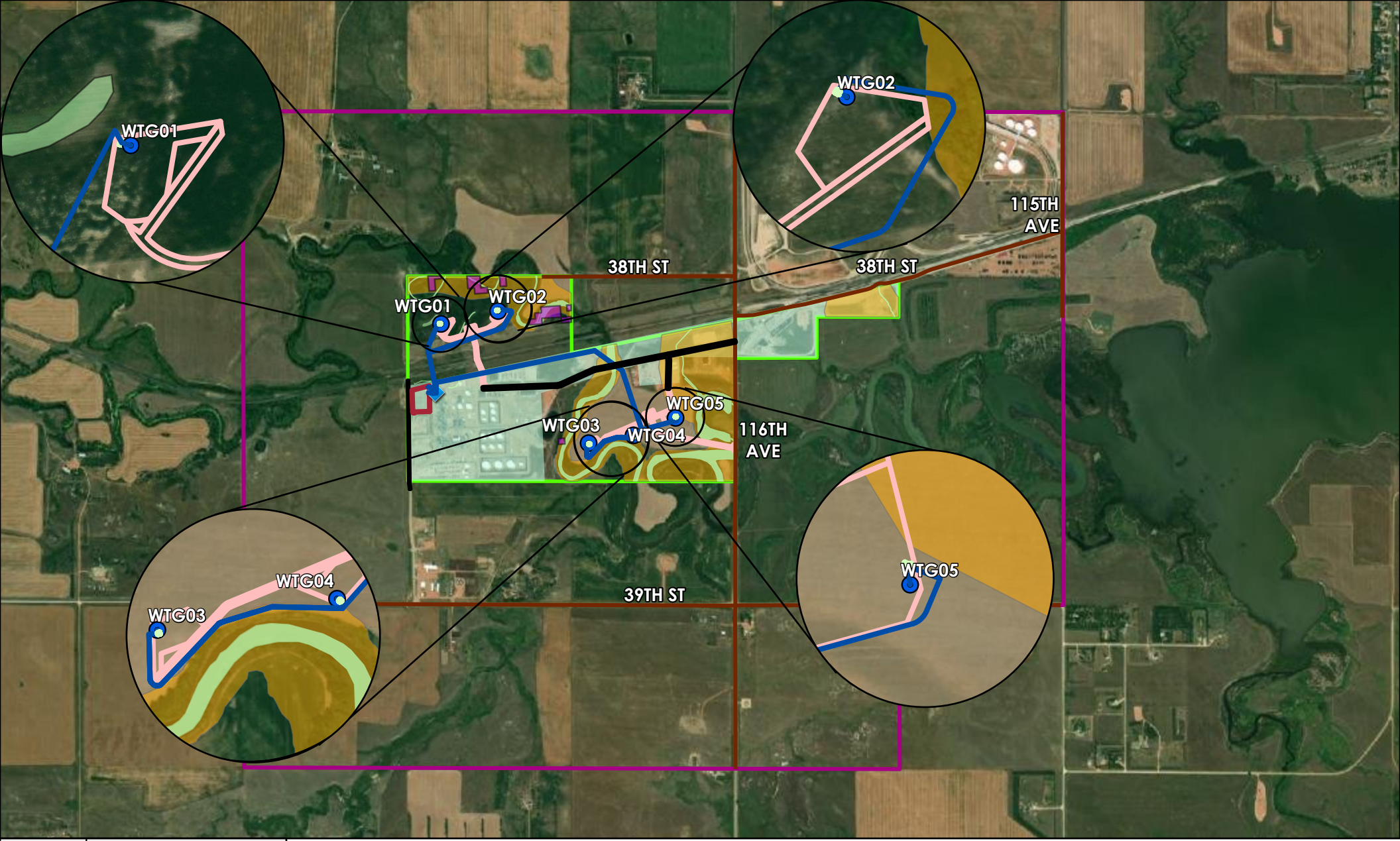
- Proposed Turbine
- Proposed Control Equipment Enclosure and Switching Station
- County Road
- Existing DPR Road
- Existing Substation
- Existing Overhead Power Line
- Existing DPR Overhead Power Line
- Proposed Transformer
- Proposed Access Road
- Proposed Underground Collection Line
- Renewable Diesel Facility
- Project Area
- Study Area

Exclusion Areas

- Road
- Railroad
- Transmission Line
- Non Participating Landowner Parcel
- Non-Participating Landowner Residence

0 0.2 0.4 0.8 1.2 1.6 Miles

Figure 3: Exclusion Areas



Location of project relative to Stark County Region

Dickinson

N

ONE ENERGY

Dickinson Renewable Diesel Wind Turbine Project

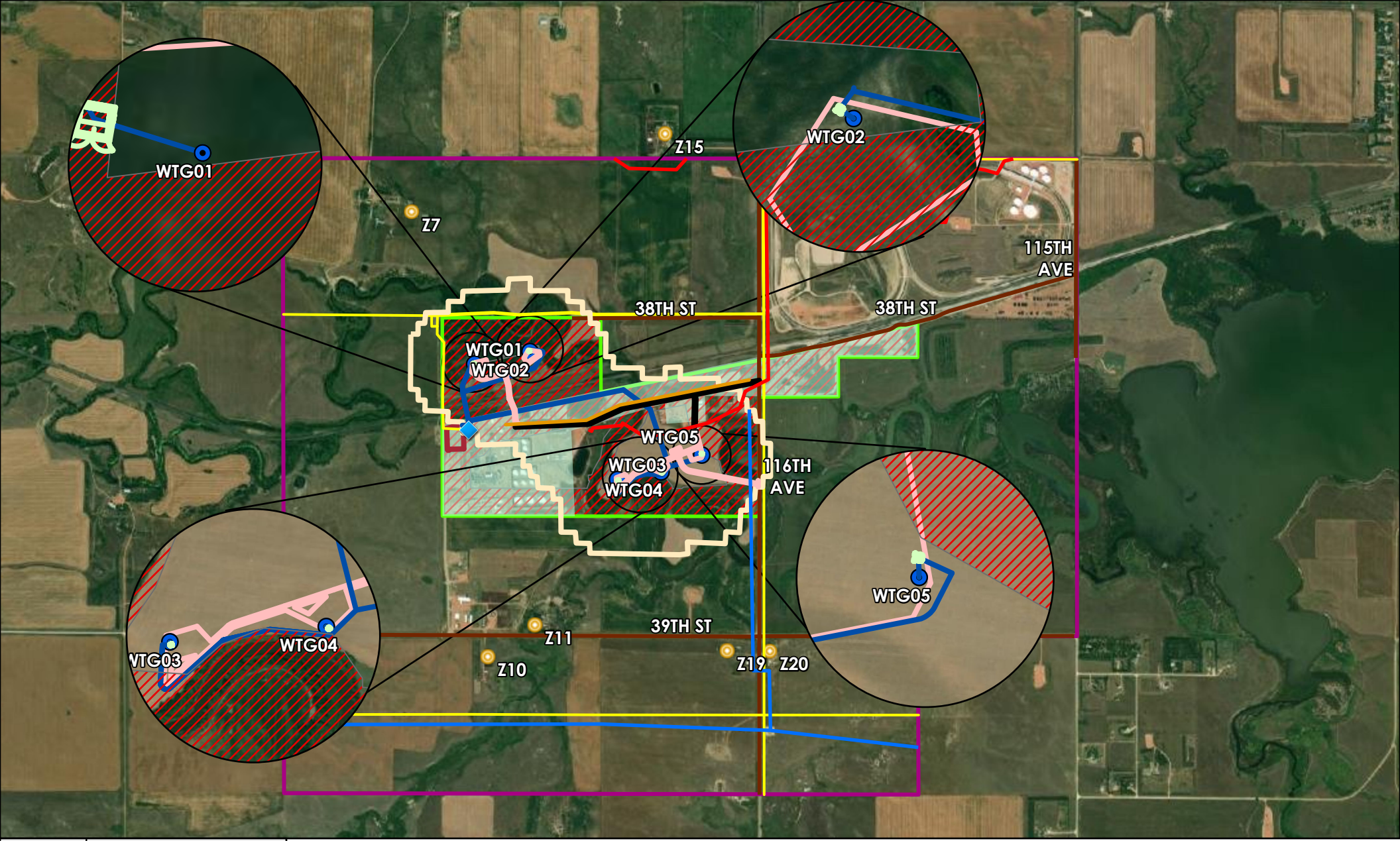
- Proposed Turbine
- Proposed Control Equipment Enclosure and Switching Station
- County Road
- Existing DPR Road
- Existing Substation
- Proposed Transformer
- Proposed Access Road
- Proposed Underground Collection Line
- Renewable Diesel Facility
- Project Area
- Study Area

Avoidance Areas

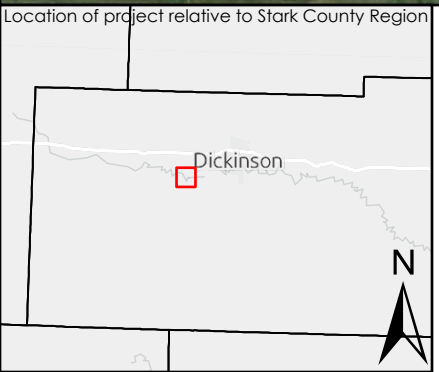
- Wetland
- Woodland
- 100-year Floodplain

0 0.2 0.4 0.8 1.2 1.6 Miles

Figure 4: Avoidance Areas



Location of project relative to Stark County Region



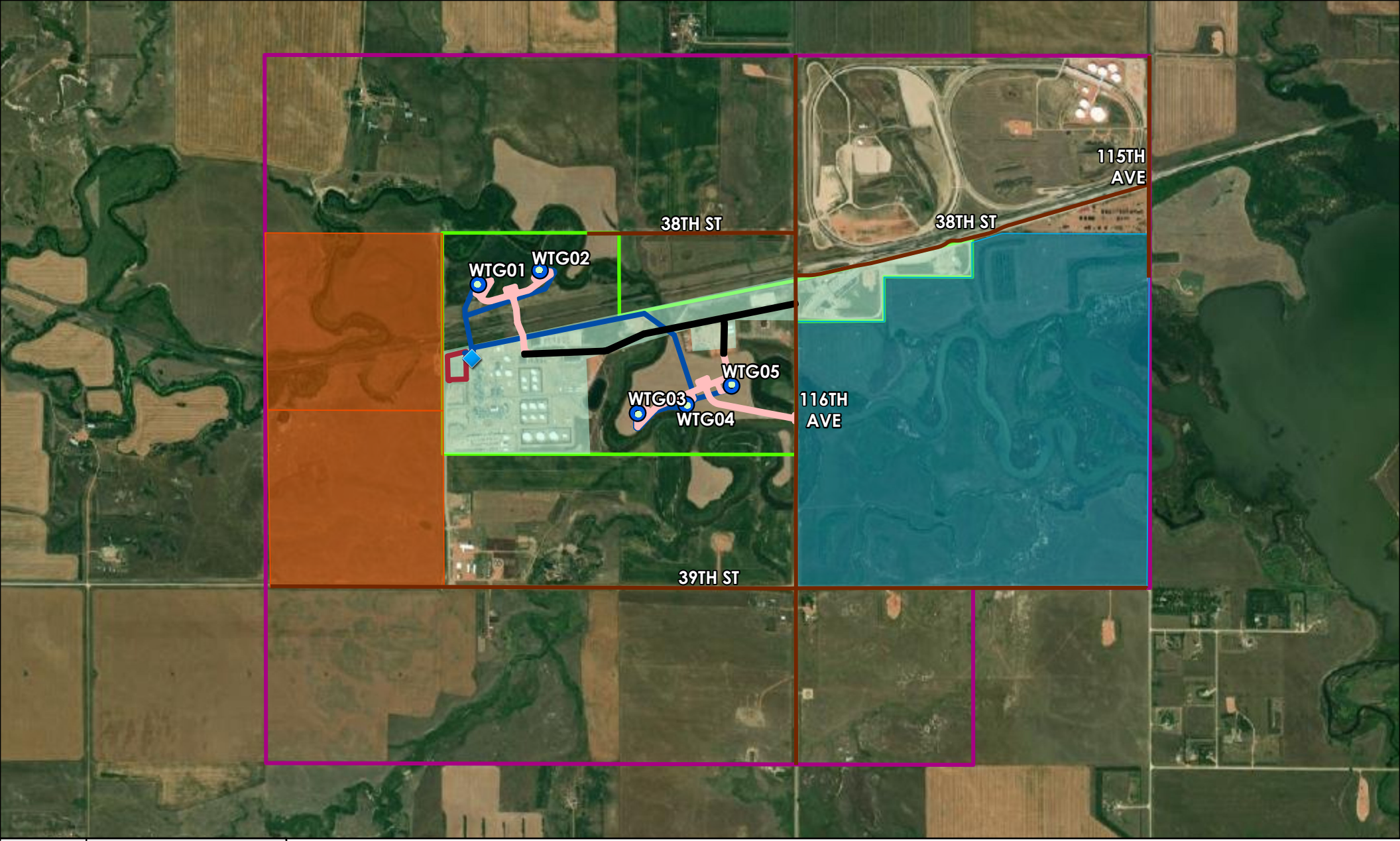
ONE ENERGY

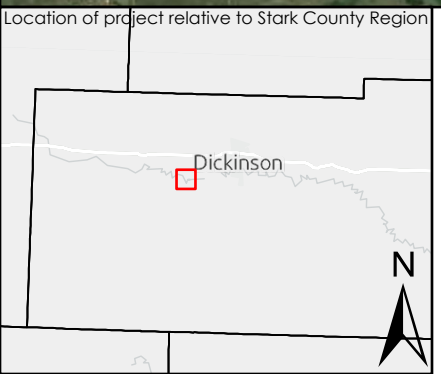
Dickinson Renewable Diesel Wind Turbine Project

- Proposed Turbine
- Nonparticipating Residence
- Proposed Control Equipment Enclosure and Switching Station
- County Road
- 45dBA Turbine Isoline
- Existing DPR Road
- Existing Substation
- Existing Overhead Power Line
- Existing Gas Transmission Pipeline
- Existing Hazardous Liquid Pipeline
- Existing DPR Overhead Power Line
- Proposed Transformer
- Proposed Access Road
- Proposed Underground Collection Line
- Renewable Diesel Facility
- Project Area
- Study Area
- Setback (PSC Setback and Stark County)

0 0.23 0.45 0.9 1.35 1.8 Miles

Figure 5: Project Constraints and Setbacks





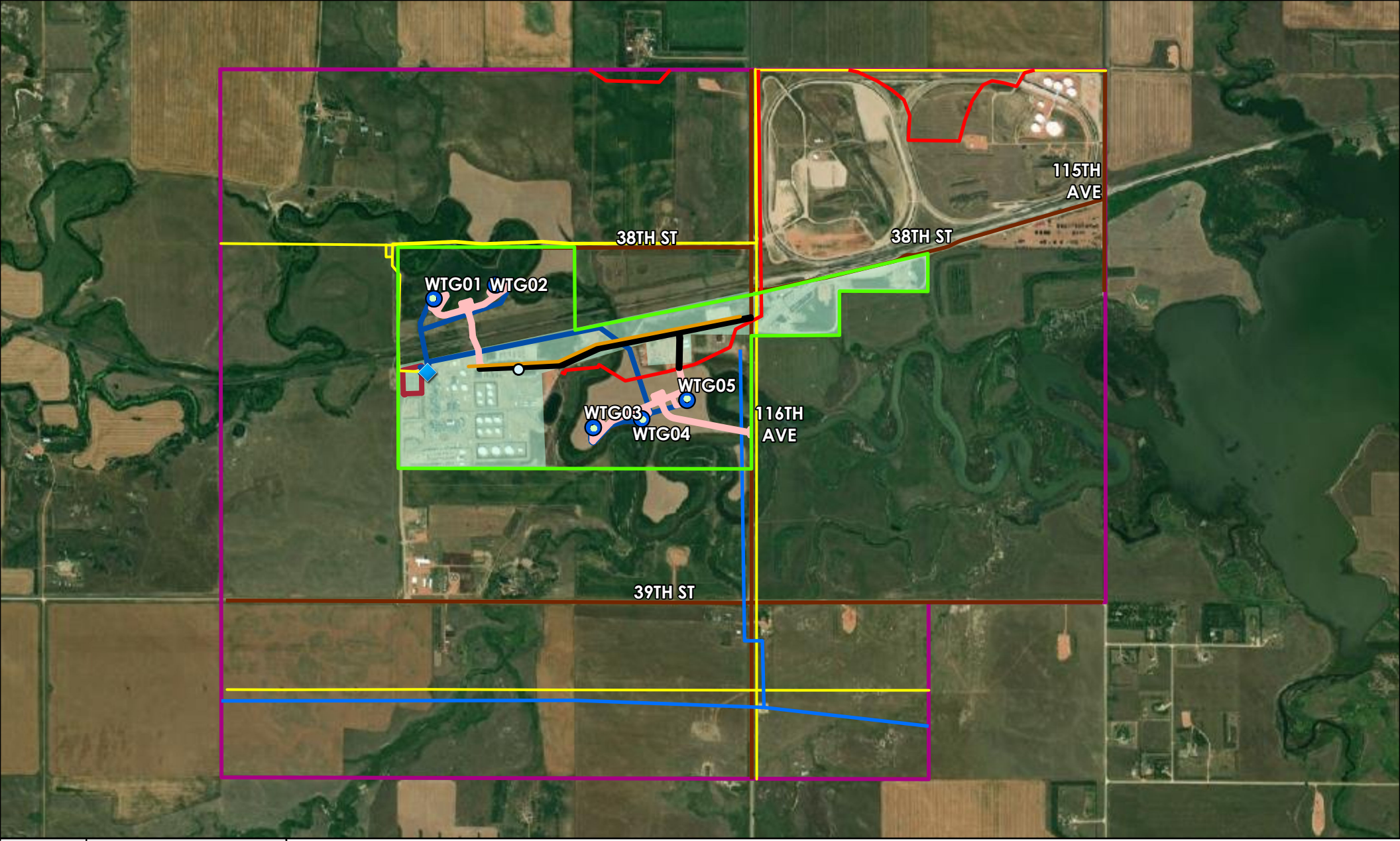
ONE ENERGY

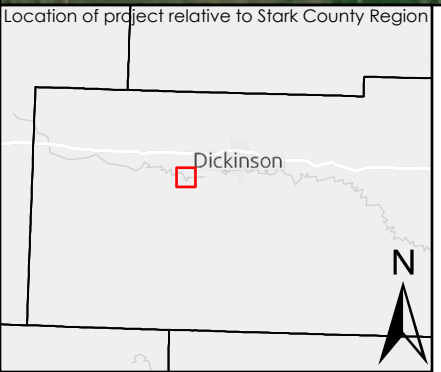
Dickinson Renewable Diesel Wind Turbine Project

- Proposed Turbine
- Proposed Control Equipment Enclosure and Switching Station
- County Road
- Existing DPR Road
- Existing Substation
- Proposed Transformer
- Proposed Access Road
- Proposed Underground Collection Line
- Renewable Diesel Facility
- Project Area
- Study Area
- ND Trust Lands (Mineral Rights)
- ND Bureau of Reclamation Land

0 0.2 0.4 0.8 1.2 1.6 Miles

Figure 6: Public Lands and Easements





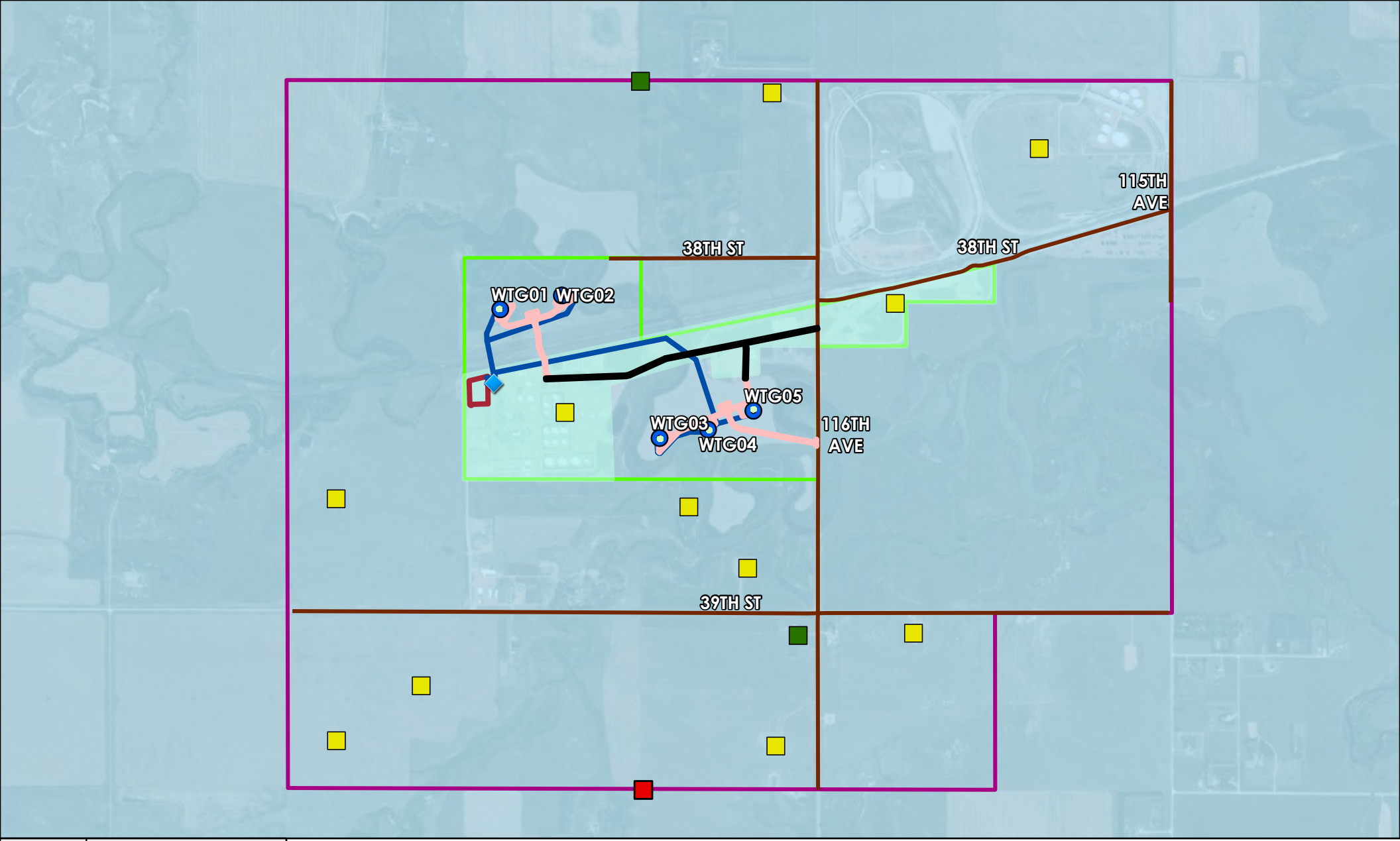
ONE ENERGY

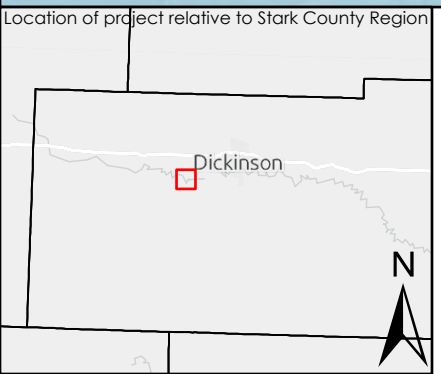
Dickinson Renewable Diesel Wind Turbine Project

- Proposed Turbine
- Existing Land Mobile Station
- Proposed Control Equipment Enclosure and Switching Station
- County Road
- Existing DPR Road
- Existing Substation
- Existing Overhead Power Line
- Existing Gas Transmission Pipeline
- Existing Hazardous Liquid Pipeline
- Existing DPR Overhead Power Line
- Proposed Transformer
- Proposed Access Road
- Proposed Underground Collection Line
- Renewable Diesel Facility
- Project Area
- Study Area

0 0.2 0.4 0.8 1.2 1.6 Miles

Figure 7: Infrastructure





ONE ENERGY

Dickinson Renewable Diesel Wind Turbine Project

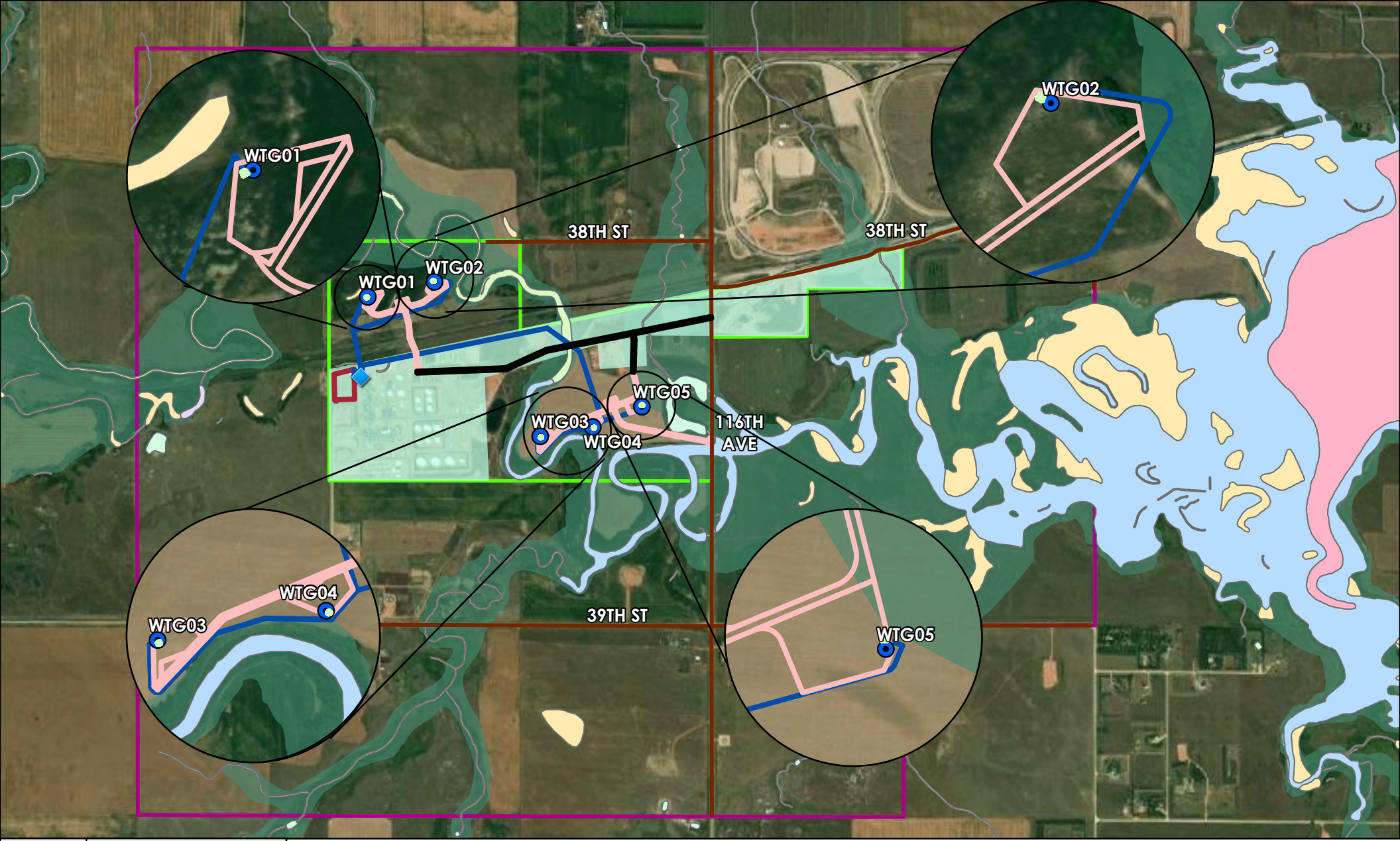
- Proposed Turbine
- Proposed Control Equipment Enclosure and Switching Station
- County Road
- Existing DPR Road
- Existing Substation
- Proposed Transformer
- Proposed Access Road
- Proposed Underground Collection Line
- Renewable Diesel Facility
- Project Area
- Study Area

Surface Geology
- Sentinel Butte

Wells
- Domestic Well
- Unknown
- Oil Well

0 0.2 0.4 0.8 1.2 1.6 Miles

Figure 8: Geologic and Groundwater Resources



Location of project relative to Stark County Region

ONE ENERGY

Proposed Turbine

Proposed Control Equipment Enclosure and Switching Station

County Road

Existing DPR Road

Existing Substation

0 0.17 0.35 0.7 1.05 1.4 Miles

Dickinson Renewable Diesel Wind Turbine Project

Proposed Transformer

Proposed Access Road

Proposed Underground Collection Line

Renewable Diesel Facility

Project Area

Study Area

100-Year Flood Plain

Emergent Wetland

Riverine,Permanently Flooded

Riverine,Semipermanently Flooded

Riverine,Seasonally Flooded

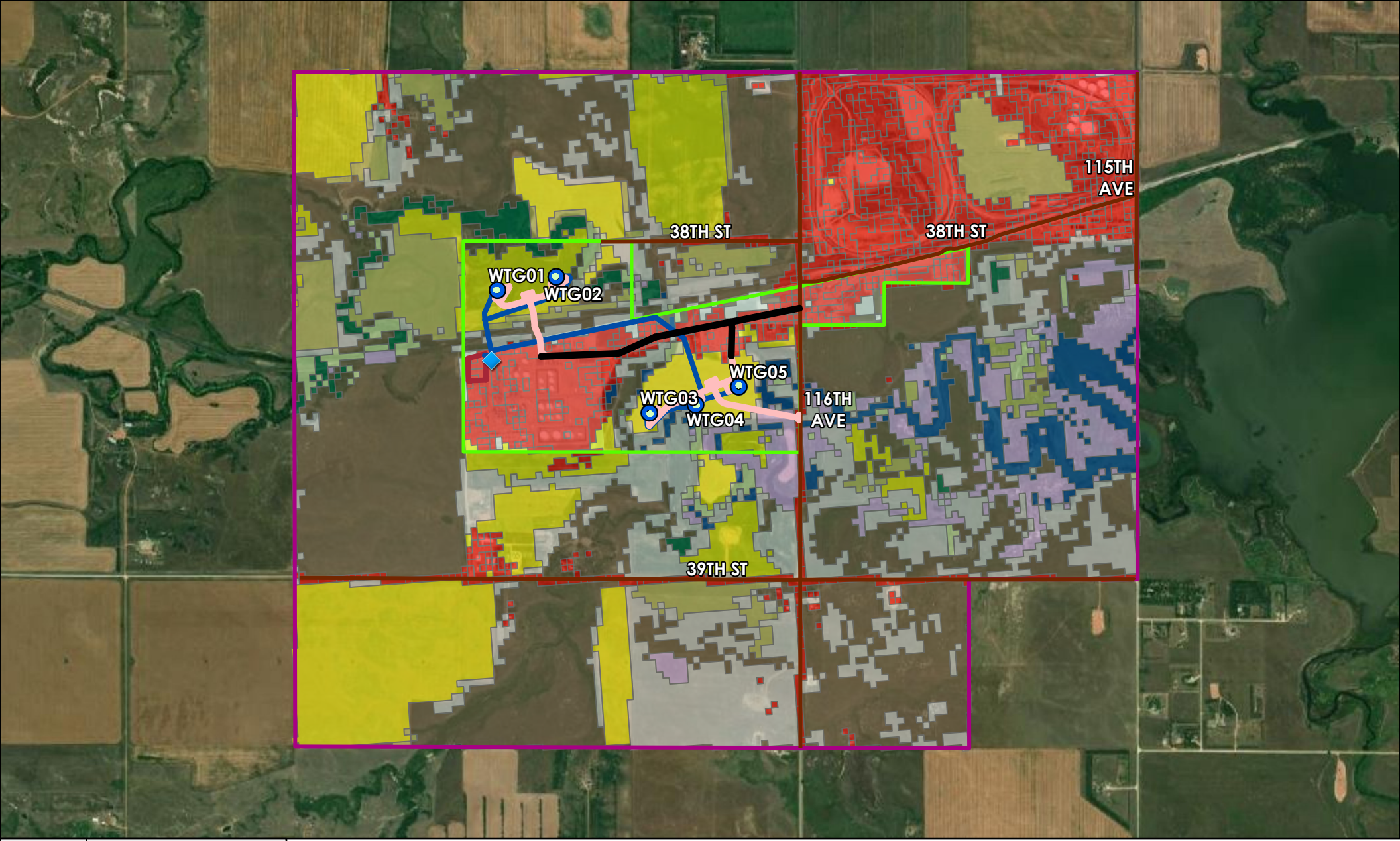
Freshwater Pond,Seasonally Flooded

Freshwater Pond,Semipermanently Flooded

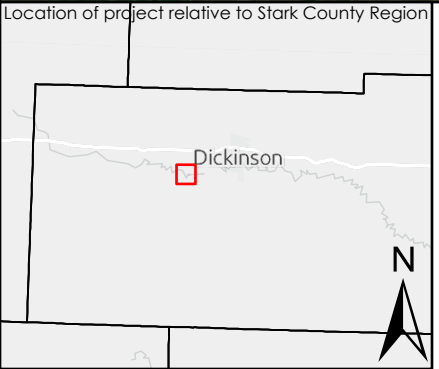
Lake,Intermittently Exposed

Lake,Semipermanently Flooded

Figure 9: Water Resources



Location of project relative to Stark County Region



ONE ENERGY

Dickinson Renewable Diesel Wind Turbine Project

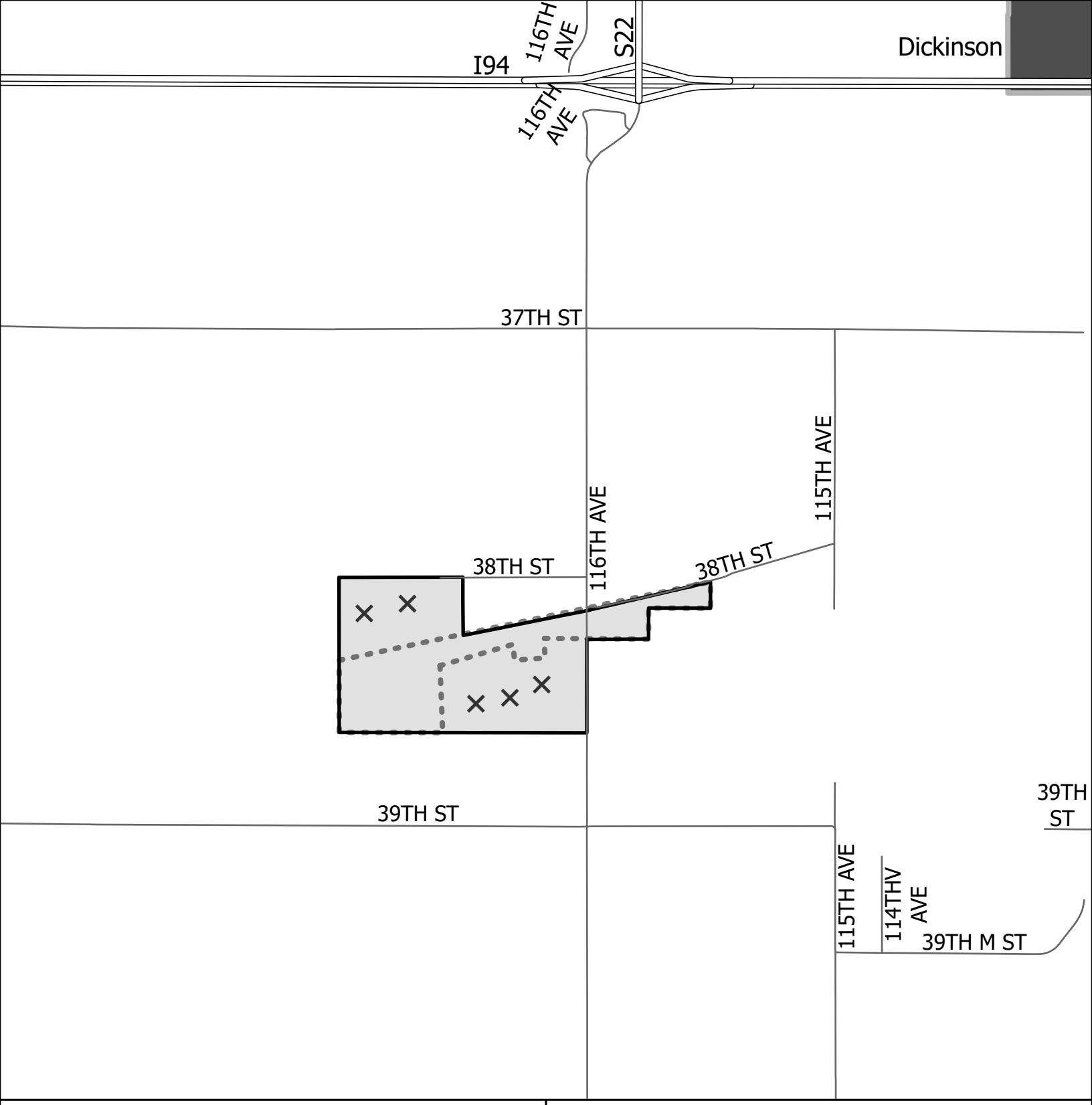
- Proposed Turbine
- Proposed Control Equipment Enclosure and Switching Station
- County Road
- Existing DPR Road
- Existing Substation
- Proposed Transformer
- Proposed Access Road
- Proposed Underground Collection Line
- Renewable Diesel Facility
- Project Area
- Study Area

NLCD Land Cover

- Barren Land
- Cultivated Crops
- Deciduous Forest
- Developed
- Emergent Herbaceous Wetlands
- Hay/Pasture
- Grassland/Herbaceous
- Mixed Forest
- Open Water
- Shrub/Scrub
- Woody Wetlands

0 0.2 0.4 0.8 1.2 1.6 Miles

Figure 10: Land Use



× Proposed Turbine

County Road

State and Federal Roads

City of Dickinson

Renewable Diesel Facility

Project Area

N

0 0.3 0.6 1.2 1.8 2.4 Miles

Project Location Map

Stark County, North Dakota

Dickinson Renewable Diesel Wind Turbine Project

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APPENDIX A

Policy Statement

ONE ENERGY
WIND FOR INDUSTRY®

OEE XXXI LLC's Practices and Commitment to the Environment

OEE XXXI LLC with the help of its parent company One Energy Enterprises LLC and its team of environmental siting professionals, permitting experts, and wind experts, along with its third-party consultants, is committed to using data and collaboration to identify, avoid, and minimize adverse impacts to the environment, cultural resources, and the area throughout development, construction, operation, and decommissioning of the Dickinson Renewable Diesel Wind Turbine Project. Throughout the siting and development process, OEE XXXI LLC has completed environmental and cultural reviews through robust processes outlined in the U.S. Fish and Wildlife Service's Land-Based Wind Energy Guidelines and other state and federal agency guidance and recommendations. Throughout development, OEE XXXI LLC has worked with federal, state, and local agencies to ensure the Project complies with environmental laws and minimizes its environmental footprint to the greatest extent practicable and it will continue to do so.

APPENDIX B

Ten-Year Plan

TEN YEAR PLAN: 2021-2031

OEE XXXI LLC

November 2021

In accordance with N.D.C.C. § 49-22-04 and N.D.A.C. Ch. 69-06-02, OEE XXXI LLC submits the following Ten Year Plan for years 2021 through 2031.

1) ***A description of the general location, size, and type of all facilities to be owned or operated by the utility during the ensuing ten years, as well as those facilities to be removed from service during the ten-year period.***

OEE XXXI LLC is a Delaware limited liability company, authorized to do business in the State of North Dakota. OEE XXXI LLC is constructing a five turbine, 11.75 megawatt ("MW") wind energy conversion facility known as the Dickinson Renewable Diesel Facility Wind Turbine Project (the "Project"). The Project will be located on-site at the Dakota Prairie Refining, LLC Renewable Diesel Facility (the "Facility") southwest of the City of Dickinson in Stark County, North Dakota. Dakota Prairie Refining, LLC is an affiliate of Marathon Petroleum Corporation. The Project will interconnect to the Facility behind-the-meter and directly supply and satisfy a portion of the Facility's electric needs. The Project interconnection will be less than 115 kilovolts ("kV") and less than one mile long and, therefore, will not be subject to the jurisdiction of the North Dakota Public Service Commission ("Commission") as a "transmission facility."

OEE XXXI LLC submitted Conditional Use Permit and Rezoning applications to Stark County on July 1, 2021 and intends on submitting a Certificate of Site Compatibility application for a Small Wind Energy Conversion Facility to the Commission in 2021. OEE XXXI LLC plans to begin constructing the Project in 2022 and plans for the Project to be commercially operational by the end of 2022.

Other than the proposed Project, OEE XXXI LLC does not have any transmission or generation facilities located in North Dakota. The Project will have an estimated life of greater than 10 years. As such, OEE XXXI LLC does not have any plans to decommission any transmission or generation facilities within the timeframe of this plan.

2) ***An identification of the location of the tentative preferred site for all energy conversion facilities and the tentative location of all transmission facilities on which construction is intended to be commenced within the ensuing five years and such other information as may be required by the commission. The site and corridor identification shall be made in compliance with the criteria published by the commission pursuant to section 49-22-05.1.***

As noted above, OEE XXXI LLC is developing the above-referenced Project and proposes to have the Project in-service by the end of 2022. The proposed Project footprint is located southwest of the City of Dickinson in Stark County, North Dakota. The Project will be located solely on land owned by Dakota Prairie Refining, LLC and will connect to the Facility's existing electrical system behind-the-meter.

One Energy Solutions LLC, an affiliate of OEE XXXI LLC, has performed studies and has retained qualified environmental consulting firms to evaluate the proposed Project site to ensure compliance with the Commission's siting criteria, including the exclusion and avoidance area criteria referenced in N.D.C.C. § 49-22-05.1 and identified in N.D.A.C. Section 69-06-08-01. A map depicting the study area for the Project is attached as Exhibit A.

3) ***A description of the efforts by the utility to coordinate the plan with other utilities to provide a coordinated regional plan for meeting the utility needs of the region.***

The Project will be directly interconnected with and directly supply electricity to the Facility. The Facility will use nearly all of the electricity generated by the five wind turbines and the remainder of the electricity will be supplied to the electric grid as a qualifying facility under the Public Utility Regulatory Policies Act ("PURPA") through an interconnection to the system owned by the local distribution utility, Montana-Dakota Utilities Company.

4) ***A description of the efforts to involve environmental protection and land-use planning agencies in the planning process, as well as other efforts to identify and minimize environmental problems at the earliest possible stage in the planning process.***

OEE XXXI LLC has engaged the services of qualified environmental consulting firms to study and identify avoidance and exclusion areas within the proposed Project site, in accordance with N.D.C.C. Ch. 49-22 and N.D.A.C. Section 69-06-08-01. OEE XXXI LLC submitted Conditional Use Permit and Rezoning applications for the Project to Stark County, North Dakota in July 2021.

Additionally, OEE XXXI LLC has consulted with applicable local, state, and federal agencies and entities in connection with siting and development of the Project, including the United States Fish and Wildlife Service, the Federal Aviation Administration, the North Dakota Game and Fish Department, the State Historical Society of North Dakota, and Stark County. OEE XXXI LLC will continue to coordinate with agencies and entities, as appropriate, throughout the development, construction, and operation of the Project.

5) A statement of the projected demand for the service rendered by the utility for the ensuing ten years and the underlying assumptions for the projection, with that information being as geographically specific as possible, and a description of the manner and extent to which the utility will meet the projected demands.

As discussed above, the Project will be directly interconnected with and directly supply electricity to the Dakota Prairie Refining, LLC Renewable Diesel Facility located in Stark County, North Dakota. The Facility will use nearly all of the electricity generated by the five wind turbines. The Facility produces low carbon, renewable diesel fuel that has unique market value because of its low lifecycle carbon intensity. The Project is imperative to meet the long-term efficiency and low carbon operational needs of the Facility.

Once approved and constructed, the Project will make the Facility the first refinery in history to be directly powered by on-site wind energy. The world is changing, and projects like this are how the State of North Dakota can enable facilities like the Dickinson Renewable Diesel Facility to lead that change for decades to come.

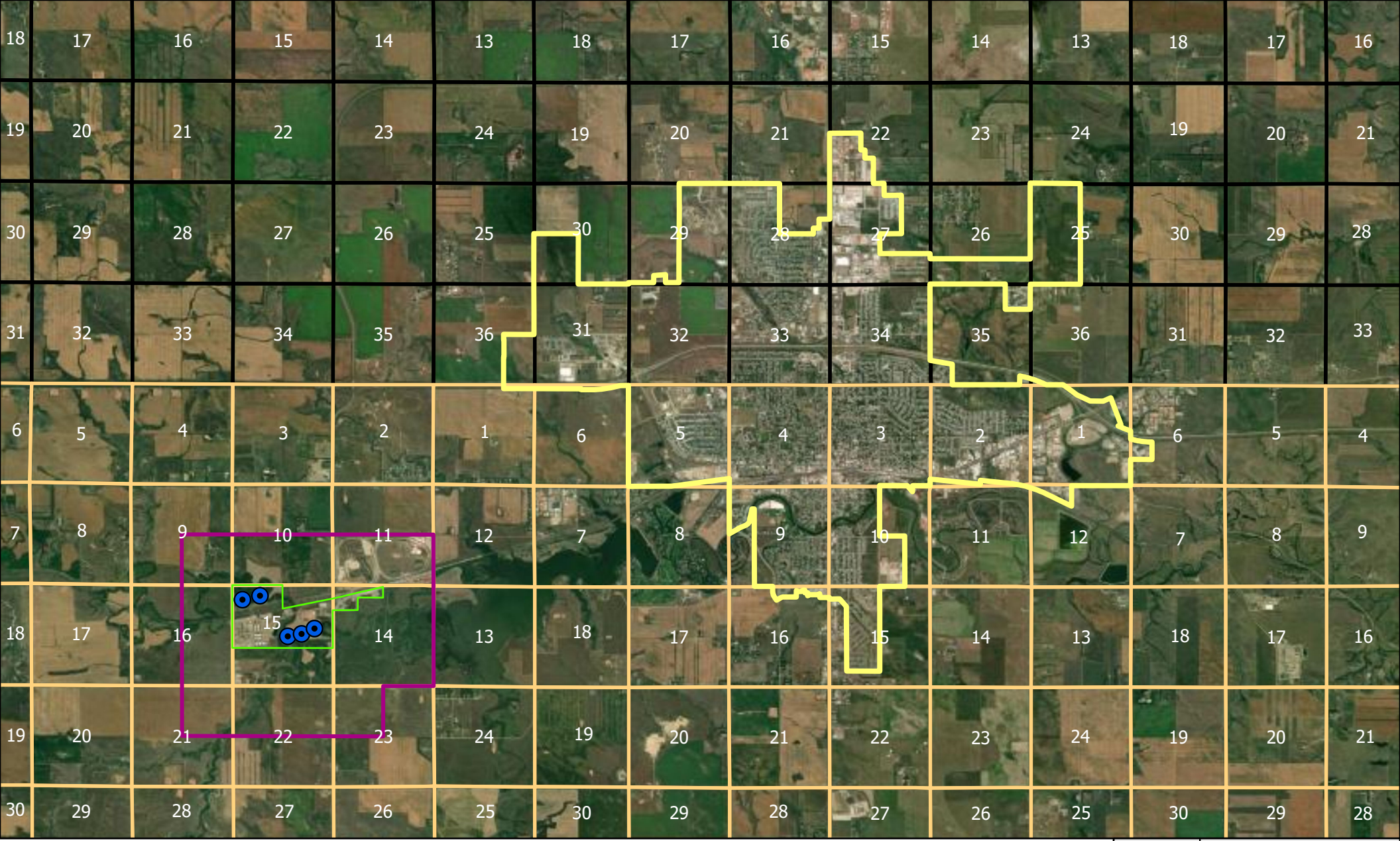

Exhibit A: Project Study Area

- Proposed Turbine
- Project Area
- Study Area
- City of Dickinson
- Township 139N Sections
- PLSS Sections

N

0 0.5 1 2 3 4 Miles

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APPENDIX C

Certification Relating to Order Provisions, Small Wind Energy Conversion Facility

STATE OF NORTH DAKOTA

PUBLIC SERVICE COMMISSION

OEE XXXI LLC **Case No. PU-21-___**
Marathon Dickinson Renewable Diesel Facility Wind Turbine Project – Stark County
Small Wind Energy Siting Application

CERTIFICATION RELATING TO ORDER PROVISIONS SMALL WIND ENERGY CONVERSION FACILITY SITING

I am Jerene Kent, a representative of OEE XXXI LLC ("Company") with authority to bind the Company to requirements to be set forth by the Commission in its Order, and I certify the following:

1. The Company has a contract with a single landowner (the "Customer"). The energy conversion facility is designed with the primary purpose of serving the Customer. The energy conversion facility shall only exist on the property owned by the Customer. Company understands and agrees that the Certificate of Site Compatibility will be issued by the Commission subject to the conditions and criteria set forth in Chapter 49-22 of the North Dakota Century Code and Chapter 69-06-10 of the North Dakota Administrative Code, and that Company shall be responsible for compliance with this order and conditions and criteria set forth in the applicable laws and rules.

2. Company agrees to comply with the rules and regulations of all other agencies having jurisdiction over any phase of the proposed energy conversion facility including all city, township, and county zoning regulations.

3. Company understands and agrees that it shall obtain all other necessary licenses and permits, and shall provide copies of all licenses and permits to the Commission prior to construction activity associated with the energy conversion facility that requires said license or permit.

4. Company understands and agrees that the Certificate of Site Compatibility is subject to suspension or revocation and may, in an appropriate and proper case, be suspended or revoked for failure to comply with the Commission's order, the conditions and criteria of the certificate or subsequent modification, or failure to comply with the applicable statutes, rules, regulations, standards, and permits of other state or federal agencies.

5. Company agrees to maintain records that will demonstrate that it has complied with the requirements of the Commission's order and the Certificate of Site

Compatibility, and that it will preserve these records for Commission inspection at any reasonable time upon reasonable notice.

6. Company understands and agrees that the authorizations granted by the Certificate of Site Compatibility for the energy conversion facility are subject to modification by order of the Commission if deemed necessary to protect further the public or the environment.

7. Company is aware that under North Dakota Century Code section 49-02-27 the Commission has rules for decommissioning of wind energy conversion facilities. Company agrees to comply with all decommissioning rules adopted by the Commission.

Construction:

8. Company agrees to hold a preconstruction conference prior to commencement of any construction, which must include a Company representative, its construction supervisor, and a representative of Commission Staff, to ensure that Company fully understands the conditions set forth in the Commission's order.

9. Company understands and agrees that all cultural resource mitigation plans must be approved by the North Dakota State Historic Preservation Office prior to the start of any fieldwork and construction activity in the affected area.

~~10. Company understands and agrees that topsoil removal will begin when the Commission's third-party construction inspector is present at the Project site to observe that topsoil is properly removed and kept segregated from subsoil until replacement occurs. Company shall establish the date and time for the Commission's third-party construction inspector's topsoil removal oversight in the preconstruction conference.~~

~~11.~~10. Company agrees to inform the Commission ~~and the Commission's third-party construction inspector~~ of its intent to start construction on the energy conversion facility prior to the commencement of construction. Once construction has started, Company shall keep the Commission ~~and the Commission's third-party construction inspector~~ updated of construction activities on a monthly basis.

~~12.~~11. Company is aware that North Dakota law requires that all companies that own or operate electric generation of any size for the primary purpose of resale must comply with the standards of the National Electrical Safety Code in effect at the time of construction of the generation facility, and agrees to comply with that requirement.

~~13.~~12. Company agrees to construct and operate the energy conversion facility in accordance with all applicable safety requirements.

~~14.~~13. Company understands and agrees that all underground collection and feeder lines outside the fence line of the refinery shall be buried to a depth of at least 48 inches to the top of the lines.

~~15.~~14. Company understands that the management of topsoil and subsoil during construction of the energy conversion facility will be conducted after notice of such management practices is communicated to the Customer and permission for such practices occurring on the Customer's land is granted. Topsoil will not be removed from the site. Stripped topsoil will be blended into the site or temporarily stockpiled and replaced. ~~and agrees that topsoil, up to 12 inches, or topsoil to the depth of cultivation, whichever is greater, over and along trench areas, roadways, tower locations, and locations of associated facilities must be carefully stripped and segregated from the subsoil. Any area on which excavated subsoil will be placed must first be stripped of topsoil.~~ The stripped topsoil must not be stockpiled in natural drainages, and must be protected from water erosion. ~~Care must be taken to protect topsoil from unnecessary compaction by heavy machinery. Unless otherwise approved by the Commission, topsoil must be removed before topsoil freezes in the late fall/ early winter to the point that frost inhibits proper soil segregation.~~ After backfilling trenching or excavations ~~with subsoil~~ is completed, any excess subsoil must be placed over the excavation area, blending the grade into existing topography. Topsoil must be replaced over areas from which it was stripped only after the subsoil is replaced. Care shall be taken to minimize the mixing of topsoil and subsoil.

~~16.~~15. Company understands and agrees that all buried facility crossings of graded roads shall be bored unless the responsible governing agency specifically permits Company to open cut the road.

~~17.~~16. Company understands and agrees that staging areas or equipment shall not be located on land owned by a person other than Company unless otherwise negotiated with landowners.

~~18.~~17. Company understands and agrees that if any cultural resource, paleontological site, archeological site, historical site, or grave site is discovered during construction, it must be marked, preserved and protected from further disturbances until a professional examination can be made by the State Historical Society, and a report of such examination is filed with the Commission.

~~19.~~18. Company understands and agrees that construction must be suspended when weather conditions are such that construction activities will cause irreparable damage to public roads or land, unless adequate protection measures are taken by Company.

~~20.~~19. Company agrees to keep the Customer's agent informed of its construction activities and will respond to all stop orders from the Customer's agent related to imminent hazards. ~~understands and agrees that the Commission has authority to stop Project construction activities in the event of a probable violation of the siting laws, siting rules, or applicable Commission Orders if, in the opinion of the Commission, construction activities are likely to result in irreparable or significant harm.~~ For purposes of this provision, "imminent hazard" means a condition that presents a substantial likelihood of death, serious illness, severe personal injury, or a substantial endangerment to health, property, or the environment. Other Project construction activities would be allowed to continue.

Restoration and Maintenance:

~~21.~~20. Company agrees that it shall, as soon as practicable upon the completion of the construction of the energy conversion facility, restore the area temporarily affected by the construction activities to as near as is practicable to the condition as it existed prior to the beginning of construction~~, unless otherwise approved by the Commission~~.

~~22.~~21. Company understands and agrees that all pre-existing township and county roads and lanes used during construction must be repaired or restored to a condition that is equal to or, at the Company's discretion, better than the condition prior to the construction of the energy conversion facility and that will accommodate their previous use, and that areas used as temporary roads or working areas during construction must be restored to their original condition.

~~23.~~22. Company understands and agrees that reclamation, fertilization, and reseeding is to be done according to the Natural Resources Conservation Service recommendations or according to a procedure approved by the landowner.~~, unless otherwise specified by the landowner and approved by the Commission~~.

~~24.~~23. Company will fulfil its obligation for reclamation and maintenance of the approved site continuing throughout the life of the energy conversion facility.

~~25.~~24. Company will repair all fences and gates removed or damaged during all phases of construction and operation of the proposed energy conversion facility, unless otherwise agreed to in writing by the landowner.

~~26.~~25. Company will repair or replace all drainage tile broken or damaged as a result of construction and operation of the proposed energy conversion, unless otherwise agreed to in writing by the landowner.

~~27. Company agrees to comply with the Tree and Shrub Mitigation Specifications, attached.~~

~~28.~~26. Company understands and agrees that it shall work with landowners and residents to mitigate any increase in television and residential radio interference that results from the construction of the energy conversion facility.

~~29.~~27. Company understands and agrees that it shall remove all waste that is a product of construction and operation, restoration, and maintenance of the site, and properly dispose of it on a regular basis.

~~30.~~28. Company understands and agrees that it shall provide any necessary safety measures for traffic control or to restrict public access to the energy conversion facility.

Communication with Landowners and PSC:

~~31.~~29. Company agrees to provide the Commission with engineering design drawings showing surveyed structure and collection substation locations prior to construction.

~~32.~~30. Company understands and agrees that it shall advise the Commission as soon as reasonably possible of any extraordinary events which take place at the site of the energy conversion facility, including injuries to any person, a tower collapse, or a catastrophic turbine failure.

~~33.~~31. Company agrees to report to the Commission, as soon as reasonably possible, the presence in or near the approved site of any critical habitat of threatened or endangered species that Company becomes aware of and which were not previously reported to the Commission.

~~34.~~32. Company agrees to provide the Commission with both an electronic and a paper copy of the site approved by the Commission and the facility design specifications for the construction of the energy conversion facility showing the location of the energy conversion facility as built, and will provide this information within 3 months of the completion of the construction. Company also agrees to provide an electronic version of the site approved by the Commission and the facility design specifications for the construction of the energy conversion facility showing the location of the energy conversion facility as built that can be imported into ESRI GIS mapping software within 3 months of the completion of the construction. This electronic map data must be referenced to the North Dakota coordinate system of 1983, North and/or South zones US Survey feet (NAD 83) UTM Zone 13N or 14N feet (NAD 83), or geographic coordinate system (WGS 84) feet. The vertical data must be in the appropriate vertical datum for the coordinate system used. All submissions must specify the datum in which the data was developed.

~~35.~~33. Company shall notify the Commission, as soon as reasonably possible, if any damage, as defined by North Dakota Century Code Chapter 49-23, occurs to underground facilities during construction conducted under the certificate or permit

issued in this proceeding. In the event of any damage to underground facilities, Company shall suspend construction in the vicinity of the damage until compliance with One-Call Excavation Notice System requirements under North Dakota Century Code Chapter 49-23 has been determined.

~~36. Company agrees that it shall provide, if requested, educational material for landowners within the site boundaries about the proposed energy conversion facility and any restriction or danger concerning the proposed energy conversion facility.~~

~~37.~~34. Company understands and agrees that it shall implement a procedure for how complaints concerning the proposed energy conversion facility will be handled by Company

Modification of Energy Conversion Facility or Energy Conversion Site Plan:

~~38.~~35. Before conducting any construction activities for any modification within the designated site, the Company will file the name and contact information for a key contact person for the purposes of notice and communication during the site modification application and will use the following procedures:

A. Before conducting any construction activities for any modification within the designated site, and such **construction activities will not affect any known exclusion or avoidance areas** within the designated site, the Company will file certification and supporting documentation:
   1. Affirming that construction activities will not affect any known exclusion or avoidance areas within the designated site;
   2. Including a map meeting the requirements of N.D. Admin. Code § 69-06-04-01(2)(n) identifying the designated site and site modification(s); and
   3. Affirming that Company will comply with the Commission's order, law and rules designating the site.

B. Before conducting any construction activities for any modification within the designated site, and such construction activities will not affect any known exclusion but **may affect an avoidance area** within the designated site, the Company will file:
   1. A specific description of the avoidance area expected to be impacted, including a map meeting the requirements of N.D. Admin. Code § 69-06-04-01(2)(n) identifying:
      a. the designated site and the site modification;
      b. all exclusion and avoidance areas within the portion of the designated site containing the site modification.
   2. Certification and supporting documentation affirming that construction activities will not affect any known exclusion area.
   3. All field studies performed on the portion of the designated site containing the site modification;

4. Specific information about any mitigation measures Company will take within the modification area;
5. Certification that each owner of real property on which the modification is to be located and any applicable governmental entity with an interest in the same modification area do not oppose the modification;
6. Certification that unless the Commission previously authorized the impact to the same avoidance area, that the utility has good cause and a specific reason to impact the avoidance area and a reasonable alternative does not exist;
7. Certification that Company will comply with the Commission's order, law and rules designating the site.

~~39.~~36. Company acknowledges and agrees that written authorization from the Commission for impacting the avoidance area is necessary prior to commencement of construction activity.

Dated this 19 day of November, 2021.

OEE XXXI LLC

By: Jeremy Kent
by One Energy Capital Corp

Its: its CEO

APPENDIX D

Telecommunication Studies

ONE ENERGY
WIND FOR INDUSTRY®

MICROWAVE BEAM PATH STUDY

10/04/2021

One Energy commissioned Spectrum Center to perform a "Proposed Wind Turbine to Existing Microwave Link Analysis" for all five turbines. The studies were completed on April 26, 2021 and are attached. Spectrum reviewed the updated turbine locations for WTG01 and WTG02 on August 24, 2021 and the results of the review are attached. Using the attached studies, One Energy has determined that this project will not have an impact on any existing microwave beam paths.

SPECTRUM CENTER

24 August, 2021

Mr. Ben Mallernee
One Energy
12385 Township Road 215
Findlay, OH 45840

RE: New site coordinates for WTG01 and WTG02 (Stark County, ND)

Dear Mr. Mallernee:

The proposed wind turbine to existing microwave link analysis reports for WTG01 and WTG02 (both dated 23 April 2021) used the specifications provided in Table 1.

Table 1: Specifications for WTG01 and WTG02

	WTG01	WTG02
Latitude (decimal degrees)	46.859224	46.859974
Longitude (decimal degrees)	-102.913278	-102.909412
Hub height (m)	80.0	80.0
Rotor diameter (m)	103.0	103.0
Overall height (m)	131.5	131.5

For both WTG01 and WTG02, the closest existing microwave links at the time of the study are provided in Table 2.

Table 2: Nearby microwave link(s)

Call sign	Licensee	Freq. (MHz)	Site A	Site B
WQML740	TOTALLY AMPED LLC	945.00	Dickinson	Tower
KVY58	BNSF Railway Co.	6635.00	Dickinson	Fryburg
KVY60	BNSF Railway Co	6795.00	Fryburg	Dickinson

The results of the analyses are provided in Table 3 (for WTG01) and Table 4 (for WTG02).

Table 3: Separation distances and azimuths for WTG01

Call sign	Min. separation distance (m)	Incursion Azi (°)	Azi_1 (°)	Azi_2 (°)
KVY58	2422.1	356.1	-	-

Table 4: Separation distances and azimuths for WTG02

Call sign	Min. separation distance (m)	Incursion Azi. (°)	Azi_1 (°)	Azi_2 (°)
KVY58	2359.0	356.1	-	-

It is understood that the site coordinates for WTG01 and WTG02 have been changed to those in Table 5. The hub height and rotor diameter remain the same.

Table 5: New site coordinates

Site	Latitude (decimal deg.)	Longitude (decimal deg.)
WTG01	46.859654	-102.913217
WTG02	46.860222	-102.909532

Based on the version of the FCC ULS database available at the time of the previous analysis, we believe that the minimum separation distances found in Table 3 and Table 4 will change due to the new site coordinates, but interference to the microwave link (call sign KVY58) is not expected. It is also possible that WTG01, WTG02, or both may be closer to the second Fresnel zone of a different microwave link. Without considering the most current microwave link records from the FCC database, the new locations for WTGO1 and WTG02 seem unlikely to interfere with or obstruct the other microwave links found in Table 2 since the closest distance was 2359.0 meters at the time of the 23 April 2021 analysis.

Best regards,

Clara Yang

SPECTRUM CENTER

Proposed Wind Turbine to Existing Microwave Link Analysis

WTG01
Stark County, ND

Prepared 23 April 2021 on behalf of One Energy

1451 Dolley Madison Blvd | Suite 320 | McLean, VA 22101 | www.spectrum.center

Contents

1 Introduction

1.1 Background

Due to their unique physical characteristics, wind turbines are potential interferers for wireless systems, such as communications links, air traffic control radars, and navigational aids. The nature and severity of the wind turbine interference depend on various factors, including

- The location of the wind turbine between receiver and transmitter;
- Characteristics of the rotor blades;
- Characteristics of receiver;
- Signal frequency; and
- The radio wave propagation in the local atmosphere.

Wireless communications systems include terrestrial microwave links. Two main types of terrestrial microwave links are those that communicate with satellites and those that communicate with each other in a point-to-point (PTP) fashion. Wind turbines are unlikely to affect satellite communications links because of the high angle of inclination of the earth station antenna. Wind turbines, however, may affect terrestrial PTP microwave links since the antenna heights at each end of a link are typically the minimum heights required to achieve line-of-sight.

PTP microwave transmission is the transmission of digital or analog signals in the microwave band, i.e., 1 to 30 gigahertz (GHz). Long-distance telephone calls, television programs, computer data, and cellular network backhaul are common microwave transmissions. Referring to Figure 1, in a fixed PTP microwave link, radio signals are transmitted between two locations with directional antennas. There must be line-of-sight between the two antennas because any structures or vegetation that partially or fully block the electromagnetic energy of the transmitted signal will lower the quality and reliability of transmission.

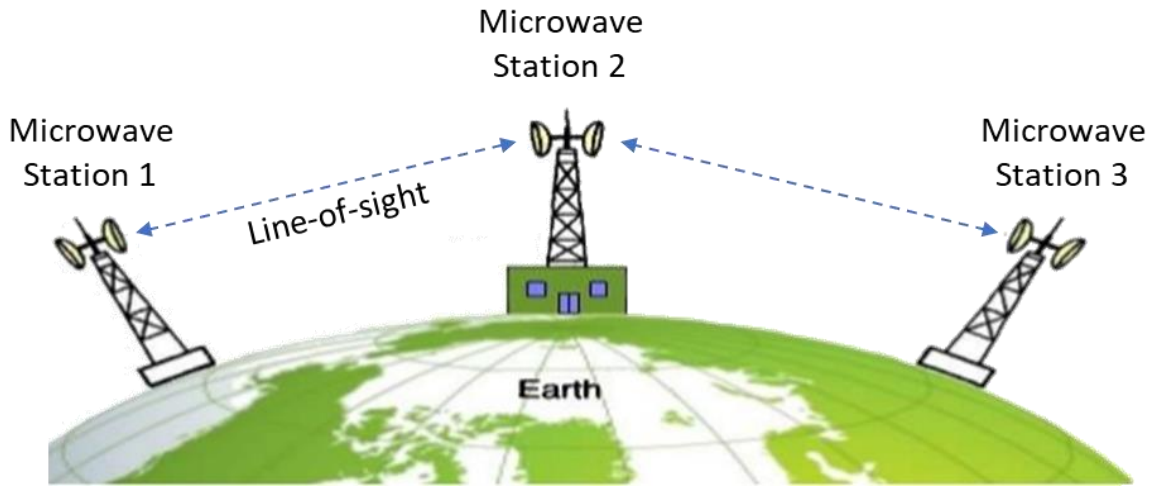

Figure 1: PTP microwave transmission (typical path length of approximately 40 – 60 km for frequencies below 11 GHz)

PTP microwave paths mainly consist of links licensed by the Federal Communications Commission (FCC) and are granted a certain level of protection from interference. For unlicensed transmission, a certain amount of degradation of service must be tolerated, as long as the object responsible for the degradation does not emit electromagnetic waves of too much power within the unlicensed frequency range.

1.2 Potential wind turbine effects on PTP microwave links

A wind turbine in close proximity to a single microwave link can degrade the link via three possible mechanisms:

- Near-field effects, which can occur when the wind turbine is within the near-field of a microwave antenna, thereby rendering prediction of the impact on the microwave link to be extremely complex since inductive as well as radiated fields have to be considered;
- Diffraction from the wind turbine's physical structure, which can detrimentally alter the advancing wavefront of a radio signal by obstructing the wave's path of travel; and
- Reflection/scattering from the rotating blades, which can receive a primary transmitted signal and produce and transmit a scattered signal that causes electromagnetic interference.

Various studies indicate that the main mechanisms by which a wind turbine may degrade radio link performance were those of diffraction in the Fresnel zone as well as reflection and scattering from the turbine structure and blades. Diffraction effects can be avoided if obstructions are kept outside the Fresnel zone of a microwave link. In regards to avoiding reflection and scattering effects, a method for determining the minimum distance between a wind turbine and a radio link has yet to be developed because there is insufficient information on radar cross section (RCS) values of wind turbines. RCS values quantify the extent to which an object will reflect or scatter radio waves. There is little detailed information on wind turbine RCS values because wind turbines have variable geometry. For example, in addition to the blades rotating, the horizontal axis of blade rotation varies in azimuth according to wind direction, and the pitch angle of the blades varies according to wind speed and electrical load. Consequently, only diffraction effects will be addressed in this analysis.

1.3 Fresnel zone clearance

As mentioned in the previous section, diffraction effects can be avoided if obstructions are kept outside the Fresnel zone of a microwave link. A Fresnel zone is an elliptical volume around a direct radio path that contains a certain amount of electromagnetic energy. Microwave operators use the concept of Fresnel zone clearance to prevent interference by obstacles near the direct radio path. When designing a fixed PTP microwave link, the operators usually try to clear at least 60% of the first Fresnel zone from large static obstructions, e.g., terrain or buildings.

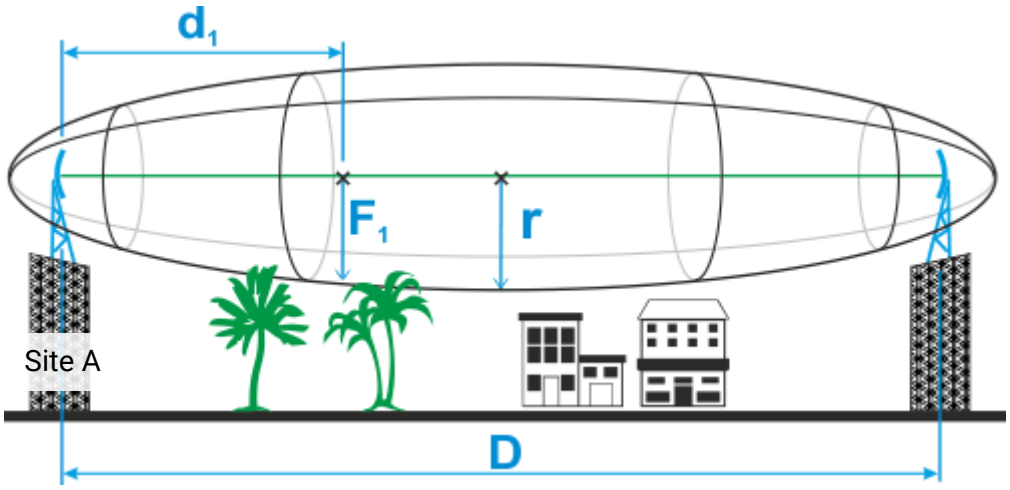

Figure 2: The first Fresnel zone (F_1) where D is the distance of the radio path, and r is the radius of the first Fresnel zone at a point along the path that is d_1 away from Site A

Using a more conservative criterion than 60% of the first Fresnel Zone is preferable for a wind turbine due to its varying geometry. It is an industry-accepted standard to define a wind turbine exclusion zone equal to the complete second Fresnel zone of a PTP microwave link to avoid any harmful effects caused by the energy contained in that volume, as shown below in Figure 3.

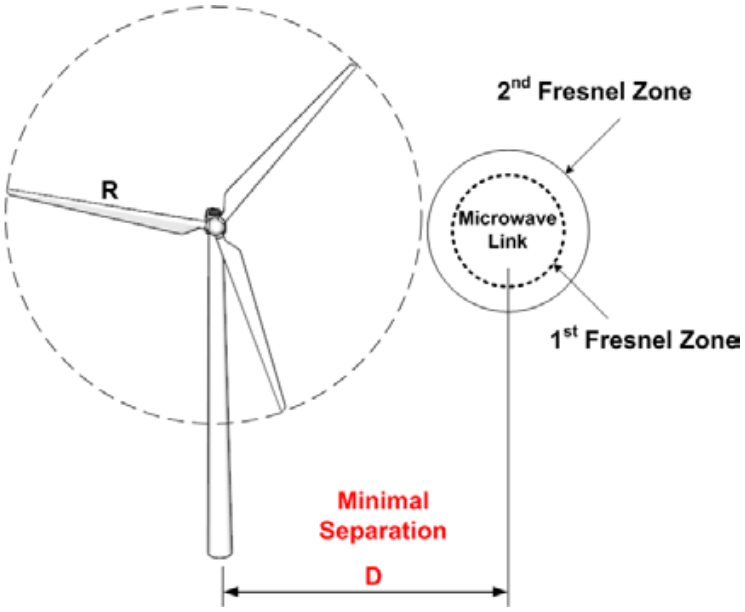

Figure 3: Cross-section view of minimum separation objective

2 Objective

The objective of this report is to utilize the cartographic data in Spectrum Center's radio frequency (RF) planning software (i.e., Spectrum-E™) to calculate separation distances between the three-dimensional rotor volume of a proposed wind turbine and the second Fresnel zone of existing microwave links.

3 Proposed wind turbine specifications

The specifications for the proposed wind turbine are provided below:

Table 1: Wind turbine specifications

Wind Turbine: WTG01, Stark County, ND	
Latitude (decimal degrees)	46.859224
Longitude (decimal degrees)	-102.913278
Hub height (m)	80.0
Rotor diameter (m)	103.0
Overall height (m)	131.5

The proposed location of the wind turbine is Stark County, ND. Its location is shown in a satellite image as well as a map in Figure 4. The maximum possible extent of the rotor swept volume is represented by a circle:

Figure 4: Proposed wind turbine location

4 Methodology for calculating the second Fresnel zone

A second Fresnel zone clearance method is applied to determine the protected volume of the fixed PTP microwave paths.

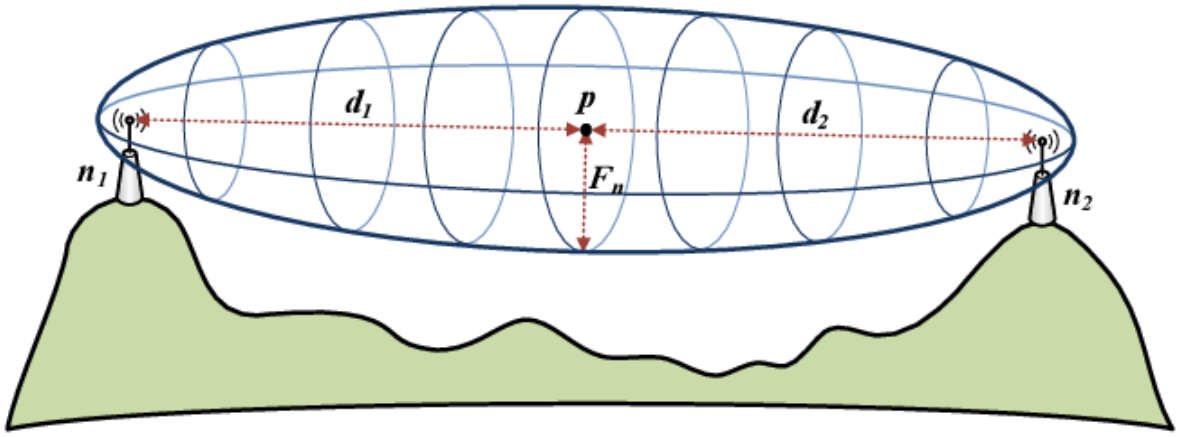

Figure 5: nth Fresnel zone calculation

Reffering to Figure 5, the Fresnel zone size depends on the frequency and distance from the microwave stations and is given by the generic formula

$$F_n = \sqrt{\frac{n\lambda d_1 d_2}{d_1 + d_2}}$$

where F_n is the radius of the nth Fresnel zone in meters;
n is the Fresnel zone number;
λ is the wavelength of the microwave signal in meters; and
d_1 and d_2 are the distances to n_1 and n_2, respectively, from the point p in question.

The second Fresnel zone is the largest at the midpoint between the two antennas where $d_1 = d_2$. Its radius is defined by:

$$r_{WCFZ_2} = 12.243\sqrt{\frac{D}{f}}$$

where r_{WCFZ2} is the radius of the second Fresnel zone in meters;
f is the frequency in gigahertz; and
D is the total link distance in kilometers.

This radius is commonly called the worst-case second Fresnel zone. When applied to a microwave link, it should provide enough clearance for the link to continue functioning without a significant drop in quality or reliability of transmission.

5 Analysis

5.1 Data retrieval

To ensure that the proposed wind turbine clears the second Fresnel zones of existing microwave paths in the area, records of licensed microwave links within a 25 km^2 square area around the proposed wind turbine are retrieved from the FCC Universal Licensing System (ULS). If there are none, the analysis is complete, and further analysis is unnecessary. The analysis uses the information available from the daily download dated 04/23/2021.

Figure 6 is a map of the proposed wind turbine and the retrieved licensed microwave links (in red) in active or pending status that are partially or completely within the search area, which is represented by the green box.

Figure 6: Proximity of wind turbine to existing microwave links

Information on the retrieved links is provided in the table below:

Table 2: Nearby microwave link(s)

Call sign	Licensee	Freq. (MHz)	Site A	Site B
WQML740	TOTALLY AMPED LLC	945.00	Dickinson	Tower
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5.2 Second Fresnel zone clearance results

Using the retrieved FCC ULS records and referring to Table 3, Spectrum-E™ calculates the following for each licensed microwave link:

- Either (1) the minimum separation distance (in meters) between the proposed wind turbine rotor blade and the worst-case second Fresnel zone of the microwave link or (2) the worst-case second Fresnel zone incursion, which is indicated by a negative value;
- The azimuth Azi (in degrees) of the wind turbine blade when it is closest to the worst-case second Fresnel zone or causing the worst-case incursion; and

- The azimuths Azi_1 and Azi_2 (in degrees) of the wind turbine blade before incursion.

The results of the Spectrum-E calculations are in Table 3

Table 3: Separation distances and azimuths

Call sign	Min. separation distance (m)	Azi (°)	Azi_1 (°)	Azi_2 (°)
KVY58	2422.1	356.1	-	-

6 Conclusion

Point-to-point microwave links are communications systems that transmit their signals via beams of radio waves. Although 60% clearance of the first Fresnel zone is usually sufficient to guarantee undisturbed performance of a microwave link, in the case of wind turbines, the recommendation is to keep the second Fresnel zone 100% clear since wind turbines are not static obstacles.

The second Fresnel zone volumes of existing microwave links obtained from the FCC ULS were compared to the rotor volume of the proposed wind turbine. The nearest that the potential 3-dimensional rotor swept volume of the wind turbine approaches the second Fresnel zone of an existing microwave link is 2422.1 meters; therefore, interference to the microwave link is not expected.

SPECTRUM CENTER

Proposed Wind Turbine to Existing Microwave Link Analysis

WTG02
Stark County, ND

Prepared 23 April 2021 on behalf of One Energy

1451 Dolley Madison Blvd | Suite 320 | McLean, VA 22101 | www.spectrum.center

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Contents

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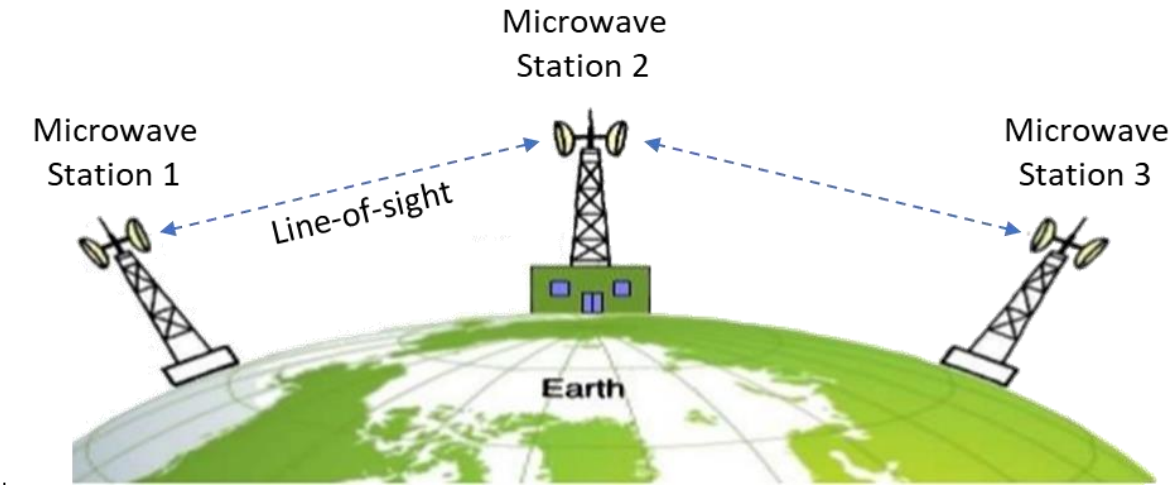

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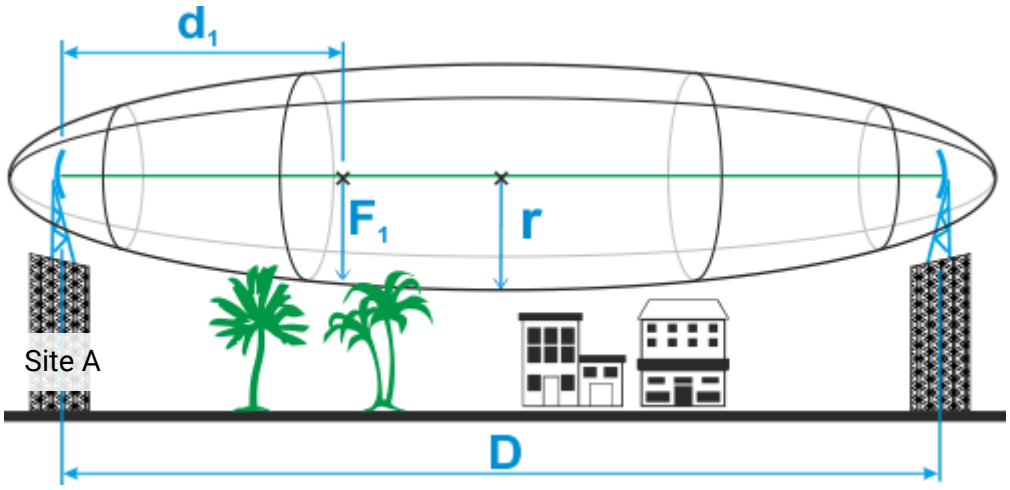

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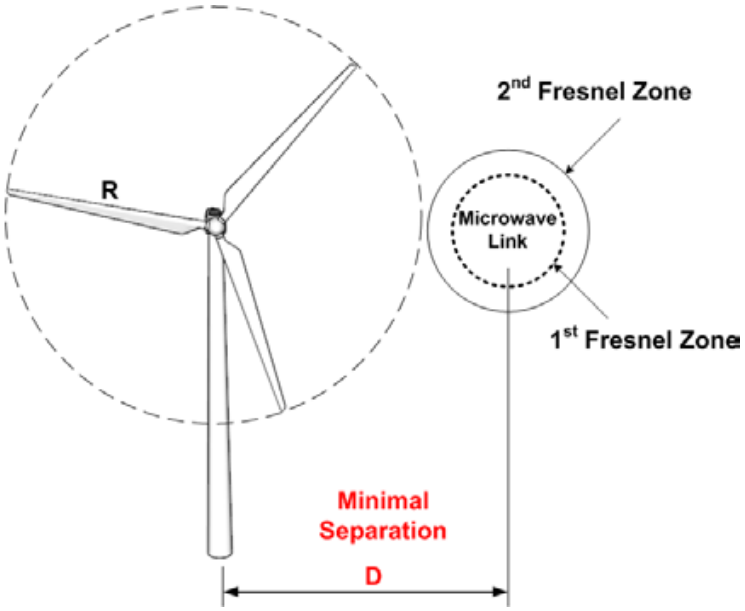

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3 Proposed wind turbine specifications

The specifications for the proposed wind turbine are provided below:

Table 1: Wind turbine specifications

Wind Turbine: WTG02, Stark County, ND	
Latitude (decimal degrees)	46.859974
Longitude (decimal degrees)	-102.909412
Hub height (m)	80.0
Rotor diameter (m)	103.0
Overall height (m)	131.5

The proposed location of the wind turbine is Stark County, ND. Its location is shown in a satellite image as well as a map in Figure 4. The maximum possible extent of the rotor swept volume is represented by a circle:

Figure 4: Proposed wind turbine location

4 Methodology for calculating the second Fresnel zone

A second Fresnel zone clearance method is applied to determine the protected volume of the fixed PTP microwave paths.

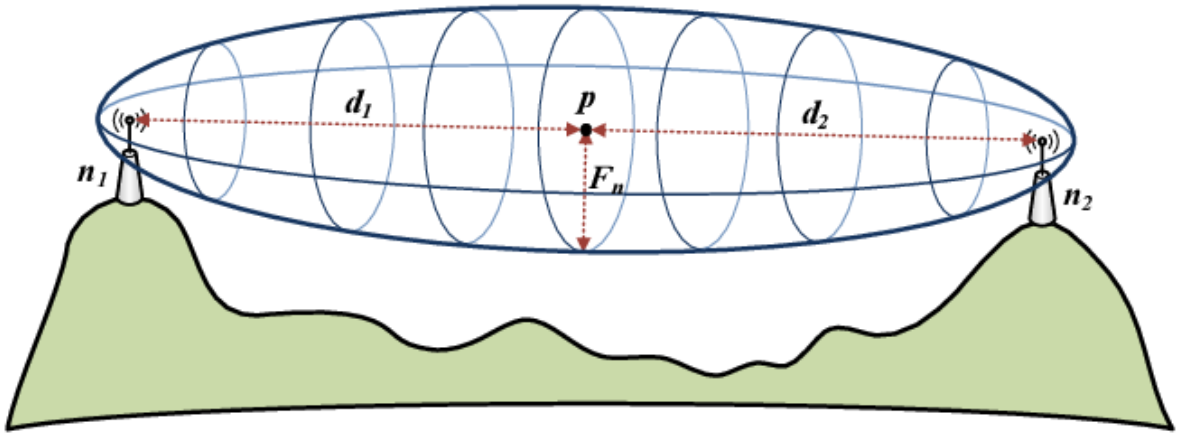

Figure 5: nth Fresnel zone calculation

Referring to Figure 5, the Fresnel zone size depends on the frequency and distance from the microwave stations and is given by the generic formula

$$F_n = \sqrt{\frac{n\lambda d_1 d_2}{d_1 + d_2}}$$

where F_n is the radius of the nth Fresnel zone in meters;
n is the Fresnel zone number;
λ is the wavelength of the microwave signal in meters; and
d_1 and d_2 are the distances to n_1 and n_2, respectively, from the point p in question.

The second Fresnel zone is the largest at the midpoint between the two antennas where $d_1 = d_2$. Its radius is defined by:

$$r_{WCFZ_2} = 12.243\sqrt{\frac{D}{f}}$$

where r_{WCFZ2} is the radius of the second Fresnel zone in meters;
f is the frequency in gigahertz; and
D is the total link distance in kilometers.

This radius is commonly called the worst case second Fresnel zone. When applied to a microwave link, it should provide enough clearance for the link to continue functioning without a significant drop in quality or reliability of transmission.

5 Analysis

5.1 Data retrieval

To ensure that the proposed wind turbine clears the second Fresnel zones of existing microwave paths in the area, records of licensed microwave links within a 25 km^2 square area around the proposed wind turbine are retrieved from the FCC Universal Licensing System (ULS). If there are none, the analysis is complete, and further analysis is unnecessary. The analysis uses the information available from the daily download dated 04/23/2021.

Figure 6 is a map of the proposed wind turbine and the retrieved licensed microwave links (in red) in active or pending status that are partially or completely within the search area, which is represented by the green box.

Figure 6: Proximity of wind turbine to existing microwave links

Information on the retrieved links is provided in the table below:

Table 2: Nearby microwave link(s)

Call sign	Licensee	Freq. (MHz)	Site A	Site B
WQML740	TOTALLY AMPED LLC	945.00	Dickinson	Tower
KVY58	BNSF Railway Co.	6635.00	Dickinson	Fryburg
KVY60	BNSF Railway Co	6795.00	Fryburg	Dickinson

5.2 Second Fresnel zone clearance results

Using the retrieved FCC ULS records and referring to Error! Reference source not found., S pectrum-E™ calculates the following for each licensed microwave link:

- Either (1) the minimum separation distance (in meters) between the proposed wind turbine rotor blade and the worst-case second Fresnel zone of the microwave link or (2) the worst-case second Fresnel zone incursion, which is indicated by a negative value;
- The azimuth Azi (in degrees) of the wind turbine blade when it is closest to the worst-case second Fresnel zone or causing the worst-case incursion; and

- The azimuths Azi_1 and Azi_2 (in degrees) of the wind turbine blade before incursion.

The results of the Spectrum-E calculations are in Table 3.

Table 3: Separation distances

Call sign	Min. separation distance (m)	Incursion Azi. (°)	Azi_1 (°)	Azi_2 (°)
KVY58	2359.0	356.1	-	-

6 Conclusion

Point-to-point microwave links are communications systems that transmit their signals via beams of radio waves. Although 60% clearance of the first Fresnel zone is usually sufficient to guarantee undisturbed performance of a microwave link, in the case of wind turbines, the recommendation is to keep the second Fresnel zone 100% clear since wind turbines are not static obstacles.

The second Fresnel zone volumes of existing microwave links obtained from the FCC ULS were compared to the rotor volume of the proposed wind turbine. The nearest that the potential 3-dimensional rotor swept volume of the wind turbine approaches the second Fresnel zone of an existing microwave link is 2359.0 meters; therefore, interference to the microwave link is not expected.

SPECTRUM CENTER

Proposed Wind Turbine to Existing Microwave Link Analysis

WTG03
Stark County, ND

Prepared 26 April 2021 on behalf of One Energy

1451 Dolley Madison Blvd | Suite 320 | McLean, VA 22101 | www.spectrum.center

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Contents

1 Introduction

1.1 Background

Due to their unique physical characteristics, wind turbines are potential interferers for wireless systems, such as communications links, air traffic control radars, and navigational aids. The nature and severity of the wind turbine interference depend on various factors, including

- The location of the wind turbine between receiver and transmitter;
- Characteristics of the rotor blades;
- Characteristics of receiver;
- Signal frequency; and
- The radio wave propagation in the local atmosphere.

Wireless communications systems include terrestrial microwave links. Two main types of terrestrial microwave links are those that communicate with satellites and those that communicate with each other in a point-to-point (PTP) fashion. Wind turbines are unlikely to affect satellite communications links because of the high angle of inclination of the earth station antenna. Wind turbines, however, may affect terrestrial PTP microwave links since the antenna heights at each end of a link are typically the minimum heights required to achieve line-of-sight.

PTP microwave transmission is the transmission of digital or analog signals in the microwave band, i.e., 1 to 30 gigahertz (GHz). Long-distance telephone calls, television programs, computer data, and cellular network backhaul are common microwave transmissions. Referring to Figure 1, in a fixed PTP microwave link, radio signals are transmitted between two locations with directional antennas. There must be line-of-sight between the two antennas because any structures or vegetation that partially or fully block the electromagnetic energy of the transmitted signal will lower the quality and reliability of transmission.

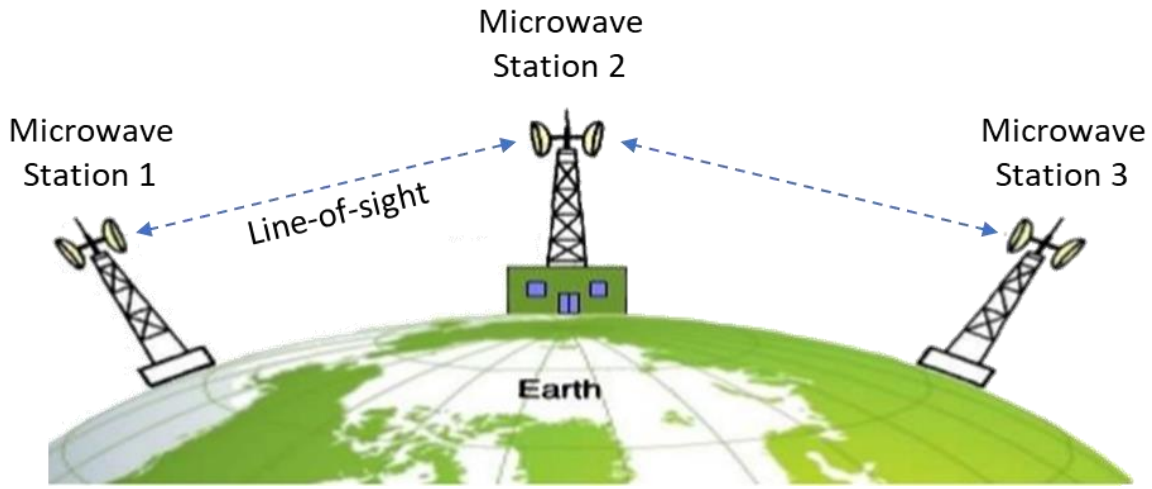


Figure 1: PTP microwave transmission (typical path length of approximately 40 – 60 km for frequencies below 11 GHz)

PTP microwave paths mainly consist of links licensed by the Federal Communications Commission (FCC) and are granted a certain level of protection from interference. For unlicensed transmission, a certain amount of degradation of service must be tolerated, as long as the object responsible for the degradation does not emit electromagnetic waves of too much power within the unlicensed frequency range.

1.2 Potential wind turbine effects on PTP microwave links

A wind turbine in close proximity to a single microwave link can degrade the link via three possible mechanisms:

- Near-field effects, which can occur when the wind turbine is within the near-field of a microwave antenna, thereby rendering prediction of the impact on the microwave link to be extremely complex since inductive as well as radiated fields have to be considered;
- Diffraction from the wind turbine's physical structure, which can detrimentally alter the advancing wavefront of a radio signal by obstructing the wave's path of travel; and
- Reflection/scattering from the rotating blades, which can receive a primary transmitted signal and produce and transmit a scattered signal that causes electromagnetic interference.

Various studies indicate that the main mechanisms by which a wind turbine may degrade radio link performance were those of diffraction in the Fresnel zone as well as reflection and scattering from the turbine structure and blades. Diffraction effects can be avoided if obstructions are kept outside the Fresnel zone of a microwave link. In regards to avoiding reflection and scattering effects, a method for determining the minimum distance between a wind turbine and a radio link has yet to be developed because there is insufficient information on radar cross section (RCS) values of wind turbines. RCS values quantify the extent to which an object will reflect or scatter radio waves. There is little detailed information on wind turbine RCS values because wind turbines have variable geometry. For example, in addition to the blades rotating, the horizontal axis of blade rotation varies in azimuth according to wind direction, and the pitch angle of the blades varies according to wind speed and electrical load. Consequently, only diffraction effects will be addressed in this analysis.

1.3 Fresnel zone clearance

As mentioned in the previous section, diffraction effects can be avoided if obstructions are kept outside the Fresnel zone of a microwave link. A Fresnel zone is an elliptical volume around a direct radio path that contains a certain amount of electromagnetic energy. Microwave operators use the concept of Fresnel zone clearance to prevent interference by obstacles near the direct radio path. When designing a fixed PTP microwave link, the operators usually try to clear at least 60% of the first Fresnel zone from large static obstructions, e.g., terrain or buildings.

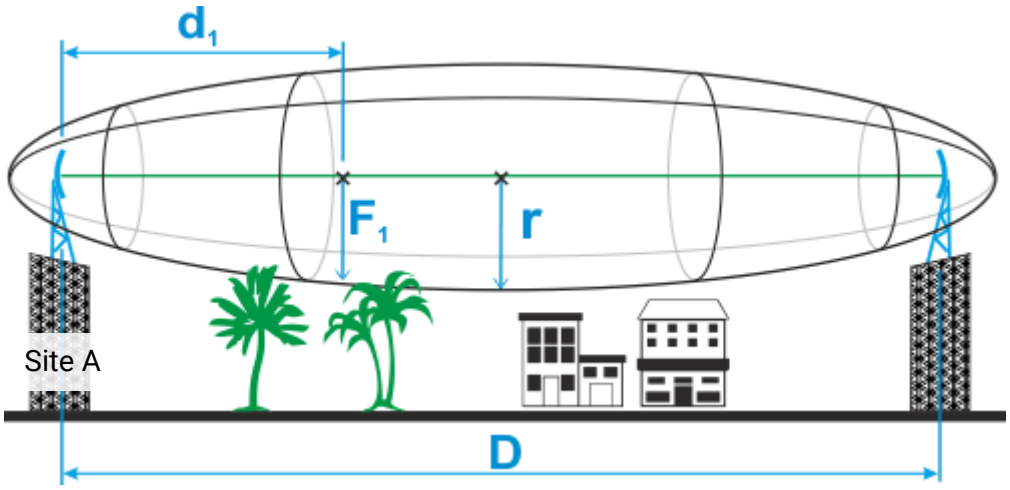


Figure 2: The first Fresnel zone (F_1) where D is the distance of the radio path, and r is the radius of the first Fresnel zone at a point along the path that is d_1 away from Site A

Using a more conservative criterion than 60% of the first Fresnel Zone is preferable for a wind turbine due to its varying geometry. It is an industry-accepted standard to define a wind turbine exclusion zone equal to the complete second Fresnel zone of a PTP microwave link to avoid any harmful effects caused by the energy contained in that volume, as shown below in Figure 3.

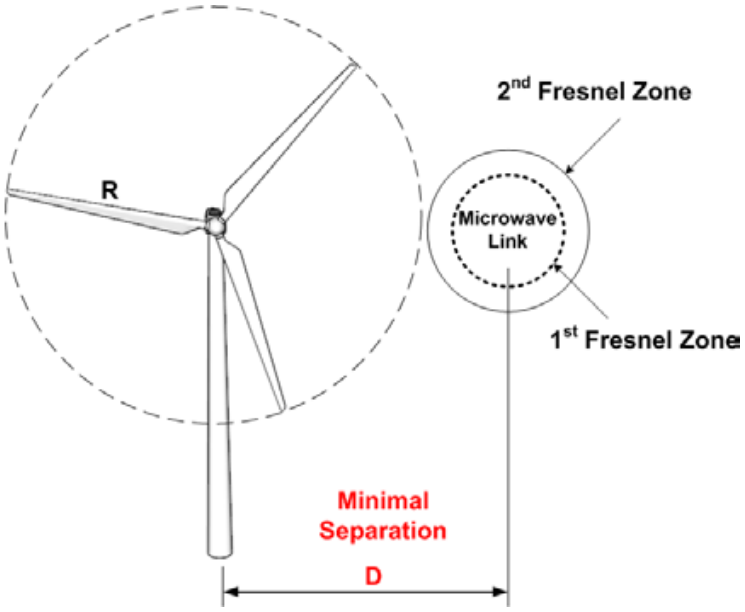


Figure 3: Cross-section view of minimum separation objective

2 Objective

The objective of this report is to utilize the cartographic data in Spectrum Center's radio frequency (RF) planning software (i.e., Spectrum-E™) to calculate separation distances between the three-dimensional rotor volume of a proposed wind turbine and the second Fresnel zone of existing microwave links.

3 Proposed wind turbine specifications

The specifications for the proposed wind turbine are provided below:

Table 1: Wind turbine specifications

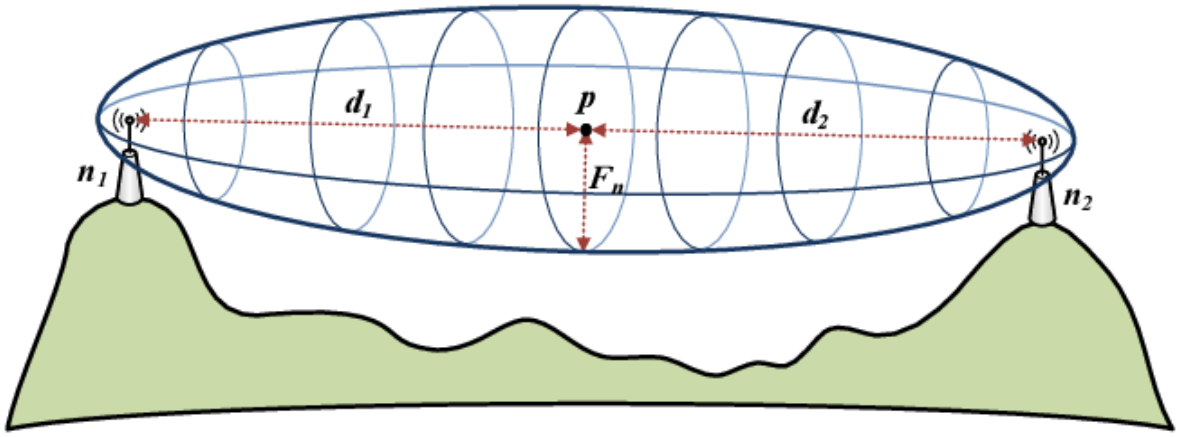
Wind Turbine: WTG03, Stark County, ND	
Latitude (decimal degrees)	46.854388
Longitude (decimal degrees)	-102.903689
Hub height (m)	80.0
Rotor diameter (m)	103.0
Overall height (m)	131.5

The proposed location of the wind turbine is Stark County, ND. Its location is shown in a satellite image as well as a map in Figure 4. The maximum possible extent of the rotor swept volume is represented by a circle:

Figure 4: Proposed wind turbine location

4 Methodology for calculating the second Fresnel zone

A second Fresnel zone clearance method is applied to determine the protected volume of the fixed PTP microwave paths.



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Reffering to Figure 5, the Fresnel zone size depends on the frequency and distance from the microwave stations and is given by the generic formula

$$F_n = \sqrt{\frac{n\lambda d_1 d_2}{d_1 + d_2}}$$

where F_n is the radius of the nth Fresnel zone in meters;
n is the Fresnel zone number;
λ is the wavelength of the microwave signal in meters; and
d_1 and d_2 are the distances to n_1 and n_2, respectively, from the point p in question.

The second Fresnel zone is the largest at the midpoint between the two antennas where $d_1 = d_2$. Its radius is defined by:

$$r_{WCFZ_2} = 12.243\sqrt{\frac{D}{f}}$$

where r_{WCFZ2} is the radius of the second Fresnel zone in meters;
f is the frequency in gigahertz; and
D is the total link distance in kilometers.

This radius is commonly called the worst-case second Fresnel zone. When applied to a microwave link, it should provide enough clearance for the link to continue functioning without a significant drop in quality or reliability of transmission.

5 Analysis

5.1 Data retrieval

To ensure that the proposed wind turbine clears the second Fresnel zones of existing microwave paths in the area, records of licensed microwave links within a 25 km^2 square area around the proposed wind turbine are retrieved from the FCC Universal Licensing System (ULS). If there are none, the analysis is complete, and further analysis is unnecessary. The analysis uses the information available from the daily download dated 04/26/2021.

Figure 6 is a map of the proposed wind turbine and the retrieved licensed microwave links (in red) in active or pending status that are partially or completely within the search area, which is represented by the green box.

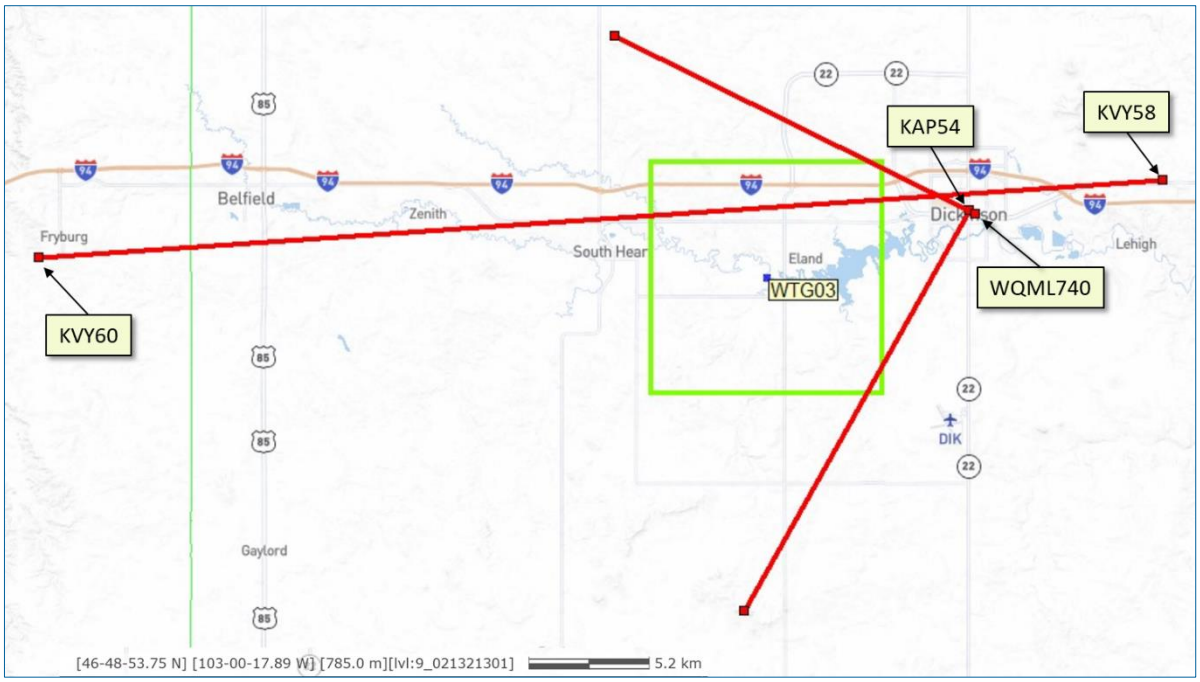

Figure 6: Proximity of wind turbine to existing microwave links

Information on the retrieved links is provided in the table below:

Table 2: Nearby microwave link(s)

Call sign	Licensee	Freq. (MHz)	Site A	Site B
WQML740	TOTALLY AMPED LLC	945.00	Dickinson	Tower
KVY58	BNSF Railway Co.	6635.00	Dickinson	Fryburg
KVY60	BNSF Railway Co	6795.00	Fryburg	Dickinson
KAP54	NEXSTAR INC.	6925.00-6950.00	Dickinson	-

5.2 Second Fresnel zone clearance results

Using the retrieved FCC ULS records and referring to Table 3, Spectrum-E™ calculates the following for each licensed microwave link:

- Either (1) the minimum separation distance (in meters) between the proposed wind turbine rotor blade and the worst-case second Fresnel zone of the microwave link or (2) the worst-case second Fresnel zone incursion, which is indicated by a negative value;
- The azimuth Azi (in degrees) of the wind turbine blade when it is closest to the worst-case second Fresnel zone or causing the worst-case incursion; and
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The results of the Spectrum-E calculations are in Table 3

Table 3: Separation distances and azimuths

Call sign	Min. separation distance (m)	Azi (°)	Azi_1 (°)	Azi_2 (°)
KVY58	3008.3	356.1	-	-
KAP54	6107.3	119.4	-	-

6 Conclusion

Point-to-point microwave links are communications systems that transmit their signals via beams of radio waves. Although 60% clearance of the first Fresnel zone is usually sufficient to guarantee undisturbed performance of a microwave link, in the case of wind turbines, the recommendation is to keep the second Fresnel zone 100% clear since wind turbines are not static obstacles.

The second Fresnel zone volumes of existing microwave links obtained from the FCC ULS were compared to the rotor volume of the proposed wind turbine. The nearest that the potential 3-dimensional rotor swept volume of the wind turbine approaches the second Fresnel zone of an existing microwave link is 3008.3 meters; therefore, interference to the microwave link is not expected.

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Proposed Wind Turbine to Existing Microwave Link Analysis

WTG04
Stark County, ND

Prepared 26 April 2021 on behalf of One Energy

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Contents

1 Introduction

1.1 Background

Due to their unique physical characteristics, wind turbines are potential interferers for wireless systems, such as communications links, air traffic control radars, and navigational aids. The nature and severity of the wind turbine interference depend on various factors, including

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PTP microwave transmission is the transmission of digital or analog signals in the microwave band, i.e., 1 to 30 gigahertz (GHz). Long-distance telephone calls, television programs, computer data, and cellular network backhaul are common microwave transmissions. Referring to Figure 1, in a fixed PTP microwave link, radio signals are transmitted between two locations with directional antennas. There must be line-of-sight between the two antennas because any structures or vegetation that partially or fully block the electromagnetic energy of the transmitted signal will lower the quality and reliability of transmission.

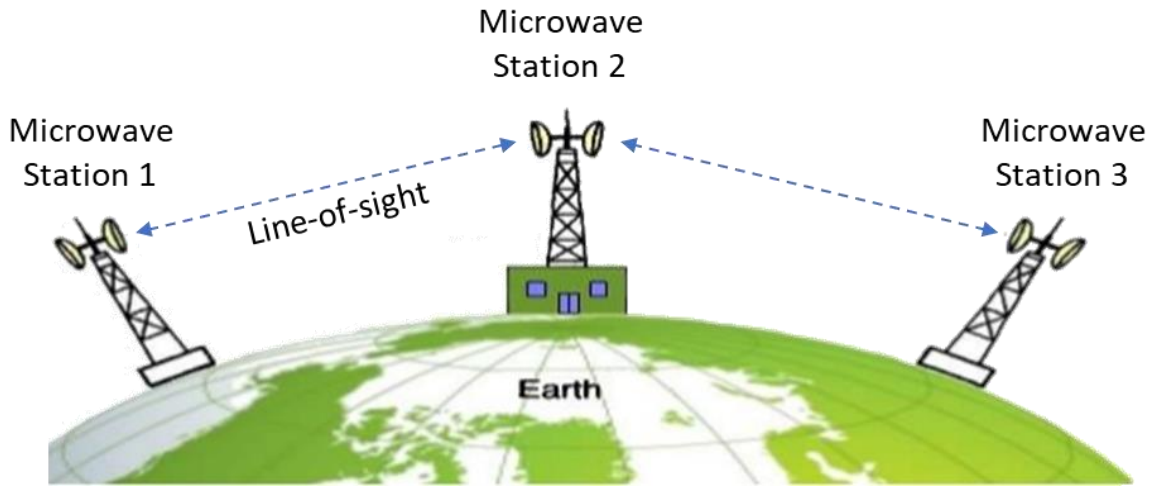

Figure 1: PTP microwave transmission (typical path length of approximately 40 – 60 km for frequencies below 11 GHz)

PTP microwave paths mainly consist of links licensed by the Federal Communications Commission (FCC) and are granted a certain level of protection from interference. For unlicensed transmission, a certain amount of degradation of service must be tolerated, as long as the object responsible for the degradation does not emit electromagnetic waves of too much power within the unlicensed frequency range.

1.2 Potential wind turbine effects on PTP microwave links

A wind turbine in close proximity to a single microwave link can degrade the link via three possible mechanisms:

- Near-field effects, which can occur when the wind turbine is within the near-field of a microwave antenna, thereby rendering prediction of the impact on the microwave link to be extremely complex since inductive as well as radiated fields have to be considered;
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Various studies indicate that the main mechanisms by which a wind turbine may degrade radio link performance were those of diffraction in the Fresnel zone as well as reflection and scattering from the turbine structure and blades. Diffraction effects can be avoided if obstructions are kept outside the Fresnel zone of a microwave link. In regards to avoiding reflection and scattering effects, a method for determining the minimum distance between a wind turbine and a radio link has yet to be developed because there is insufficient information on radar cross section (RCS) values of wind turbines. RCS values quantify the extent to which an object will reflect or scatter radio waves. There is little detailed information on wind turbine RCS values because wind turbines have variable geometry. For example, in addition to the blades rotating, the horizontal axis of blade rotation varies in azimuth according to wind direction, and the pitch angle of the blades varies according to wind speed and electrical load. Consequently, only diffraction effects will be addressed in this analysis.

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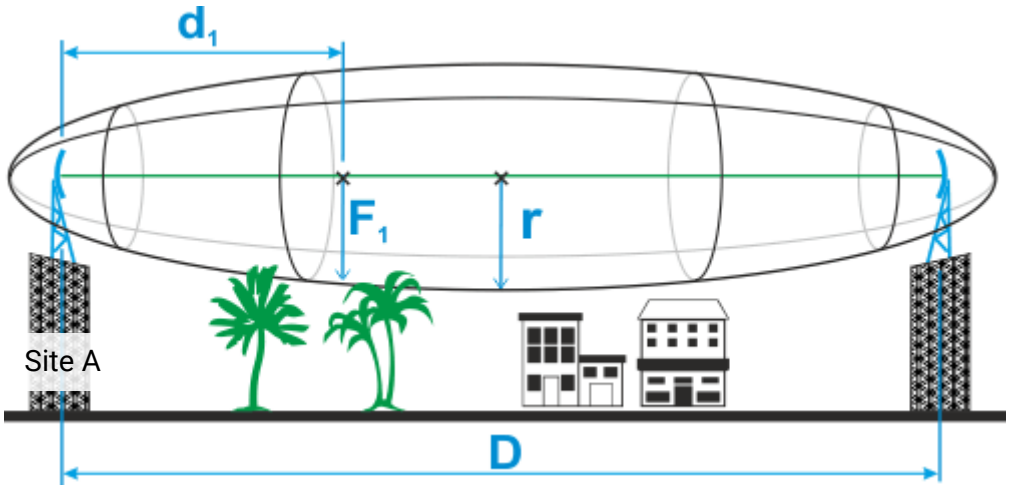

Figure 2: The first Fresnel zone (F_1) where D is the distance of the radio path, and r is the radius of the first Fresnel zone at a point along the path that is d_1 away from Site A

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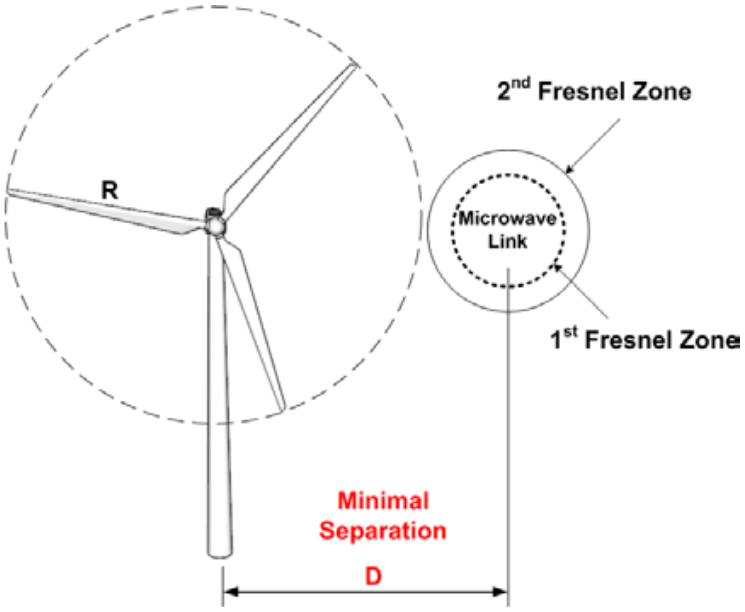


Figure 3: Cross-section view of minimum separation objective

2 Objective

The objective of this report is to utilize the cartographic data in Spectrum Center's radio frequency (RF) planning software (i.e., Spectrum-E™) to calculate separation distances between the three-dimensional rotor volume of a proposed wind turbine and the second Fresnel zone of existing microwave links.

3 Proposed wind turbine specifications

The specifications for the proposed wind turbine are provided below:

Table 1: Wind turbine specifications

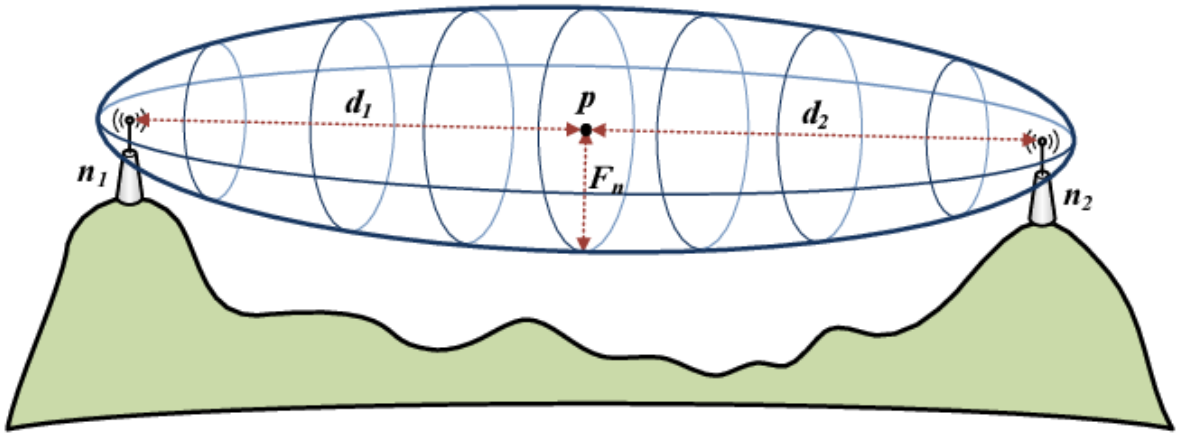
Wind Turbine: WTG04, Stark County, ND	
Latitude (decimal degrees)	46.854733
Longitude (decimal degrees)	-102.900790
Hub height (m)	80.0
Rotor diameter (m)	103.0
Overall height (m)	131.5

The proposed location of the wind turbine is Stark County, ND. Its location is shown in a satellite image as well as a map in Figure 4. The maximum possible extent of the rotor swept volume is represented by a circle:

Figure 4: Proposed wind turbine location

4 Methodology for calculating the second Fresnel zone

A second Fresnel zone clearance method is applied to determine the protected volume of the fixed PTP microwave paths.



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This radius is commonly called the worst-case second Fresnel zone. When applied to a microwave link, it should provide enough clearance for the link to continue functioning without a significant drop in quality or reliability of transmission.

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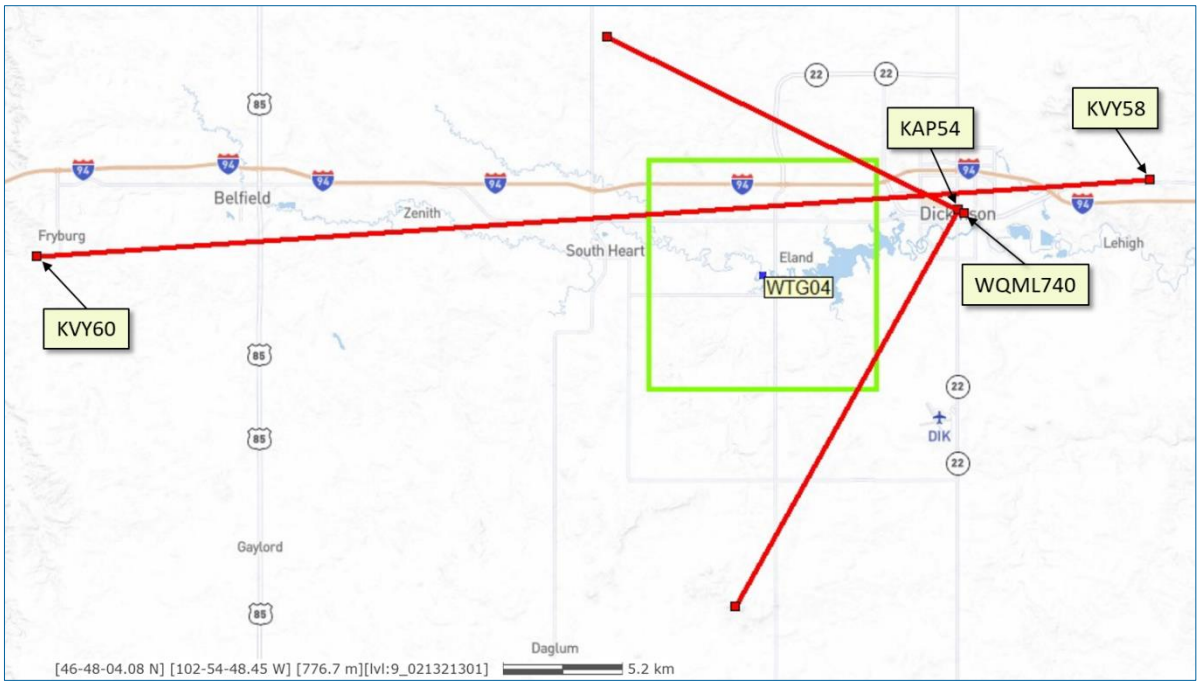

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KAP54	5933.4	119.4	-	-

6 Conclusion

Point-to-point microwave links are communications systems that transmit their signals via beams of radio waves. Although 60% clearance of the first Fresnel zone is usually sufficient to guarantee undisturbed performance of a microwave link, in the case of wind turbines, the recommendation is to keep the second Fresnel zone 100% clear since wind turbines are not static obstacles.

The second Fresnel zone volumes of existing microwave links obtained from the FCC ULS were compared to the rotor volume of the proposed wind turbine. The nearest that the potential 3-dimensional rotor swept volume of the wind turbine approaches the second Fresnel zone of an existing microwave link is 2985.1 meters; therefore, interference to the microwave link is not expected.

SPECTRUM CENTER

Proposed Wind Turbine to Existing Microwave Link Analysis

WTG05
Stark County, ND

Prepared 26 April 2021 on behalf of One Energy

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Contents

1 Introduction

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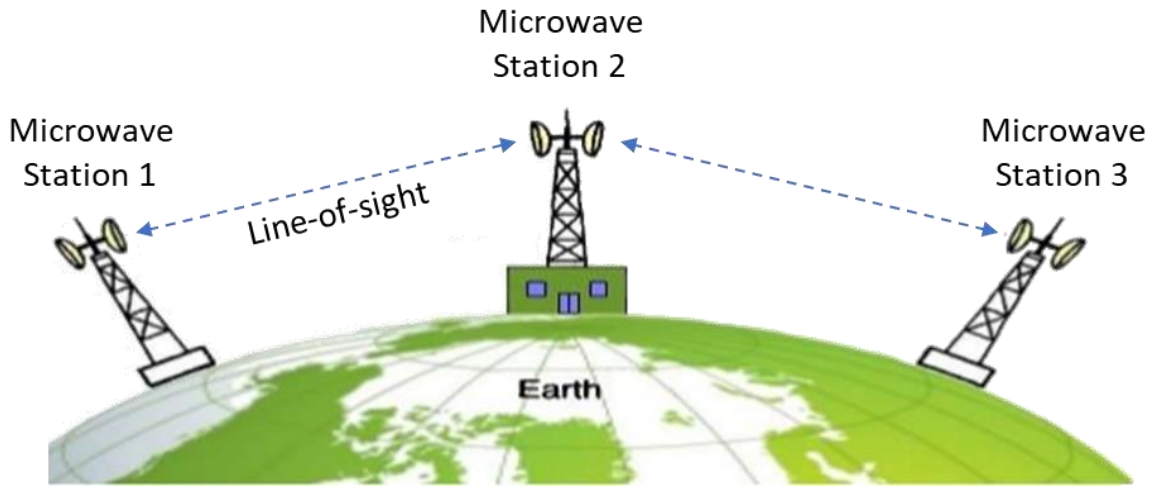

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- Diffraction from the wind turbine's physical structure, which can detrimentally alter the advancing wavefront of a radio signal by obstructing the wave's path of travel; and
- Reflection/scattering from the rotating blades, which can receive a primary transmitted signal and produce and transmit a scattered signal that causes electromagnetic interference.

Various studies indicate that the main mechanisms by which a wind turbine may degrade radio link performance were those of diffraction in the Fresnel zone as well as reflection and scattering from the turbine structure and blades. Diffraction effects can be avoided if obstructions are kept outside the Fresnel zone of a microwave link. In regards to avoiding reflection and scattering effects, a method for determining the minimum distance between a wind turbine and a radio link has yet to be developed because there is insufficient information on radar cross section (RCS) values of wind turbines. RCS values quantify the extent to which an object will reflect or scatter radio waves. There is little detailed information on wind turbine RCS values because wind turbines have variable geometry. For example, in addition to the blades rotating, the horizontal axis of blade rotation varies in azimuth according to wind direction, and the pitch angle of the blades varies according to wind speed and electrical load. Consequently, only diffraction effects will be addressed in this analysis.

1.3 Fresnel zone clearance

As mentioned in the previous section, diffraction effects can be avoided if obstructions are kept outside the Fresnel zone of a microwave link. A Fresnel zone is an elliptical volume around a direct radio path that contains a certain amount of electromagnetic energy. Microwave operators use the concept of Fresnel zone clearance to prevent interference by obstacles near the direct radio path. When designing a fixed PTP microwave link, the operators usually try to clear at least 60% of the first Fresnel zone from large static obstructions, e.g., terrain or buildings.

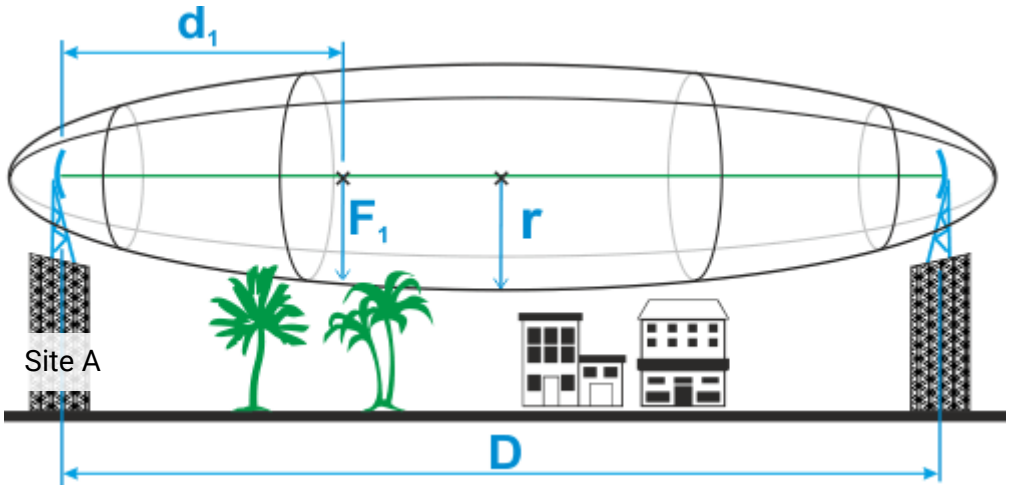


Figure 2: The first Fresnel zone (F_1) where D is the distance of the radio path, and r is the radius of the first Fresnel zone at a point along the path that is d_1 away from Site A

Using a more conservative criterion than 60% of the first Fresnel Zone is preferable for a wind turbine due to its varying geometry. It is an industry-accepted standard to define a wind turbine exclusion zone equal to the complete second Fresnel zone of a PTP microwave link to avoid any harmful effects caused by the energy contained in that volume, as shown below in Figure 3.

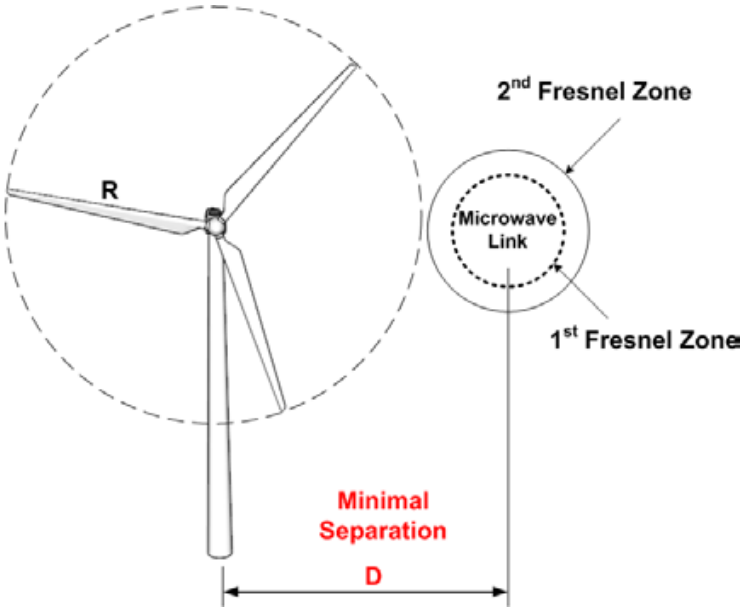


Figure 3: Cross-section view of minimum separation objective

2 Objective

The objective of this report is to utilize the cartographic data in Spectrum Center's radio frequency (RF) planning software (i.e., Spectrum-E™) to calculate separation distances between the three-dimensional rotor volume of a proposed wind turbine and the second Fresnel zone of existing microwave links.

3 Proposed wind turbine specifications

The specifications for the proposed wind turbine are provided below:

Table 1: Wind turbine specifications

Wind Turbine: WTG05, Stark County, ND	
Latitude (decimal degrees)	46.855505
Longitude (decimal degrees)	-102.898077
Hub height (m)	80.0
Rotor diameter (m)	103.0
Overall height (m)	131.5

The proposed location of the wind turbine is Stark County, ND. Its location is shown in a satellite image as well as a map in Figure 4. The maximum possible extent of the rotor swept volume is represented by a circle:

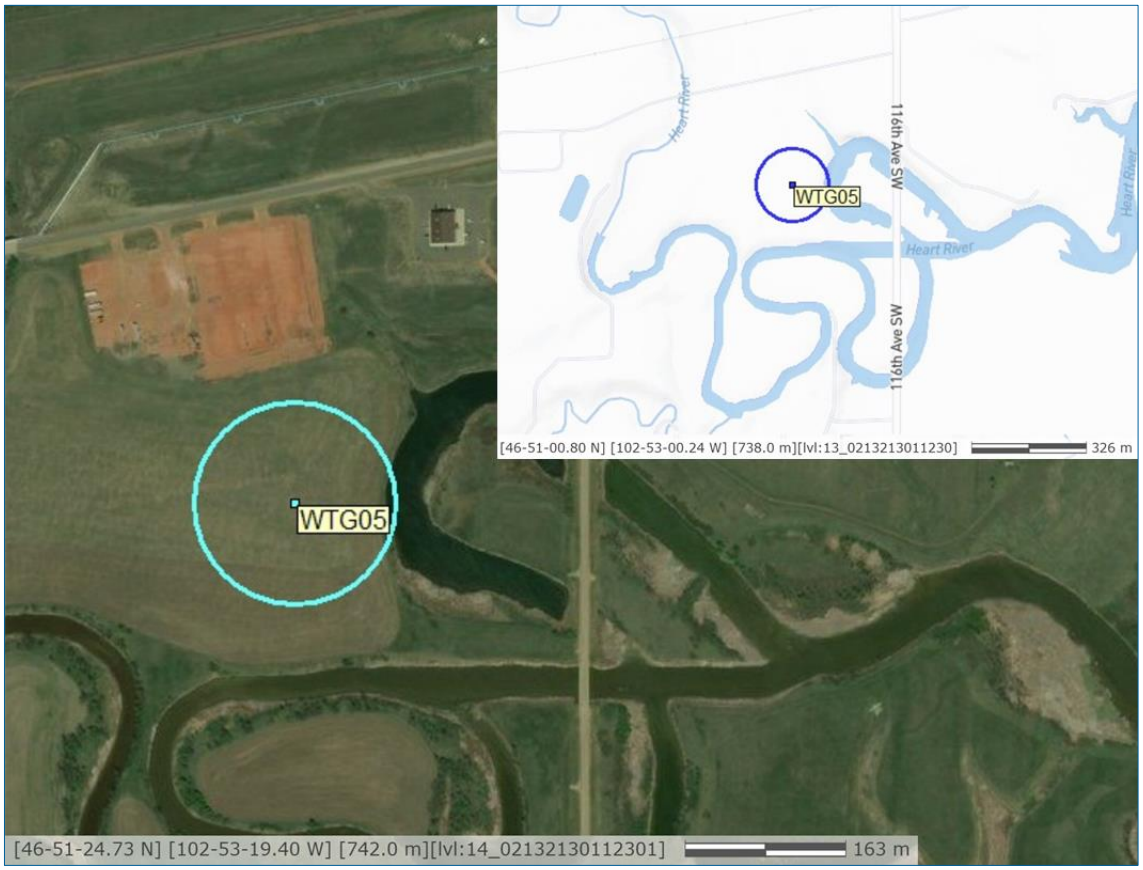


Figure 4: Proposed wind turbine location

4 Methodology for calculating the second Fresnel zone

A second Fresnel zone clearance method is applied to determine the protected volume of the fixed PTP microwave paths.

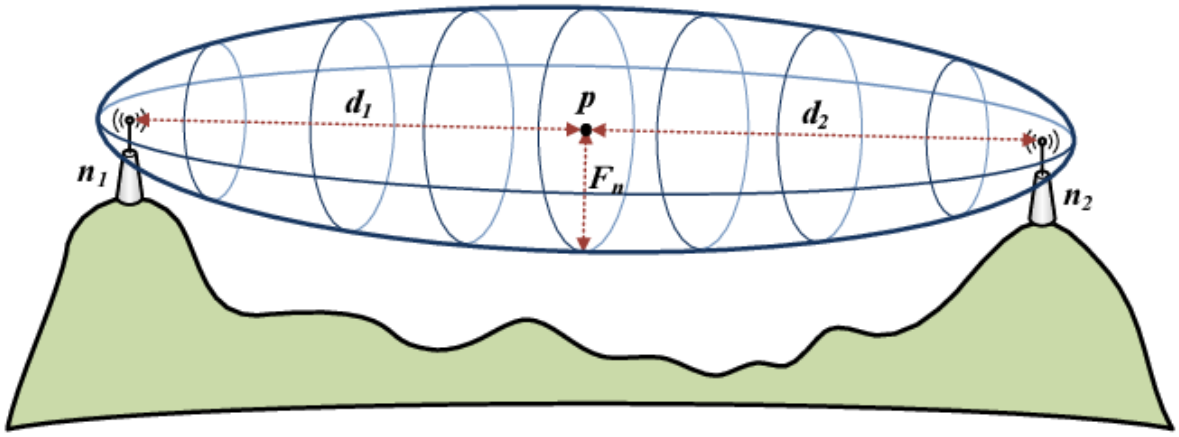


Figure 5: nth Fresnel zone calculation

Reffering to Figure 5, the Fresnel zone size depends on the frequency and distance from the microwave stations and is given by the generic formula

$$F_n = \sqrt{\frac{n\lambda d_1 d_2}{d_1 + d_2}}$$

where F_n is the radius of the nth Fresnel zone in meters;
n is the Fresnel zone number;
λ is the wavelength of the microwave signal in meters; and
d_1 and d_2 are the distances to n_1 and n_2, respectively, from the point p in question.

The second Fresnel zone is the largest at the midpoint between the two antennas where $d_1 = d_2$. Its radius is defined by:

$$r_{WCFZ_2} = 12.243\sqrt{\frac{D}{f}}$$

where r_{WCFZ2} is the radius of the second Fresnel zone in meters;
f is the frequency in gigahertz; and
D is the total link distance in kilometers.

This radius is commonly called the worst-case second Fresnel zone. When applied to a microwave link, it should provide enough clearance for the link to continue functioning without a significant drop in quality or reliability of transmission.

5 Analysis

5.1 Data retrieval

To ensure that the proposed wind turbine clears the second Fresnel zones of existing microwave paths in the area, records of licensed microwave links within a 25 km^2 square area around the proposed wind turbine are retrieved from the FCC Universal Licensing System (ULS). If there are none, the analysis is complete, and further analysis is unnecessary. The analysis uses the information available from the daily download dated 04/26/2021.

Figure 6 is a map of the proposed wind turbine and the retrieved licensed microwave links (in red) in active or pending status that are partially or completely within the search area, which is represented by the green box.

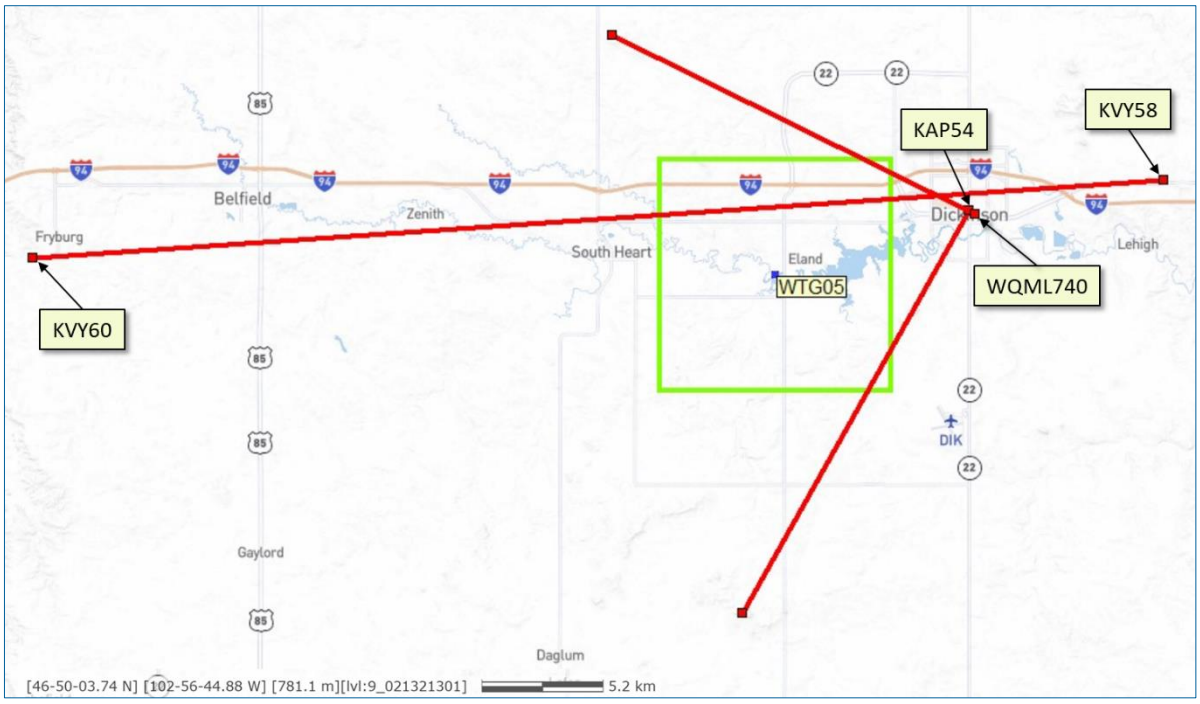


Figure 6: Proximity of wind turbine to existing microwave links

Information on the retrieved links is provided in the table below:

Table 2: Nearby microwave link(s)

Call sign	Licensee	Freq. (MHz)	Site A	Site B
WQML740	TOTALLY AMPED LLC	945.00	Dickinson	Tower
KVY58	BNSF Railway Co.	6635.00	Dickinson	Fryburg
KVY60	BNSF Railway Co	6795.00	Fryburg	Dickinson
KAP54	NEXSTAR INC.	6925.00-6950.00	Dickinson	-

5.2 Second Fresnel zone clearance results

Using the retrieved FCC ULS records and referring to Table 3, Spectrum-E™ calculates the following for each licensed microwave link:

- Either (1) the minimum separation distance (in meters) between the proposed wind turbine rotor blade and the worst-case second Fresnel zone of the microwave link or (2) the worst-case second Fresnel zone incursion, which is indicated by a negative value;
- The azimuth Azi (in degrees) of the wind turbine blade when it is closest to the worst-case second Fresnel zone or causing the worst-case incursion; and
- The azimuths Azi_1 and Azi_2 (in degrees) of the wind turbine blade before incursion.

The results of the Spectrum-E calculations are in Table 3

Table 3: Separation distances and azimuths

Call sign	Min. separation distance (m)	Azi (°)	Azi_1 (°)	Azi_2 (°)
KVY58	2913.6	356.1	-	-
KAP54	5795.1	119.4	-	-

6 Conclusion

Point-to-point microwave links are communications systems that transmit their signals via beams of radio waves. Although 60% clearance of the first Fresnel zone is usually sufficient to guarantee undisturbed performance of a microwave link, in the case of wind turbines, the recommendation is to keep the second Fresnel zone 100% clear since wind turbines are not static obstacles.

The second Fresnel zone volumes of existing microwave links obtained from the FCC ULS were compared to the rotor volume of the proposed wind turbine. The nearest that the potential 3-dimensional rotor swept volume of the wind turbine approaches the second Fresnel zone of an existing microwave link is 2913.6 meters; therefore, interference to the microwave link is not expected.

APPENDIX E

Agency Correspondence

Agency Contacts								
First	**Last**	**Title**	**Agency**	**Address**	**PO Box**	**City**	**State**	**Zip**
Elisha	Mueller	Conservation Biologist	North Dakota Game and Fish	100 N. Bismarck Expressway		Bismarck	ND	58501
Sandra	Johnson	Conservation Biologist	North Dakota Game and Fish	100 N. Bismarck Expressway		Bismarck	ND	58501
Kathy	Duttenhefner	Natural Resources Coordinator/Biologist II	North Dakota Parks and Recreation	Central Office: 1600 E Century Ave, Suite 3		Bismarck	ND	58506
Heidi	Riddle	Fish and Wildlife Biologist	USFWS North Dakota Ecological Services Field Office	3425 Miriam Ave		Bismarck	ND	58501
Dan	Townes	State Engagement	Military Aviation and Installation Assurance Siting Clearinghouse	3400 Defense Pentagon, Room		Washington	DC	20301
Scott	Kiernan	Deputy Director	Military Aviation and Installation Assurance Siting Clearinghouse	3401 Defense Pentagon, Room 5C646		Washington	DC	20302
Cesar	Perez	Air Traffic Specialist III	Federal Aviation Association	1701 Columbia Ave		College Park	GA	30337
Kelly	Braun	Airport Manager	KDIK – Theodore Roosevelt Regional Airport	11120 42nd Street SW		Dickinson	ND	58601
Steve	Josephson	Stark County Planning and Zoning Director	Stark County Planning and Zoning Department	51 3rd St E (Stark County Courthouse, 1st Floor)	PO Box 130	Dickinson	ND	58601
Shawna	Davenport	Director of Emergency Services	Stark County Department of Emergency Services	66 Museum Drive West		Dickinson	ND	58601
Lorna	Meidinger	Historic Preservation Specialist	State Historical Society of North Dakota	612 E Boulevard Avenue		Bismarck	ND	58505
Andrew	Clark	Chief Archaeologist	State Historical Society of North Dakota	613 E Boulevard Avenue		Bismarck	ND	58506

APPENDIX E

Agency Correspondence

Federal Aviation Administration (FAA)

Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2021-WTE-3103-OE

Issued Date: 09/21/2021

Jessica Grosso
One Energy Enterprises LLC
12385 Township Rd 215
Findlay, OH 45840

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine WTG01-ALT
Location:	Dickinson, ND
Latitude:	46-51-34.75N NAD 83
Longitude:	102-54-47.58W
Heights:	2437 feet site elevation (SE)
	440 feet above ground level (AGL)
	2877 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 M, Obstruction Marking and Lighting, white paint/sychronized red lights-Chapters 4,13(Turbines),&15.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

This determination expires on 03/21/2023 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above (provided the AGL height does not exceed 499 feet). If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

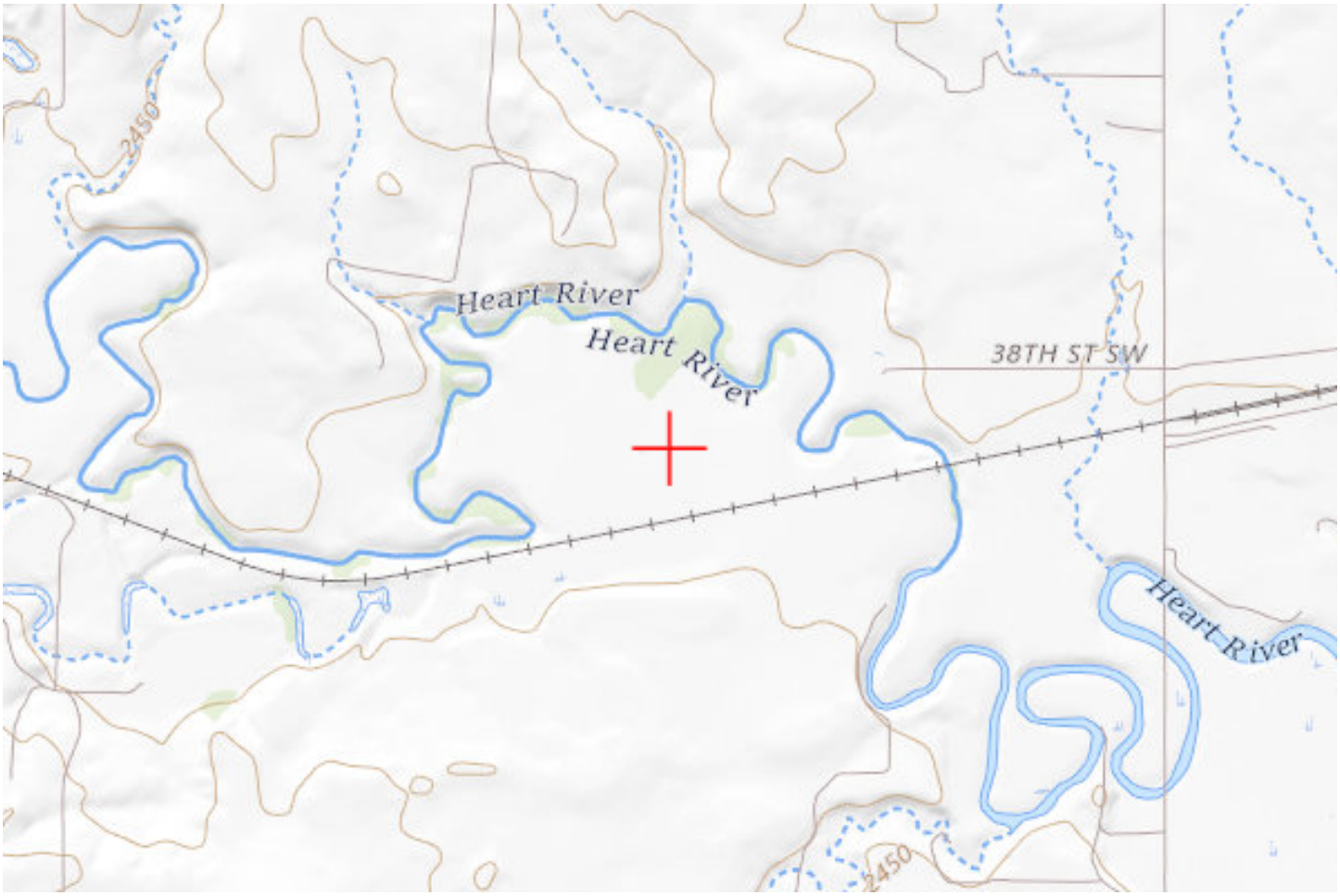
This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact Buck Reynolds, at (201) 231-3436, or Wayne.Reynolds@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2021-WTE-3103-OE.

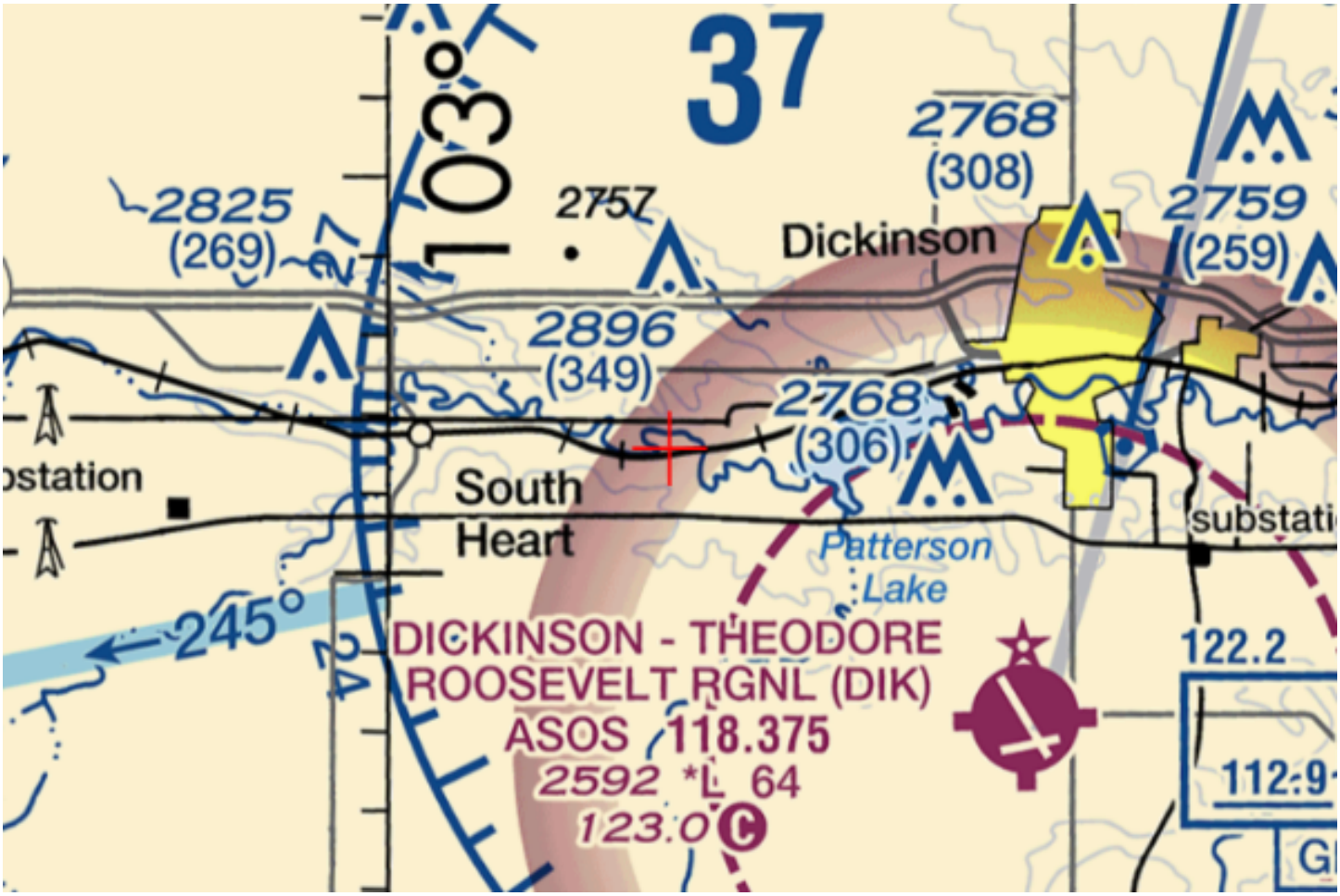
Signature Control No: 492341965-495135621 (DNE -WT)
Steve Phillips
Manager, Obstruction Evaluation Group

Attachment(s)
Map(s)

TOPO Map for ASN 2021-WTE-3103-OE



Sectional Map for ASN 2021-WTE-3103-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2021-WTE-3104-OE

Issued Date: 09/21/2021

Jessica Grosso
One Energy Enterprises LLC
12385 Township Rd 215
Findlay, OH 45840

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine WTG02-ALT
Location:	Dickinson, ND
Latitude:	46-51-36.80N NAD 83
Longitude:	102-54-34.32W
Heights:	2440 feet site elevation (SE)
	440 feet above ground level (AGL)
	2880 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 M, Obstruction Marking and Lighting, white paint/sychronized red lights-Chapters 4,13(Turbines),&15.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

This determination expires on 03/21/2023 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above (provided the AGL height does not exceed 499 feet). If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

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This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

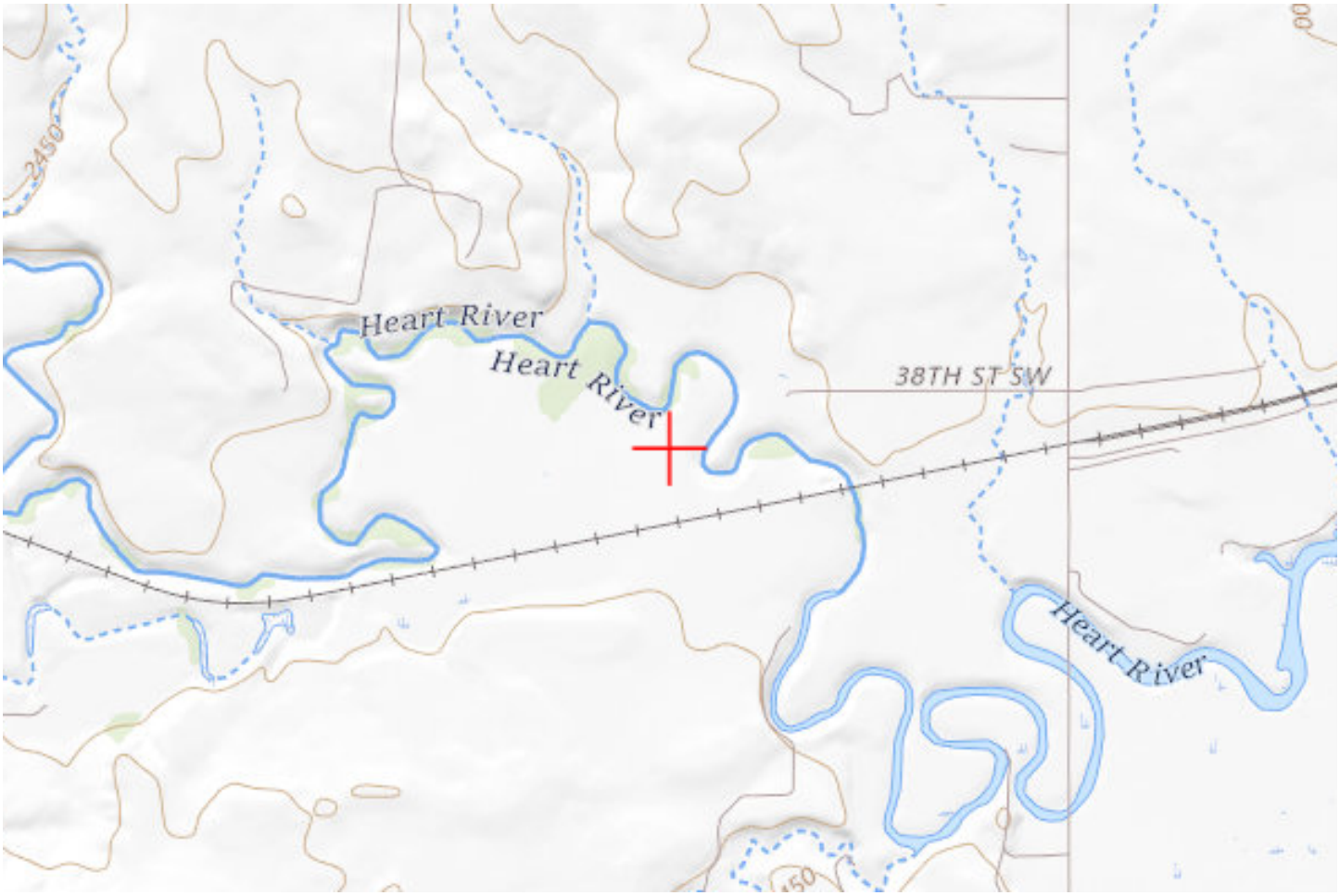
This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact Buck Reynolds, at (201) 231-3436, or Wayne.Reynolds@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2021-WTE-3104-OE.

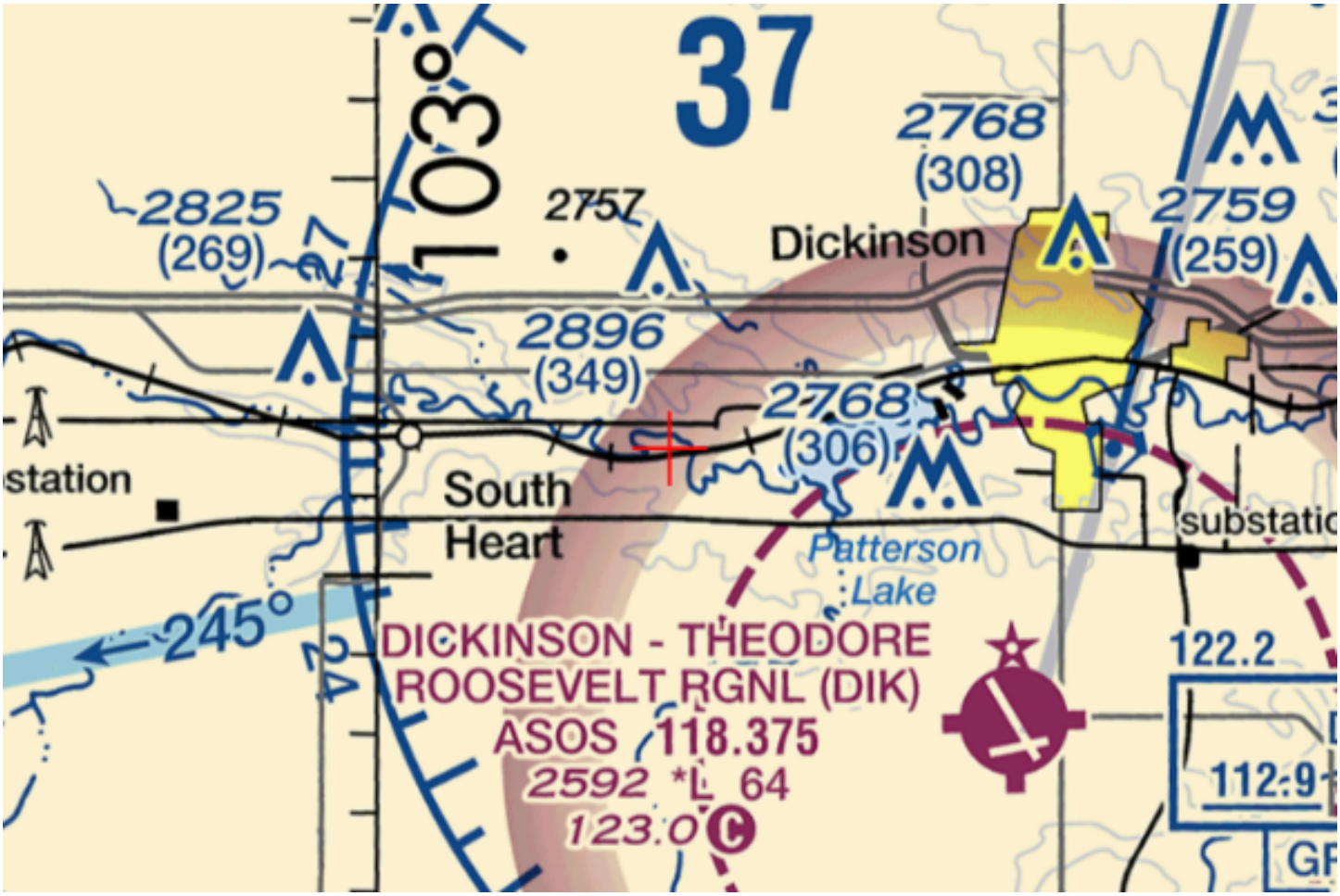
Signature Control No: 492341966-495134991 (DNE -WT)
Steve Phillips
Manager, Obstruction Evaluation Group

Attachment(s)
Map(s)

TOPO Map for ASN 2021-WTE-3104-OE



Sectional Map for ASN 2021-WTE-3104-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2021-WTE-1701-OE

Issued Date: 10/06/2021

Jessica Grosso
One Energy Enterprises LLC
12385 Township Rd 215
Findlay, OH 45840

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine WTG03
Location:	Dickinson, ND
Latitude:	46-51-15.80N NAD 83
Longitude:	102-54-13.28W
Heights:	2432 feet site elevation (SE)
	440 feet above ground level (AGL)
	2872 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 M, Obstruction Marking and Lighting, white paint/sychronized red lights-Chapters 4,13(Turbines),&15.

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It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.
This determination expires on 02/02/2023 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

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If we can be of further assistance, please contact Buck Reynolds, at (201) 231-3436, or Wayne.Reynolds@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2021-WTE-1701-OE.

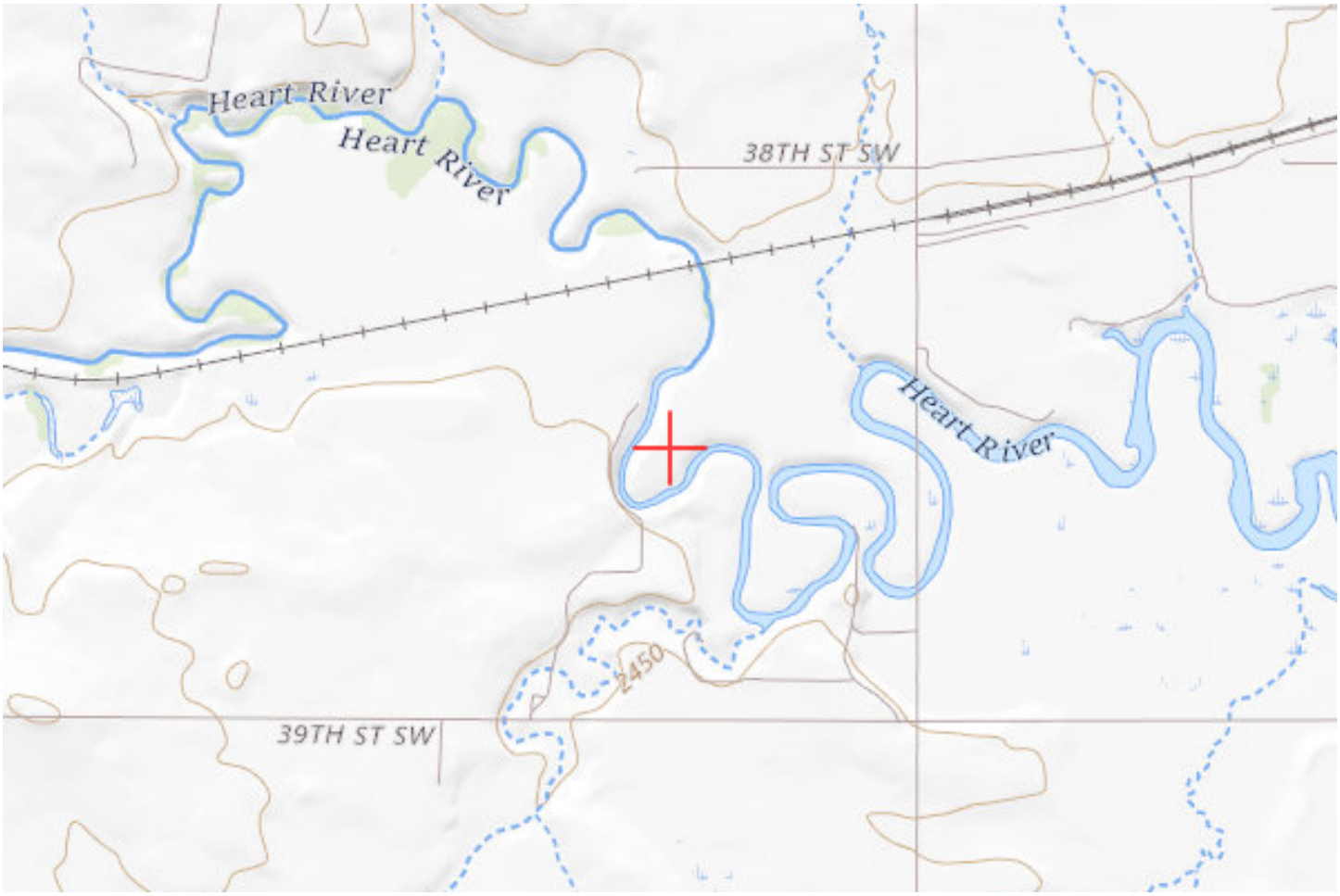
Signature Control No: 480304537-496852914 (DNE -WT)
Mike Helvey
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

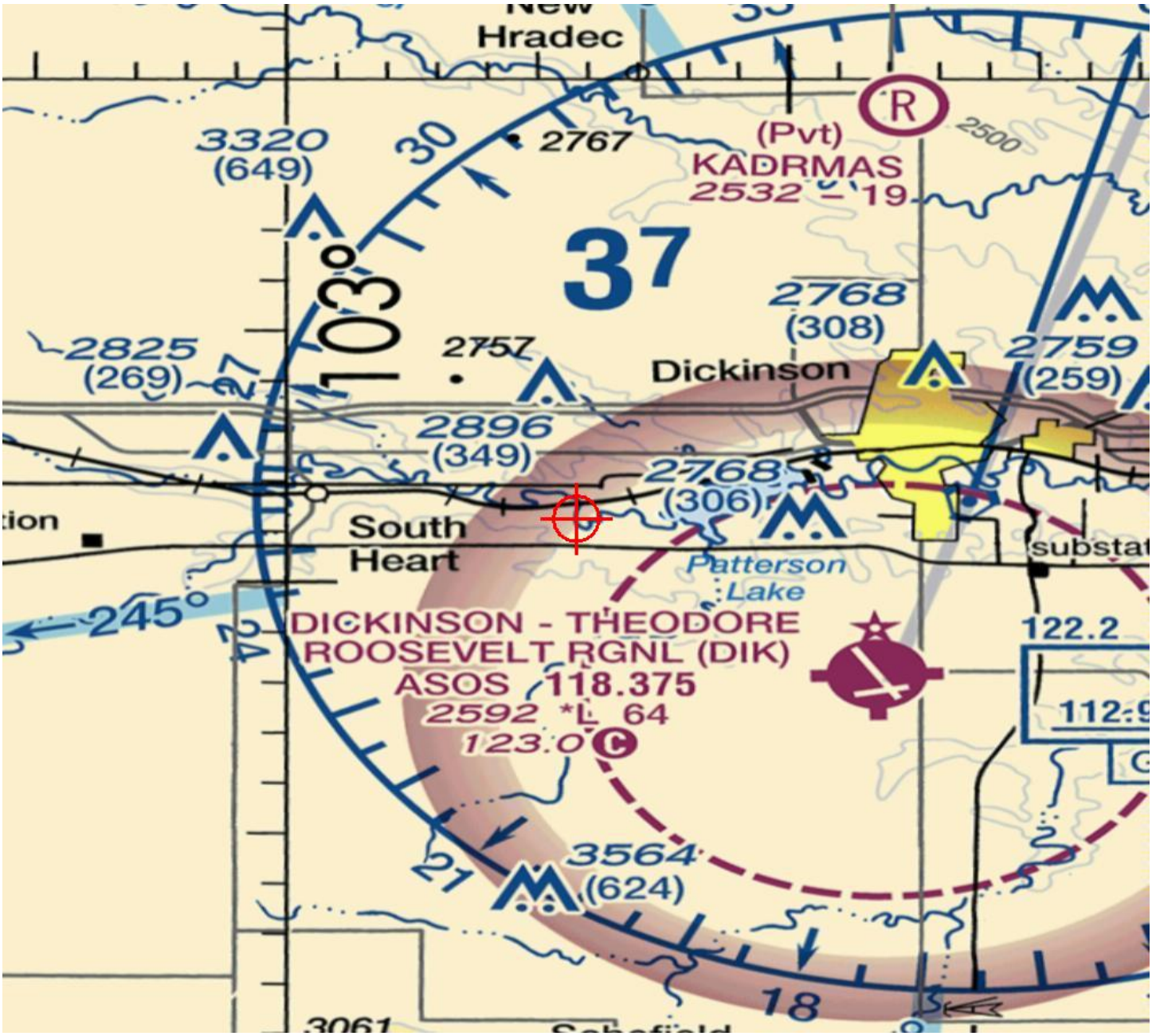
Additional information for ASN 2021-WTE-1701-OE

This determination is being re-issued due to the sectional map in the original determination had white blocks rendering the map as useless.

TOPO Map for ASN 2021-WTE-1701-OE



Sectional Map for ASN 2021-WTE-1701-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2021-WTE-1702-OE

Issued Date: 10/06/2021

Jessica Grosso
One Energy Enterprises LLC
12385 Township Rd 215
Findlay, OH 45840

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine WTG04
Location:	Dickinson, ND
Latitude:	46-51-17.04N NAD 83
Longitude:	102-54-02.84W
Heights:	2431 feet site elevation (SE)
	440 feet above ground level (AGL)
	2871 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 M, Obstruction Marking and Lighting, white paint/sychronized red lights-Chapters 4,13(Turbines),&15.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.
This determination expires on 02/02/2023 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above (provided the AGL height does not exceed 499 feet). If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact Buck Reynolds, at (201) 231-3436, or Wayne.Reynolds@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2021-WTE-1702-OE.

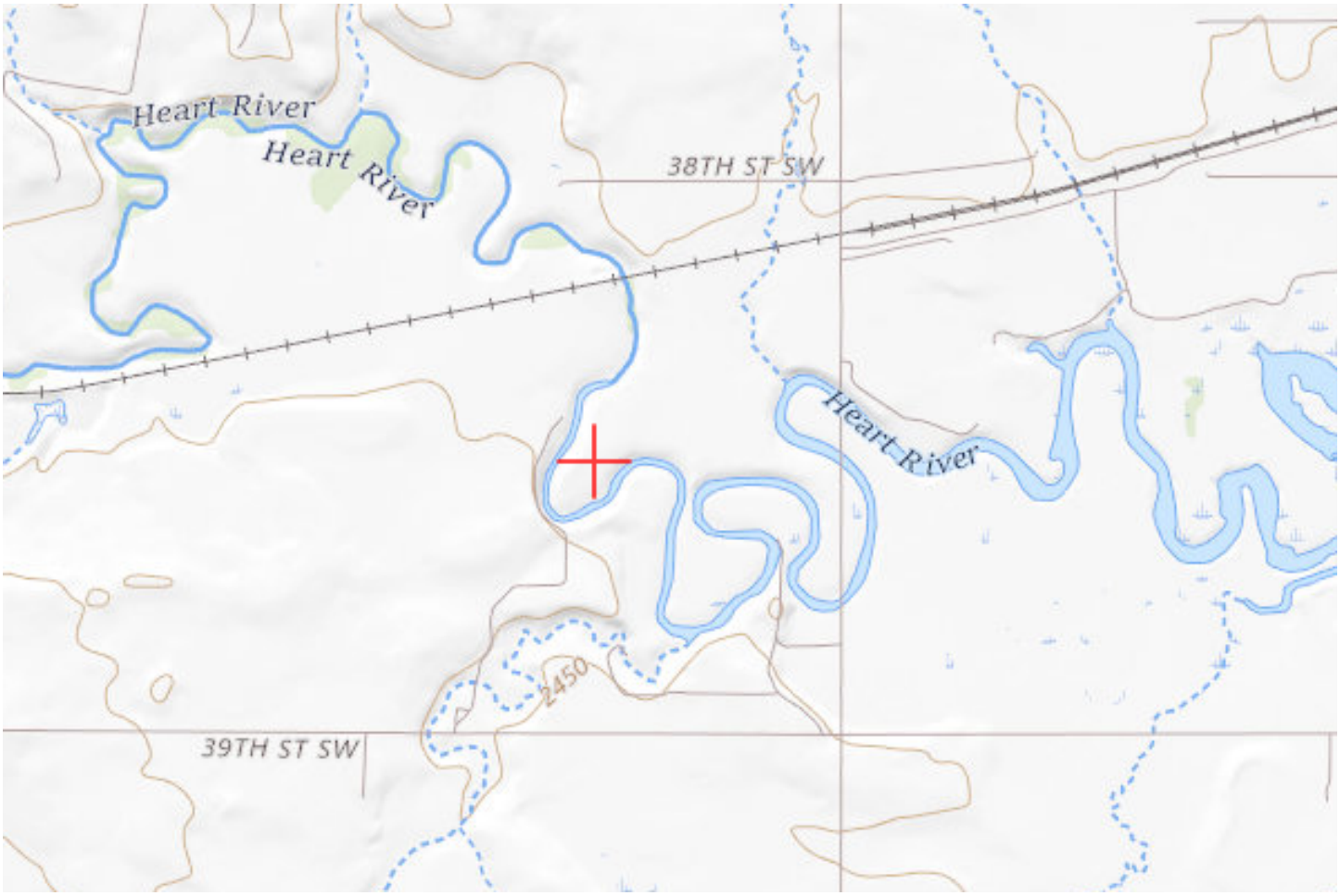
Signature Control No: 480304545-496852912 (DNE -WT)
Mike Helvey
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Map(s)

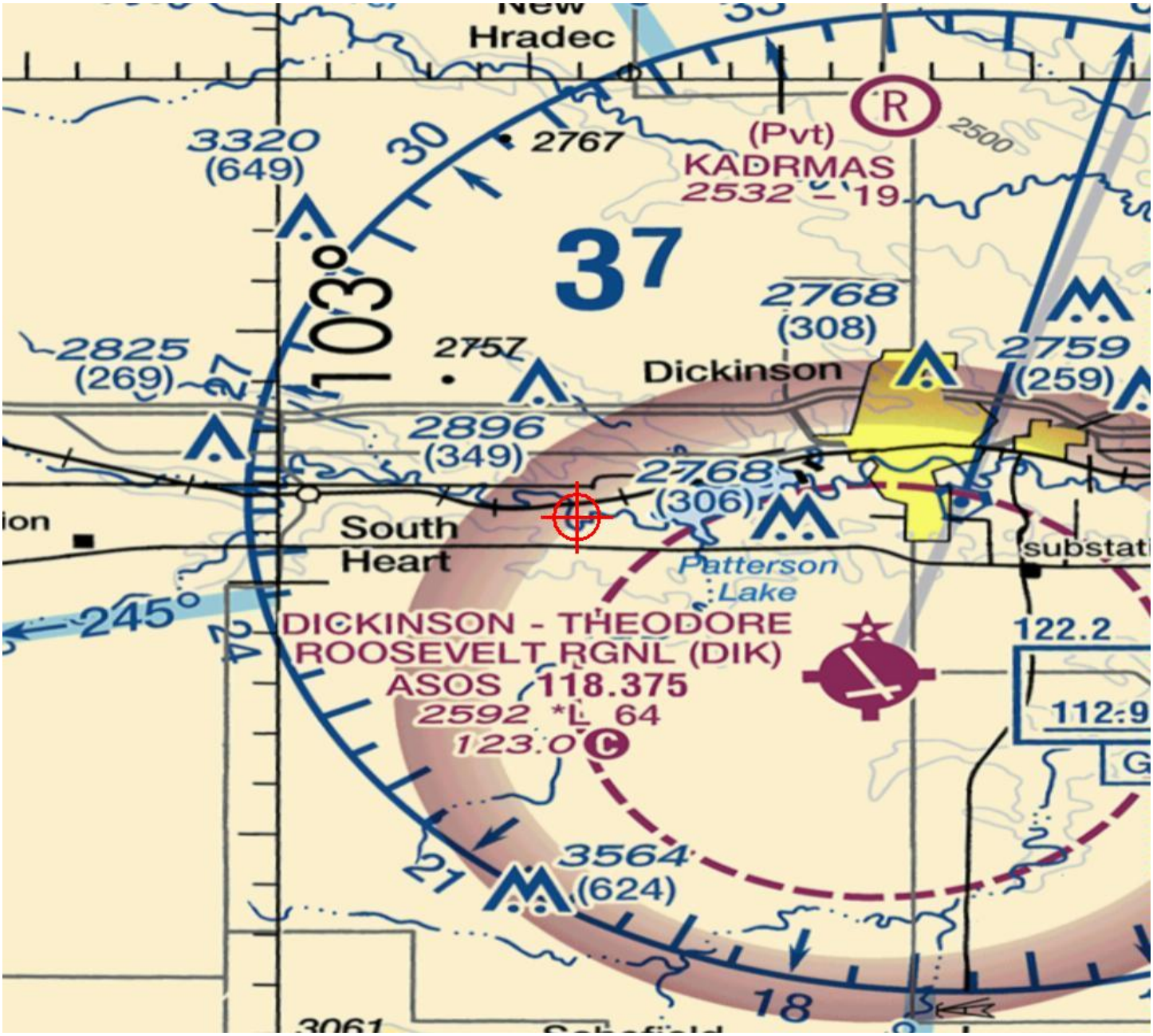
Additional information for ASN 2021-WTE-1702-OE

This determination is being re-issued due to the sectional map in the original determination had white blocks rendering the map as useless.

TOPO Map for ASN 2021-WTE-1702-OE



Sectional Map for ASN 2021-WTE-1702-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2021-WTE-1703-OE

Issued Date: 10/06/2021

Jessica Grosso
One Energy Enterprises LLC
12385 Township Rd 215
Findlay, OH 45840

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine WTG05
Location:	Dickinson, ND
Latitude:	46-51-19.82N NAD 83
Longitude:	102-53-53.08W
Heights:	2430 feet site elevation (SE)
	440 feet above ground level (AGL)
	2870 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 M, Obstruction Marking and Lighting, white paint/sychronized red lights-Chapters 4,13(Turbines),&15.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.
This determination expires on 02/02/2023 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above (provided the AGL height does not exceed 499 feet). If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact Buck Reynolds, at (201) 231-3436, or Wayne.Reynolds@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2021-WTE-1703-OE.

Signature Control No: 480304546-496852911 (DNE -WT)
Mike Helvey
Manager, Obstruction Evaluation Group

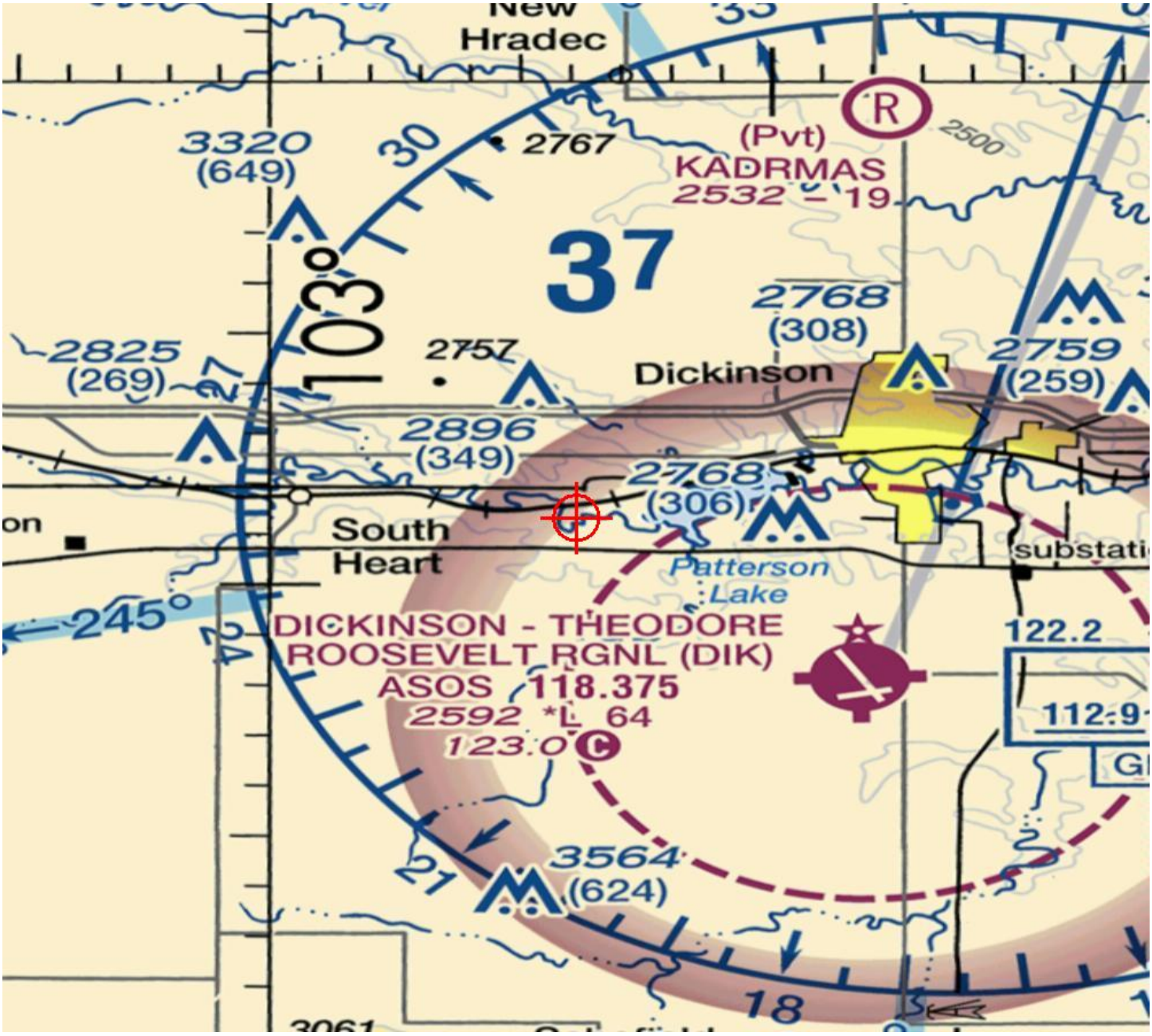
Attachment(s)
Additional Information
Map(s)

Additional information for ASN 2021-WTE-1703-OE

This determination is being re-issued due to the sectional map in the original determination had white blocks rendering the map as useless.

TOPO Map for ASN 2021-WTE-1703-OE

Sectional Map for ASN 2021-WTE-1703-OE



APPENDIX E

Agency Correspondence

U.S Department of Defense Military Aviation and Installation Assurance Siting Clearinghouse

ONE ENERGY
AN INDUSTRIAL POWER COMPANY

Jessica Grosso <jgrosso@oneenergyllc.com>

Informal Review Request

Jessica Grosso <jgrosso@oneenergyllc.com> Thu, Apr 22, 2021 at 4:51 PM
To: osd.dod-siting-clearinghouse@mail.mil

To Whom it May Concern,
The attached documents are intended to request an informal review of the outlined private wind project near Dickinson, North Dakota. The information should be considered proprietary.

Let me know if other information is needed.

Thank you for your time,
Jessica

JESSICA GROSSO

SVP, Head of Project Planning and Technology

jgrosso@oneenergyllc.com

www.oneenergy.com

ONE ENERGY
AN INDUSTRIAL POWER COMPANY

Office: 877-298-5853 | Mobile: 419-890-8555

12385 Township Rd. 215 | Findlay, OH 45840

3 attachments

Turbine Siting Option - 20210420 PROPRIETARY.xlsx
11K

DoD Informal Review Request - 20210420 PROPRIETARY.pdf
344K

Proposed Project Area_PROPRIETARY-20210420.kmz
2K

ONE ENERGY
AN INDUSTRIAL POWER COMPANY

Jessica Grosso <jgrosso@oneenergyllc.com>

Response Letter for the Dickinson Wind Project

Townes, Daniel W CTR OSD OUSD A-S (USA) <daniel.w.townes.ctr@mail.mil> Fri, Jun 4, 2021 at 2:22 PM
To: "jgrosso@oneenergyllc.com" <jgrosso@oneenergyllc.com>
Cc: "Kiernan, Scott E CIV OSD OUSD A-S (USA)" <scott.e.kiernan.civ@mail.mil>

Ms. Grosso,

Attached is the Informal Review Response Letter for the Dickinson Wind Project.

Please contact Mr. Scott Kiernan or me if you have any questions or concerns.

Thank you.

Respectfully,

Dan Townes

Military Aviation and Installation Assurance Siting Clearinghouse

Office of the Assistant Secretary of Defense (Sustainment)

Desk: 571-372-8414 *(temporarily unavailable)*

NIPR: daniel.w.townes.ctr@mail.mil

IR - Dickinson Wind Project - Response Letter.pdf
62K

OFFICE OF THE ASSISTANT SECRETARY OF DEFENSE
3500 DEFENSE PENTAGON
WASHINGTON, DC 20301-3500

SUSTAINMENT

June 4, 2021

Jessica Grosso
One Energy LLC
12385 Township Rd 215
Findlay, OH 45840

Dear Ms. Grosso,

As requested, the Military Aviation and Installation Assurance Siting Clearinghouse coordinated within the Department of Defense (DoD) an informal review of the Dickinson Wind Project. The results of our review indicated that the wind project, located in Stark County, North Dakota, as proposed, will have minimal impact on military operations conducted in the area.

Please note that this informal review by the DoD Military Aviation and Installation Assurance Siting Clearinghouse does not constitute an action under 49 United States Code Section 44718 and that the DoD is not bound by the conclusion arrived at under this informal review. To expedite our review in the Obstruction Evaluation Airport Airspace Analysis (OE/AAA) process, please add the project number 2021-04-W-DEV-18 in the comments section of the filing. If you have any questions, please contact me at scott.e.kiernan.civ@mail.mil or at 571-255-9507.

Sincerely,

Scott E. Kiernan
Deputy Director
Military Aviation and Installation
Assurance Siting Clearinghouse

APPENDIX E

Agency Correspondence

North Dakota Game and Fish

ONE ENERGY
AN INDUSTRIAL POWER COMPANY

Jeremé Kent <jeremekent@oneenergyllc.com>

Re: Marathon wind Project

1 message

Jeremé Kent <jeremekent@oneenergyllc.com> Mon, Aug 2, 2021 at 3:11 PM
To: "Mueller, Elisha K." <ekmueller@nd.gov>
Cc: Drew Becker <drew_becker@fws.gov>, "Riddle, Heidi L" <heidi_riddle@fws.gov>

Thanks Elisha, is F&G able to provide the circle search for known species in the area as well?

JEREME KENT

CEO

jeremekent@oneenergyllc.com

www.oneenergy.com

Office: 877-298-5853 | Mobile: 419-905-5274

12385 Township Rd 215 | Findlay, OH 45840

On Mon, Aug 2, 2021 at 1:25 PM Mueller, Elisha K. <ekmueller@nd.gov> wrote:

> Hi Jeremé,
>
> Attached is the Department's early guidance letter for the 5 turbine project near Patterson lake. Feel free to reach out if you have any questions.
>
>
> Elisha Mueller
>
> *Conservation Biologist*
>
> 701.328.6348 • ekmueller@nd.gov • gf.nd.gov
>
> NORTH Dakota | Game and Fish
> Be Legendary.™
>

NORTH Dakota | Game and Fish
Be Legendary.™

August 2, 2021

Jereme Kent
One Energy
12385 Township Rd 215
Findlay, OH 45840
jeremekent@oneenergyllc.com

RE: Marathon Wind Project, Stark County, ND

Dear Mr. Kent:

Thank you for reaching out to the North Dakota Game and Fish Department (Department) to solicit information on the proposed wind project. In this letter, we will provide our initial concerns and recommendations for early project planning.

The Department is encouraged to see that all turbines will be placed on already tilled/broken land. Native prairie is the most endangered ecosystem in North Dakota and, as we are a grassland state, the majority of our native species are linked to prairie. Disturbance, fragmentation, and loss of native prairie have adversely impacted a wide variety of species and these negative impacts will only continue to compound as more development takes place on the landscape. Siting new development in already disturbed areas is an important step in creating a sustainable balance of energy development and wildlife conservation.

Though there may be few impacts to grasslands, the project falls within both the State Wildlife Action Plan's (SWAP) Priority Areas and the High Impact to Native Wildlife and Habitat area in the Department's *Wind Energy Development in North Dakota Best Management Practices.* This is due to the high concentration of (riparian) woodland and wetland habitats in the area. The project is encircled by the Heart River and impacts to species that depend on the river and associated riparian woodlands may be negatively impacted by the development of turbines, specifically species of conservation priority such as the little brown bat. The Department recommends that the developer conduct pre-construction surveys to better understand this risk. These surveys should, at minimum, include the following:

- Bats are long-lived, reproduce slowly, and migrate long distances, making them particularly susceptible to wind development. Acoustic surveys should begin at a

minimum two years pre-construction to assess the risk the project poses to local bat populations.

- The Bald Eagle population is increasing significantly in North Dakota. The number of active nests has increased from 10 known sites in the year 2000 to more than 300 in the year 2020. Due to the continual increase and selection of non-traditional nest sites, it is possible that Bald Eagle nests may be found anywhere across the state where large trees are present. Therefore, it is necessary to conduct searches for raptor nests during the breeding season to understand the risk associated with development.

Further, the Department provides several recommendations in *Wind Energy Development in North Dakota Best Management Practices* on siting projects with minimal impacts to wildlife and recommends the developer become familiar with this document. https://gf.nd.gov/node/4800.

As One Energy moves forward with the project, the Department requests to remain informed. To accurately analyze the project and provide valuable feedback to the PSC if requested, it is important that the Department receives all documents, including wildlife surveys, spatial data, and any voluntary offsets in a timely manner.

Sincerely,

Greg Link

CC: Drew Becker, US Fish and Wildlife Service
ND Public Service Commission
Stark County Commissioners

ONE ENERGY
AN INDUSTRIAL POWER COMPANY

Jeremé Kent <jeremekent@oneenergyllc.com>

RE: Data

1 message

Johnson, Sandra K. <sajohnson@nd.gov> Thu, Aug 12, 2021 at 10:27 AM
To: "Mueller, Elisha K." <ekmueller@nd.gov>, "jeremekent@oneenergyllc.com" <jeremekent@oneenergyllc.com>

Hi Jeremé,

Attached is the golden eagle nest location. Note there are actually two points in the shapefile. There are a couple of nests on this butte, one being an alternate nest.

Also attached is the Key Native Wildlife and Habitat Areas shapefile. We have not yet uploaded it to the NDGIS Hub.

Let me know if you have any trouble opening the files.

Thanks!

Sandy

Sandra Johnson

Conservation Biologist

701.328.6382 • sajohnson@nd.gov • gf.nd.gov

NORTH Dakota | Game and Fish
Be Legendary.™

From: Mueller, Elisha K. <ekmueller@nd.gov>
Sent: Tuesday, August 10, 2021 8:10 AM
To: Johnson, Sandra K. <sajohnson@nd.gov>
Subject: FW: Data

From: Jeremé Kent <jeremekent@oneenergyllc.com>
Sent: Tuesday, August 10, 2021 5:11 AM
To: Mueller, Elisha K. <ekmueller@nd.gov>
Cc: Riddle, Heidi L <heidi_riddle@fws.gov>; Katie Treadway <ktreadway@oneenergyllc.com>
Subject: Re: Data

Thanks Elisha,

I double checked the GIS portal this morning and I was not able to find the "priority area" layer. We do have the "focus area" layer.

Executed sharing agreement attached. Thanks for processing so quickly.

JEREME KENT

CEO

jeremekent@oneenergyllc.com

www.oneenergy.com

Office: 877-298-5853 | Mobile: 419-905-5274

12385 Township Rd 215 | Findlay, OH 45840

On Mon, Aug 9, 2021 at 4:35 PM Mueller, Elisha K. <ekmueller@nd.gov> wrote:

> Hi Jereme,
>
> Sorry for the delay, I have been in and out of the office with field work and events. Attached to this email is the data sharing agreement. As for the priority area map, it is the one in our BMP's document. I was under the impression it was on the ND GIS HUB, as was the focus area map, but perhaps I am wrong. Let me check into that and get back to you!
>
> Elisha
>
> ---
>
> **From:** Jereme Kent <jeremekent@oneenergyllc.com>
> **Sent:** Thursday, August 5, 2021 5:54 AM
> **To:** Mueller, Elisha K. <ekmueller@nd.gov>
> **Cc:** Riddle, Heidi L <heidi_riddle@fws.gov>; Katie Treadway <ktreadway@oneenergyllc.com>
> **Subject:** Re: Data
>
>
>
> Hi Elisha,

Please share the data sharing agreement.

Also, we are trying to find a shapefile for the priority areas and high impact areas. Can you point us in the right direction?

We have found the "focus area" shapefile.

JEREME KENT

CEO

jeremekent@oneenergyllc.com

www.oneenergy.com

Office: 877-298-5853 | Mobile: 419-905-5274

12385 Township Rd 215 | Findlay, OH 45840

On Tue, Aug 3, 2021 at 5:11 PM Mueller, Elisha K. <ekmueller@nd.gov> wrote:

> Hi Jereme,
>
> I checked with my staff and we do not have a grouse census block in the area so we have no information to provide on grouse leks. We don't know of any *known* bald eagle nests in the area either, but we do know of one golden eagle nest that is approximately 3.5 miles outside of the project boundary. If you are interested in this spatial data, we will need to sign a data sharing agreement. Let me know if that is how you would like to proceed.
>
> Elisha Mueller
>
> *Conservation Biologist*
>
> 701.328.6348 • ekmueller@nd.gov • gf.nd.gov
>
> NORTH Dakota | Game and Fish
> Be Legendary.™

7 attachments

KeyNativeWildlifeHabitat.zip

4513K

GoldenEagleNest.dbf
1K

GoldenEagleNest.prj
1K

GoldenEagleNest.sbn
1K

GoldenEagleNest.sbx
1K

GoldenEagleNest.shp
1K

GoldenEagleNest.shx
1K

Revised 7/2020

GIS DATA SHARING AGREEMENT
NORTH DAKOTA GAME AND FISH DEPARTMENT

This is to serve as a formal agreement with: Jereme Kent, One Energy LLC, Findlay, OH.

The data includes: Golden Eagle nest site within 5 miles of a proposed wind project in Stark County.

This data will be used for: Turbine siting and risk analysis to minimize impacts to sensitive species during project development.

It is agreed that:

1. *Access to this data or web services will be restricted to the individuals or groups listed in this document.*

2. *All data provided or access to the web services will be used for these purposes only, and will not be given or sold to anyone not affiliated with these purposes. The information contained hereon is intended for the user and may not be copied, duplicated, or redistributed in any way, in whole or in part, without the written consent of the North Dakota Game and Fish Department. Confidentiality of information continues beyond the term of this agreement, or any extensions or renewals of it.*

3. *The North Dakota Game and Fish Department provides no guarantee, express or implied, as to the accuracy and/or completeness of the information contained hereon.*

4. *The user shall provide results of wildlife surveys conducted for the specified project, including on known or newly discovered wildlife features (e.g. golden eagle nest status, sharp-tailed grouse leks), to the North Dakota Game and Fish Department upon project completion or as requested by the Department. Spatial information must be compatible with ESRI ArcGIS formats.*

5. *The user acknowledges the data provided does not represent a census of the species. Therefore, areas without data do not represent where a species is not present. The user acknowledges this data does not represent populations of species outside the North Dakota Game and Fish Department survey/study areas. The North Dakota Game and Fish Department provides no guarantee, express or implied, as to the presence/absence of any species within the area of interest. By signing this agreement, the user acknowledges the limitations of the data and the designed intent of its use.* ***The user is responsible for investigating impacts to species and their habitat in the area of interest using scientifically rigorous methods, not based exclusively on the data provided herein. This data may supplement, not supplant, user executed surveys.***

Signed: _____ Date: 8-9-2021
North Dakota Game and Fish Department

Signed: _____ Jereme Kent
CEO, jeremekent@oneenergyllc.com
2021-08-10 06:09-04:00 Date: _____

NORTH Dakota | Game and Fish
Be Legendary.

ONE ENERGY
AN INDUSTRIAL POWER COMPANY

Jeremy Kent <jeremekent@oneenergyllc.com>

RE: One Energy - Marathon Dickinson Wind

1 message

Mueller, Elisha K. <ekmueller@nd.gov> Tue, Sep 21, 2021 at 5:38 PM
To: Jeremy Kent <jeremekent@oneenergyllc.com>, "Riddle, Heidi L" <heidi_riddle@fws.gov>
Cc: Katie Treadway <ktreadway@oneenergyllc.com>

Hi Jeremy,

Thank you, I did receive the email. I will be in touch if I have any questions once I had a chance to review the materials.

Elisha

From: Jeremy Kent <jeremekent@oneenergyllc.com>
Sent: Tuesday, September 21, 2021 4:12 PM
To: Riddle, Heidi L <heidi_riddle@fws.gov>; Mueller, Elisha K. <ekmueller@nd.gov>
Cc: Katie Treadway <ktreadway@oneenergyllc.com>
Subject: One Energy - Marathon Dickinson Wind

Heidi and Elisha,

Please confirm receipt of this email.

I hope all is well. Please see the attached package for the Marathon Dickinson Wind Project.

It includes our investigations, conclusions, and current plan.

After you have had a chance to review the documents we are happy to set up a time to discuss if that would be helpful (including pulling in SWCA if needed).

We will formally apply to PSC soon.

Please let me know if you have any questions and if you think it would be good to have a call.

Respectfully,

JEREME KENT

CEO

jeremekent@oneenergyllc.com

www.oneenergy.com

Office: 877-298-5853 | Mobile: 419-905-5274

12385 Township Rd 215 | Findlay, OH 45840

ONE ENERGY MEETING MINUTES

TOPIC: NDGF/ONE ENERGY CALL ON TIER I/II FOLLOW UP

DATE: October 27, 2021

TIME: 11:00 AM ET

LOCATION: Phone Call

OE ATTENDEES

Jereme Kent, CEO	Katie Treadway, Head of Regulatory Affairs

NON-OE ATTENDEES

Elisha Mueller, Conservation Biologist	

AGENDA: ☐ Yes ☒ No

NOTES KEY: Action items will be highlighted in red font throughout the following notes.

a. NDGF stated the project is already on broken land, which is positive because ND has so little unbroken prairie left.

b. NDGF asked if OE is still doing research on bats. OE explained it is working with NREL to advance bat research at community scale wind projects by deploying two thermal camera data collection systems at project sites.

c. NDGF will provide a review letter to PSC at least 30 days prior to hearing. NDGF had a discussion with USFWS and the NDGF letter will generally align with the USFWS letter.

d. OE asked if NDGF could provide a letter sooner so that so OE could provide it to local officials for the local permitting process. NDGF anticipated it could send OE a letter in the next couple of weeks in addition to the letter it will send the PSC.

NORTH Dakota | Game and Fish
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November 8th, 2021

Jereme Kent
One Energy
12385 Township Rd 215
Findlay, OH 45840
jeremekent@oneenergyllc.com

RE: Proposed Marathon Renewable Diesel Facility Wind Turbine Project, Stark County, ND.

Dear J. Kent:

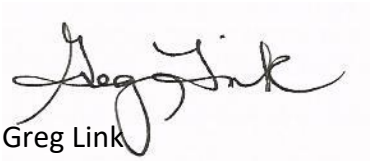
Thank you for meeting with the North Dakota Game and Fish Department (Department) to provide an update on the proposed Marathon Renewable Diesel Facility Wind Project (Project). We appreciate the coordination and opportunity to provide recommendations and feedback.

The Project is a unique case, as most of the research and recommendations regarding wind development have been focused on large scale, commercial projects. There is much uncertainty of the risk small, community projects pose and very few recommendations on how to mitigate that risk. However, as the Department recommends in all cases, avoiding native habitats (grasslands, woodlands, and wetlands) is essential for creating a sustainable balance of energy development and wildlife conservation. With all 5 turbines being cited in already disturbed land, the developer has taken an important first step in reducing risk.

However, the project falls within both the State Wildlife Action Plan's (SWAP) Priority Areas and the High Impact to Native Wildlife and Habitat area in the Department's Wind Energy Development in North Dakota Best Management Practices. This is due to the high concentration of (riparian) woodland and wetland habitats in the area. The project is encircled by the Heart River and impacts to species that depend on the river and associated riparian woodlands may be negatively impacted by the development of turbines, specifically species of conservation priority such as the little brown bat. In our early guidance letter, the Department recommended that the developer conduct pre-construction surveys to better understand the risk to bats and eagles. It is our understanding that One Energy has been working closely with the United States Fish and Wildlife Service (Service), along with the National Renewable Energy Lab (NREL), on developing post construction monitoring protocols to better understand the risk of small-scale projects on these species in the absence of pre-construction data. The Department is supportive of the recommendations the Service has made and asks to remain informed by receiving incident reports and data from post construction surveys.

Thank you for the opportunity to comment on the proposed project.

Sincerely,



Greg Link
Chief, Conservation and Communications Division

Cc: Drew Becker, Heidi Riddle, US Fish and Wildlife Service
ND Public Service Commission

APPENDIX E

Agency Correspondence

U.S. Fish and Wildlife Service

ONE ENERGY
AN INDUSTRIAL POWER COMPANY

Jeremy Kent <jeremekent@oneenergyllc.com>

RE: [EXTERNAL] Marathon's Dickinson Wind Project

1 message

Riddle, Heidi L <heidi_riddle@fws.gov> Thu, Aug 5, 2021 at 9:58 AM
To: Jeremy Kent <jeremekent@oneenergyllc.com>
Cc: Katie Treadway <ktreadway@oneenergyllc.com>

I don't believe so.

From: Jeremy Kent <jeremekent@oneenergyllc.com>
Sent: Wednesday, August 4, 2021 3:46 PM
To: Riddle, Heidi L <heidi_riddle@fws.gov>
Cc: Katie Treadway <ktreadway@oneenergyllc.com>
Subject: Re: [EXTERNAL] Marathon's Dickinson Wind Project

Heidi,

Does FWS have any relevant info that the state wouldn't have?

Jeremy Kent
One Energy
419.905.5274

On Wed, Aug 4, 2021, 4:22 PM Riddle, Heidi L <heidi_riddle@fws.gov> wrote:

> Hi Jeremy,
>
> I apologize for not responding. I happened to check my Spam folder today looking for something else and found this email. How strange that it went there, considering we had already had communication!
>
> Anyway, it sounds like you have been discussing a data sharing agreement with Elisha Mueller. I believe they would have the info you're looking for, and I can sign onto the agreement if needed.
>
> Thank you,
>
> Heidi
>
> ---
>
> **From:** Jeremy Kent <jeremekent@oneenergyllc.com>
> **Sent:** Monday, July 12, 2021 12:10 PM
> **To:** Riddle, Heidi L <heidi_riddle@fws.gov>
> **Cc:** Katie Treadway <ktreadway@oneenergyllc.com>
> **Subject:** [EXTERNAL] Marathon's Dickinson Wind Project

Hi Heidi,

I hope all is well.

We have engaged SWCA to do a concurring review of our Tier 1/2 studies.

We have also had some productive talks with NREL on the bat issue we discussed. Do you have some time this week to connect and catch up?

We have started conversations with ND Fish and Game as well.

One of SWCA's requests was for a known locations of eagles, raptors, or other animal sof concerns around the project area. They suggest a 2 mile buffer but I will defer to you on the right buffer.

I have attached the KMZ of the disturbed area (matches the IPAC area).

Are you able to provide the inventory of known locations, if any?

Thanks

JEREME KENT

CEO

jeremekent@oneenergyllc.com

www.oneenergy.com

Office: 877-298-5853 | Mobile: 419-905-5274

12385 Township Rd 215 | Findlay, OH 45840

ONE ENERGY
AN INDUSTRIAL POWER COMPANY

Jeremé Kent <jeremekent@oneenergyllc.com>

RE: [EXTERNAL] One Energy - Marathon Dickinson Wind

1 message

Riddle, Heidi L <heidi_riddle@fws.gov> Wed, Sep 22, 2021 at 10:09 AM
To: Jeremé Kent <jeremekent@oneenergyllc.com>, "Mueller, Elisha K." <ekmueller@nd.gov>
Cc: Katie Treadway <ktreadway@oneenergyllc.com>

Good morning Jeremé,

I have received the email and will look over the package. I appreciate your coordination on this project and will be in touch.

Best,

Heidi

Heidi Riddle, CWB®

Fish and Wildlife Biologist

USFWS North Dakota Ecological Services Field Office

3425 Miriam Ave

Bismarck, ND 58501

(701) 355-8545

heidi_riddle@fws.gov

From: Jeremé Kent <jeremekent@oneenergyllc.com>
Sent: Tuesday, September 21, 2021 4:12 PM
To: Riddle, Heidi L <heidi_riddle@fws.gov>; Mueller, Elisha K. <ekmueller@nd.gov>
Cc: Katie Treadway <ktreadway@oneenergyllc.com>
Subject: [EXTERNAL] One Energy - Marathon Dickinson Wind

Heidi and Elisha,

Please confirm receipt of this email.

I hope all is well. Please see the attached package for the Marathon Dickinson Wind Project.

It includes our investigations, conclusions, and current plan.

After you have had a chance to review the documents we are happy to set up a time to discuss if that would be helpful (including pulling in SWCA if needed).

We will formally apply to PSC soon.

Please let me know if you have any questions and if you think it would be good to have a call.

Respectfully,

JEREME KENT

CEO

jeremekent@oneenergyllc.com

www.oneenergy.com

Office: 877-298-5853 | Mobile: 419-905-5274

12385 Township Rd 215 | Findlay, OH 45840

ONE ENERGY MEETING MINUTES

TOPIC: **USFWS/ONE ENERGY CALL**

DATE: October 13, 2021

TIME: 10:00 AM ET

LOCATION: Phone Call

OE ATTENDEES

Jereme Kent, CEO	Katie Treadway, Head of Regulatory Affairs

NON-OE ATTENDEES

Heidi Riddle, USFWS North Dakota Ecological Service Field Office	

AGENDA: ☐ Yes ☒ No

a. **Status update**

   i. OE is working on the PSC application.

   ii. Local permitting process continues.

   iii. Letter needed from USFWS after they review the Tier I/II SWCA reports sent to USWFS on September 21, 2021 for both state and local permitting processes.

   iv. OE explained the basic process undertaken as part of the review and studies.

   v. OE explained it will be following all BMPs of NDGF and USFWS regarding the development of wind energy.

   vi. OE explained it will be working with NREL to advance bat research related to community scale wind projects.

b. **Next steps**

   i. USFWS will provide OE a letter directly after review of materials sent and does not expect any issues based on understanding of the approach taken.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
North Dakota Ecological Services Field Office
3425 Miriam Avenue
Bismarck, North Dakota 58501
(701) 250-4481, ndfieldoffice@fws.gov

In Reply Refer To:
2021-May\Marathon
Dickinson Wind Project

October 26, 2021

Mr. Jereme Kent
One Energy
12385 Township Rd 215
Findlay, OH 45840
jeremekent@oneenergyllc.com

Dear Mr. Kent:

Thank you for your coordination with the U.S. Fish and Wildlife Service (Service) and for providing information about the proposed Marathon Renewable Diesel Facility (Facility) Wind Turbine Project (Project) in Stark County, North Dakota. The Project consists of five turbines to be installed near the Facility to reduce its carbon footprint by replacing 40-50% of the electricity used. We appreciate your communications with the Service and the North Dakota Game and Fish Department (Department).

As you know, the *USFWS Land-Based Wind Energy Guidelines* (WEG) were designed primarily with large, commercial wind energy projects in mind. The guidelines briefly address community scale wind projects noting that most of these smaller scale developments that are "appropriately sited" are "not likely to pose significant risks to species of concern." Our first and foremost recommendation to all wind energy development companies in North Dakota is to avoid grasslands and wetlands – two primary types of habitat in the state that support native species. The proposed project is sited entirely on tilled land which greatly increases the potential to avoid and reduce direct/indirect impacts to wildlife habitat. However, as we have stated in telephone conversations and emails, the presence of permanent and intermittent streams near the project area indicate the potential presence of bats, eagles and other migratory birds. For utility scale wind projects, we would typically have preconstruction survey data that would provide some information about wildlife presence and use. In the absence of this data, One Energy will implement the 27 best management practices (BMP) recommended by the WEG for new wind turbine construction and the 18 BMPs recommended in *Wind Energy Development in North Dakota Best Management Practices*. One Energy will also pay for and operate two thermal camera data collection systems in coordination with the National Renewable Energy Lab

(NREL) to complement existing research about bat behavior around community wind projects. The Service agrees that this information will be valuable to inform other wind projects regarding siting and avoidance and minimization measures for bats. We would also respectfully request that incident reports and data from the cameras be submitted to us periodically throughout the process.

Note that the implementation of BMPs and thermal cameras does not absolve liability for take under the Endangered Species Act (16 U.S.C. 1531 *et seq*.), the Migratory Bird Treaty Act (16 U.S.C. 703 *et seq*.), or the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d, 54 Stat. 250).

If changes are made in the project plans or operating criteria, or if additional information becomes available, the Service should be informed so that the above determinations can be reconsidered.

Thank you for the opportunity to comment on this project proposal. If you have any additional questions or concerns, please contact Heidi Riddle of my staff, at (701) 355-8545 or heidi_riddle@fws.gov, or you can contact me at (701) 355-8512 or drew_becker@fws.gov.

Sincerely,

DREW BECKER Digitally signed by DREW BECKER
Date: 2021.10.27 10:13:55 -05'00'

Drew Becker
ND Ecological Services Office Supervisor

cc: Greg Link, NDGF, Bismarck, ND

APPENDIX E

Agency Correspondence

North Dakota Parks & Recreation

ONE ENERGY
AN INDUSTRIAL POWER COMPANY

Jeremé Kent <jeremekent@oneenergyllc.com>

RE: Wind Project - Marathon's Dickinson Renewables

1 message

Duttenhefner, Kathy G. <kgduttenhefner@nd.gov> Tue, Jul 27, 2021 at 5:34 PM
To: "jeremekent@oneenergyllc.com" <jeremekent@oneenergyllc.com>

Re: Marathon's Dickinson Renewables – WPC Dickinson Wind Farm

Attached is North Dakota Parks and Recreation environmental review response letter for the above-referenced project.

Kathy Duttenhefner

Natural Resources Coordinator/Biologist II

701.328.5370 • 701.220.3377 • parkrec.nd.gov

NORTH Dakota | Parks & Recreation
Be Legendary.

From: Jeremé Kent <jeremekent@oneenergyllc.com>
Sent: Friday, July 16, 2021 7:42 AM
To: Duttenhefner, Kathy G. <kgduttenhefner@nd.gov>; Katie Treadway <ktreadway@oneenergyllc.com>
Subject: Wind Project - Marathon's Dickinson Renewables

kgduttenhefner@nd.gov.

Hi Kathy,

It was a pleasure talking to you yesterday. I have attached the KMZ for the 5 turbine project as well as a drawing with turbine dimensions. As I said on the call, we are still not exactly sure how the PSC is going to treat this, but we are, for now, going through the Tier 1 / 2 studies to make sure we are following USFWS Guidelines for Community Wind.

We are requesting a records search for known species in or near the project area.

We are moving fast on this but understand that it will take 2 - 4 weeks to complete the search.

Please let me know if you have any additional questions.

JEREME KENT

CEO

jeremekent@oneenergyllc.com

www.oneenergy.com

Office: 877-298-5853 | Mobile: 419-905-5274

12385 Township Rd 215 | Findlay, OH 45840

3 attachments

OneEnergy_MPC_Dickinson_wind_farm_HERITAGE.pdf
414K

OneEnergy_MPC_Dickinson_wind_farm_MAP.pdf
261K

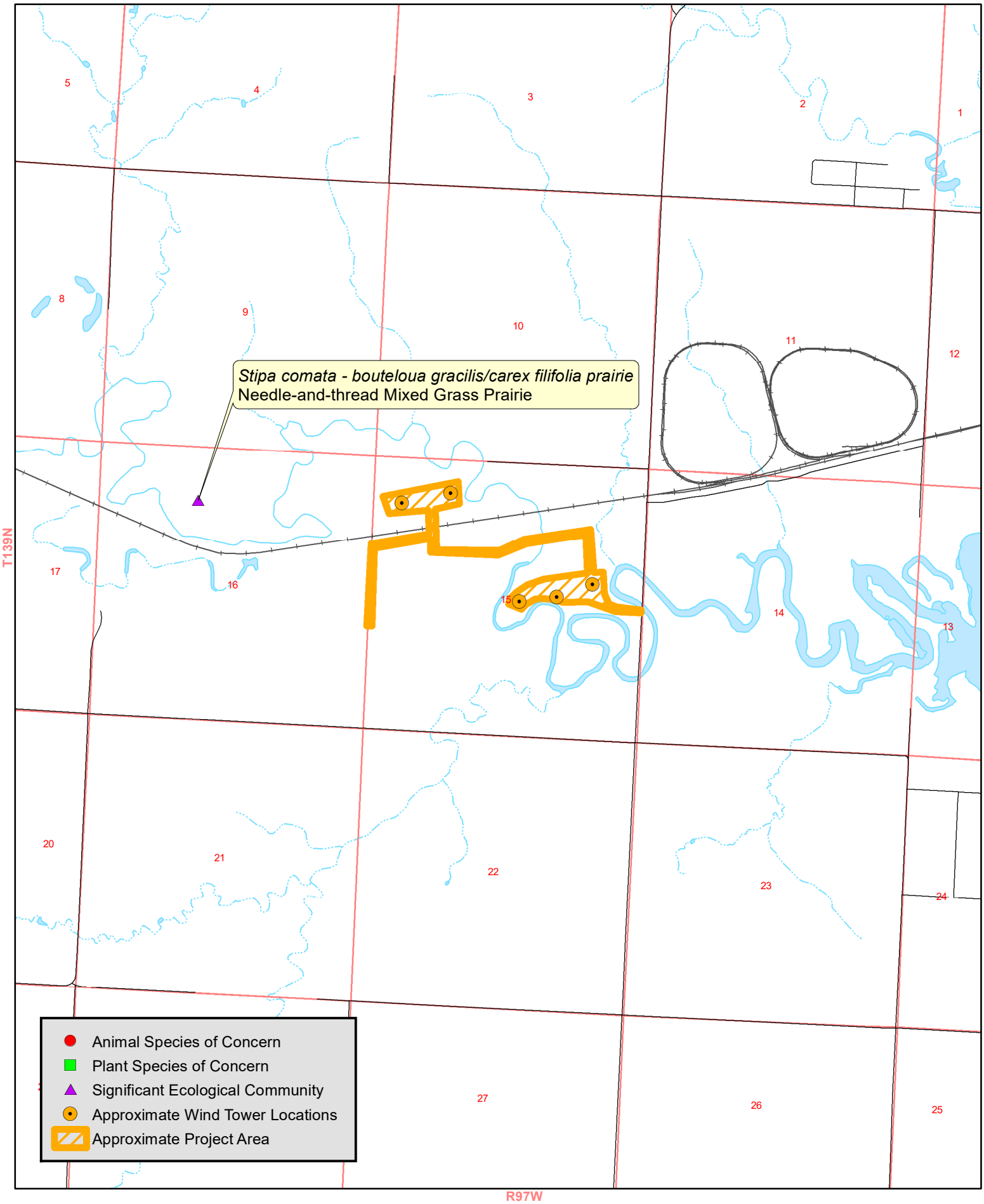
OneEnergy_MPC_Dickinson_Wind_Farm_Stark_County_KD Responce_DL730.2021.pdf
650K

North Dakota Natural Heritage Inventory

Rare Animal and Plant Species and Significant Ecological Communities

State Scientific Name	State Common Name	State Rank	Global Rank	Federal Status	Township Range Section	County	Last Observation	Estimated Representation Accuracy	Precision
Stipa comata - bouteloua gracilis/carex filifolia prairie	Needle-and-thread Mixed Grass Prairie	S2	GNR		139N097W - 16; 140N098W - 34; 139N097W - 36; 139N097W - 27; 139N097W - 09; 139N098W - 36; 139N097W - 07; 140N097W - 36; 140N097W - 27; 139N097W - 29; 139N096W - 08; 138N097W - 10; 140N097W - 28; 140N097W - 19; 139N096W - 18; 140N097W - 29; 139N096W - 17	Stark	1935-08-03		G

North Dakota Parks and Recreation Department
North Dakota Natural Heritage Inventory



July 2021

NORTH Dakota | Parks & Recreation
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July 27, 2021

Jereme Kent
One Energy, LLC
12385 Township Road 215
Findlay, OH

Re: Marathon's Dickinson Renewables – WPC Dickinson Wind Farm

Dear Mr. Kent,

The North Dakota Parks and Recreation Department (NDPRD) has reviewed the above-referenced wind farm Project in Stark County, North Dakota. NDPRD's scope of authority and expertise covers properties that NDPRD owns, leases, or manages; properties protected under Section 6(f) of the Land and Water Conservation Fund (LWCF); rare plants and ecological communities established through the Natural Heritage Program.

The project does not appear to affect properties that NDPRD owns, leases, or manages.

The project does not appear to affect any properties protected under Section 6(f) of the LWCF.

The North Dakota Natural Heritage biological conservation database has reviewed the project to determine if any current or historical plant or animal species of concern or other significant ecological communities are known to occur within an approximate one-mile radius of the project area. Based on this review, we have no known rare species or significant ecological communities documented within or immediately adjacent to the project site. Because the Natural Heritage information is not based on a comprehensive inventory, there may be species of concern or otherwise significant ecological communities in the area that are not represented in the database. The absence of data may indicate that the project area has not been surveyed rather than confirm that it lacks natural heritage resources.

We appreciate your commitment to rare plant, animal, and ecological community conservation, management, and inter-agency cooperation to date. For additional information, please get in touch with Natural Resources Coordinator Kathy Duttenhefner at 701-328-5370, 701-220-3377 (cell), or kgduttenhefner@nd.gov.

Thank you for the opportunity to comment on the proposed project.

Kathy Duttenhefner

Kathy Duttenhefner
Coordinator/Biologist II, Natural Resources

1600 East Century Ave. Ste. 3 | Bismarck, ND 58503

PHONE: 701-328-5357 | FAX: 701-328-5363 | EMAIL: parkrec@nd.gov | WEBSITE: www.parkrec.nd.gov

APPENDIX E

Agency Correspondence

State Historical Society of North Dakota

September 15, 2021

Mr. Michael Retter
SWCA
201 Slate Drive Suite 8
Bismarck, ND 58503

ND SHPO Ref.: 21-6265 "A Class I and Class III Cultural Resource Inventory of the Dickinson Renewable Diesel Facility Wind Turbine Project, Stark County, North Dakota" in portions of [T139N R97W Section 15] SWCA 21-394

Dear Mr. Retter,

We reviewed ND SHPO Ref.: 21-6265 "A Class I and Class III Cultural Resource Inventory of the Dickinson Renewable Diesel Facility Wind Turbine Project, Stark County, North Dakota" in portions of [T139N R97W Section 15] SWCA 21-394 and find the report by Laci L. Paul acceptable. We concur with a determination of "No Historic Properties Affected" for this project provided it takes place in the location and in the manner described in the documentation and provided all borrow comes from an approved source.

Thank you for the opportunity to review this project. Please include the ND SHPO Reference number listed above in further correspondence for this specific project. If you have any questions please contact Lisa Steckler, Historic Preservation Specialist at (701) 328-3577 or lsteckler@nd.gov

Sincerely,

for William D. Peterson, PhD
State Historic Preservation Officer
(North Dakota)

21-6265

September 15, 2021

Mr. Michael Retter
SWCA
201 Slate Drive Suite 8
Bismarck, ND 58503

ND SHPO Ref.: 21-6266 "Visual Impacts Assessment for the Dickinson Renewable Diesel Facility Wind Turbine Project, Stark County, North Dakota" in portions of [T139N R97W Sections 1–5, 8–17, & 20–24] SWCA 21-431

Dear Mr. Retter,

We reviewed ND SHPO Ref.: 21-6266 "Visual Impacts Assessment for the Dickinson Renewable Diesel Facility Wind Turbine Project, Stark County, North Dakota" in portions of [T139N R97W Sections 1–5, 8–17, & 20–24] SWCA 21-431 and find the report by Hannah Curry acceptable. We concur with a determination of "No Adverse Effect" for this project provided it takes place in the location and in the manner described in the documentation and provided all borrow comes from an approved source.

Thank you for the opportunity to review this project. Please include the ND SHPO Reference number listed above in further correspondence for this specific project. If you have any questions please contact Lisa Steckler, Historic Preservation Specialist at (701) 328-3577 or lsteckler@nd.gov

Sincerely,

for William D. Peterson, PhD
State Historic Preservation Officer
(North Dakota)

21-6265

APPENDIX E

Agency Correspondence

Stark County

ONE ENERGY
AN INDUSTRIAL POWER COMPANY

Katie Treadway <ktreadway@oneenergyllc.com>

RE: One Energy - Marathon

1 message

Steve Josephson <SJosephson@starkcountynd.gov> Thu, May 13, 2021 at 1:19 PM
To: Jereme Kent <jeremekent@oneenergyllc.com>
Cc: "Dean G. Franchuk" <dean.franchuk@starkcountynd.gov>, Ron Day <daygoose@bis.midco.net>, Katie Treadway <ktreadway@oneenergyllc.com>, Steven Josephson <Steven.Josephson@dickinsongov.com>

Jereme,

Thank you for talking to Commissioner Franchuk and me this morning.

Attached are the application forms and instructions for conditional use permits and standard rezonings. The fee for an industrial CUP is $500. If Marathon chooses to rezone the property identified by PID 30000005645000 the is $200. The County notifies property owners within 200 feet of a P&Z application with certified letters. The applicant is responsible for the certified letter mail out fee.

Stark County may choose to send out the CUP application to an independent company for review and comment. The applicant is responsible for paying the review fee.

It has been determined the property identified by PID 30000005645000 is zoned Agriculture. At the time the rezoning and CUP for the refinery were approved the County Commission's policy was to deny rezoning requests for agricultural properties located in the FEMA SFHA. The Floodplain Overlay District was created when the zoning ordinance was amended in October 2012.

As you requested, I have attached the conditions of approval for the Brady Wind Farm.

Please let me know if you have questions. And please contact us prior to submittal of a CUP application.

Steve

From: Jereme Kent <jeremekent@oneenergyllc.com>
Sent: Tuesday, May 11, 2021 1:04 PM
To: Steven Josephson <Steven.Josephson@dickinsongov.com>
Cc: Dean G. Franchuk <dean.franchuk@starkcountynd.gov>; Ron Day <daygoose@bis.midco.net>; Katie Treadway <ktreadway@oneenergyllc.com>; Steve Josephson <SJosephson@starkcountynd.gov>
Subject: Re: One Energy - Marathon

Will do. Thanks.

JEREME KENT

CEO

jeremekent@oneenergyllc.com

www.oneenergy.com

Office: 877-298-5853 | Mobile: 419-905-5274

12385 Township Rd 215 | Findlay, OH 45840

On Tue, May 11, 2021 at 2:17 PM Steven Josephson <Steven.Josephson@dickinsongov.com> wrote:

> Jeremy,
>
> Dean Franchuk and I will be available at 8:30 am MDT. The number to reach me at is 701-456-7672.
>
> In the future please send emails to my Stark County email address. It is listed below this line.
>
> 'Steve Josephson' sjosephson@starkcountynd.gov
>
> Thank you.

Steve

From: Jereme Kent <jeremekent@oneenergyllc.com>
Sent: Tuesday, May 11, 2021 7:12 AM
To: Steven Josephson <Steven.Josephson@dickinsongov.com>
Cc: dean.franchuk@starkcountynd.gov; Ron Day <daygoose@bis.midco.net>; Katie Treadway <ktreadway@oneenergyllc.com>
Subject: One Energy - Marathon

Hi Steve,

Nice to meet you via email.

I received your note from Ron. I will give you a call at 8:30AM Dickinson Time on Thursday to discuss the project. I will have Ron and one or two people from my team on the call so we can answer any questions.

Please let me know if that time does not work or if there are any questions prior. My cell phone is below.

JEREME KENT

CEO

jeremekent@oneenergyllc.com

www.oneenergy.com

Office: 877-298-5853 | Mobile: 419-905-5274

12385 Township Rd 215 | Findlay, OH 45840

6 attachments

Conditional Use Form FinalizedRevised_1.10.2017.pdf
194K

Stark County Conditional Use Permit Application Directions Revised 2017.pdf
204K

Stark County Standard Rezoning Application Form Revised 2017.pdf
319K

Stark County Standard Rezoning Directions Revised 2017.pdf
188K

County PZ Mtg Schedule for 2021 final revised_12.31.2020.pdf
44K

Brady Wind Farm CUP Conditions of Approval_December 2015.pdf
451K

ONE ENERGY
AN INDUSTRIAL POWER COMPANY

Katie Treadway <ktreadway@oneenergyllc.com>

RZ 03-21

1 message

Steve Josephson <SJosephson@starkcountynd.gov> Thu, Sep 2, 2021 at 8:21 PM
To: Katie Treadway <ktreadway@oneenergyllc.com>
Cc: "Dean G. Franchuk" <dean.franchuk@starkcountynd.gov>, "Amanda R. Engelstad" <AEngelstad@starkcountynd.gov>

Katie,

This afternoon the Stark County Planning and Zoning Commission recommended denial of Dakota Prairie Refinery's rezoning request.

The primary reasons were related to how development could potentially impact wetlands and wildlife habitat in the immediate vicinity.

Section 8.7.1. of the Stark County Zoning Ordinance reads as follows:

> 10) If the Commission denies an application for a zoning map amendment, an application for the same zoning district or any portion of the subject tract may not be refiled by the original applicant for six months from the date of the Commission's action on the proposed amendment. (Note: Commission refers to County Commission)

If Dakota Prairie Refinery wishes to withdraw their application prior to the September 7, 2021 County Commission meeting they should get their request in prior to the Commission meeting.

If Dakota Prairie Refinery wishes to refile a new rezoning application they will need to submit information identifying wetlands and natural resources and how the impacts of development on the property would be mitigated if the rezoning was approved.

There was a list of specific information the P&Z asked for in their denial motion. Once we listen to the minutes I'll send you that list.

Also, Stark County will be closed on Monday, September 6, 2021.

Please let us know as soon as possible if Dakota Prairie Refinery wishes to withdraw their rezoning request or go forward with it at the 9/7/2021 County Commission meeting.

Steve

APPENDIX E

Agency Correspondence

Stark County Airport Authority

ONE ENERGY
AN INDUSTRIAL POWER COMPANY

Jessica Grosso <jgrosso@oneenergyllc.com>

Marathon Project - FAA Determinations

3 messages

Jessica Grosso <jgrosso@oneenergyllc.com> Wed, Aug 18, 2021 at 8:32 AM
To: kbraun@dickinsonairport.com
Cc: Katie Treadway <ktreadway@oneenergyllc.com>

Good Morning Kelly,
Hope you're doing well. When we spoke on the phone a few weeks ago we said we would let you know when we received the FAA determinations for the 5 turbine Marathon project in Dickinson. We have received a Determination of No Hazard from the FAA for each of the 5 turbines. I have attached the DNH letters we received.

Please let me know if you have any questions. Happy to set up a phone call to discuss further if you'd like.

All the best,
Jessica

JESSICA GROSSO

SVP, Head of Project Planning and Technology

jgrosso@oneenergyllc.com

www.oneenergy.com

ONE ENERGY
AN INDUSTRIAL POWER COMPANY

Office: 877-298-5853 | Mobile: 419-890-8555

12385 Township Rd. 215 | Findlay, OH 45840

5 attachments

- **DNE_WTG01.pdf** 468K
- **DNE_WTG05.pdf** 457K
- **DNE_WTG02.pdf** 461K
- **DNE_WTG03.pdf** 449K
- **DNE_WTG04.pdf** 452K

Jessica Grosso <jgrosso@oneenergyllc.com> Tue, Aug 31, 2021 at 3:48 PM
To: kbraun@dickinsonairport.com
Cc: Katie Treadway <ktreadway@oneenergyllc.com>

Kelly,
I wanted to make sure to keep you in the loop on the Marathon turbine project. On 8/23/2021 we had to file alternate turbine locations for W1 and W2 due to micrositing of the turbines. We filed new 7460-1s with the FAA under the following

ASNs:

WTG01 - ALT: 2021-WTE-3103-OE
WTG02 - ALT: 2021-WTE-3104-OE

The locations only moved a small amount: 124' (WTG01) and 95' (WTG02). Therefore, we don't expect there to be any issues getting the new Determination of No Hazards.

Let me know if you have any questions or want to talk further!

All the best,
Jessica

JESSICA GROSSO

SVP, Head of Project Planning and Technology

Mobile: 419-890-8555

jgrosso@oneenergyllc.com

ONE ENERGY
AN INDUSTRIAL POWER COMPANY

[Quoted text hidden]

Kelly Braun <kbraun@dickinsonairport.com> Tue, Aug 31, 2021 at 4:22 PM
To: Jessica Grosso <jgrosso@oneenergyllc.com>

Thank you for keeping me informed of the changes to your project.

Kelly Braun C.M.

Dickinson Theodore Roosevelt REGIONAL AIRPORT

11120 42nd St. SW

Dickinson, ND 58601

701-483-1042 office

701-290-0605 cell

www.dickinsonairport.com

[Quoted text hidden]

ONE ENERGY
AN INDUSTRIAL POWER COMPANY

Katie Treadway <ktreadway@oneenergyllc.com>

Re: Marathon Project - FAA Determinations

1 message

Jessica Grosso <jgrosso@oneenergyllc.com> Wed, Sep 22, 2021 at 4:50 PM
To: Kelly Braun <kbraun@dickinsonairport.com>
Cc: Katie Treadway <ktreadway@oneenergyllc.com>

Kelly,
I wanted to provide you an update. We received a Determination of No Hazard for the 2 updated turbine locations yesterday. I have attached the letters from the FAA so you can review.

Let me know if you have any questions!

All the best,
Jessica

JESSICA GROSSO

SVP, Head of Project Planning and Technology

Mobile: 419-890-8555

jgrosso@oneenergyllc.com

ONE ENERGY
AN INDUSTRIAL POWER COMPANY

On Tue, Aug 31, 2021 at 4:22 PM Kelly Braun <kbraun@dickinsonairport.com> wrote:

> Thank you for keeping me informed of the changes to your project.
>
> *Kelly Braun C.M.*
>
> Dickinson Theodore Roosevelt REGIONAL AIRPORT
>
> 11120 42nd St. SW
>
> Dickinson, ND 58601
>
> 701-483-1042 office
>
> 701-290-0605 cell
>
> www.dickinsonairport.com

From: Jessica Grosso <jgrosso@oneenergyllc.com>
Sent: Tuesday, August 31, 2021 1:49 PM
To: Kelly Braun <kbraun@dickinsonairport.com>
Cc: Katie Treadway <ktreadway@oneenergyllc.com>
Subject: Re: Marathon Project - FAA Determinations

Kelly,

I wanted to make sure to keep you in the loop on the Marathon turbine project. On 8/23/2021 we had to file alternate turbine locations for W1 and W2 due to micrositing of the turbines. We filed new 7460-1s with the FAA under the following ASNs:

WTG01 - ALT: 2021-WTE-3103-OE
WTG02 - ALT: 2021-WTE-3104-OE

The locations only moved a small amount: 124' (WTG01) and 95' (WTG02). Therefore, we don't expect there to be any issues getting the new Determination of No Hazards.

Let me know if you have any questions or want to talk further!

All the best,

Jessica

JESSICA GROSSO

SVP, Head of Project Planning and Technology

Mobile: 419-890-8555

jgrosso@oneenergyllc.com

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On Wed, Aug 18, 2021 at 8:32 AM Jessica Grosso <jgrosso@oneenergyllc.com> wrote:

> Good Morning Kelly,
>
> Hope you're doing well. When we spoke on the phone a few weeks ago we said we would let you know when we received the FAA determinations for the 5 turbine Marathon project in Dickinson. We have received a Determination

of No Hazard from the FAA for each of the 5 turbines. I have attached the DNH letters we received.

Please let me know if you have any questions. Happy to set up a phone call to discuss further if you'd like.

All the best,

Jessica

JESSICA GROSSO

SVP, Head of Project Planning and Technology

jgrosso@oneenergyllc.com

www.oneenergy.com

ONE ENERGY
AN INDUSTRIAL POWER COMPANY

Office: 877-298-5853 | Mobile: 419-890-8555

12385 Township Rd. 215 | Findlay, OH 45840

2 attachments

DNE_WTG01-ALT.pdf
579K

DNE_WTG02-ALT.pdf
579K

APPENDIX F

Sound Analysis Report

WIND ENERGY INTEGRATION

SOUND STUDY

DICKINSON REFINERY WIND TURBINE PROJECT

DICKINSON, NORTH DAKOTA

AUGUST 2021

Report preparation:
Carly Good
Senior Analyst
419.889.5893
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vCARD
CARLY GOOD

Report approval and primary contact:
Jessica Grosso
Head of Project Planning and Technology
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vCARD
JESSICA GROSSO

ONE ENERGY
WIND FOR INDUSTRY®

Methodology v2021.0

CONTENTS

LIST OF EXHIBITS

1. INTRODUCTION

One Energy modeled sound propagation at the proposed turbine sites. The modeling was performed to confirm compliance with the North Dakota Public Service Commission's (PSC) sound avoidance area requirement.

The model used in this report was completed using the proposed turbine siting locations presented below; all results are only representative of these locations. One Energy's TAILS 3.0 software, which was developed by One Energy using both proprietary methods and industry standards, was used to complete the modeling. This Sound Study was prepared using Prudent Wind Industry Practice and One Energy's Sound Methodology version 2021.0. See Exhibit A for more information.

2. SITE OVERVIEW

Marathon Petroleum Corporation (MPC) owns a total of 345.85 acres in Dickinson, North Dakota within Stark County. The MPC property is sufficient for siting utility-scale wind turbines. The land currently owned by MPC is outlined in green in Figure 1. One Energy sited five turbines in accordance with Prudent Wind Industry Practice and represents safe siting for nearby residents, public road users, and MPC employees.

Figure 1: Satellite Image of MPC facility in Dickinson, ND

3. ZONES OF INTEREST

One Energy identified 27 "Zones of Interest" around the project area, shown in Figure 2. The Zones of Interest (Zones) are regularly inhabited structures and may also be referred to as "Receptors" within the industry. Zones are used in feasibility studies to measure the potential impact of the turbines on the surrounding community. For this study, only private residences or community buildings were included. All of the identified Zones are private residences and no community buildings were identified nearby.

In areas where there are clusters of structures, such as a neighborhood, a few of the structures have been chosen at varying positions along the edges closest to the turbines. These Zones are expected to represent

the nearby structures and are taken to be the worst-case scenario for the cluster of structures. Information on the Zones identified can be seen in Table 1.

Figure 2: Zones of Interest Satellite Image

MPC – DICKINSON: ZONES OF INTEREST INFORMATION					
Zone of Interest	Latitude	Longitude	Zone Size (Area, ft²)	Distance from Closest Turbine (ft)	Description
R-1	46.8708	-102.9532	5,856	10,767	House
R-2	46.8718	-102.9345	9,644	6,922	House (3)
R-3	46.8531	-102.9368	3,617	6,351	House
R-4	46.8482	-102.9345	4,209	6,757	House
R-5	46.8367	-102.9249	6,458	8,331	House (3)
R-6	46.8776	-102.9236	6,157	7,031	House (4)
R-7	46.8666	-102.9174	16,878	2,737	House
R-8	46.8753	-102.9147	3,918	5,644	House (4)
R-9	46.8463	-102.9123	5,425	3,655	House
R-10	46.8478	-102.9092	2,939	2,781	House
R-11	46.8385	-102.9075	3,498	5,881	House (2)
R-12	46.8769	-102.9088	10,893	6,074	House
R-13	46.8750	-102.9076	7,136	5,421	House
R-14	46.8701	-102.9005	6,932	4,264	House
R-15	46.8466	-102.8964	16,727	3,176	House
R-16	46.8466	-102.8935	7,104	3,455	House
R-17	46.8332	-102.8937	5,167	8,067	House (3)
R-18	46.8381	-102.8750	16,770	8,582	House
R-19	46.8418	-102.8720	16,663	8,195	House (4)
R-20	46.8450	-102.8718	4,941	7,588	House (2)
R-21	46.8459	-102.8701	5,920	7,801	House (6)
R-22	46.8758	-102.8847	4,392	8,120	House (30)
R-23	46.8772	-102.8740	5,619	9,945	House (9)

R-24	46.8768	-102.8638	6,953	11,540	House (10)
R-25	46.8766	-102.8554	4,478	13,136	House (3)
R-26	46.8756	-102.8525	4,069	13,539	House (8)
R-27	46.8700	-102.8525	3,681	12,527	House (8)
Number of structures that the Zone represents is indicated in parentheses next to the description (if more than one).					

Table 1: Zones of Interest Information

4. SOUND MODEL

One Energy's Sound Study completed for the MPC Dickinson facility includes the use of One Energy's proprietary Sound Propagation Model. The Sound Propagation Model is used to predict the sound pressure levels (SPL) as perceived at Zones of Interest due to turbine operation only (these will be referred to as "Modeled Turbine SPLs"). Modeled Turbine SPLs at each Zone and 100 feet from each Zone can be seen in Table 2.

MPC – DICKINSON: MODELED TURBINE SPLs AT ZONES OF INTEREST			
Zone of Interest	Distance to Closest Turbine (ft)	Modeled Turbine SPL (dBA)	Modeled Turbine SPL 100 ft from Zone (dBA)
R-1	10,767	13.6	13.9
R-2	6,922	23.1	23.5
R-3	6,351	24.9	25.3
R-4	6,757	24.4	24.8
R-5	8,331	21.6	21.9
R-6	7,031	23.4	23.8
R-7	2,737	37.3	37.9
R-8	5,644	27.7	28.2
R-9	3,655	34.7	35.2
R-10	2,781	37.9	38.4
R-11	5,881	27.7	28.0
R-12	6,074	26.5	26.9
R-13	5,421	28.4	28.7
R-14	4,264	32.6	32.9
R-15	3,176	37.1	37.7
R-16	3,455	35.9	36.4
R-17	8,067	22.2	22.5
R-18	8,582	20.1	20.4
R-19	8,195	20.7	21.1
R-20	7,588	22.2	22.5
R-21	7,801	21.5	21.9
R-22	8,120	22.4	22.7
R-23	9,945	17.3	17.6
R-24	11,540	13.2	13.6
R-25	13,136	9.1	9.4
R-26	13,539	8.2	8.5
R-27	12,527	10.2	10.5

Table 2: Results of the Sound Propagation Model

At all private residences the Modeled Turbine SPLs were not greater than 38 dBA and 100 feet from each private resident Zone, the Modeled Turbine SPLs were not greater than 39 dBA. These results do not exceed the required 45 dBA within 100 feet of a residence. In Figure 3, locations outside the orange boundary will not experience sound propagation of the turbines in excess of 45 dBA. All residential Zones are located outside this boundary.

Figure 3: 45 dBA Sound Propagation Boundary Surrounding the Turbines

The siting of the turbines and their resulting sound propagation profile is not likely to alter the sound characteristics of the area. See Exhibit 3D for the Sound Model summary sheet.

5. CONCLUSIONS

One Energy believes a *Wind for Industry®* project at the MPC facility will not have a significant sound impact on the surrounding community. For this project, the North Dakota Administrative Code section 69-06-08-01 (4) states that a wind energy conversion facility operation cannot exceed sound levels of 45 dBA within 100 feet of an inhabited residence or community building. This project complies with this standard. This study has concluded that all Zones are modeled to have sound levels below 45 dBA.

NOTES:

One Energy validated the Sound Model results using an alternate software package. One Energy's Sound Methodology version 2021.0 can be seen in Exhibit B.

For purposes of the PSC reports, the ambient sound levels at observation points, as described in One Energy's methodologies, are not presented in this report. This report presents the model results as required by the PSC.

One Energy validated the Sound Model results using an alternate software package. The results of this comparison can be seen in Exhibit C.

Two third party reviews of the study were completed and can be seen in Exhibit D.

EXHIBIT A

S□ □□D ST□DY RES□□TS

Project	MPC Dickinson
Site	Dickinson, ND
Turbine	2.35 MW - 103 rotor diameter
Hub Height (m)	80
Source SPL (dBA)	105

WIND TURBINE SOUND STUDY RESULTS

ONE ENERGY

MODELED TURBINE SOUND PRESSURE LEVEL			
Zone of Interest	Distance to Closest Turbine (ft)	Modeled Turbine SPL (dBA)	Modeled Turbine SPL 100 ft from Zone (dBA)
R-1	10,767	13.6	13.9
R-2	6,922	23.1	23.5
R-3	6,351	24.9	25.3
R-4	6,757	24.4	24.8
R-5	8,331	21.6	21.9
R-6	7,031	23.4	23.8
R-7	2,737	37.3	37.9
R-8	5,644	27.7	28.2
R-9	3,655	34.7	35.2
R-10	2,781	37.9	38.4
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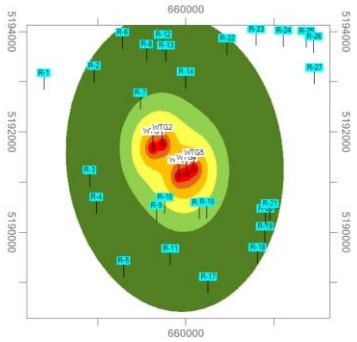
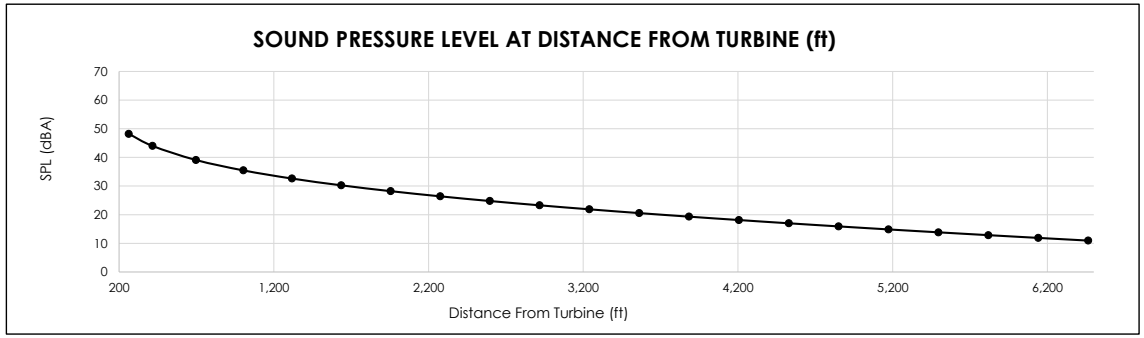
R-19	8,195	20.7	21.1
R-20	7,588	22.2	22.5
R-21	7,801	21.5	21.9
R-22	8,120	22.4	22.7
R-23	9,945	17.3	17.6
R-24	11,540	13.2	13.6
R-25	13,136	9.1	9.4
R-26	13,539	8.2	8.5
R-27	12,527	10.2	10.5



Sound Model Results

MPC Dickinson Zones of Interest



KEY							
Range (dBA)	60+	55-60	50-55	45-50	40-45	35-40	<35
Color							

COMPARISON					
Reference	Chainsaw	Diesel Truck	Vacuum Cleaner	Average Home	Library
Sound Level (dBA)	110 dBA	90 dBA	70 dBA	50 dBA	40 dBA

CONCLUSIONS

Based on the sound model, turbine noise is not expected to exceed acceptable limits at any private residences. The residence with the highest sound level is R-10, with 37.9 dBA. All sound levels modeled are less than that of an average home.

EXHIBIT □

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ONE ENERGY

WIND FOR INDUSTRY®

SOUND
METHODOLOGIES

Publish Date: April 15, 2021

Version 2021.0

CONTENTS

GLOSSARY

Decibels (dB): The unit used to measure sound pressure levels. A-weighted decibels (dBA) may be used due to the relative loudness of sound as perceived by the human ear. This A-weighting weights the decibels by frequencies that can be heard by the human ear and are standard for use in measurement of environmental noise.

Long-Term: Describes a consecutive period of the most recent 30 years.

Measure-Correlate-Predict (MCP): A statistical technique that is used to create a simulated, long-term dataset by relating a concurrent short, measured target dataset to a long-term reference dataset.

Prudent Wind Industry Practices: The practices, methods, specifications and standards of safety, performance, quality, dependability, efficiency, and economy generally recognized by industry members in the US as good and proper. Other practices, methods, or acts which, in the exercise of reasonable judgment by those reasonably experienced in the industry in light of the specific projects and facts known at the time a decision is made, would be expected to accomplish the result intended at a reasonable cost and consistent with applicable laws, reliability, safety, and expedition. Prudent Wind Industry Practices are not intended to be limited to the optimum practices, methods, or acts to the exclusion of all others, but rather to be a spectrum of good and proper practices, methods, and acts.

Site MCP Dataset: A long-term MCP dataset created with the Site Dataset and the closest available reanalysis grid-point to the site.

Site-Specific Feasibility Studies: Studies of shadow flicker, ice shedding, and sound propagation at the project site. These studies indicate any impacts or lack thereof to the surrounding community.

TAILS 3.0: One Energy's proprietary software used to model turbine icing, shadow flicker, and wake loss.

Zones of Interest: Regularly inhabited structures, or clustered groups of structures, roughly within a one-mile radius of the turbine(s). Zones may include private residences, businesses, and public areas.

1. INTRODUCTION

One Energy considers many factors when siting a *Wind for Industry®* project. The safety of the surrounding community is the most important factor considered when siting wind turbines. A project will not proceed if the wind turbines cannot be safely sited within the bounds and conditions given. In addition to safety, energy production optimization is a key factor considered when siting wind turbines. Feasibility modeling is discussed in this document.

The objective of this methodology is to allow for explanation of each section within One Energy's Sound Report. Each section states what variables and key pieces of information are presented within the Sound Report. The deliverables within the formal sound document from each section are designated in bold text throughout this document.

This Sound Methodology is version 2021.0.

2. SITE OVERVIEW

Within this section, the current landscape of the proposed project site is described, focusing on parcel information.

The following information is presented in Site Overview:

1) **Aerial imagery of the proposed project siting parcel(s) and project facility parcel(s)**
2) **Size of project parcel(s)**
3) **Ownership of parcel(s)**

3. ZONES OF INTEREST

In order to ensure safety and minimize potential effects from the turbines on the surrounding area, One Energy identifies "Zones of Interest" near the turbine(s). The Zones of Interest are regularly inhabited structures roughly within a one-mile radius of the turbines. Zones may include private residences, businesses, and public areas. In areas where there are clusters of structures, such as a neighborhood, a few structures are chosen at representative positions along the edges closest to the turbine(s). These Zones are expected to represent the nearby structures and are taken to be the worst-case scenario for the cluster of structures. If a Zone of Interest represents more than one structure, it is noted within the Project Siting document.

The Zones of Interest are used in the feasibility studies models (see Section 5: Feasibility Study). The impact of the turbine(s) on each Zone of Interest is calculated in each of the models. The models account for the Zone of Interest's location relative to the turbine(s) and the wind distribution of the site. The size of each Zone of Interest is approximated using satellite imagery and is generally overestimated.

The following information is presented in Zones of Interest:

1) **Aerial imagery of all zones and turbine siting for reference**
2) **A table of the Zones of Interest including:**
    a. **Latitude/Longitude**
    b. **Zone size (area)**
    c. **Distance from the closest turbine**

d. **Zone description**

4. FEASIBILITY STUDY

Feasibility studies are completed during the development process as part of the due diligence of a project. These studies indicate the impact of the surrounding community and logistics for project construction.

A. SOUND MODEL

One Energy's proprietary Sound Propagation Model package is used to predict the sound pressure levels at each Zone of Interest near the turbine location(s). Sound propagation through the atmosphere is dependent on conditions such as wind and temperature, atmospheric turbulence, terrain type, elevation changes, and obstructions. Wind turbines create sound when they are generating electricity due to the rotating blades, generator, and cooling fans. The sound pressure level is usually expressed in decibels (dB). Another common method of expressing sound levels is dBA. This measure quantifies the decibels using the A-weighted scale, which is intended to match human hearing.

The Sound Propagation Model uses the sound power level of the turbine provided by the turbine manufacturer to determine the sound propagation as a function of radial distance from the turbine. The results are the expected sound pressure levels at each Zone of Interest.

One Energy determines the sound pressure levels of the turbine(s) and the effects on the area's existing sound levels.

The following information is presented in the Sound Model:

1) **Figure of sound observation locations**
2) **Table of observed sound measurements including the maximum measured dBA, minimum measured dBA, average measured dBA, and the modeled dBA**
3) **Table including the modeled sound levels in dBA at each Zone of Interest**
4) **One-page summary sheet (as exhibit)**

Inputs

The main inputs for the Sound Propagation Model are: 1) Turbine location(s) (latitude and longitude); 2) Zone of Interest location; 3) Turbine-model specifics, including but not limited to, total Sound Power Level (in accordance with IEEE standards); 4) Observations at 4-8 specific points around the turbine location(s).

Methodology

A site-specific sound study is completed using turbine specifications provided by the manufacturer and field measurements. The expected sound level is modeled for each Zone of Interest. The sound pressure level (L_p) at a distance away from the turbine is calculated using the following equation:

$$L_p = L_w - 10\log_{10}(2\pi R^2) - \alpha R \qquad \text{[Equation 1]}$$

where R is the distance from the turbine in meters, α is the absorption coefficient (estimated at 0.005 dBA/m), and L_w is the sound power level of the turbine in dB(A). For multiple turbines, the total sound pressure level at a location is calculated using the following equation:

$$L_\Sigma = 10 \cdot \log_{10}\left(10^{\frac{L_1}{10}} + 10^{\frac{L_2}{10}} + \cdots + 10^{\frac{L_n}{10}}\right) dB \qquad \text{[Equation 2]}$$

Where L_n is the sound pressure level at the location due to the individual turbine n.

A model of the sound pressure levels and their propagation is created using the data from Equation 3 and Equation 4 (if necessary) to determine the sound pressure level at each Zone of Interest. The Zone of Interest locations are overlaid onto the model based on their distance from the turbine.

Four to eight sound observations are recorded using a Class 1 Sound Level Meter, such as a Casella 63-X, to determine the ambient sound levels. One Energy determines the sound observation locations based on the locations of the Zones of Interest. Each sound observation deploys the sound meter for 10 minutes and the average decibel level from those 10 minutes is determined to be the ambient sound level at that location. The measured site sound levels are then compared to the modeled sound levels produced by the turbine(s).

In addition to the 10-minute observations, a longer sound measurement campaign may be completed if deemed necessary. The sound meter is deployed for a minimum of 48 hours near the project site to determine ambient sound levels at varying times (daytime, nighttime, etc.) and the maximum sound level. Because this study requires access to the site, One Energy will need approval from the customer/landowner. If access to the site is denied, an explanation will be provided in the Project Siting document.

Model Assumptions and Limitations

- The Zones of Interest are represented by a single point on a 100-foot (30.5-meter) grid resolution.
- A total project area of 10,000 feet x 10,000 feet (3,048 meters x 3,048 meters) is modeled.
- An absorption coefficient of 0.005 dBA/meter is used in the Sound Propagation Model.
- The model is conservative in that it assumes the turbine is running at maximum wind speed and makes no attempt to account for decreased sound pressure level from the turbine at lower wind speeds.

5. CONCLUSIONS

One Energy considers many factors when siting wind turbines. The sound model is completed to measure the impact of the turbines on the surrounding community.

EXHIBIT □

M□ DE□VA□IDATI□ □

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EXHIBIT C: SOUND PROPAGATION MODEL VALIDATION

One Energy used its proprietary internal software, to TAILS 3.0, to conduct a Sound Propagation Study for the Dickinson facility. To validate these results, One Energy utilized Continuum 3.0, an open-source software.

Table 1 and Table 2 provide the latitude and longitude for the identified Zones of Interest and the proposed turbine locations, illustrated in Figure 1. These Zones of Interest were analyzed in the Continuum 3.0 study and are the same that were analyzed in the TAILS 3.0 study. The distance from the closest turbine for each Zone is also shown.

MPC – DICKINSON: TURBINE LOCATIONS (WGS 84)		
	Latitude	Longitude
WTG01	46.859654°	-102.913217°
WTG02	46.860222°	-102.909532°
WTG03	46.854388°	-102.903689°
WTG04	46.854733°	-102.900790°
WTG05	46.855505°	-102.898077°

Table 1: Turbine Coordinates

MPC – DICKINSON: ZONES OF INTEREST INFORMATION			
Zone of Interest	Latitude	Longitude	Distance from Closest Turbine (ft)
R-1	46.8707547	-102.9532124	10,767
R-2	46.8718075	-102.9345305	6,922
R-3	46.8531083	-102.9368052	6,351
R-4	46.8481924	-102.9344951	6,757
R-5	46.836729	-102.9248599	8,331
R-6	46.8775686	-102.9236172	7,031
R-7	46.8665933	-102.9173887	2,737
R-8	46.875283	-102.9146991	5,644
R-9	46.8463008	-102.9123338	3,655
R-10	46.8477556	-102.9091822	2,781
R-11	46.8384786	-102.9074884	5,881
R-12	46.8768657	-102.9088157	6,074
R-13	46.8750226	-102.9076073	5,421
R-14	46.8701484	-102.9005029	4,264
R-15	46.8465686	-102.8963672	3,176
R-16	46.8465603	-102.8935206	3,455
R-17	46.8331528	-102.893731	8,067
R-18	46.8380784	-102.8749741	8,582
R-19	46.8418359	-102.8720146	8,195
R-20	46.8449914	-102.8718344	7,588
R-21	46.8459156	-102.8701321	7,801
R-22	46.8758109	-102.8847488	8,120
R-23	46.8772171	-102.8739695	9,945
R-24	46.876777	-102.8638329	11,540
R-25	46.8765988	-102.8553936	13,136
R-26	46.875619	-102.8524625	13,539
R-27	46.8699597	-102.8525247	12,527

Table 2: Information for Zones of Interest

Figure 1: Zones of Interest and Proposed Turbine Locations Relative to Dickinson Facility

SOUND PROPAGATION STUDY

After inputting the locations of the Zones and the turbines in Continuum 3.0 and TAILS 3.0, the models simulate the sound propagation from the turbines and model the turbine SPL at each Zone.

Table 3 shows the Modeled Turbine SPL in dBA for each Zone output by Continuum 3.0 and TAILS 3.0, as well as the difference between the output. A positive difference indicates that Continuum 3.0 predicted a lower SPL than TAILS 3.0 while a negative difference indicates that TAILS 3.0 predicted a lower SPL than Continuum 3.0.

MPC – DICKINSON: SOUND PROPAGATION STUDY RESULTS			
Zone of Interest	Modeled Turbine SPL (dBA)		
	TAILS 3.0	Continuum 3.0	Difference
R-1	13.6	13.6	0.0
R-2	23.1	23.1	0.0
R-3	24.9	24.9	0.0
R-4	24.4	24.4	0.0
R-5	21.6	21.6	0.0
R-6	23.4	23.4	0.0
R-7	37.3	37.3	0.0
R-8	27.7	27.7	0.0
R-9	34.7	34.7	0.0
R-10	37.9	37.9	0.0
R-11	27.7	27.7	0.0
R-12	26.5	26.5	0.0
R-13	28.4	28.4	0.0
R-14	32.6	32.6	0.0
R-15	37.1	37.1	0.0
R-16	35.9	35.9	0.0
R-17	22.2	22.2	0.0
R-18	20.1	20.1	0.0
R-19	20.7	20.7	0.0
R-20	22.2	22.2	0.0
R-21	21.5	21.5	0.0
R-22	22.4	22.4	0.0
R-23	17.3	17.3	0.0
R-24	13.2	13.2	0.0
R-25	9.1	9.1	0.0
R-26	8.2	8.2	0.0
R-27	10.2	10.2	0.0

Table 3: Sound Propagation Study Results

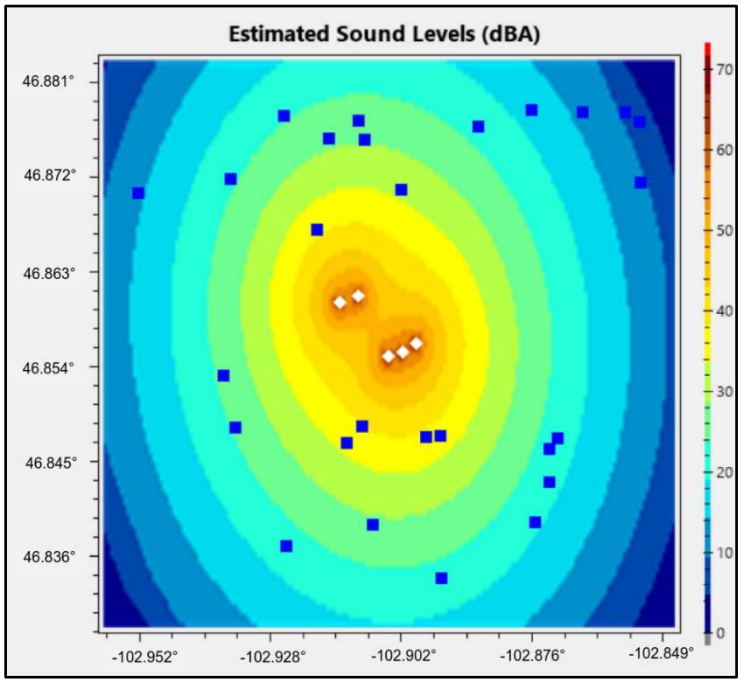

Figure 2: Continuum 3.0 - Modeled Turbine SPL

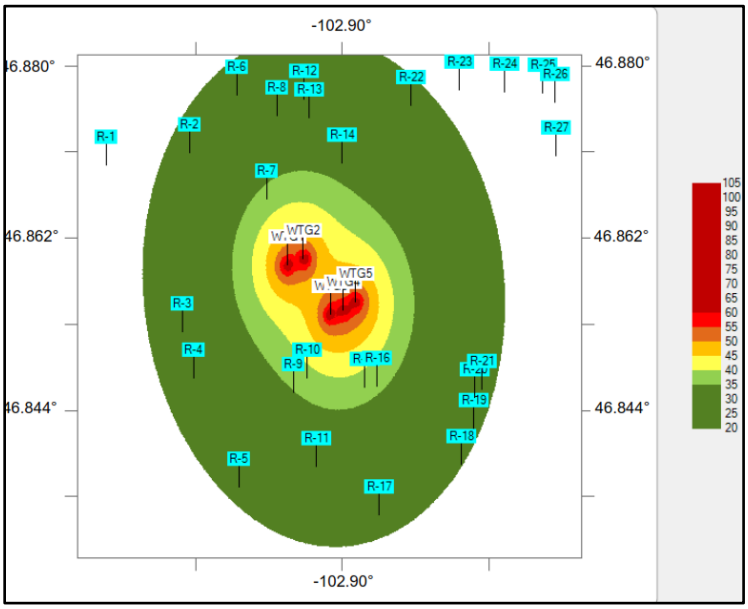

Figure 3: TAILS 3.0 – Modeled Turbine SPL

The Modeled Turbine SPL at each Zone modeled by Continuum 3.0 and TAILS 3.0 are comparable. There was no difference in the Modeled Turbine SPL for all Zones.

CONCLUSIONS

Continuum 3.0, the open-source software, was run for comparison against One Energy's in-house software. The results show the validity of the TAILS 3.0 results. The output from Continuum 3.0 and TAILS 3.0 are consistent.

EXHIBIT D

THIRD PARTY REVIEWS

Ben Mallernee

From: Liz Walls <liz.walls@arcvera.com> on behalf of Liz Walls
Sent: Tuesday, August 31, 2021 10:17 AM
To: Jessica Grosso; Ben Mallernee; Carly Good; Erin Roekle
Subject: Dickinson Shadow and Sound study review

Jessica,
I have completed my review of the updated turbine locations of the Dickinson wind project and the subsequent impact on the shadow and sound modeling studies. I updated my sound and shadow model with the updated coordinates and also ran a sound model simulation with each receptor 100 feet closer to the wind project.

I compared my results to those published in One Energy's updated reports (Sound study, dated 8/25/2021; Shadow study, dated 8/23/2021). I found consistent results with my modeled results including the simulation with the sound receptors 100 feet closer to the project.

At this point, I do not have any additional questions or requests. Both the sound and shadow studies may be deemed complete and ready for submission. Our previously-issued letter still reflects our opinion on the results of the shadow flicker and sound modeling at Dickinson so we will not be issuing a new letter.

Kind regards,
Liz

Liz Walls | Software Development Lead and Senior Renewable Energy Engineer
m +1-413-210-3994 | **w** arcvera.com

ARCVERA RENEWABLES

16 July 2021

To whom it may concern,

ArcVera Renewables has been engaged to review One Energy Solutions sound and shadow flicker studies for Marathon Petroleum Company's Dickinson Wind Energy Project. ArcVera Renewables is not affiliated with Marathon Petroleum Company or any One Energy company or employee.

ArcVera Renewables has previously reviewed One Energy's published methodologies for sound propagation and shadow flicker studies. During those reviews, ArcVera Renewables concluded that the methodologies were based on sound scientific and engineering principles and were consistent with prudent practices. Those same methodologies were used in this case.

ArcVera Renewables has, as a result of this engagement, reviewed the site-specific reports prepared for this project. The review has concluded that One Energy substantially used its published methodologies and that the reports are free of any material defect or error.

It is ArcVera Renewables conclusion that the reports presented by One Energy Solutions for the Dickinson Wind Project are reasonable, prudent, and free of material error.

Sincerely,

John Bosche
President

V-Bar, LLC 1301 Arapahoe Street, Suite 105, Golden, CO 80401 USA Tel: +1 720.237.2929 Fax: +1 303.496.0194

1 September 2021
Letter of Review

DVDZ Consulting has been engaged to review One Energy Solutions' sound and shadow flicker studies for the Marathon Petroleum Company (MPC) Dickinson Wind Energy Project. DVDZ Consulting has previously served as an Independent Engineer for the various capital providers for One Energy's projects. DVDZ Consulting is not affiliated with any One Energy company or employee.

DVDZ Consulting has previously reviewed One Energy's published methodologies for shadow flicker and sound propagation studies. During those reviews DVDZ Consulting concluded that the methodologies were based on sound scientific and engineering principles and were consistent with standard wind energy industry practices. Prior to modeling either shadow flicker or sound propagation, One Energy conducts a detailed search for receptors that could be impacted by either phenomenon. This search can include review of satellite data, street-level imagery, or even site visits to verify the nature of a structure and determine if the structure should be included in the site-specific studies.

To assess the potential of shadow flicker, One Energy uses a proprietary model that was internally developed (TAILS 3.0). This model is similar to the software used by the wind energy industry as a whole. For example, a specific industry-standard software (WindPro) uses the same inputs and produces similar outputs as One Energy's propriety shadow flicker software. However, TAILS 3.0 is much more conservative and produces an overestimated (or worst-case) scenario for shadow flicker. An example of the conservative nature of TAILS 3.0 can be seen in the study results. Research suggests that shadow flicker is unnoticeable at distances over 2 km from a given turbine, but One Energy includes assessments for structures up to 3 km in their study.

The sound propagation model used by One Energy to predict the turbine-generated sound pressure level at a given receptor is based on a standard model that is used in some national codes (e.g. New Zealand). This model has been reviewed in the scientific literature and has been found to adequately represent measured sound pressure levels at given distances from a point source. However, different assumptions will affect the accuracy / conservativeness of this model. While there are other methods available in the literature, this commonly used sound propagation model is accurately described by the One Energy methodology and appears to be accurately implemented.

These same previously reviewed methods were used in the assessment of shadow flicker and sound propagation for the MPC project near Dickinson, North Dakota. Considering shadow flicker, the TAILS 3.0 model suggests that no residential receptors will experience a significant amount of worst-case shadow flicker. The resulting pattern of predicted shadow flicker across the community is consistent with expectations based on research and previous projects. Importantly, all identified private residences are expected to receive less than 30 hours of *realistic* (including cloud-cover) shadow flicker a year, with most locations expected to receive no shadow flicker at all. For example, of the 27 receptors identified, 14 are not expected to experience any shadow flicker from the current turbine configuration. Of the remaining 13 receptors, 11 are greater than 2 km from the closest turbines where shadow flicker is has not been documented as noticeable. The two remaining receptors are modeled to experience less than 10 hours of flicker per year. ***These results suggest that shadow flicker generated by the turbines will have little, if any, impact on the surrounding community.***

Similarly, One Energy adhered to their published methods in assessing the impacts of modeled turbine noise on the community. Based on the modeling performed by One Energy, the noise produced by turbines associated with this project will fall below the PSC requirement of 45 dBa within 100 ft of a residence. Review of One Energy's modeling results indicated that turbine-related noise no higher than 38.4 dB will be experienced at a given receptor (R-10, in this case). One Energy also highlights these results in Figure 3 of their report where they show the maximum extent of the 45 dB sound propagation level. This level is mostly limited to the MPC property, and no residence is

within 100 ft of this level. ***These results suggest that noise generated by the turbines will have little, if any, impact on the surrounding community.***

In reviewing the site-specific reports prepared for this project as well as the scientific literature supporting these various topics, DVDZ Consulting has concluded that One Energy effectively used its published methodologies and that the reports represent standard industry practices. Further, the results are consistent with output produced by commercially available software and peer-reviewed research that has been presented in the scientific literature. A full list of references consulted for this report is available upon request. It is the conclusion of DVDZ Consulting that the reports presented by One Energy Solutions for Marathon's Dickinson Wind Project are reasonable, prudent, and align with practices that have been determined by the industry to maintain the safety and well-being of the community.

About

DVDZ consulting is led by Dr. W. Scott Gunter. Gunter is currently an Assistant Professor of Meteorology at the University of Louisville. Gunter's credentials include a Bachelor of Science degree from Mississippi State University where he graduated with honors in 2008. Gunter continued his education in graduate school at Texas Tech University as a Master's student, where his research initially focused on hurricane structure and evolution using high resolution radar data. After acceptance into the Ph.D. program at Texas Tech, Gunter's research focus shifted to severe storms. Working with Dr. John Schroeder, Gunter's designed a field project to collect and analyze wind profile and turbulence data from severe thunderstorms. This project also involved a thorough comparison of different types of wind measurements, including tall tower, radar, and sodar. Dr. Gunter was an active operator of the TTUKa mobile Doppler radars and heavily involved in deployments and data collection efforts within wind farms with the National Wind Institute. Scott completed his PhD studies in 2015 after the publication of several peer-reviewed manuscripts and numerous conference presentations. Dr. Gunter is currently an Assistant Professor of Meteorology at the University of Louisville in Kentucky where he teaches courses ranging from Climate Science to Synoptic Meteorology. In addition to teaching, Dr Gunter engages in research related to the observed characteristics of the wind and comparisons of wind measurement platforms. His education and experience have led to participate in a consulting role for the wind energy industry. Gunter began consulting in 2016 and officially formed DVDZ Consulting in 2017. He has since used his expertise to evaluate numerous small scale wind projects, their associated data, and the methods used in the modeling of the wind resource and environmental conditions.

APPENDIX G

Shadow Flicker Analysis Report

WIND ENERGY INTEGRATION

SHADOW STUDY

DICKINSON REFINERY WIND TURBINE PROJECT

DICKINSON, NORTH DAKOTA

OCTOBER 2021

Report preparation:
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vCARD
CARLY GOOD

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vCARD
JESSICA GROSSO

ONE ENERGY
WIND FOR INDUSTRY®

Methodology v2021.0

CONTENTS

LIST OF EXHIBITS

1. INTRODUCTION

One Energy modeled potential shadow flicker at the proposed turbine sites. The modeling was performed to measure the impact of the turbines on the surrounding community.

The model used in this report was completed using the proposed turbine siting locations presented below; all results are only representative of these locations. One Energy's TAILS 3.0 software, which was developed by One Energy using both proprietary methods and industry standards, was used to complete the modeling. This Shadow Study was prepared using Prudent Wind Industry Practice and One Energy's Shadow Methodology version 2021.0. See Exhibit A for more information.

2. SITE OVERVIEW

Marathon Petroleum Corporation (MPC) owns a total of 345.85 acres in Dickinson, North Dakota within Stark County. The MPC property is sufficient for siting utility-scale wind turbines. The land currently owned by MPC is outlined in green in Figure 1. One Energy's siting for all five turbines is in accordance with Prudent Wind Industry Practices and represents safe siting for nearby residents, public road users, and MPC employees.

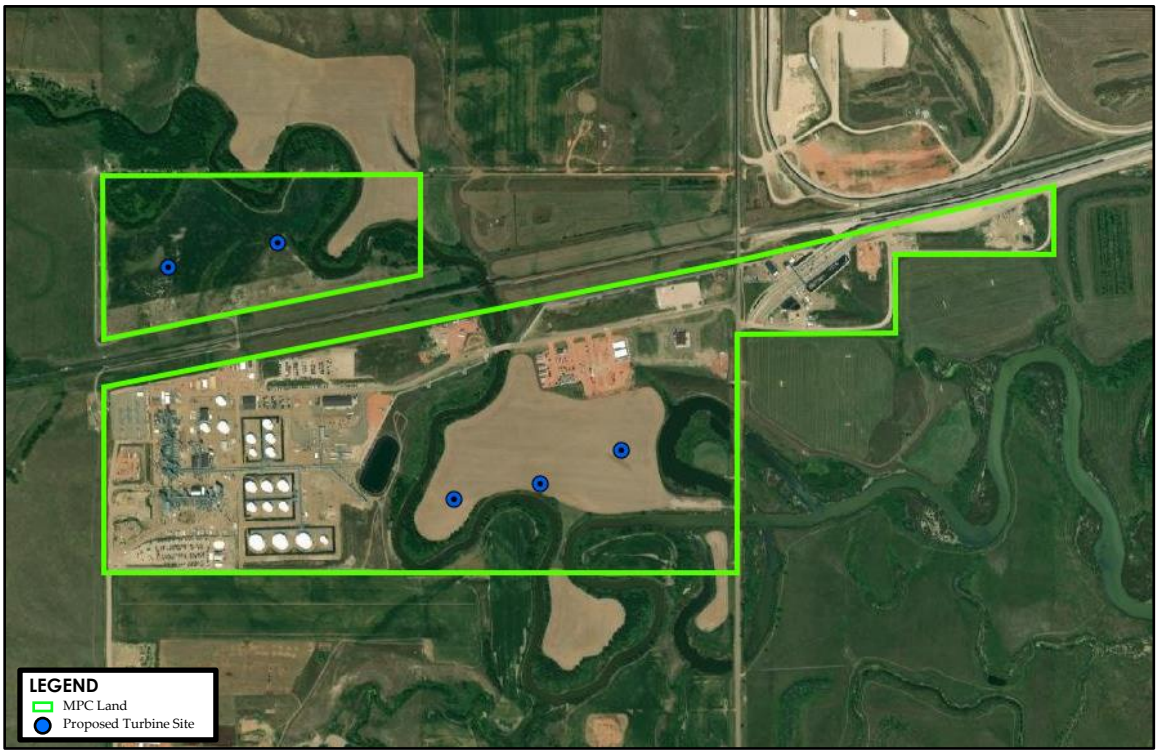

Figure 1: Satellite Image of MPC facility in Dickinson, ND

3. ZONES OF INTEREST

One Energy identified 27 "Zones of Interest" around the project area, shown in Figure 2. The Zones of Interest (Zones) are regularly inhabited structures and may also be referred to as "Receptors" within the industry. Zones are used in feasibility studies to measure the potential impact of the turbines on the surrounding community. For this study, only private residences or community buildings were included. All of the identified Zones are private residences and no community buildings were identified nearby.

In areas where there are clusters of structures, such as a neighborhood, a few of the structures have been chosen at varying positions along the edges closest to the turbines. These Zones are expected to represent the nearby structures and are taken to be the worst-case scenario for the cluster of structures. Information on the Zones identified can be seen in Table 1.

Figure 2: Zones of Interest Satellite Image

MPC – DICKINSON: ZONES OF INTEREST INFORMATION					
Zone of Interest	Latitude	Longitude	Zone Size (Area, ft²)	Distance from Closest Turbine (ft)	Description
R-1	46.8708	-102.9532	5,856	10,767	House
R-2	46.8718	-102.9345	9,644	6,922	House (3)
R-3	46.8531	-102.9368	3,617	6,351	House
R-4	46.8482	-102.9345	4,209	6,757	House
R-5	46.8367	-102.9249	6,458	8,331	House (3)
R-6	46.8776	-102.9236	6,157	7,031	House (4)
R-7	46.8666	-102.9174	16,878	2,737	House
R-8	46.8753	-102.9147	3,918	5,644	House (4)
R-9	46.8463	-102.9123	5,425	3,655	House
R-10	46.8478	-102.9092	2,939	2,781	House
R-11	46.8385	-102.9075	3,498	5,881	House (2)
R-12	46.8769	-102.9088	10,893	6,074	House
R-13	46.8750	-102.9076	7,136	5,421	House
R-14	46.8701	-102.9005	6,932	4,264	House
R-15	46.8466	-102.8964	16,727	3,176	House
R-16	46.8466	-102.8935	7,104	3,455	House
R-17	46.8332	-102.8937	5,167	8,067	House (3)
R-18	46.8381	-102.8750	16,770	8,582	House

R-19	46.8418	-102.8720	16,663	8,195	House (4)
R-20	46.8450	-102.8718	4,941	7,588	House (2)
R-21	46.8459	-102.8701	5,920	7,801	House (6)
R-22	46.8758	-102.8847	4,392	8,120	House (30)
R-23	46.8772	-102.8740	5,619	9,945	House (9)
R-24	46.8768	-102.8638	6,953	11,540	House (10)
R-25	46.8766	-102.8554	4,478	13,136	House (3)
R-26	46.8756	-102.8525	4,069	13,539	House (8)
R-27	46.8700	-102.8525	3,681	12,527	House (8)
Number of structures that the Zone represents is indicated in parentheses next to the description (if more than one).					

Table 1: Zones of Interest Information

4. SHADOW STUDY

Most private residences experience no shadow flicker and of those that do, all residences experience less than 12 hours. This is less than the industry standard of 30 hours. In addition, all private residences modeled to experience shadow flicker are greater than 2,000 feet from the turbines and at this distance the perception of shadow flicker is likely less noticeable due to light dispersion and elongated shadows. These effects make the model even more conservative in its estimated hours of shadow flicker.

MPC – DICKINSON: SHADOW FLICKER STUDY RESULTS				
Zone of Interest	Distance from closest turbine (ft)	Annual Hours of Shadow Flicker		
		Total Modeled Hours	Hours Excluding Cloudy Days	Hours Excluding Cloudy and Partly Cloudy Days
R-1	10,767	8	6	4
R-2	6,922	21	15	10
R-3	6,351	14	10	7
R-4	6,757	9	7	5
R-5	8,331	0	0	0
R-6	7,031	0	0	0
R-7	2,737	8	6	4
R-8	5,644	0	0	0
R-9	3,655	0	0	0
R-10	2,781	0	0	0
R-11	5,881	0	0	0
R-12	6,074	0	0	0
R-13	5,421	0	0	0
R-14	4,264	0	0	0
R-15	3,176	0	0	0
R-16	3,455	0	0	0
R-17	8,067	0	0	0
R-18	8,582	0	0	0
R-19	8,195	21	16	11
R-20	7,588	24	18	12
R-21	7,801	17	13	9
R-22	8,120	1	1	0
R-23	9,945	10	7	5
R-24	11,540	3	2	2
R-25	13,136	12	9	6
R-26	13,539	7	5	3
R-27	12,527	4	3	2

Table 2: Shadow Flicker Study Results

Based on the shadow model results, shadow flicker will not exceed acceptable limits at any private residences. The residences with the most amount of shadow flicker hours are Zones R-20 and R-19 with 12 and 11 hours of possible shadow flicker per year when factoring in cloudy and partly cloudy days, respectively. The model is designed to be conservative and thus overestimates the hours of shadow flicker.

5. CONCLUSIONS

The Shadow Study concluded that private residences are expected to experience minimal hours of shadow flicker per year based on the conservative methodology used in the study. One Energy believes a *Wind for Industry®* project at the MPC facility will not have a significant shadow impact on the surrounding community.

NOTES:

One Energy's Shadow Methodology version 2021.0 can be seen in Exhibit B.

This report presents the model results as required by the PSC.

One Energy validated the Shadow Model results using an alternate software package. The results of this comparison can be seen in Exhibit C.

Two third party reviews of the study were completed and can be seen in Exhibit D.

EXHIBIT A

SHADOW STUDY RESULTS

Project	MPC Dickinson
Site	Dickinson, ND
Turbine	2.35 MW - 103 m rotor diameter
Hub Height	80 m
Wind Data	LiDAR Dataset

WIND TURBINE SHADOW STUDY RESULTS

ONE ENERGY

SHADOW FLICKER STUDY RESULTS

Zone of Interest	Distance to closest turbine (ft)	Possible Hours of Shadow Flicker Per Year	Hours (Excluding Cloudy Days)	Hours (Excluding Cloudy and Partly Cloudy Days)
R-1	10,767	8	6	4
R-2	6,922	21	15	10
R-3	6,351	14	10	7
R-4	6,757	9	7	5
R-5	8,331	0	0	0
R-6	7,031	0	0	0
R-7	2,737	8	6	4
R-8	5,644	0	0	0
R-9	3,655	0	0	0
R-10	2,781	0	0	0
R-11	5,881	0	0	0
R-12	6,074	0	0	0
R-13	5,421	0	0	0
R-14	4,264	0	0	0
R-15	3,176	0	0	0
R-16	3,455	0	0	0
R-17	8,067	0	0	0
R-18	8,582	0	0	0
R-19	8,195	21	16	11
R-20	7,588	24	18	12
R-21	7,801	17	13	9
R-22	8,120	1	1	0
R-23	9,945	10	7	5
R-24	11,540	3	2	2
R-25	13,136	12	9	6
R-26	13,539	7	5	3
R-27	12,527	4	3	2

KEY						
Hours	0-30	30-60	60-90	90-120	120-150	150+
Color						

MPC Dickinson Zones of Interest

CONCLUSIONS

Based on the shadow model results, shadow flicker will not exceed acceptable limits at any private residences. The residences with the most amount of shadow flicker hours are Zones R-20 and R-19 with 12 and 11 hours of possible shadow flicker per year when factoring in cloudy and partly cloudy days. There will be no significant impacts on the surrounding area.

EXHIBIT □

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ONE ENERGY

WIND FOR INDUSTRY®

SHADOW METHODOLOGIES

Publish Date: April 15, 2021

Version 2021.0

CONTENTS

GLOSSARY

Long-Term: Describes a consecutive period of the most recent 30 years.

Measure-Correlate-Predict (MCP): A statistical technique that is used to create a simulated, long-term dataset by relating a concurrent short, measured target dataset to a long-term reference dataset.

Prudent Wind Industry Practices: The practices, methods, specifications and standards of safety, performance, quality, dependability, efficiency, and economy generally recognized by industry members in the US as good and proper. Other practices, methods, or acts which, in the exercise of reasonable judgment by those reasonably experienced in the industry in light of the specific projects and facts known at the time a decision is made, would be expected to accomplish the result intended at a reasonable cost and consistent with applicable laws, reliability, safety, and expedition. Prudent Wind Industry Practices are not intended to be limited to the optimum practices, methods, or acts to the exclusion of all others, but rather to be a spectrum of good and proper practices, methods, and acts.

Shadow Flicker: The effect caused by the shadows of the spinning rotor and rotating blades.

Site MCP Dataset: A long-term MCP dataset created with the Site Dataset and the closest available reanalysis grid-point to the site.

Site-Specific Feasibility Studies: Studies of shadow flicker, ice shedding, and sound propagation at the project site. These studies indicate any impacts or lack thereof to the surrounding community.

TAILS 3.0: One Energy's proprietary software used to model turbine icing, shadow flicker, and wake loss.

Zones of Interest: Regularly inhabited structures, or clustered groups of structures, roughly within a one-mile radius of the turbine(s). Zones may include private residences, businesses, and public areas.

1. INTRODUCTION

One Energy considers many factors when siting a *Wind for Industry*® project. The safety of the surrounding community is the most important factor considered when siting wind turbines. A project will not proceed if the wind turbines cannot be safely sited within the bounds and conditions given. In addition to safety, energy production optimization is a key factor considered when siting wind turbines. Feasibility modeling is discussed in this document.

The objective of this methodology is to allow for explanation of each section within One Energy's Shadow Report. Each section states what variables and key pieces of information are presented within the Shadow Report. The deliverables within the formal shadow document from each section are designated in bold text throughout this document.

This Shadow Methodology is version 2021.0.

2. SITE OVERVIEW

Within this section, the current landscape of the proposed project site is described, focusing on parcel information.

The following information is presented in Site Overview:

1) **Aerial imagery of the proposed project siting parcel(s) and project facility parcel(s)**
2) **Size of project parcel(s)**
3) **Ownership of parcel(s)**

3. ZONES OF INTEREST

In order to ensure safety and minimize potential effects from the turbines on the surrounding area, One Energy identifies "Zones of Interest" near the turbine(s). The Zones of Interest are regularly inhabited structures roughly within a one-mile radius of the turbines. Zones may include private residences, businesses, and public areas. In areas where there are clusters of structures, such as a neighborhood, a few structures are chosen at representative positions along the edges closest to the turbine(s). These Zones are expected to represent the nearby structures and are taken to be the worst-case scenario for the cluster of structures. If a Zone of Interest represents more than one structure, it is noted within the Shadow document.

The Zones of Interest are used in the feasibility studies models (see Section 5: Feasibility Study). The impact of the turbine(s) on each Zone of Interest is calculated in each of the models. The models account for the Zone of Interest's location relative to the turbine(s) and the wind distribution of the site. The size of each Zone of Interest is approximated using satellite imagery and is generally overestimated.

The following information is presented in Zones of Interest:

1) **Aerial imagery of all zones and turbine siting for reference**
2) **A table of the Zones of Interest including:**
    a. **Latitude/Longitude**
    b. **Zone size (area)**
    c. **Distance from the closest turbine**
    d. **Zone description**

4. FEASIBILITY STUDY

Feasibility studies are completed during the development process as part of the due diligence of a project. These studies indicate the impact of the surrounding community and logistics for project construction.

A. SHADOW MODEL

One Energy's Shadow Model is another of the models within One Energy's proprietary software suite, TAILS 3.0, and predicts the annual number of hours of shadow flicker that would be experienced at the Zones of Interest near the turbine location(s).

Wind turbines, like all structures, create a shadow that moves across the ground throughout the day and year. Wind turbines, unlike most structures, have a rotor (including blades) that move. This rotation can create a moving shadow, commonly known as shadow flicker. This moving shadow, when observed from inside a building, can appear as a "flicker" where the shadow alternates between on and off as the rotor spins. This does not present any medical risk to the public with utility-scale wind turbines, but, in high enough exposure, can be considered an annoyance.

With respect to quantifying annoyance, there is not a uniform national standard. For reference only, local level and international standards range in annual limits from as high as 87 hours to as low as 30 hours.

The following information is presented in the Shadow Model:

1) **Table with the total hours of modeled shadow at each Zone of Interest, as well as adjusting the total hours dependent on 'cloudy' and 'cloudy and partly cloudy' days**
2) **Figure of 'excluding cloudy and partly cloudy' shadow hours based on hour of day at Zones of Interest above specified annual number of hours**
3) **Figure of 'excluding cloudy and partly cloudy' shadow hours based on month of year at Zones of Interest above specified annual number of hours**
4) **One-page summary sheet (as exhibit)**

Inputs

The inputs for the Shadow Model are: 1) Long-Term data relating to cloud cover obtained from the MERRA2 node closest to the site; 2) Turbine location (latitude and longitude); 3) Turbine model specifics; 4) Zone of Interest location (latitude and longitude), elevation, and size (in meters); and 5) Time Zone.

Methodology

The Shadow Model within TAILS 3.0 calculates the total time per year a Zone of Interest could experience shadow flicker.

The software uses the input locations to determine the distances and angles between the turbine and each Zone of Interest. The model takes the location on the earth, time of year, angle of the sun, and height of the turbine and tabulates how often each Zone of Interest could be in the shadow of the turbine(s). The output from the program details the date and time of each shadow flicker occurrence throughout the year at each Zone of Interest. The program totals these occurrences to give a worst-case scenario for the maximum possible annual hours of shadow flicker. Due to the assumptions of the program, the total number of hours per year of shadow flicker is overestimated.

The Shadow Model assumes weather conditions are always clear (cloud cover is less than 30%) and the rotor is positioned to create the longest shadow length. To more accurately assess the expected shadow flicker, the modeled hours of shadow flicker are reduced by the percentage of annual cloudy days. The shadow flicker results from the model are shown in three ways: clear, excluding cloudy days, and excluding cloudy and partly cloudy days. The applied cloud cover data is derived from MERRA2, which collects and re-analyzes data from NASA's Moderate Resolution Imaging Spectroradiometer (MODIS) to report the hourly mean cloud fraction. Each hourly recording during daylight hours is categorized as "Clear," "Partly Cloudy," or "Cloudy" based on the percentage of cloud cover. A timestamp is considered partly cloudy if it has between 30% and 80% cloud cover. Above 80% cloud cover indicates a cloudy hour, and below 30% cloud cover indicates a clear hour.

Model Assumptions and Limitations

- During the initial model run, no attempt is made to predict cloud cover or other weather conditions that might prevent the sun from casting a shadow at a specific location. The hours of shadow flicker are adjusted for cloudy and partly cloudy days after the model is run.
- No attempt is made to predict the angle of the turbine rotor due to the wind direction. It is assumed the rotor is always in the worst-case position, i.e., perpendicular to the sun's rays on the area of interest, which would cast the largest shadow area.
- It is assumed the blades are always perpendicular to the line between the area of interest and the turbine. This is conservative in that when the sun is higher or lower than the line between the area of interest and the turbine, the blade area cross section is effectively an ellipse of less area than the circle used in the analysis.
- No attempt is made to account for obstructions, e.g., trees, tall shrubs, or other buildings, that might block the flicker from the area of interest during the model run, though locations of shadow are reviewed manually after to determine any effect on nearby structures.
- It is assumed all shadow flicker is observed, even if it strikes a windowless wall on the side of the building.
- No attempt is made to de-rate the potential flicker due to the sun being low in the sky or due to the distance between the turbine and the area of interest.
- No attempt is made in this analysis to account for the rotational speed or pitch of the turbine blades and the associated scattering of light.
- No attempt is made to predict the intensity of the shadow based on frequency, brightness, or distance.
- Daylight savings time and other local time adjustments are not considered. Every minute of every day is analyzed, so the total flicker estimate includes these adjustments. For minute-to-minute predictions, the time must be adjusted per these local time adjustments.
- For computational simplicity, a rectangular Zone of Interest is modeled as the largest circle inscribed within a square. This allows the model to use an angle offset method instead of boundary checking. The user should keep this in mind when defining the size of the Zone of Interest. If the Zone of Interest is long and narrow, this could be overly conservative and the user may want to shorten the longer side. If the Zone of Interest is a square, the user may want to increase the dimensions so that the circle contains the same area as the desired square Zone of Interest.

5. CONCLUSIONS

One Energy considers many factors when siting wind turbines. The shadow model is completed to measure the impact of the turbines on the surrounding community.

EXHIBIT □

M□ DE□VA□IDATI□ □

ONE ENERGY
WIND FOR INDUSTRY®

EXHIBIT C: SHADOW FLICKER MODEL VALIDATION

One Energy used its proprietary internal software called TAILS 3.0 to conduct a Shadow Flicker Study for the Dickinson facility. To validate these results, One Energy utilized Continuum 3.0, an open-source software.

Table 1 and Table 2 provide the latitude and longitude for the identified Zones of Interest and the proposed turbine locations, illustrated in Figure 1. These Zones of Interest were analyzed in the Continuum 3.0 study and are the same that were analyzed in the TAILS 3.0 study. The distance from the closest turbine for each Zone is also shown.

MPC – DICKINSON: TURBINE LOCATIONS (WGS 84)		
	Latitude	Longitude
WTG01	46.859654°	-102.913217°
WTG02	46.860222°	-102.909532°
WTG03	46.854388°	-102.903689°
WTG04	46.854733°	-102.900790°
WTG05	46.855505°	-102.898077°

Table 1: Turbine Coordinates

MPC – DICKINSON: ZONES OF INTEREST INFORMATION			
Zone of Interest	Latitude	Longitude	Distance from Closest Turbine (ft)
R-1	46.8707547	-102.9532124	10,767
R-2	46.8718075	-102.9345305	6,922
R-3	46.8531083	-102.9368052	6,351
R-4	46.8481924	-102.9344951	6,757
R-5	46.836729	-102.9248599	8,331
R-6	46.8775686	-102.9236172	7,031
R-7	46.8665933	-102.9173887	2,737
R-8	46.875283	-102.9146991	5,644
R-9	46.8463008	-102.9123338	3,655
R-10	46.8477556	-102.9091822	2,781
R-11	46.8384786	-102.9074884	5,881
R-12	46.8768657	-102.9088157	6,074
R-13	46.8750226	-102.9076073	5,421
R-14	46.8701484	-102.9005029	4,264
R-15	46.8465686	-102.8963672	3,176
R-16	46.8465603	-102.8935206	3,455
R-17	46.8331528	-102.893731	8,067
R-18	46.8380784	-102.8749741	8,582
R-19	46.8418359	-102.8720146	8,195
R-20	46.8449914	-102.8718344	7,588
R-21	46.8459156	-102.8701321	7,801
R-22	46.8758109	-102.8847488	8,120
R-23	46.8772171	-102.8739695	9,945
R-24	46.876777	-102.8638329	11,540
R-25	46.8765988	-102.8553936	13,136
R-26	46.875619	-102.8524625	13,539
R-27	46.8699597	-102.8525247	12,527

Table 2: Information for Zones of Interest

Figure 1: Zones of Interest and Proposed Turbine Locations Relative to Dickinson Facility

SHADOW FLICKER STUDY

After inputting the locations of the Zones and turbines in Continuum 3.0 and TAILS 3.0, the models predict the annual number of hours of shadow flicker that would be experienced at the Zones.

Annual Shadow Flicker

Table 3 shows the annual number of hours of shadow flicker for each Zone output by Continuum 3.0 and TAILS 3.0, as well as the difference between the output. A positive difference indicates that Continuum 3.0 predicted less hours of shadow than TAILS 3.0 while a negative difference indicates that TAILS 3.0 predicted less hours of shadow than Continuum 3.0.

This shows the worst-case scenario for each model. Hours of shadow flicker on cloudy or partly cloudy days were not excluded from the analysis. If cloudy and partly cloudy days were included, then the number of hours of shadow flicker would decrease by approximately 50%.

MPC – DICKINSON: SHADOW FLICKER STUDY RESULTS			
Zone of Interest	Annual Hours of Shadow Flicker		
	TAILS 3.0	Continuum 3.0	Difference
R-1	8	0	8
R-2	21	1	20
R-3	14	0	14
R-4	9	2	7
R-5	0	0	0
R-6	0	0	0
R-7	8	9	-1
R-8	0	0	0
R-9	0	0	0
R-10	0	0	0
R-11	0	0	0
R-12	0	0	0
R-13	0	0	0
R-14	0	0	0
R-15	0	0	0
R-16	0	0	0
R-17	0	0	0
R-18	0	0	0
R-19	21	24	-3
R-20	24	17	7
R-21	17	13	4
R-22	1	0	1
R-23	10	10	0
R-24	3	2	1
R-25	12	9	3
R-26	7	4	3
R-27	4	2	2

Table 3: Shadow Flicker Study Results

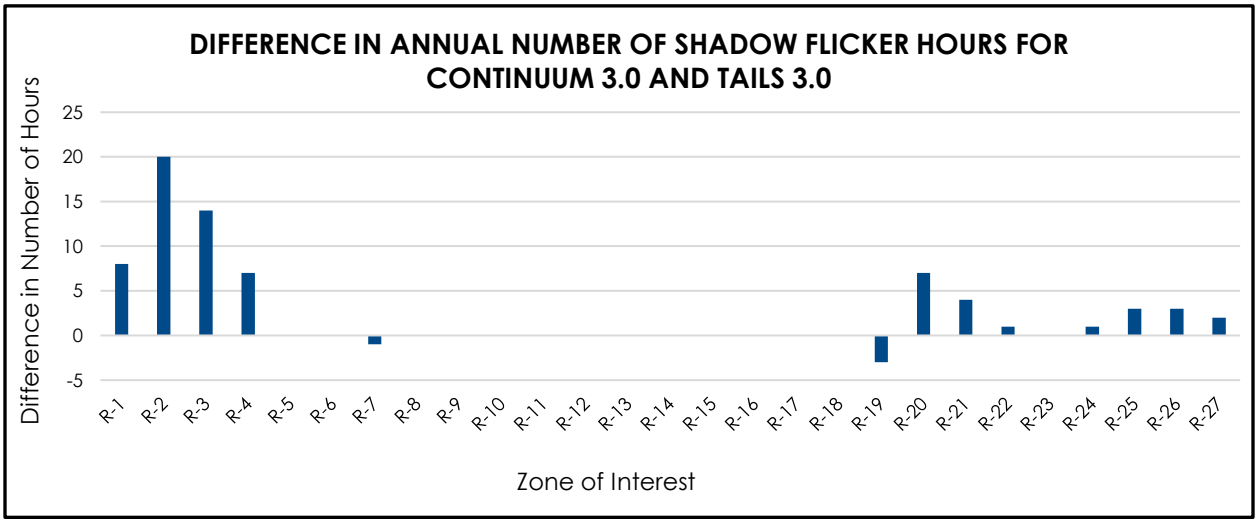

Figure 2: Difference in Annual Number of Shadow Flicker Hours

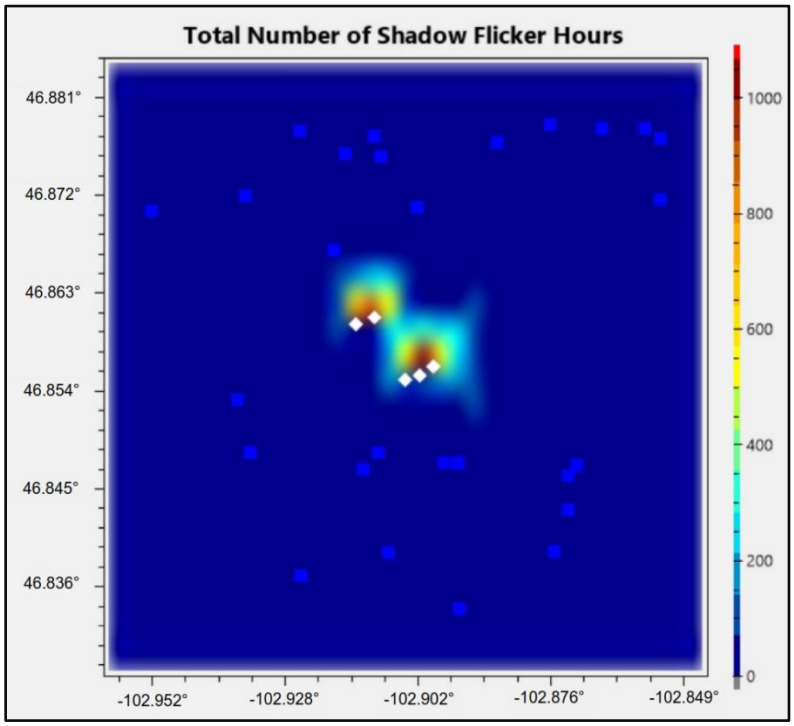

Figure 3: Total Number of Shadow Flicker Hours

Positive values in the difference column indicate that TAILS 3.0 modeled higher values of shadow flicker than Continuum 3.0 and was therefore more conservative. Negative values in the difference column indicate that Continuum 3.0 modeled higher values of shadow flicker than TAILS 3.0. In all but two instances where there was a difference in the results, TAILS 3.0 generated more hours of shadow flicker than Continuum 3.0 at the modeled Zones and was therefore more conservative.

It is noted that TAILS 3.0 includes hours of shadow flicker that occur during twilight hours, not just the time between sunrise and sunset, as with Continuum 3.0. This allows TAILS 3.0 to report a higher value of shadow flicker at certain Zones.

CONCLUSIONS

Continuum 3.0, the open-source software, was run for comparison against One Energy's in-house software. The results show that TAILS 3.0 is a more conservative shadow flicker model than Continuum 3.0, which is primarily due to additional shadow impact during the twilight time periods.

EXHIBIT D

THIRD PARTY REVIEWS

Ben Mallernee

From: Liz Walls <liz.walls@arcvera.com> on behalf of Liz Walls
Sent: Tuesday, August 31, 2021 10:17 AM
To: Jessica Grosso; Ben Mallernee; Carly Good; Erin Roekle
Subject: Dickinson Shadow and Sound study review

Jessica,
I have completed my review of the updated turbine locations of the Dickinson wind project and the subsequent impact on the shadow and sound modeling studies. I updated my sound and shadow model with the updated coordinates and also ran a sound model simulation with each receptor 100 feet closer to the wind project.

I compared my results to those published in One Energy's updated reports (Sound study, dated 8/25/2021; Shadow study, dated 8/23/2021). I found consistent results with my modeled results including the simulation with the sound receptors 100 feet closer to the project.

At this point, I do not have any additional questions or requests. Both the sound and shadow studies may be deemed complete and ready for submission. Our previously-issued letter still reflects our opinion on the results of the shadow flicker and sound modeling at Dickinson so we will not be issuing a new letter.

Kind regards,
Liz

Liz Walls | Software Development Lead and Senior Renewable Energy Engineer
m +1-413-210-3994 | **w** arcvera.com

ARCVERA RENEWABLES

16 July 2021

To whom it may concern,

ArcVera Renewables has been engaged to review One Energy Solutions sound and shadow flicker studies for Marathon Petroleum Company's Dickinson Wind Energy Project. ArcVera Renewables is not affiliated with Marathon Petroleum Company or any One Energy company or employee.

ArcVera Renewables has previously reviewed One Energy's published methodologies for sound propagation and shadow flicker studies. During those reviews, ArcVera Renewables concluded that the methodologies were based on sound scientific and engineering principles and were consistent with prudent practices. Those same methodologies were used in this case.

ArcVera Renewables has, as a result of this engagement, reviewed the site-specific reports prepared for this project. The review has concluded that One Energy substantially used its published methodologies and that the reports are free of any material defect or error.

It is ArcVera Renewables conclusion that the reports presented by One Energy Solutions for the Dickinson Wind Project are reasonable, prudent, and free of material error.

Sincerely,

John Bosche
President

V-Bar, LLC 1301 Arapahoe Street, Suite 105, Golden, CO 80401 USA Tel: +1 720.237.2929 Fax: +1 303.496.0194

1 September 2021
Letter of Review

DVDZ Consulting has been engaged to review One Energy Solutions' sound and shadow flicker studies for the Marathon Petroleum Company (MPC) Dickinson Wind Energy Project. DVDZ Consulting has previously served as an Independent Engineer for the various capital providers for One Energy's projects. DVDZ Consulting is not affiliated with any One Energy company or employee.

DVDZ Consulting has previously reviewed One Energy's published methodologies for shadow flicker and sound propagation studies. During those reviews DVDZ Consulting concluded that the methodologies were based on sound scientific and engineering principles and were consistent with standard wind energy industry practices. Prior to modeling either shadow flicker or sound propagation, One Energy conducts a detailed search for receptors that could be impacted by either phenomenon. This search can include review of satellite data, street-level imagery, or even site visits to verify the nature of a structure and determine if the structure should be included in the site-specific studies.

To assess the potential of shadow flicker, One Energy uses a proprietary model that was internally developed (TAILS 3.0). This model is similar to the software used by the wind energy industry as a whole. For example, a specific industry-standard software (WindPro) uses the same inputs and produces similar outputs as One Energy's propriety shadow flicker software. However, TAILS 3.0 is much more conservative and produces an overestimated (or worst-case) scenario for shadow flicker. An example of the conservative nature of TAILS 3.0 can be seen in the study results. Research suggests that shadow flicker is unnoticeable at distances over 2 km from a given turbine, but One Energy includes assessments for structures up to 3 km in their study.

The sound propagation model used by One Energy to predict the turbine-generated sound pressure level at a given receptor is based on a standard model that is used in some national codes (e.g. New Zealand). This model has been reviewed in the scientific literature and has been found to adequately represent measured sound pressure levels at given distances from a point source. However, different assumptions will affect the accuracy / conservativeness of this model. While there are other methods available in the literature, this commonly used sound propagation model is accurately described by the One Energy methodology and appears to be accurately implemented.

These same previously reviewed methods were used in the assessment of shadow flicker and sound propagation for the MPC project near Dickinson, North Dakota. Considering shadow flicker, the TAILS 3.0 model suggests that no residential receptors will experience a significant amount of worst-case shadow flicker. The resulting pattern of predicted shadow flicker across the community is consistent with expectations based on research and previous projects. Importantly, all identified private residences are expected to receive less than 30 hours of *realistic* (including cloud-cover) shadow flicker a year, with most locations expected to receive no shadow flicker at all. For example, of the 27 receptors identified, 14 are not expected to experience any shadow flicker from the current turbine configuration. Of the remaining 13 receptors, 11 are greater than 2 km from the closest turbines where shadow flicker is has not been documented as noticeable. The two remaining receptors are modeled to experience less than 10 hours of flicker per year. ***These results suggest that shadow flicker generated by the turbines will have little, if any, impact on the surrounding community.***

Similarly, One Energy adhered to their published methods in assessing the impacts of modeled turbine noise on the community. Based on the modeling performed by One Energy, the noise produced by turbines associated with this project will fall below the PSC requirement of 45 dBa within 100 ft of a residence. Review of One Energy's modeling results indicated that turbine-related noise no higher than 38.4 dB will be experienced at a given receptor (R-10, in this case). One Energy also highlights these results in Figure 3 of their report where they show the maximum extent of the 45 dB sound propagation level. This level is mostly limited to the MPC property, and no residence is

within 100 ft of this level. ***These results suggest that noise generated by the turbines will have little, if any, impact on the surrounding community.***

In reviewing the site-specific reports prepared for this project as well as the scientific literature supporting these various topics, DVDZ Consulting has concluded that One Energy effectively used its published methodologies and that the reports represent standard industry practices. Further, the results are consistent with output produced by commercially available software and peer-reviewed research that has been presented in the scientific literature. A full list of references consulted for this report is available upon request. It is the conclusion of DVDZ Consulting that the reports presented by One Energy Solutions for Marathon's Dickinson Wind Project are reasonable, prudent, and align with practices that have been determined by the industry to maintain the safety and well-being of the community.

About

DVDZ consulting is led by Dr. W. Scott Gunter. Gunter is currently an Assistant Professor of Meteorology at the University of Louisville. Gunter's credentials include a Bachelor of Science degree from Mississippi State University where he graduated with honors in 2008. Gunter continued his education in graduate school at Texas Tech University as a Master's student, where his research initially focused on hurricane structure and evolution using high resolution radar data. After acceptance into the Ph.D. program at Texas Tech, Gunter's research focus shifted to severe storms. Working with Dr. John Schroeder, Gunter's designed a field project to collect and analyze wind profile and turbulence data from severe thunderstorms. This project also involved a thorough comparison of different types of wind measurements, including tall tower, radar, and sodar. Dr. Gunter was an active operator of the TTUKa mobile Doppler radars and heavily involved in deployments and data collection efforts within wind farms with the National Wind Institute. Scott completed his PhD studies in 2015 after the publication of several peer-reviewed manuscripts and numerous conference presentations. Dr. Gunter is currently an Assistant Professor of Meteorology at the University of Louisville in Kentucky where he teaches courses ranging from Climate Science to Synoptic Meteorology. In addition to teaching, Dr Gunter engages in research related to the observed characteristics of the wind and comparisons of wind measurement platforms. His education and experience have led to participate in a consulting role for the wind energy industry. Gunter began consulting in 2016 and officially formed DVDZ Consulting in 2017. He has since used his expertise to evaluate numerous small scale wind projects, their associated data, and the methods used in the modeling of the wind resource and environmental conditions.

APPENDIX H

Class I and Class III Report (Nonpublic)

Confidential: Omitted

APPENDIX I

Class II Report

Visual Impacts Assessment for the Dickinson Renewable Diesel Facility Wind Turbine Project, Stark County, North Dakota

SEPTEMBER 2021

PREPARED FOR

One Energy Solutions, LLC

PREPARED BY

SWCA Environmental Consultants

MANUSCRIPT DATA RECORD FORM

1. Manuscript Number:
2. SHPO Reference #:
3. Author(s): Hannah Curry
4. Title: Visual Impacts Assessment for the Dickinson Renewable Diesel Facility Wind Turbine Project, Stark County, North Dakota
5. Report Date: September 8, 2021
6. Number of Pages: 40
7. Type – I, T, E, O: O

   I=Inventory; T=Formal Testing; E=Excavation; O=Other
8. List formally tested or excavated sites (not probes): N/A
9. Acres: N/A
10. List the legal description* and study unit. For study unit assignment, use the township tables in the *State Plan*, http://history.nd.gov/hp/stateplan_arch.html.
    Study Units: LM, CB, KN, HE, SM, GA, JA, GR, NR, SR, SO, SH, YE

**For inventory, formal testing* and *excavation* projects, *list the CLASS III legal locations only*.

County	Township	Range	Sections	Study Unit
Stark	139N	97W	1–5, 8–17, 20–24	HE

VISUAL IMPACTS ASSESSMENT FOR THE DICKINSON RENEWABLE DIESEL FACILITY WIND TURBINE PROJECT, STARK COUNTY, NORTH DAKOTA

Prepared for

One Energy Solutions, LLC
12385 Township Rd. 215
Findlay, Ohio 45840

Submitted to

North Dakota State Historic Preservation Office

Prepared by

Hannah Curry, M.S.

SWCA Environmental Consultants
201 Slate Drive, Suite 8
Bismarck, North Dakota 58503
www.swca.com

SWCA Project No. 67406

SWCA Cultural Resources Report No. 21-431

September 2021

ABSTRACT

SWCA Environmental Consultants (SWCA) conducted a visual impacts assessment on behalf of One Energy Solutions, LLC (One Energy) for the proposed Dickinson Renewable Diesel Facility Wind Turbine Project (project). One Energy proposes to construct five wind turbines with associated access roads and underground electrical collection lines at the existing Marathon Dickinson Refinery. The project is located on privately owned land in Stark County, North Dakota. The reviewing agency is the North Dakota State Historic Preservation Office.

The North Dakota Public Service Commission (NDPSC) is the lead regulatory agency under the North Dakota Energy Conversion and Transmission Facility Siting Act (excluding any applicable county or local requirements). SWCA's visual impacts assessment assists One Energy in meeting the cultural resource requirements for its application for a certificate of site compatibility for the proposed project to be submitted to the NDPSC.

The visual impacts assessment used a 2-mile radius around the turbine sites as the area of potential effect (APE), and a historic resources survey was conducted on July 21 and July 22, 2021 (Figure 1). SWCA documented all historic-age properties within the APE and evaluated their eligibility for the National Register of Historic Places (NRHP).

SWCA's architectural historian meeting the Secretary of the Interior's professional qualifications surveyed 11 historic-age resources during fieldwork. SWCA recommends only one resource, Resource 10, located at 11561 40th Street SW, ELIGIBLE for the NRHP. However, due to existing industrial structures and a windbreak, SWCA also recommends that the proposed project will have NO ADVERSE EFFECT on the eligible property.

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CONTENTS

Figures

INTRODUCTION

Project Description

SWCA Environmental Consultants (SWCA) conducted a visual impacts assessment on behalf of One Energy Solutions, LLC (One Energy) for the proposed Dickinson Renewable Diesel Facility Wind Turbine Project (project). One Energy proposes to construct five wind turbines with associated access roads and underground electrical collection lines at the existing Marathon Dickinson Refinery. The project is located on privately owned land in Stark County, North Dakota. The reviewing agency is the North Dakota State Historic Preservation Office (SHPO).

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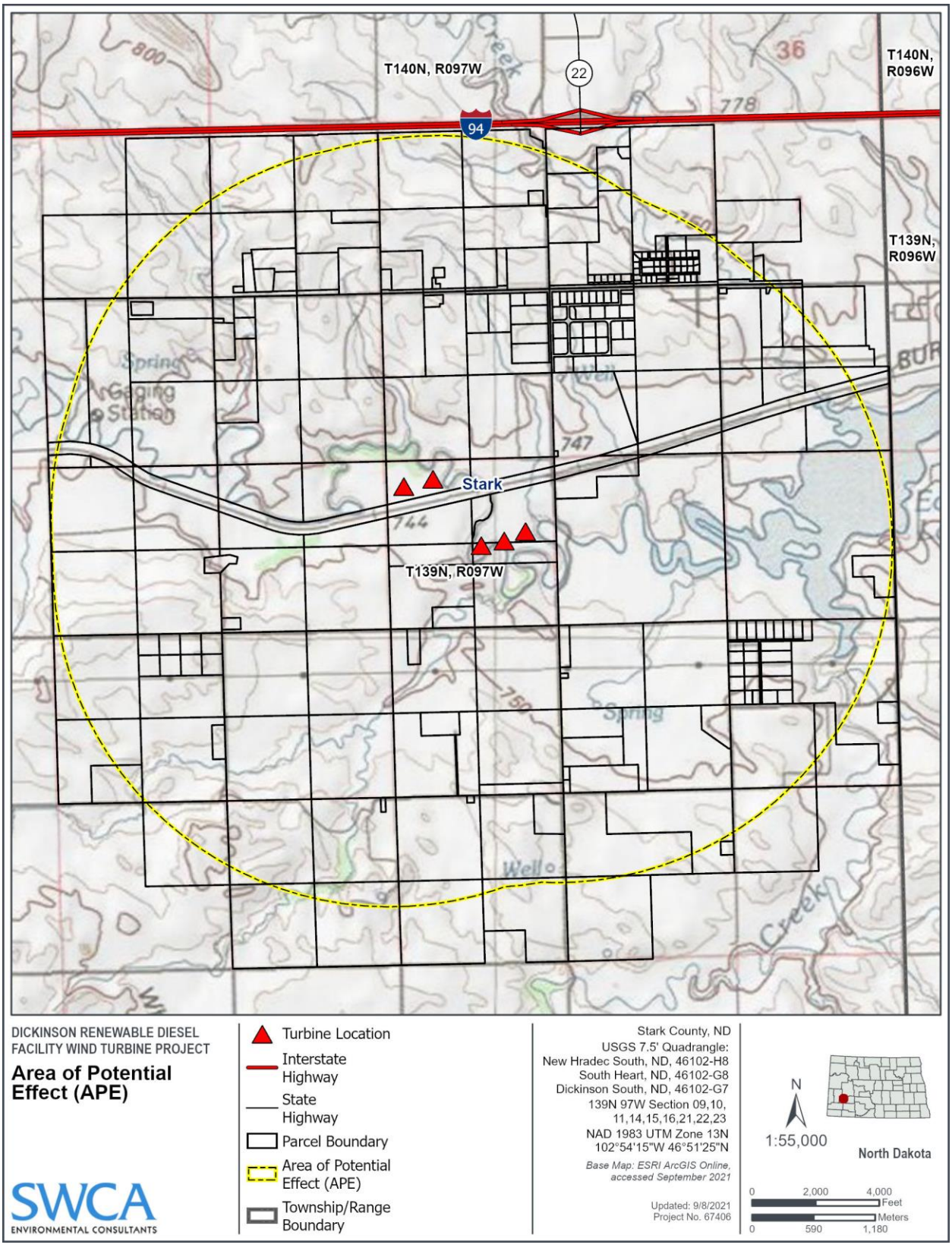

Figure 1. Map of the turbine sites with the area of potential effect for the visual impacts assessment.

Significance Requirements

SWCA used the evaluation standards found at 36 Code of Federal Regulations 60.4 and outlined in the National Register of Historic Places Bulletin 15, *How to Apply the National Register Criteria for Evaluation*, (NPS 1997) for the NRHP eligibility analysis.

The eligibility criteria for listing in the NRHP include sites, districts, buildings, structures, and objects that are at least 50[1] years old and conform to at least one of the following criteria for historic-age (typically 45 years or older) properties:

(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 our past; or

(C) that embody distinctive characteristic of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

(D) that have yielded, or may be likely to yield, information important in prehistory or history.

Ordinarily, cemeteries, birthplaces, or graves of individual figures; properties owned by religious institutions; buildings, structures, and objects that have been moved from their original locations; reconstructed historic buildings; properties primarily commemorative in nature; and properties that have achieved significance within the past 50 years are generally not considered eligible for the NRHP. However, exceptions are made to those properties that meet special requirements, called Criteria Considerations. These considerations, in addition to the eligibility criteria above, must be met for these properties to be eligible for the NRHP.

The above eligibility criteria point to the need for the property to be significant. In order to determine what "significant" means, the property's place in local, state, or national history must be understood through its historic context. It is not enough for a property to be interesting in and of itself, it must also be representative of a broader pattern of history—whether it is an event or person that changes existing patterns of society, a style or form of technology that changes the way people saw and did things, or something that provides valuable information about our own history that would otherwise be lost. If the property can be linked with a historic context that describes an important aspect of history, whether it is the history of a local community or a sign of nationwide change, the property is considered significant; and with intact integrity (see next paragraph) and conforming with Criteria Considerations, it may be eligible for the NRHP.

If a property is more than 50 years old and is significant, the final aspect to be evaluated is integrity. The property must be able to convey its significance (i.e., to adequately represent in a physical way what makes the property special). When the significant aspect of the property is physical (such as an architectural form or technological innovation), the evaluation of the property is easier; it must retain those attributes that make it significant, such as design, materials, and workmanship. However, if the association with history is an idea, person, or event, the physical representation of significance is more abstract. The property must convey to those who see it the same environment (time and place) where the significant event happened or person lived/worked. Aspects of integrity such as location, setting, feeling, and association are very important to the significance of these types of properties in order to provide a

[1] SWCA used the industry standard of 45 years in order to give the report a longer shelf life to accommodate any unexpected construction delays.

sense of place and time. Properties that are eligible for the historic information they can provide, usually prehistoric archaeological sites or historic properties that have little or no documentary information, primarily require feature integrity (location, design, and materials) best capable of providing the desired information.

HISTORICAL BACKGROUND

The historic chronology of western North Dakota currently contains 32 diverse themes. A representative sample includes fur trade; exploration; Native American reservations; commerce; education; energy development; farming; irrigation and conservation; and roads, trails, and highways (North Dakota State Historic Preservation Office 2003).

STATEMENT OF OBJECTIVES/RESEARCH DESIGN

Objectives

The anticipated goal of this assessment is to assist the NDPSC in the identification, evaluation, and management of identified cultural resources sites that might be affected by the proposed project. In general, the objectives of the inventory were to 1) identify cultural and historic resources sites within the project through a historic resources survey; 2) make an initial recommendation regarding identified resource sites' eligibility for the NRHP; and 3) make recommendations regarding the treatment of identified resources.

Expected Results

When conducting assessments and historic resources surveys in rural areas, SWCA evaluates resources primarily under Criterion A in the areas of agriculture, ethnic heritage, and/or exploration/settlement and under Criterion C in the area of architecture. However, historic resources surveys conducted in rural areas typically do not identify any eligible historic-age properties. Historic-age properties in rural areas either do not rise to the level of significance required by the NRHP or do not retain sufficient integrity for NRHP requirements. Common integrity loss includes materials, design, and workmanship through alterations and replacing rather than repairing original components. Integrity loss also frequently occurs through changes to the setting if there are not sufficient buildings or structures on the property to convey function and use.

FIELD METHODS

Fieldwork began with a desktop review of the APE and all parcels located wholly or partially within the APE. An SWCA architectural historian meeting the Secretary of the Interior's Professional Qualification Standards identified all legal parcels containing a building or structure visible in aerial imagery. SWCA then reviewed Stark County Assessor (SCA) data for each parcel to identify the construction date for each property with visible resources.

SWCA's architectural historian conducted fieldwork on July 21 and July 22, 2021. Every property constructed during or before 1976 was documented from the public right-of-way (ROW). SWCA determined construction dates through a combination of SCA data and field observation. Documentation included photographs and written notes about information that may not translate well in photographs such

as materials, style, openings, and organization of individual resources on a property. SWCA did not have access to any private property during fieldwork. All accessible public ROWs within 2 miles of the turbine sites were traveled during fieldwork.

RESULTS

SWCA identified and documented 11 historic-age resources within the APE (Figure 2). In addition to the documented resources discussed below, SWCA's desktop review identified three properties that SCA identifies as historic-age resources; however, they are not visible from the ROW and therefore could not be documented for this assessment. Those three properties are located at 11561 Highway 10, 11811 39th Street SW, and clustered around coordinates 46.834754°, -102.859309°.

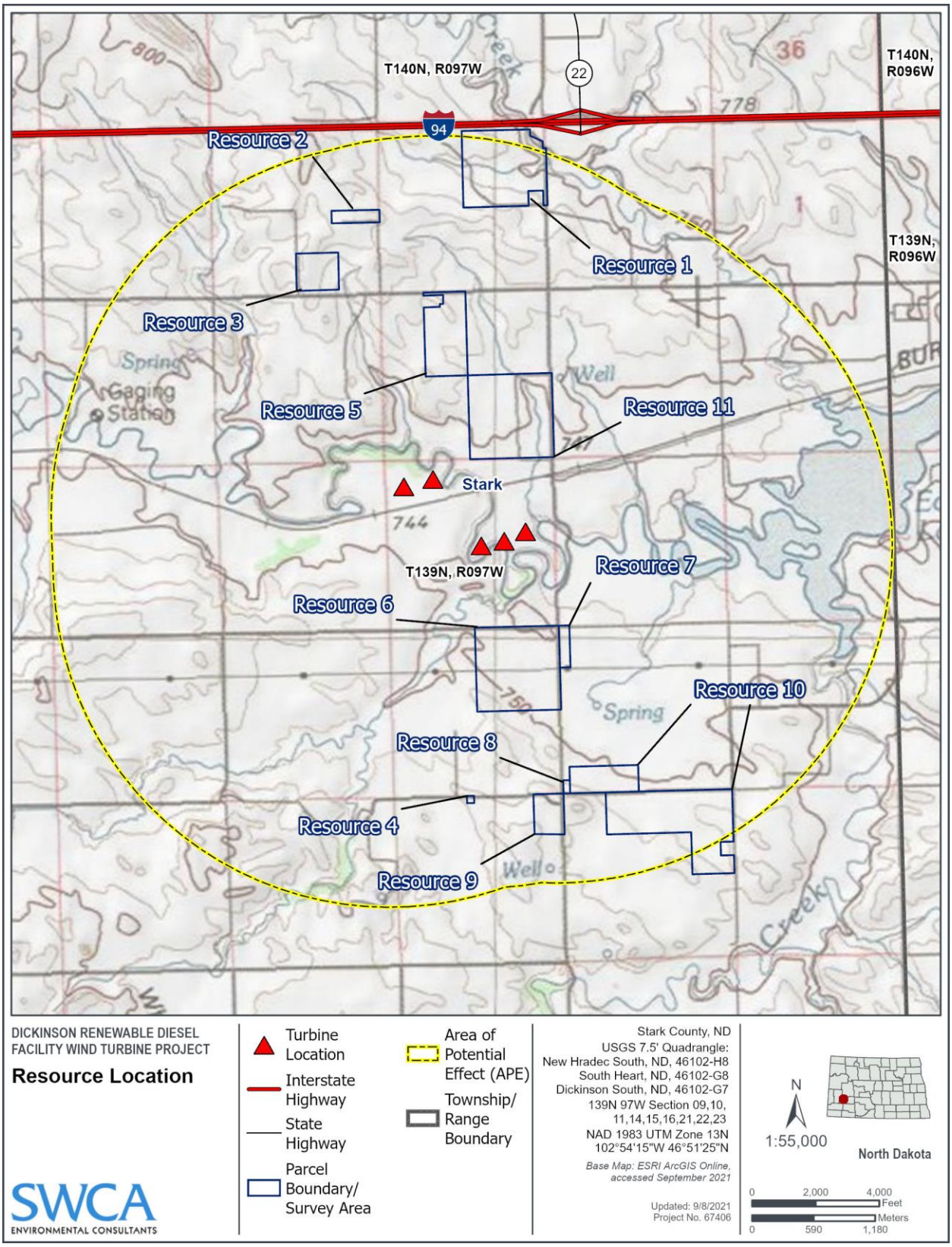

Figure 2. Map showing resource locations.

Resource 1: 3625 116th Avenue SW

Resource 1 is located at 3625 116th Avenue SW, and the property contains 13 resources visible from the ROW (Figure 3). There is a private gravel driveway on the west side of 116th Avenue SW, and the property abuts Interstate 94 on its northern boundary. Resource 1a is the historic-age dwelling, 1b is a workshop, 1c is a barn, 1d is a barn, 1e is barn, 1f is a garage, 1g is a shed, 1h is a garage, 1i is a secondary dwelling, 1j is a shed, 1k is a secondary dwelling, 1l is a shed, and 1m is a garage. SWCA estimates that Resource 1a was constructed in approximately 1925.

Figure 3. From left, Resources 1m, 1l, 1c, 1b, 1d, 1e, 1b, 1a, 1f, 1g, 1i, 1j, and 1k, facing northwest. Resource 1h is obscured by trees in this photograph. Photographed by SWCA (H. Curry), July 21, 2021; image has not been altered.

Resource 1a is a two-story farmhouse with a metal gable roof and a dormer on the south. The dwelling has two chimneys, horizontal wood siding, and six 1/1 wood hung sash windows visible from the ROW. There is evidence that the dwelling was originally an L-shaped plan with a porch that was enclosed at a later date. No doors are visible from the ROW to determine their style or Resource 1a's orientation on the site. The metal roof, enclosed porches, and additional resources on site constructed in different decades demonstrate that Resource 1a has diminished integrity of materials, design, workmanship, and setting. As a result, SWCA recommends that Resource 1a is NOT ELIGIBLE for the NRHP as an individual resource.

Resource 1b is a one-story workshop with a metal gable roof, horizontal wood siding, and four 1/1 wood hung sash windows visible on the east elevation. There are no entry points visible from the ROW.

Resource 1b does not rise to the level of significance required for individual listing in the NRHP; therefore, SWCA recommends that it is NOT ELIGIBLE for the NRHP.

Resource 1c is a two-story wood-frame barn with an asphalt shingle gable roof and horizontal wood siding. There is one single-light fixed window on the east elevation, and no entry points are visible from the ROW. Resource 1c does not rise to the level of significance required for individual listing in the NRHP; therefore, SWCA recommends that it is NOT ELIGIBLE for the NRHP.

Resource 1d is a wood-frame barn that suffered structural failure and collapsed. The barn had a corrugated sheet metal gable roof and horizontal plank siding; however, no other details are discernible. Resource 1c has no integrity of design or workmanship due to its collapse; therefore, SWCA recommends that it is NOT ELIGIBLE for the NRHP as an individual resource.

Resource 1e is a prefabricated metal-frame barn with a gable roof. The barn uses the same sheet metal for both roofing and cladding, and there are two sliding doors located on the east elevation; however, the number of leaves in each door cannot be determined from the ROW. Resource 1e does not rise to the level of significance required for individual listing in the NRHP; therefore, SWCA recommends that it is NOT ELIGIBLE for the NRHP.

Resource 1f is a one-story wood-frame garage. The building has a sheet metal gable roof with exposed rafter tails and horizontal wood siding. There are five window openings located on the south elevation, however, only the fourth contains a 1/1 vinyl hung sash window. The other openings are enclosed with vertical panels of corrugated sheet metal. A rolling overhead door is located on the east elevation, and the door appears to accommodate one commercial vehicle. Resource 1f does not rise to the level of significance required for individual listing in the NRHP, nor does it retain sufficient integrity of materials with metal roofing and enclosed window openings. As a result, SWCA recommends that Resource 1f is NOT ELIGIBLE for the NRHP as an individual resource.

Resource 1g a one-story shed with a hipped asphalt shingle roof, board and batten siding, and four visible 2/2 wood casement windows on the south elevation. There are no other openings visible to identify the building's orientation on the site. Resource 1g does not rise to the level of significance required for individual listing in the NRHP, as it does not exhibit any unique or precedent-setting architectural characteristics. As a result, SWCA recommends that Resource 1g is NOT ELIGIBLE for the NRHP as an individual resource.

Resource 1h is a one-story prefabricated metal garage with a gable roof. The roof and siding use different colors of standing seam sheet metal, and there are no openings visible from the ROW. As a prefabricated building, Resource 1h does not rise to the level of significance required for individual listing in the NRHP; therefore, SWCA recommends that it is NOT ELIGIBLE for the NRHP.

Resource 1i is a double-wide manufactured home. The secondary dwelling is a one-story building with a sheet metal gable roof, horizontal siding, and 1/1 vinyl hung sash windows visible on the east elevation. There is a chimney located on the ridgeline slightly east of center. As a manufactured dwelling, Resource 1i does not rise to the level of significance required for individual listing in the NRHP; therefore, SWCA recommends that it is NOT ELIGIBLE for the NRHP.

Resource 1j is a prefabricated wood-frame gambrel roof shed. The building has asphalt shingles, plywood siding, and a set of paired doors on the south elevation. There are no other openings visible on this shed. As a prefabricated building, Resource 1j does not rise to the level of significance required for individual listing in the NRHP; therefore, SWCA recommends that it is NOT ELIGIBLE for the NRHP.

Resource 1k is a single-wide manufactured home. The secondary dwelling is a one-story building with a low-pitched sheet metal gable roof. The exterior is clad in vertical siding, and there are multiple styles of vinyl windows, including paired 1/1 hung sash on the south elevation and 1/1 sliding on the east elevation. Resource 1k does not rise to the level of significance required for individual listing in the NRHP; therefore, SWCA recommends that it is NOT ELIGIBLE for the NRHP.

Resource 1l is a prefabricated Quonset hut–style shed facing east on its site. The building uses ribbed sheet metal siding and roofing, and there are no openings visible from the ROW. Resource 1l does not rise to the level of significance required for individual listing in the NRHP; therefore, SWCA recommends that it is NOT ELIGIBLE for the NRHP.

Resource 1m is a prefabricated Quonset hut–style garage oriented along the north-south axis on its site. The building uses ribbed sheet metal siding and roofing, and there are no openings visible from the ROW. Resource 1m does not rise to the level of significance required for individual listing in the NRHP; therefore, SWCA recommends that it is NOT ELIGIBLE for the NRHP.

Resource 1, with the primary dwelling and associated outbuildings and secondary dwellings, is typical of residential agricultural construction with new buildings constructed sequentially over time. Neither the design of the primary historic-age dwelling nor any of the secondary buildings have unique or precedent-setting designs, and SWCA did not identify any significant events or persons associated with the property. As a result, SWCA recommends that Resource 1 is NOT ELIGIBLE for the NRHP as a whole property or district.

Resource 2: 3651 117th Avenue SW

Resource 2 is located at 3651 117th Avenue SW, and the property contains two buildings visible from the public ROW as well as one object, a flagpole (Figure 4). The property is accessible from a private gravel driveway on the west side of 117th Avenue SW, and the terrain limits visibility for the property. Resource 2a is the primary dwelling, and Resource 2b is a detached garage. SCA records state that Resource 2a was constructed in 1975, and SWCA concurs with that date (SCA 2021).

Figure 4. From left, the flagpole object, Resource 2b, and Resource 2a, facing west. Photographed by SWCA (H. Curry), July 21, 2021; image has not been altered.

Resource 2a is a one-story dwelling facing southeast on its site. The gable roof uses asphalt shingles and a central chimney, and the cladding is a mixture of horizontal plank siding on the southeast (primary) elevation and brick cladding on the northeast elevation, the only other elevation visible from the ROW. There is a wraparound deck on the visible elevations with round columns on the southeast (primary) elevation supporting the roofline above. Typical windows are fixed picture windows with flanking shutters, and no details about the primary entry were visible from the ROW. Resource 2a does not have any unique or precedent-setting architectural details, and it does not rise to the level of significance required for individual listing in the NRHP; therefore SWCA recommends that it is NOT ELIGIBLE for the NRHP.

Resource 2b is a detached, prefabricated metal garage with a gable roof, and vehicular access appears to be on the southeast elevation. No other details were visible from the ROW. As a prefabricated building, Resource 2b does not rise to the level of significance required for individual listing in the NRHP; therefore, SWCA recommends that it is NOT ELIGIBLE for the NRHP.

Resource 2 contains two buildings with the primary dwelling constructed in 1975. The property is typical of rural residential architecture. Neither the primary dwelling nor the secondary garage demonstrates any unique or precedent-setting architectural details, and SWCA's research did not identify any significant events or persons associated with the property. As a result, SWCA recommends that Resource 2 is NOT ELIGIBLE for the NRHP as a whole property or district.

Resource 3: 11741 Highway 10

Resource 3 is located at 11741 Highway 10, and the property contains two buildings visible from the ROW as well as one object, a flagpole (Figure 5). The property is accessible from a private gravel driveway on the north side of Highway 10, and the terrain limits visibility of the property from the ROW. Resource 3a is the primary dwelling, and Resource 3b is a secondary building described as a shop by SCA. SCA reports that Resource 3a was constructed in 1976, and SWCA concurs with that construction date (SCA 2021).

Figure 5. From left, Resources 3a and 3b, facing north. Photographed by SWCA (H. Curry), July 21, 2021; image has not been altered.

Resource 3a is a one-story dwelling facing east on its site with a raised basement foundation. The gable roof uses asphalt shingles, and there is a chimney located on the south elevation. The siding is horizontal plank siding, and there is a wood deck on the south and east elevations. Visible windows on the east (primary) elevation are triple-grouped single-light windows, and there is a single door on the east elevation. Resource 3a does not rise to the level of significance required for the individual listing in the NRHP; therefore, SWCA recommends that it is NOT ELIGIBLE for the NRHP.

Resource 3b is a secondary building with vertical siding and a metal gable roof. No other details about Resource 3b are visible from the ROW. SCA records describe this building as a shop constructed in 2012. As a resource constructed after 1976, SWCA recommends that Resource 3b is NOT ELIGIBLE for the NRHP.

Resource 3 contains two buildings. Neither resource has any unique or precedent-setting architectural details, nor did SWCA's research identify any significant persons or events associated with this property. As a result, SWCA recommends that Resource 3 is NOT ELIGIBLE for the NRHP as a whole property or district.

Resource 4: 11660 40th Avenue SW

Resource 4 is located at 11660 40th Avenue SW, and the property is accessible from a gravel driveway on the south side of the ROW (Figure 6). The property includes two buildings: Resource 4a is the primary dwelling and Resource 4b is a detached garage. SCA records report that Resource 4a was constructed in 1976, and SWCA concurs with that construction date (SCA 2021).

Figure 6. From left, Resources 4b and 4a, facing west. Photographed by SWCA (H. Curry), July 21, 2021; image has not been altered.

Resource 4a is a one-story house on a basement foundation with horizontal plank siding and thin stone wainscot facing northeast on its site. Typical windows are 1/1 sliding vinyl sash windows, and the gable roof uses asphalt shingles with a cross-gabled section over the primary entry. The northeast (primary) elevation is arranged in an AABCD pattern. Bays A are typical windows. Bay B is a single door with one large light, and Bay C is the primary entry. The entry is located under a raised portico with stone steps located under the roofline. The primary entry faces southeast and has a storm door obscuring additional details about the door unit. Bay D is a picture window with flanking side lights. Resource 4a does not rise to the level of significance required for individual listing in the NRHP; therefore, SWCA recommends that it is NOT ELIGIBLE for the NRHP.

Resource 4b is a prefabricated detached garage facing north on its site, and SCA dates its construction to 2015. The gable roof garage uses standing seam sheet metal, which repeats as exterior cladding. The north (primary) elevation contains four vehicular openings: two for commercial vehicles and two for personal vehicles. There are no pedestrian doors visible from the ROW. Resource 4b is not a historic-age resource; therefore, SWCA recommends that Resource 4b is NOT ELIGIBLE for the NRHP.

Resource 4 contains two buildings, neither of which demonstrates any unique or precedent-setting architectural elements. SWCA's research also did not identify any significant events or persons associated with the property. As a result, SWCA recommends that Resource 4 is NOT ELIGIBLE for the NRHP as a whole property or district.

Resource 5: 11660 Highway 10

Resource 5 is located at 11660 Highway 10, and access comes from a gravel drive on the south side of the ROW (Figure 7). There are three buildings located at this resource, which functions as a commercial veterinarian clinic. Resource 5a is the primary building, 5b is a dwelling, and 5c is a detached garage. SCA dates Resource 5a to 1960; however, SWCA estimates the date is ca. 2000 (SCA 2021).

Figure 7. From left, Resources 5b, 5a, and 5c, facing south. Photographed by SWCA (H. Curry), July 21, 2021; image has not been altered.

Resource 5a is a Ranch-style residential building used for commercial purposes, and it faces north on its site. The L-plan building sits on a basement foundation, uses cementitious plank siding, and has a gabled asphalt shingle roof with a cross gable over the attached garage. There is a chimney on the ridgeline, and typical windows are 1/1 hung vinyl sash. The attached garage contains two personal vehicle bays, each

with a single rolling overhead door. Resource 5a lacks integrity of materials, design, and workmanship as a result of the non-original windows, garage doors, siding, and roofing. As a result, SWCA recommends that Resource 5a is NOT ELIGIBLE for the NRHP as an individual resource.

Resource 5b is a single-wide manufactured home facing west on its site. There is a single 1/1 hung vinyl sash window on the north elevation; however, no other openings are visible. As a prefabricated building, Resource 5b does not rise to the level of significance required for individual listing in the NRHP; therefore; SWCA recommends that it is NOT ELIGIBLE for the NRHP.

Resource 5c is a detached garage facing east on its site. The building is a prefabricated metal-frame building with a standing seam metal gable roof and cladding. There are two overhead panel doors on the east (primary) elevation, each large enough for a commercial vehicle. There are no pedestrian entries visible from the ROW. As a prefabricated building, Resource 5c does not rise to the level of significance required for individual listing in the NRHP; therefore, SWCA recommends that it is NOT ELIGIBLE for the NRHP.

Resource 5 includes three resources. Although the primary residential building was constructed in the Historic period, substantial alterations have eliminated any historic architectural elements. Additionally, both secondary resources are prefabricated, manufactured buildings. No resources on the site retain enough integrity to meet NRHP standards, and as a result, SWCA recommends that Resource 5 is NOT ELIGIBLE for the NRHP as a whole property or district.

Resource 6: 3911 116th Avenue SW

Resource 6 is located at 3911 116th Avenue SW, and the property contains 10 resources (Figures 8 and 9). Located at the southwest corner at the intersection of 116th Avenue SW and 39th Avenue SW, access to the property stems from a gravel and asphalt driveway on the property's east side. Resource 6a is the historic-age dwelling, 6b is the occupied dwelling, 6c is a garage, 6d is a shed, 6e is a garage, 6f is a barn, 6g is a doghouse, 6h is a cistern, 6i is a shed, and 6j is a stable. SWCA estimates that Resource 6a was constructed in approximately 1925 and that Resource 6b was constructed in approximately 1960. SCA does not provide construction dates for any resource on this property (SCA 2021).

Resource 6a is a one-story L-plan house facing east on its site. The house sits on a basement foundation, uses narrow wood siding, and the gable roof has standing seam sheet metal cladding. There is a chimney offset on the southwest side. Typical windows are 1/1 hung vinyl sash windows, and windows in the gables indicate that the attic has been finished as a living space. Resource 6a has diminished integrity of materials, design, and workmanship as a result of the vinyl windows and the metal roof. As a result of these incompatible alterations, SWCA recommends that Resource 6a is NOT ELIGIBLE for the NRHP as an individual resource.

Resource 6b is a one-story house facing northeast on its site. The house sits on a concrete basement foundation, uses cementitious lap siding, and has an asphalt shingle gable roof with cross gables over the attached garage and entry. The primary (northeast) elevation is arranged in an AABCDEEF pattern. Bays A are paneled overhead doors for the attached garage, each designed for a single personal vehicle. Bay B is a solid pedestrian door to access the attached garage. Bay C is the primary entry, located at the top of wood steps with a plain wood baluster. The entry is a single unit with a storm door. The primary door contains a leaded glass oval light spanning the majority of the door. Bay D contains a three-light picture window and a radial transom. Bays E are single-light casement windows, and Bay F is a bay window. There is an additional bay window visible on the northwest elevation. Resource 6b does not exhibit any unique or precedent-setting architectural elements, and it does not rise to the level of significance required

for individual listing in the NRHP. As a result, SWCA recommends that Resource 6b is NOT ELIGIBLE for the NRHP as an individual resource.

Resource 6c is a prefabricated metal-frame garage facing south on its site. The garage has a corrugated sheet metal gable roof and standing seam sheet metal cladding. There is a single rolling overhead door located on the south (primary) elevation, and there is a solid, sheet metal pedestrian door east of the overhead door. The collective entries are flanked by window openings that use translucent sheet metal panels to allow in some light. There are no other visible openings on this building. Resource 6b does not rise to the level of significance required for individual listing in the NRHP as a prefabricated building; therefore, SWCA recommends that it is NOT ELIGIBLE for the NRHP.

Figure 8. From left, Resources 6f, 6h, 6e, 6a, and 6b, facing southwest. Photographed by SWCA (H. Curry), July 22, 2021; image has not been altered.

Resource 6d is a prefabricated wood-frame shed facing south on its site. The building has a gable roof with standing seam sheet metal and vertical wood plank siding. There are three regularly spaced Dutch doors located on the south elevation, and there are no other visible openings on this building. As a prefabricated building, Resource 6d lacks significance as an individual resource; therefore, SWCA recommends that it is NOT ELIGIBLE for the NRHP.

Resource 6e is a detached wood-frame garage facing east on its site, and SWCA estimates it was constructed in approximately 1925. The garage has a sheet metal gable roof and vinyl cladding. There are three 2/2 wood-frame windows visible, one on the east elevation and two on the north elevation. There are also two paneled overhead doors on the east elevation, one for a single personal vehicle and one for a single commercial vehicle. There are no other openings visible. The wood windows indicate that this building was constructed during the Historic period; however, the metal roof, vinyl siding, and garage

doors all demonstrate significant alterations to this historic-age building. As a result, SWCA recommends that Resource 6e is NOT ELIGIBLE for the NRHP due to diminished integrity of materials and workmanship.

Resource 6f is a two-story beef barn facing east on its site, and SWCA's analysis estimates that it was originally constructed in approximately 1925 as a contemporary of Resource 6a. The barn has a standing seam sheet metal gambrel roof with the original metal weathervane centered on the ridgeline, and the exterior uses standing seam metal cladding. There are 2/2 vinyl windows placed regularly on the north and east elevations. The east elevation also contains a one-leaf sliding door. A shed roof addition was constructed on the south elevation at an unknown date. The addition uses ribbed sheet metal for both the roofing and cladding, and it has a separate single-leaf sliding door on the east elevation. There are no other openings on the addition. Resource 6f has diminished integrity of materials and workmanship through the new sheet metal exterior and vinyl windows; therefore, SWCA recommends that it is NOT ELIGIBLE for the NRHP as an individual resource.

Figure 9. From left, Resources 6a, 6g, 6b, 6c, and 6d, facing west. Photographed by SWCA (H. Curry), July 22, 2021; image has not been altered.

Resource 6g is a wood-frame doghouse with a wood shingle gable roof. There are no visible openings on this object. Resource 6g does not rise to the level of significance required for individual listing in the NRHP; therefore, SWCA recommends that it is NOT ELIGIBLE for the NRHP.

Resource 6h is a metal cistern. The cylindrical structure uses horizontally oriented metal cladding and a conical standing seam metal roof. There are no visible openings or points of access on the cistern. Resource 6h does not exhibit any unique or precedent-setting architectural details, and SWCA recommends that it is NOT ELIGIBLE for the NRHP as an individual resource.

Resource 6i is a wood-frame shed facing north on its site. The shed has a gable roof with asphalt shingles and vertical wood plank siding. The only visible opening is a set of paired board-and-batten doors located on the north elevation. Resource 6i does not rise to the level of significance required for individual listing in the NRHP, as it is does not exhibit any unique or precedent-setting architectural details. As a result, SWCA recommends that Resource 6i is NOT ELIGIBLE for the NRHP as an individual resource.

Resource 6j is a wood-frame animal shelter facing north on its site. The shed roof building uses corrugated sheet metal for both roofing and exterior cladding. There are six regularly spaced translucent panels on the south (rear) elevation to provide additional light. Resource 6j does not exhibit any unique or precedent-setting architectural details, and it does not rise to the level of significance required for individual listing in the NRHP. As a result, SWCA recommends that Resource 6j is NOT ELIGIBLE for the NRHP as an individual resource.

Resource 6 is a typical farmstead with residential buildings and associated outbuildings. Although numerous historic-age buildings survive, such as Resources 6a, 6e, and 6f, all have been altered with new exterior materials and windows, and they do not retain sufficient integrity individually or collectively. As a result, SWCA recommends that Resource 6 is NOT ELIGIBLE for the NRHP as a whole property or a district due to diminished integrity.

Resource 7: 3910 116th Avenue SW

Resource 7 is located at 3910 116th Avenue SW at the southeast corner of 116th Avenue SW and 39th Avenue SW, and access to the property is from a gravel driveway on the east side of 116th Avenue SW (Figure 10). The property contains five buildings: Resource 7a is the primary dwelling, Resource 7b is a detached garage, Resource 7c is a shed, Resource 7d is a shed, and Resource 7e is a barn. SCA states that Resource 7a was constructed in 1962, and SWCA concurs with that date of construction (SCA 2021).

Figure 10. From left, Resources 7a and 7b, facing northeast. Photographed by SWCA (H. Curry), July 22, 2021; image has not been altered.

Resource 7a is a one-story house facing south on its site. The house has a gable roof with asphalt shingles and vinyl siding, and it sits on a basement foundation. There is a wood deck on the south elevation, and there is a chimney visible on the east elevation. Typical windows are 1/1 hung vinyl sash windows or single-light casement windows, and the entry contains a single wood-paneled door with a radial light in the upper quarter. Resource 7a does not exhibit any unique or precedent-setting architectural elements; therefore, SWCA recommends that it is NOT ELIGIBLE for the NRHP as an individual resource.

Resource 7b is a detached prefabricated metal garage facing south on its site. The only visible openings are two rolling overhead doors on the south elevation, each large enough for a single personal vehicle. As a prefabricated building, Resource 7b does not rise to the level of significance required for individual listing in the NRHP; therefore, SWCA recommends that it is NOT ELIGIBLE for the NRHP.

Resource 7c is a prefabricated metal shed with a gable roof and standing seam sheet metal exterior cladding, and it has no visible openings. Resource 7c does not rise to the level of significance required for individual listing in the NRHP; therefore, SWCA recommends that it is NOT ELIGIBLE for the NRHP.

Resource 7d is a metal-frame gable-roof shed with ribbed sheet metal cladding on the roof and walls. There is one fixed vinyl window and one six-panel wooden door on the north elevation; however, there are no other openings visible on this building. Resource 7d does not rise to the level of significance required for individual listing in the NRHP, and SWCA recommends that it is NOT ELIGIBLE for the NRHP.

Resource 7e is a pre-fabricated two-story L-plan barn facing north on its site. The gable-roof building uses standing seam sheet metal cladding. There are two paneled overhead doors on the north elevation, and each door has a row of fixed lights. There is also one 1/1 sliding vinyl sash window on the north elevation. Resource 7e does not exhibit any unique or precedent-setting architectural elements and does not rise to the level of significance required for individual listing in the NRHP; therefore, SWCA recommends that it is NOT ELIGIBLE for the NRHP.

Resource 7 is a typical rural residential property with a primary dwelling and numerous secondary buildings. None of the resources exhibit unique or precedent-setting architectural elements, and SWCA's research did not identify any significant persons or events associated with the property. As a result, SWCA recommends that Resource 7 is NOT ELIGIBLE for the NRHP as a whole property or district.

Resource 8: 3990 116th Avenue SW

Resource 8 is located at 3990 116th Avenue SW, and access comes from a gravel driveway on the east side of 116th Avenue SW. The property contains four buildings. Resource 8a is the primary dwelling, 8b is a shed, 8c is the detached garage, and 8d is a wellhouse (Figure 11). SCA dates Resource 8a to 1960, and SWCA concurs with that date (SCA 2021).

Figure 11. From left, Resources 8c and 8a, facing east. Photographed by SWCA (H. Curry), July 22, 2021; image has not been altered.

Resource 8a is a one-story house facing west on its site. The house has a standing seam sheet metal gable roof with a cross gable over the entries and vinyl siding, and it sits on a basement foundation constructed from concrete masonry units. Typical windows on this resource are single-light vinyl casement windows.

The west (primary) elevation contains a set of the triple-grouped typical windows mentioned above, the front entry, and a single typical window. The front entry has a single unit with a storm door and the primary door. The primary door is paneled with a semicircular light in the upper quarter. The south elevation contains three typical windows, and the north (rear) elevation contains a single typical window and the rear entry, which is identical to the front entry. Resource 8a does not exhibit any unique or precedent-setting architectural elements, and it does not rise to the level of significance required for individual listing in the NRHP; therefore, SWCA recommends that it is NOT ELIGIBLE for the NRHP.

Resource 8b is a prefabricated wood-frame gambrel roof shed facing east on its site. The shed has asphalt shingles and vertical wood siding, and it sits on a concrete slab foundation. There is a rolling overhead door on the east elevation, and there are no other openings visible from the ROW. As a prefabricated building, Resource 8b does not rise to the level of significance required for individual listing in the NRHP; therefore, SWCA recommends that it is NOT ELIGIBLE for the NRHP.

Resource 8c is a detached garage that uses the same exterior materials as Resource 8a. The garage is large enough to hold two personal vehicles, and it has a single-paneled overhead door on the north elevation. The top row of the overhead door has four regularly spaced lights, each with a radial leaded glass design. Resource 8c does not exhibit any unique or precedent-setting architectural elements, and it does not rise to the level of significance required for individual listing in the NRHP; therefore, SWCA recommends that it is NOT ELIGIBLE for the NRHP.

Resource 8d is a wellhouse. The structure has a ribbed metal gable roof supported by two milled round wood columns. There are no walls for the wellhouse. The well itself was filled in at an unknown date, and there are no mechanisms remaining for water retrieval. Both of these alterations diminish the structure's integrity of design, materials, workmanship, association, and feeling. As a result, SWCA recommends that Resource 8d is NOT ELIGIBLE for the NRHP as a result of its diminished integrity.

Resource 8 is a typical example of rural residential architecture. None of the resources demonstrate unique or precedent-setting design, and SWCA's research did not identify any significant persons or events associated with this site. As a result, SWCA recommends that Resource 8 is NOT ELIGIBLE for the NRHP as a whole property or district.

Resource 9: 4011 116th Avenue SW

Resource 9 is located at 4011 116th Avenue SW, and access comes from a gravel driveway located on the west side of the ROW. The property consists of seven buildings and structures, and there is one additional object, a flagpole. Resource 9a is the primary dwelling, Resource 9b is a well, Resource 9c is a garage, Resource 9d is a barn, Resource 9e is a stable, Resource 9f is a stable, and Resource 9g is an animal shelter (Figures 12 and 13). SCA dates Resource 9a to 1974, and SWCA concurs with that date (SCA 2021).

Figure 12. From left, Resources 9c, 9a, 9g (rear), and 9b, facing west. Photographed by SWCA (H. Curry), July 22, 2021; image has not been altered.

Resource 9a is a two-story house with Modernist influences facing northeast on its site. The building has a asphalt shingle gable roof, vinyl siding, and a basement foundation. Typical windows are 1/1 sliding vinyl sash. The southeast (primary) elevation is arranged in an AABCB pattern. Bays A are paneled overhead doors to the attached garage, each large enough for a single personal vehicle. Bays B are single entry doors, each with one light in the upper half; the first provides access to the attached garage, and the second is the primary entrance to the house. Bay C is typical window. The first floor has a tertiary entrance containing a paneled door with a radial light in the upper quarter and a storm door as well as a typical window. The second floor has two sets of paired sliding doors with triangular transoms in the gable above to provide the Modernist detailing. There is a two-story wood-frame porch spanning the northeast elevation and wrapping around to the southeast to meet the terrain. The second-floor porch is accessible on the exterior from a double-width flight of stairs, and it is protected with a wood-frame railing with simple metal balusters. Resource 9a does not exhibit any unique or precedent-setting architectural elements, and the vinyl windows indicate that alterations to the building exterior have occurred since its construction in 1974. Resource 9a does not rise to the level of significance required for individual listing in the NRHP; therefore, SWCA recommends that it is NOT ELIGIBLE for the NRHP.

Resource 9b is a well. This structure has a conical wall made from thin brick units, and the ends of each brick were left exposed to create a woven coursework pattern. There is also a wood-frame gable roof above the opening to protect the well from falling debris, and the roof uses asphalt shingles. Resource 9b does not exhibit any unique or precedent-setting architectural elements, and it does not rise to the level of significance required for individual listing in the NRHP; therefore, SWCA recommends that it is NOT ELIGIBLE for the NRHP.

Figure 13. From left, Resources 9c, 9f, and 9d, facing west. Photographed by SWCA (H. Curry), July 22, 2021; image has not been altered.

Resource 9c is a one-story prefabricated metal-frame detached garage facing north on its site. The building has a gable roof, and it uses contrasting colors of standing seam sheet metal for both the roof and exterior cladding. There is a single 1/1 sliding sash window on the east elevation, and the north (primary) elevation has one rolling overhead door for a single commercial vehicle and a single pedestrian door with no lights. There are no other openings visible on Resource 9c. As a prefabricated building, it does not rise to the level of significance required for individual listing in the NRHP; therefore, SWCA recommends that it is NOT ELIGIBLE for the NRHP.

Resource 9d is a one-story prefabricated metal-frame barn facing east on its site. This gable roof building uses standing seam sheet metal cladding; however, the roofing material cannot be identified from the ROW due to elevated terrain. The east (primary) elevation is arranged in an ABCAA pattern. Bays A are 2/2 vinyl casement windows. Bay B is a single pedestrian door with no lights, and Bay C is a single-leaf sliding door large enough to accommodate a single commercial vehicle. As a prefabricated building, Resource 9d does not rise to the level of significance required for individual listing in the NRHP, and SWCA recommends that it is NOT ELIGIBLE for the NRHP.

Resource 9e is a prefabricated shed-roof stable facing south on its site. The metal-frame building uses sheet metal cladding and roofing, and there are two arched openings on the south elevation, each with chamfered corners. As a prefabricated building, Resource 9e does not rise to the level of significance required for individual listing in the NRHP; therefore, SWCA recommends that it is NOT ELIGIBLE for the NRHP.

Resource 9f is a metal-frame shed-roof stable facing south on its site. The building has sheet metal cladding and roofing, and there is a pedestrian entry visible on the east elevation. No other openings are visible from the ROW. Resource 9f does not exhibit any unique or precedent-setting design elements, and it does not rise to the level of significance required for individual listing in the NRHP; therefore, SWCA recommends that it is NOT ELIGIBLE for the NRHP.

Resource 9g is an animal shelter facing south on its site. The wood-frame building has a shed roof with sheet metal cladding on the north elevation only. The remaining elevations are exposed. Resource 9g does not exhibit any unique or precedent-setting architectural elements, and it does not rise to the level of significance required for individual listing in the NRHP. As a result, SWCA recommends that it is NOT ELIGIBLE for the NRHP.

Resource 9 is a typical rural residential property with the primary dwelling and associated secondary buildings. There is nothing unique or precedent setting about the design of any individual resource, and SWCA's research did not identify any significant events or persons associated with this property. As a result, SWCA recommends that Resource 9 is NOT ELIGIBLE for the NRHP as a whole property or district.

Resource 10: 11561 40th Street SW

Resource 10 spans two legal parcels. The first has no mailing address; however, SCA identifies its parcel number as 30-0000-05725-000, with the legal description E2NE4, NW4NE4, NE4NW4 26-139-97 156 ACRES, and it is located on the south side of 40th Street SW (SCA 2021). The second legal parcel has a mailing address of 11561 40th Street SW and is located on the north side of 40th Street SW. SWCA's observation demonstrates that the resource was originally located on a single parcel; however, 40th Street bisected the property when it was constructed and placed the historic-age dwelling and the secondary buildings on opposite sides of the road (Figure 14).

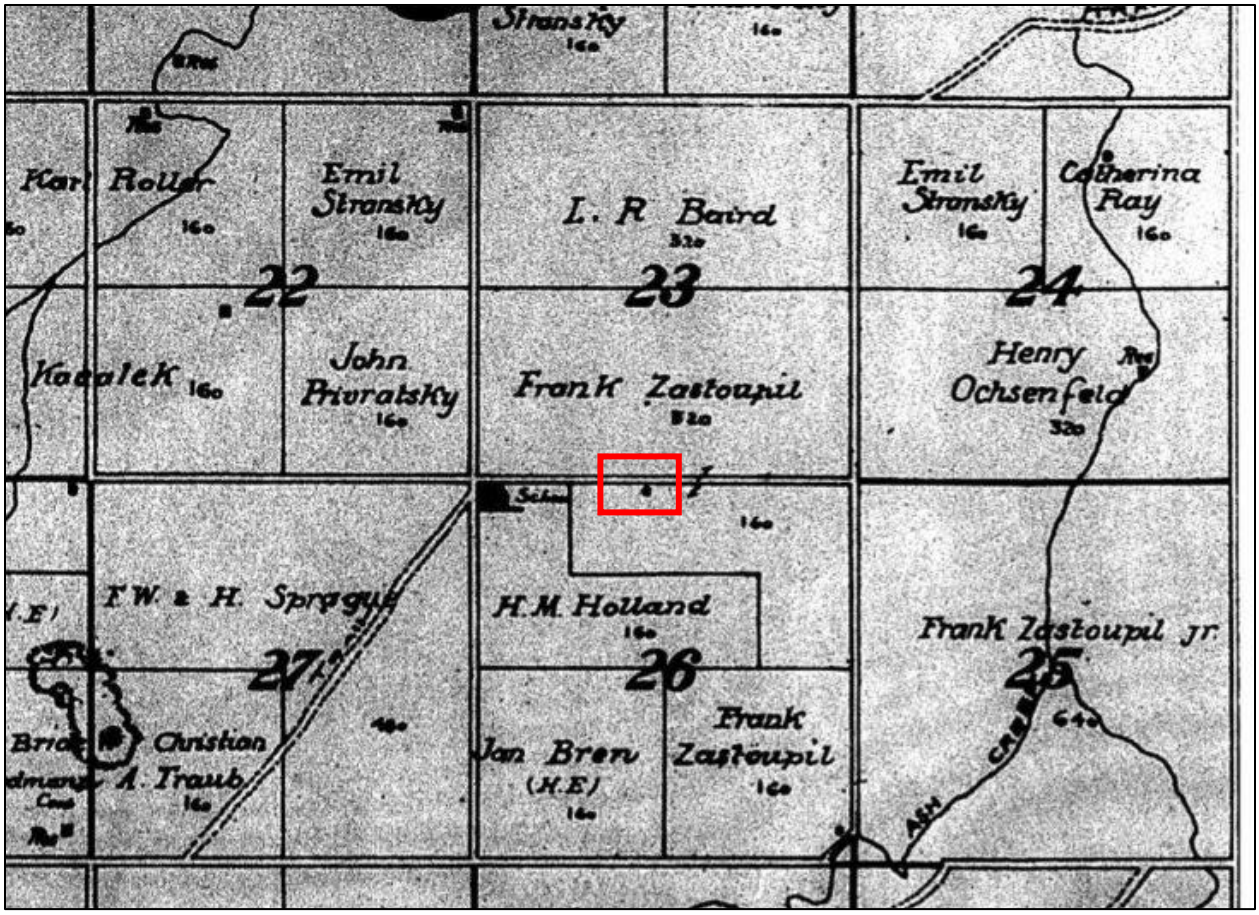

Figure 14. Excerpt from a 1914 map of Stark County, with annotations by SWCA to outline Resource 10a and 40th Street bisecting property owned by Frank Zastoupil (Ogle 1914). The parcel containing Resource 10a remains in the Zastoupil family according to SCA documents (SCA 2021).

Resource 10 contains 10 resources: Resource 10a is the historic-age dwelling, Resource 10b is the occupied dwelling, Resource 10c is a shed, Resource 10d is a detached garage, Resource 10e is a barn, Resource 10f is an animal shelter, Resource 10g is a cistern, Resource 10h is a shed, Resource 10i is a shed, and Resource 10j is an animal shelter (Figures 15 and 16). Although SCA does not provide an estimated date of construction for Resource 10a, SWCA estimates its construction date to approximately 1875. Resource 10b, as the occupied dwelling, dates to 1979 according to SCA data, and SWCA concurs with that date (SCA 2021).

Figure 15. Resource 10a, facing southwest. Photographed by SWCA (H. Curry), July 22, 2021; image has not been altered.

Resource 10a is a one-story random rubble structural masonry house facing north on its site. The building has a gable roof with wood singles exposed under deteriorating tar paper, and there is evidence the masonry originally was covered in plaster or stucco. Openings include wood hung sash windows on the east and west elevations, and two no-light wood doors on the north elevation. Although its condition is poor, Resource 10a retains integrity of materials, design, workmanship, location, setting, and feeling. SWCA recommends that Resource 10a is ELIGIBLE for the NRHP under Criterion A at the local level of significance in the areas of agriculture and settlement and under Criterion C at the local level of significance in the area of architecture as a surviving example of nineteenth-century settlement housing.

Resource 10b is the occupied dwelling facing south on its site, and very few details could be observed from the ROW due to vegetation cover. The house is a one-story building with a basement constructed from concrete masonry units and a gable roof with asphalt shingles, and SCA reports that the exterior cladding is vertical wood plank. Visible windows are single-light vinyl casement windows with louvered shutters, and the entry is located under a shed-roof portico with angled wood columns. SCA states that Resource 10b was constructed in 1979, and SWCA recommends that it is NOT ELIGIBLE for the NRHP because it is not a historic-age resource and does not meet the standards for Criterion Consideration G for properties less than 50 years old.

Resource 10c is a prefabricated gambrel roof shed facing south on its site. The wood-frame shed has asphalt shingles and vertical wood siding, and it sits on a concrete slab foundation. There are paired doors with no lights on the south elevation, and there are no other openings visible on this building. As a prefabricated building, Resource 10c does not rise to the level of significance required for listing in the NRHP; therefore, SWCA recommends that it is NOT ELIGIBLE for the NRHP.

Figure 16. From left, Resources 10f, 10e, 10g, 10h, 10i, 10j, 10d, 10c, and 10b, facing northeast. Photographed by SWCA (H. Curry), July 22, 2021; image has not been altered.

Resource 10d is a detached garage facing south on its site. The building has a two-level corrugated sheet metal gable roof and two colors of vertical corrugated sheet metal siding and sits at grade. The garage has four overhead panel doors on the south (primary) elevation, one large enough for a single commercial vehicle and the others for individual personal vehicles. There is also a solid pedestrian door on the south elevation and a 1/1 sliding vinyl sash window on the west elevation; however, there are no other visible openings. Resource 10d does not rise to the level of significance required for individual listing in the NRHP; therefore, SWCA recommends that it is NOT ELIGIBLE for the NRHP.

Resource 10e is a historic-age dairy barn facing south on its site, and SWCA estimates it was constructed in approximately 1900. The barn has a gambrel standing seam sheet metal roof and horizontal wood siding and sits at grade. There are four visible 2/2 wood-frame casement windows, two on the west elevation and two on the south (primary) elevation. There is a single-leaf wood board and batten sliding door on the south elevation. There is also a shed roof section of the building on the north elevation that utilizes the same wood siding, indicating that it was either part of the original construction or a historic-age addition. This shed roof portion has another single-leaf sliding door on the east elevation. Despite the new metal roofing material, Resource 10e retains all aspects of its integrity, and SWCA recommends that Resource 10e is ELIGIBLE for the NRHP under Criterion A at the local level of significance in the area of agriculture.

Resource 10f is a wood-frame shed roof animal shelter. The building uses sheet metal roofing and cladding on the north, west, and east elevations; however, the south elevation remains open. Resource 10f does not exhibit any unique or precedent-setting architectural elements, and it does not rise to the level of

significance required for individual listing in the NRHP; therefore, SWCA recommends that it is NOT ELIGIBLE for the NRHP.

Resource 10g is a cylindrical metal or concrete cistern. There are no visible details or openings on this structure. Resource 10g does not rise to the level of significance for individual listing in the NRHP; therefore, SWCA recommends that it is NOT ELIGIBLE for the NRHP.

Resource 10h is a wood-frame shed facing south on its site. The building has an asphalt shingle gable roof, board and batten siding, and a single door on the south elevation that was enclosed at an unknown date. There is also a window opening that was enclosed, and no other details are visible from the ROW. Resource 10h does not rise to the level of significance for individual listing in the NRHP; therefore, SWCA recommends that it is NOT ELIGIBLE for the NRHP.

Resource 10i is a prefabricated gambrel roof shed facing south on its site. The shed uses asphalt shingles and vertical wood siding and sits on a short pier and beam foundation. There are paired board and batten doors on the south elevation, and there are no other visible openings. As a prefabricated building, Resource 10i does not rise to the level of significance required for individual listing in the NRHP; therefore, SWCA recommends that it is NOT ELIGIBLE for the NRHP.

Resource 10j is a historic-age animal shelter facing south on its site, and SWCA estimates it was constructed in approximately 1900. The building has asphalt shingles on the gable roof and horizontal wood siding and sits at grade. The south (primary) elevation is arranged in an ABCBB pattern. Bay A is a single board and batten door. Bays B are 2/2 wood-frame casement windows, and Bay C is a set of paired board and batten doors. There are no other openings visible from the ROW. Although Resource 10j retains all aspects of its integrity, it does not rise to the level of significance required for individual listing in the NRHP; therefore, SWCA recommends that it is NOT ELIGIBLE for the NRHP.

Resource 10 contains a historic-age dwelling, two historic-age secondary buildings, and numerous secondary buildings constructed outside of the Historic period. Despite the many resources that fall outside the Historic period, SWCA recommends that Resource 10 is ELIGIBLE for the NRHP under Criterion A in the areas of agriculture and settlement and under Criterion C for its surviving example of late nineteenth-century structural masonry residential construction, with Resources 10a, 10e, and 10j CONTRIBUTING to the property. Although there are many more noncontributing resources on-site, they do not diminish the integrity of setting, association, or feeling of the contributing resources.

Although SWCA recommends that Resource 10 is ELIGIBLE, SWCA also recommends that the proposed project will have NO ADVERSE EFFECT. SWCA took pictures from the ROW in front of Resource 10 toward the project. Industrial components associated with the railyard and the Marathon Refinery are already visible from the ROW, and new wind turbines will not further diminish integrity of setting (Figure 17). Additionally, a windbreak along the west obscures the industrial components from the viewshed of the contributing resources, which are clustered at the west side of the resource (Figure 18).

Figure 17. The proposed project from Resource 10, facing northwest. Industrial components are already visible from the right-of-way, and new wind turbines will not adversely affect integrity of setting. Resource 10e is visible at left. Photographed by SWCA (H. Curry), July 23, 2021; image has not been altered.

Figure 18. Windbreak and Resource 10f, facing northwest. The windbreak along the west side of Resource 10 further obscures the view of industrial structures and will ensure that there is no adverse effect on the contributing resources. Photographed by SWCA (H. Curry), July 23, 2021; image has not been altered.

Resource 11: Northwest Corner of 38th Street and 116th Avenue

SWCA did not identify Resource 11 during the desktop review; however, the property was identified during fieldwork and documented as a historic-age resource. Although there is no mailing address for this property, SCA identifies the property as parcel number 30-000-05605-000, with the legal description SE4 10-139-97 158.38 ACRES (SCA 2021). Resource 11 contains two buildings and one structure. Resource 11a is the primary building, Resource 11b is a cistern, and Resource 11c is a garage. SWCA estimates that Resource 11a was constructed in 1925.

Figure 19. From left, Resources 11a, 11b, and 11c, facing northwest. Photographed by SWCA (H. Curry), July 22, 2021; image has not been altered.

Resource 11a is a one-story building facing east on its site. The original design includes an asphalt-shingle gable roof and horizontal wood siding, and it sits at grade. The east (primary) elevation has two wood-frame window openings enclosed at an unknown date, and they flank a single board and batten door with no lights. There are also three wood-frame window openings on the west (rear) elevation; however, there is no information about the style of window used. There is also a shed roof addition on the north elevation that has no visible openings. Based on the addition, SWCA's analysis concludes that Resource 11a was constructed as a barn or animal shelter that now lacks the primary residential structure, diminishing its integrity of setting and association. Resource 11a additionally does not display any unique or precedent-setting architectural elements and does not rise to the level of significance required for individual listing in the NRHP. As a result, SWCA recommends that Resource 11a is NOT ELIGIBLE for the NRHP as an individual resource.

Resource 11b is a prefabricated metal cistern. The cylindrical structure uses horizontal corrugated sheet metal cladding and a standing seam sheet metal conical roof. As a prefabricated structure, it does not rise to the level of significance required for individual listing in the NRHP; therefore, SWCA recommends that it is NOT ELIGIBLE for the NRHP.

Resource 11c is a metal-frame Quonset hut–style garage. The entire building is clad in ribbed sheet metal panels, and the only opening is on the east elevation. The opening contains paired single-leaf sliding doors made from the same ribbed sheet metal. Resource 11c does not exhibit any unique or precedent-setting architectural elements, and it does not rise to the level of significance required for individual listing in the NRHP. As a result, SWCA recommends that it is NOT ELIGIBLE for the NRHP as an individual resource.

Resource 11 does not have any individual buildings or structures with unique or precedent-setting architectural elements, and SWCA's research did not identify any significant events or persons associated with the property. As a result, SWCA recommends that Resource 11 is NOT ELIGIBLE for the NRHP as a whole property or district.

SUMMARY

SWCA's architectural historian meeting the Secretary of the Interior's professional qualifications surveyed 11 historic-age resources during fieldwork. SWCA recommends only one resource, Resource 10, located at 11561 40th Street SW, ELIGIBLE for the NRHP. However, due to existing industrial structures and a windbreak, SWCA also recommends that the proposed project will have NO ADVERSE EFFECT on the eligible property.

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APPENDIX J

Wetland Delineation Report

SWCA®
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TECHNICAL MEMORANDUM

To: Katie Treadway, SVP Head of Regulatory Affairs
One Energy Solutions, LLC
12385 Township Road 215
Findlay, Ohio 45840

From: Griffin Bachhuber, Project Manager/Ecologist

Date: September 1, 2021

Re: **Dickinson Renewable Diesel Facility Wind Turbine Project, Stark County, North Dakota / SWCA Project No. 67406**

One Energy Solutions, LLC (One Energy), contracted SWCA Environmental Consultants (SWCA) to conduct an on-site pedestrian wetland delineation for the Dickinson Renewable Diesel Facility Wind Turbine Project (Project) located in Stark County, North Dakota. Two surveys were conducted: one on June 11, 2021, and one on August 23, 2021. The June survey consisted of a 400 × 400-foot area surrounding each of the five proposed wind turbine locations, 100-foot-wide corridors centered on the proposed access road alignments, and 50-foot-wide corridors centered on the proposed collection lines, as well as laydown areas and temporary workspaces. After the June survey was conducted, SWCA received updated locations for two turbines; therefore, the August survey consisted of surveying a 400 × 400-foot area surrounding the two turbines that had shifted, minus the portions of those areas that had been previously surveyed. The total survey area, including the area surrounding the two turbine shifts, was 45.07 acres (survey area). SWCA surveyed all land within the survey area, with one exception that is depicted on Figure 1, which was inaccessible due to security fencing associated with the adjacent Marathon Dickinson Refinery. The purpose of the wetland delineation was to determine if any aquatic resources (wetlands or waterbodies with ordinary high-water marks [OHWMs]) that could qualify as waters of the U.S. (WUS) and be subject to permitting by the U.S. Army Corps of Engineers (USACE) under Section 404 of the Clean Water Act (CWA) occur within the survey area.

REGULATORY BACKGROUND

Pursuant to Section 404 of the CWA, the USACE regulates the discharge of dredge and/or fill material into WUS. Section 404 requires that any entity proposing an activity that would discharge such materials into a WUS must obtain a permit from the USACE. Designation as a WUS applies to the jurisdictional limits of USACE authority under the CWA. The USACE has final and legal authority in determining the presence of jurisdictional WUS and the extent of their boundaries.

WUS typically include traditional navigable waters, interstate waters, and wetlands adjacent to streams; impoundments, tributaries, and wetlands adjacent to those waters; and territorial seas. Most rivers, creeks, streams, arroyos, lakes, special aquatic sites, and their tributaries are typically designated as WUS. Wetlands are the most common special aquatic site and are defined as “areas that are inundated or saturated by surface or ground water 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). To be classified as a wetland under the federal definition, an area must meet the following three criteria under normal circumstances: 1) have a predominance of hydrophytic vegetation, 2) contain soils that are characteristic of frequent saturation (i.e., hydric soils), and 3) have the presence of hydrology showing regular inundation or saturation (USACE 1987). The ordinary high-water mark is a defining element for identifying the lateral limits of waterbodies lacking adjacent wetlands and typically represents the outer limits of potential USACE jurisdiction.

METHODS

Prior to conducting field surveys, SWCA completed a desktop review of the survey area. The desktop review included examining existing data from U.S. Geological Survey (USGS) topographic quadrangle maps, the National Wetlands Inventory (NWI) database, the National Hydrography Dataset (NHD), the Natural Resources Conservation Service (NRCS) Web Soil Survey, and historic and current aerial real color and infrared photographs of the survey area. The NWI is a U.S. Fish and Wildlife Service (USFWS) database that identifies and categorizes wetland areas based primarily on aerial imagery interpretation (USFWS 2021). Maintained by the USGS, the NHD identifies surface water systems in the United States, including lakes, streams, rivers, and canals (USGS 2021). SWCA used NRCS soil survey data (NRCS 2021) to review area soils. This desktop review identified locations of potential aquatic resources for investigation during the field surveys.

An SWCA wetland biologist experienced with wetland attributes in this part of North Dakota conducted a pedestrian wetland delineation for aquatic resources within the survey area on June 11 and August 23, 2021. The wetland delineation was conducted in accordance with the *Corps of Engineers Wetlands Delineation Manual* (USACE 1987) and the *Regional Supplement to the Corps of Engineers Wetlands Delineation Manual: Great Plains Region* (Version 2.0) (USACE 2010). The biologist used *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States: A Delineation Manual* (Lichvar and McColley 2008) as a reference for delineating aquatic resources with OHWMs. Wetland boundaries and OHWMs were recorded using a submeter-accurate global positioning system (GPS) unit. The wetland delineation was conducted to verify the results of the desktop review and to determine if potentially regulated wetlands or waterbodies are present within the survey area; to establish and map boundaries and locations of features; and to determine whether wetland or waterbody features meet criteria that would require the Project to submit a pre-construction notification to the USACE.

RESULTS

The SWCA wetland biologist identified no wetlands within the survey area. Three bends of the Heart River waterbody were delineated within the survey area. One Energy has indicated that no impacts to these areas will occur during development of the Project. An additional section of the Heart River was located (but not delineated) within an area of the Project in which a collection line is proposed to be installed. This section of the Heart River was not delineated because of access constraints due to security fencing associated with the adjacent Marathon Dickinson Refinery (refer to the areas excluded from survey in Figure 1). Horizonal directional drilling will allow the collection line to be installed under the Heart River, thus avoiding impacts to the waterbody.

Since no impacts will occur to wetlands or waterbodies through development of the Project, the Project will not be required to operate under a USACE Nationwide Permit or submit a pre-construction notification to the USACE. The survey area and results are illustrated in Figure 1.

Figure 1. Wetland and waterbody delineation map for Dickinson Renewable Diesel Facility Wind Turbine Project.

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APPENDIX K

Soil Types

ONE ENERGY
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MAP UNIT SYMBOL	MAP UNIT NAME	ACRES IN PROJECT AREA	PERCENT IN PROJECT AREA	ACRES IN STUDY AREA	PERCENT IN STUDY AREA	FARMLAND DESIGNATION
E0454B	Daglum-Rhoades complex, 0 to 6 percent slopes	-	-	29	1.0%	Not Prime Farmland
E0515B	Rhoades-Daglum complex, 0 to 6 percent slopes	-	-	137.4	4.5%	Not Prime Farmland
E0559B	Dogtooth-Janesburg complex, 0 to 6 percent slopes	-	-	36.4	1.2%	Not Prime Farmland
E0561D	Dogtooth-Janesburg complex, 6 to 15 percent slopes	-	-	3.8	0.1%	Not Prime Farmland
E0605A	Belfield-Grail clay loams, 0 to 2 percent slopes	-	-	55.4	1.8%	Farmland of Statewide Importance
E0634A	Lawther-Daglum complex, 0 to 2 percent slopes	-	-	8.8	0.3%	Not Prime Farmland
E0679A	Savage-Daglum complex, 0 to 2 percent slopes	15.9	4.2%	57.9	1.9%	Not Prime Farmland
E0701F	Dogtooth-Janesburg-Cabba complex, 6 to 35 percent slopes	-	-	8.6	0.3%	Not Prime Farmland
E0727B	Barkof-Janesburg complex, 3 to 6 percent slopes	1.8	0.5%	32.7	1.1%	Not Prime Farmland
E0727C	Barkof-Janesburg complex, 6 to 9 percent slopes	-	-	17	0.6%	Not Prime Farmland
E1333C	Vebar-Cohagen fine sandy loams, 6 to 9 percent slopes	7.4	2.0%	97.8	3.2%	Not Prime Farmland
E1355D	Vebar-Flasher-Tally complex, 9 to 15 percent slopes	-	-	37.5	1.2%	Not Prime Farmland
E1403D	Beisigl-Flasher-Telfer loamy fine sands, 6 to 15 percent slopes	-	-	42.4	1.4%	Not Prime Farmland
E1423F	Flasher-Vebar-Parshall complex, 9 to 35 percent slopes	-	-	79.5	2.6%	Not Prime Farmland
E1625A	Vebar-Parshall fine sandy loams, 0 to 3 percent slopes	-	-	17.4	0.6%	Farmland of Statewide Importance
E1625B	Vebar-Parshall fine sandy loams, 3 to 6 percent slopes	2.6	0.7%	176.6	5.8%	Farmland of Statewide Importance
E1823A	Parshall fine sandy loam, 0 to 2 percent slopes	-	-	11.5	0.4%	Farmland of Statewide Importance
E2101A	Arnegard loam, saline, 0 to 2 percent slopes	41.5	11.0%	46.6	1.5%	Not Prime Farmland
E2107A	Arnegard loam, 0 to 2 percent slopes	-	-	9.7	0.3%	All Areas are Prime Farmland
E2145B	Shambo loam, 2 to 6 percent slopes	-	-	10.9	0.4%	Farmland of Statewide Importance
E2439A	Sen-Janesburg silt loams, 0 to 3 percent slopes	-	-	12.2	0.4%	Not Prime Farmland
E2439B	Sen-Janesburg silt loams, 3 to 6 percent slopes	-	-	178.8	5.9%	Not Prime Farmland
E2439C	Sen-Janesburg silt loams, 6 to 9 percent slopes	-	-	27	0.9%	Not Prime Farmland
E2601C	Amor-Cabba loams, 6 to 9 percent slopes	-	-	0.9	0.0%	Not Prime Farmland
E2601D	Amor-Cabba loams, 9 to 15 percent slopes	-	-	79	2.6%	Not Prime Farmland
E2617F	Cabba-Chama-Shambo loams, 9 to 50 percent slopes	-	-	14.8	0.5%	Not Prime Farmland
E2801A	Amor-Arnegard loams, 0 to 3 percent slopes	-	-	75.1	2.5%	Farmland of Statewide Importance
E2803B	Amor-Shambo loams, 3 to 6 percent slopes	0.1	0.0%	130.2	4.3%	Farmland of Statewide Importance
E3107F	Cabba-Badland complex, 6 to 70 percent slopes	-	-	12.6	0.4%	Not Prime Farmland
E4005A	Harriet loam, 0 to 2 percent slopes, occasionally flooded	-	-	40.5	1.3%	Not Prime Farmland
E4031A	Lallie silty clay, 0 to 1 percent slopes, frequently flooded	-	-	21.1	0.7%	Not Prime Farmland
E4033A	Lallie silty clay, 0 to 1 percent slopes, occasionally flooded	-	-	30.1	1.0%	Not Prime Farmland
E4039A	Mckeen loam, 0 to 1 percent slopes, frequently flooded	24.9	6.6%	82.5	2.7%	Not Prime Farmland
E4041A	Mckeen loam, ponded, 0 to 1 percent slopes, frequently flooded	-	-	39	1.3%	Not Prime Farmland
E4043A	Minnewaukan fine sandy loam, 0 to 2 percent slopes, frequently flooded	0.1	0.0%	62.9	2.1%	Not Prime Farmland
E4121A	Havrelon loam, 0 to 2 percent slopes, occasionally flooded	66.9	17.7%	114.4	3.7%	Farmland of Statewide Importance
E4125A	Havrelon, wooded-Fluvaquents complex, channeled, 0 to 2 percent slopes, frequently flooded	40.9	10.8%	144.4	4.7%	Not Prime Farmland
E4161A	Straw loam, 0 to 2 percent slopes, rarely flooded	27.2	7.2%	76.8	2.5%	All Areas are Prime Farmland
E4180A	Korell-Daglum-Fluvaquents complex, channeled, 0 to 2 percent slopes, frequently flooded	-	-	34	1.1%	Not Prime Farmland
E4181A	Korell-Rhoades-Daglum complex, 0 to 2 percent slopes, rarely flooded	-	-	163.5	5.4%	Not Prime Farmland
E4187A	Trembles fine sandy loam, 0 to 2 percent slopes, occasionally flooded	-	-	10.1	0.3%	Farmland of Statewide Importance
E4537A	Stady loam, 0 to 2 percent slopes	36.3	9.6%	230.3	7.5%	Farmland of Statewide Importance
E4538B	Stady-Lehr loams, 2 to 6 percent slopes	-	-	13.9	0.5%	Farmland of Statewide Importance
E4561F	Manning-Schaller-Wabek complex, 6 to 35 percent slopes	12.3	3.3%	42.3	1.4%	Not Prime Farmland
E4571A	Shambo loam, gravelly substratum, 0 to 2 percent slopes	67.4	17.8%	119.7	3.9%	Farmland of Statewide Importance
E4585A	Manning fine sandy loam, 0 to 2 percent slopes	17	4.5%	152.3	5.0%	Not Prime Farmland
E4585B	Manning fine sandy loam, 2 to 6 percent slopes	5.4	1.4%	120.1	3.9%	Not Prime Farmland
E4729A	Heil silty clay loam, 0 to 1 percent slopes	-	-	6.2	0.2%	Not Prime Farmland
E4767A	Regan silt loam, saline, 0 to 2 percent slopes, occasionally flooded	-	-	0.6	0.0%	Not Prime Farmland
E4999	Water	10.5	2.8%	100	3.3%	Not Prime Farmland
	TOTALS	**378.2**	**100.0%**	**3052.2**	**100.0%**	

APPENDIX L

Certification of Compliance with Siting Laws and Rules

STATE OF NORTH DAKOTA

PUBLIC SERVICE COMMISSION

OEE XXXI LLC **Case No. PU-21-___**
Marathon Dickinson Renewable Diesel Facility Wind Turbine Project – Stark County
Small Wind Energy Siting Application

CERTIFICATION OF JEREME KENT
IN SUPPORT OF
SMALL WIND ENERGY SITING APPLICATION

STATE OF OHIO)
) ss.
COUNTY OF HANCOCK)

Jereme Kent, being first duly sworn upon oath, states and alleges as follows:

1. I am an Authorized Representative for the Dickinson Renewable Diesel Facility Wind Turbine Project ("Project"), which is owned by OEE XXXI LLC ("OE 31"). I am the CEO and General Manager of One Energy Enterprises LLC ("One Energy"), which is assisting OE 31 with Project development. I have the authority to bind OE 31 with respect to the certifications made herein.

2. The proposed Project is a behind-the-meter wind energy generation facility that will consist of up to five (5) wind turbines with a total nameplate capacity of up to 11.75 megawatts ("MW"), as well as associated facilities. As such, the Project is a small wind energy conversion facility subject to NDAC Ch. 69-06-10. *See* NDAC § 69-06-10-01.

3. OE 31 is submitting a Certificate of Site Compatibility Application for the Project in accordance with NDAC Ch. 69-06-10 ("Application"). I am providing this Certification in support of the Application pursuant to NDAC § 69-06-10-03.

4. OE 31 has analyzed the Project in light of the Commission's siting criteria, including exclusion area and avoidance area criteria. The results of that analysis and supporting

documentation demonstrating compliance with the Commission's siting criteria are provided in the Application.

5. As demonstrated in the Application, the Project layout and associated construction activities will not affect any known exclusion areas.

6. As demonstrated in the Application, with one exception, the Project layout and associated construction activities will not affect any known avoidance areas. Underground collection lines and two small sections of gravel access roads will be located in the 100-year floodplain. However, as explained further in the Application, the collection line impacts will be temporary and there is no reasonable alternative to siting the access roads in the 100-year floodplain because: (a) the existing public roadway, to which a section of access road must connect, is located in the 100-year floodplain; and (b) an existing security gate, through which a section of access road must pass, is located in the 100-year floodplain. Therefore, OE 31 requests the Commission authorize these limited avoidance area impacts.

7. On behalf of OE 31, I have executed a proposed Certification Relating to Order Provisions – Small Wind Energy Conversion Facility ("Certification"), which is provided as Appendix C to the Application. OE 31 does not plan to remove any trees or shrubs on the Project site; thus, the tree and shrub mitigation specifications will not be applicable to the Project. OE 31 will comply with the Certification as ultimately approved by the Commission and incorporated into its Order granting a Certificate of Site Compatibility for the Project.

8. OE 31 will follow all applicable siting laws and rules in its development, construction, operation, maintenance, and decommissioning of the Project.

FURTHER AFFIANT SAYETH NOT.

Jereme Kent

Subscribed and sworn to before me
this 30th day of November, 2021.

Brandy N. Rea
Notary Public

74122038

BRANDY N. REA
NOTARY PUBLIC
STATE OF OHIO
Comm. Expires
08/23/2023

APPENDIX M

Tier-1 and Tier-2 Site Characterization Report

Tier 1 Preliminary Site Evaluation and Tier 2 Site Characterization Report, Dickinson Renewable Diesel Facility Wind Turbine Project, Stark County, North Dakota

SEPTEMBER 2021

PREPARED FOR

One Energy Solutions, LLC

PREPARED BY

SWCA Environmental Consultants

TIER 1 PRELIMINARY SITE EVALUATION AND TIER 2 SITE CHARACTERIZATION REPORT, DICKINSON RENEWABLE DIESEL FACILITY WIND TURBINE PROJECT, STARK COUNTY, NORTH DAKOTA

Prepared for

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SWCA Project No. 67406

September 2021

EXECUTIVE SUMMARY

One Energy Solutions, LLC (One Energy) is proposing to develop the Dickinson Renewable Diesel Facility Wind Turbine Project (proposed project). The proposed project is located approximately 4 miles west-southwest of Dickinson in Stark County, North Dakota. The proposed project's Development Area is approximately 31.3 acres on which turbines, associated access roads, and underground collection lines will be installed; a laydown yard and temporary workspaces will also occur within the Development Area. The Development Area is situated within a 1-mile radius known as the 1-mile buffer, totaling approximately 3,934.0 acres. The Development Area and 1-mile buffer are composed of approximately 3,383.2 acres of privately owned land and approximately 553.3 acres of U.S. Bureau of Reclamation land. One Energy contracted SWCA Environmental Consultants to complete an initial landscape-scale screening and site-level characterization of the proposed project's Development Area and 1-mile buffer following Tiers 1 and 2 (preliminary site evaluation and site characterization) of the U.S. Fish and Wildlife Service's (USFWS's) *Land-Based Wind Energy Guidelines* (USFWS 2012) and Stage 1 (site assessment) of the *Eagle Conservation Plan Guidance* (USFWS 2013).

The Tiers 1 and 2 assessments were completed through desktop evaluation of publicly available information and a site visit completed within the Development Area and 1-mile buffer on June 11, 2021. Aquatic resources were identified within the Development Area or 1-mile buffer that may provide stopover or nesting habitat for several wildlife species. Two federally listed species, the northern long-eared bat (*Myotis septentrionalis*) and whooping crane (*Grus americana*), may occur within the Development Area or 1-mile buffer, though anticipated use of the Development Area or 1-mile buffer by these species is expected to be occasional/rare. Bald eagles (*Haliaeetus leucocephalus*) may occur within the Development Area or 1-mile buffer year-round. In total, 48 species designated as North Dakota species of conservation priority and 20 birds of conservation concern may occur within the Development Area or 1-mile buffer.

Based on information obtained during the Tier 1 and 2 assessments, overall risk to wildlife, including northern long-eared bat and whooping crane, is considered relatively low. The project has a rated capacity of 11.75 MW and is thus considered to be a community-scale wind project under the USFWS's *Land-Based Wind Energy Guidelines*. Those guidelines state that "The Service anticipates that many distributed or community facilities will not need to follow the Guidelines beyond Tiers 1 and 2".

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1 INTRODUCTION

One Energy Solutions, LLC (One Energy) is proposing to develop the Dickinson Renewable Diesel Facility Wind Turbine Project (proposed project). The proposed project is located approximately 4 miles west-southwest of Dickinson in Stark County, North Dakota. The proposed project's Development Area is approximately 31.3 acres on which turbines, associated access roads, and underground collection lines will be installed; a laydown yard and temporary workspaces will also occur within the Development Area. For the purposes of this study, SWCA Environmental Consultants (SWCA) also assessed a 1-mile buffer centered on the proposed project's Development Area. The 1-mile buffer comprises an additional 3,902.7 acres. Together, the Development Area and the 1-mile buffer are located within approximately 3,934.0 acres (Figure 1). The Development Area and 1-mile buffer are composed of approximately 3,383.2 acres of privately owned land and 553.3 acres of U.S. Bureau of Reclamation (Reclamation) land. The Development Area and 1-mile buffer are located in Sections 9, 10, 11, 14, 15, 16, 21, 22, and 23 of Township 139 North, Range 97 West.

Study objectives were to provide information needed to address questions posed under Tier 1 Preliminary Site Evaluation and Tier 2 Site Characterization Study of the U.S. Fish and Wildlife Service's (USFWS's) *Land-Based Wind Energy Guidelines* (USFWS 2012). Additionally, site evaluation and characterization methods correspond with Stage 1 of the *Eagle Conservation Plan Guidance* (ECPG) (USFWS 2013). In some cases, species or resource-specific buffers outside of the Development Area or 1-mile buffer were assessed, as described below.

1.1 Applicable Statutes, Policies, and Regulations

The results of wildlife and habitat evaluations, aimed at determining which, if any, species may be affected by design, construction, operation, and decommissioning of wind and solar energy projects, are meant to inform efforts to achieve compliance with appropriate jurisdictional statutes.

1.1.1 Federal

1.1.1.1 ENDANGERED SPECIES ACT

Certain species at risk of extinction are protected under the federal Endangered Species Act of 1973 (ESA) (16 United States Code [USC] §1531 et seq., as amended). The ESA defines and lists species as "endangered" or "threatened" and provides regulatory protection for the listed species. The federal ESA also provides a program for the conservation and recovery of threatened and endangered species and for the conservation of designated critical habitat. Section 9 of the federal ESA prohibits the "take" of species listed by USFWS as threatened or endangered.

"Take" is defined as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct" (16 USC 1532). Significant modification or degradation of listed species' habitats where the modification actually kills or injures wildlife by significantly impairing essential behavioral patterns is considered "harm" under ESA regulations. Section 10(a) of the federal ESA includes provisions for the authorization of take that is incidental to, but not the purpose of, otherwise lawful activities. Under Section 10(a)(1)(B), an Incidental Take Permit may be issued if take is incidental and does not jeopardize the survival and recovery of the species.

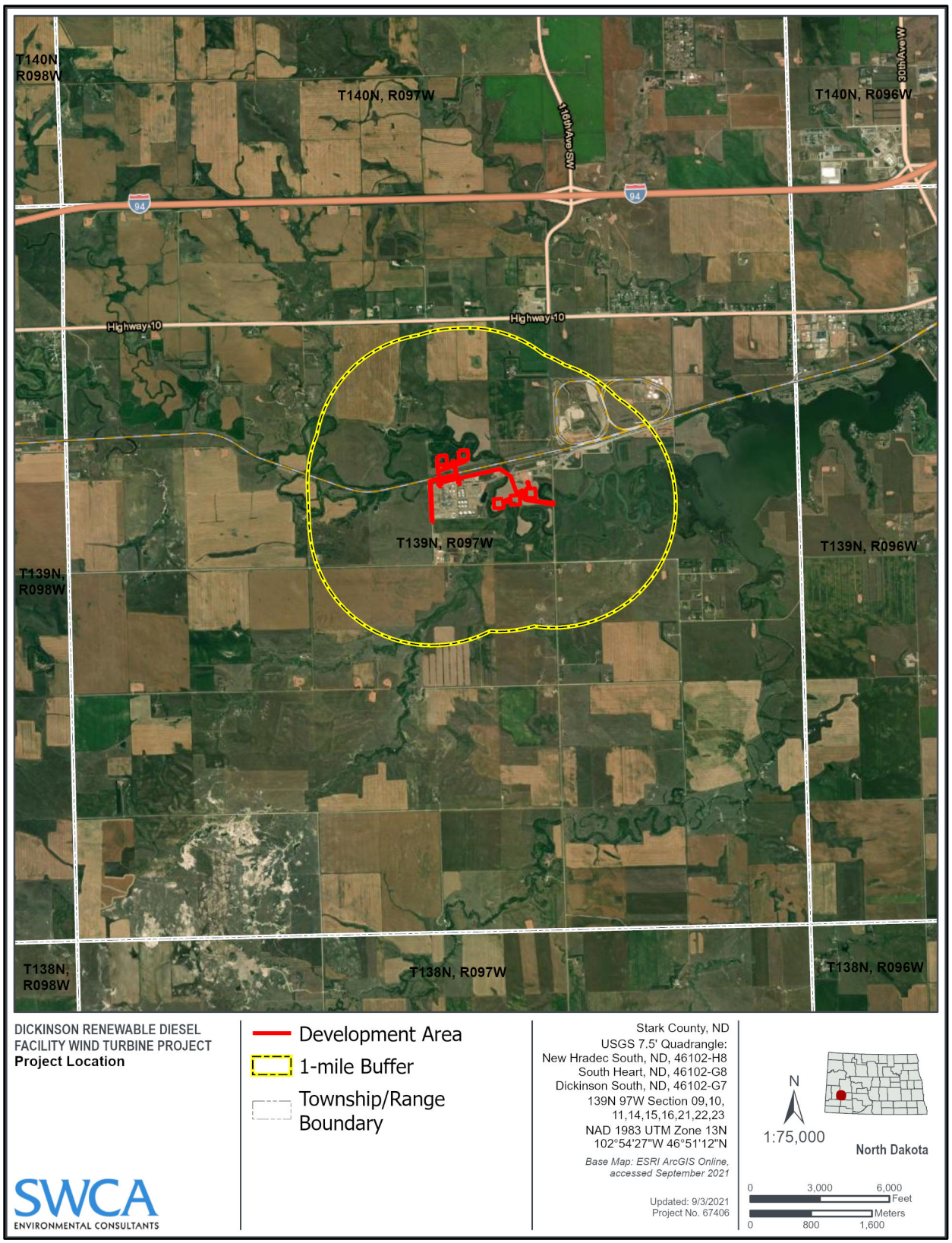

Figure 1. Dickinson Renewable Diesel Facility Wind Turbine Project Development Area and 1-mile buffer, Stark County, North Dakota.

1.1.1.2 MIGRATORY BIRD TREATY ACT

The Migratory Bird Treaty Act (MBTA) implements the Unites States' obligations under four treaties for the protection of migratory birds. The MBTA is administered by the USFWS, which maintains a list of all species protected by the MBTA (50 Code of Federal Regulations [CFR] 10.13). This list includes over 1,000 species of migratory birds, including eagles and other raptors, waterfowl, shorebirds, seabirds, wading birds, and passerines.

The MBTA makes it unlawful "by any means or in any manner, to pursue, hunt, take, capture, kill… possess, offer for sale, sell… purchase… ship, export, import… transport or cause to be transported… any migratory bird, any part, nest, or eggs of any such bird…" except as otherwise permitted under the regulations (16 USC 703). The USFWS has interpreted the MBTA to be a strict liability statute, meaning that proof of intent, knowledge, or negligence is not an element of an MBTA violation. Actions resulting in the "take" of a protected species, in the absence of a USFWS permit or regulatory authorization, are a violation.

The word "take" is defined by regulation as "to pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to pursue, hunt, shoot, wound, kill, trap, capture, or collect" (50 CFR 10.12). The MBTA does not have a provision directly prohibiting incidental takes and the definition of "take" does not include the broader terms of "harass" or "harm" that have been found to prohibit incidental take. There currently is no available regulatory mechanism to authorize take.

1.1.1.3 BALD AND GOLDEN EAGLE PROTECTION ACT

Under authority of the Bald and Golden Eagle Protection Act (BGEPA) (16 USC 668–668d), bald eagles (*Haliaeetus leucocephalus*) and golden eagles (*Aquila chrysaetos*) are afforded additional legal protection. The BGEPA states that "no person shall knowingly, or with wanton disregard for the consequences of his act take, possess, sell, purchase, barter, offer for sale, purchase or barter, transport, export, or import, at any time or in any manner any bald eagle commonly known as the American eagle or any golden eagle, alive or dead, or any part, nest or egg thereof of the foregoing eagles… ." The BGEPA defines take to include "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest, or disturb" (16 USC 668c), and includes criminal and civil penalties for violating the statute (16 USC 668). The term "disturb" is defined as agitating or bothering an eagle to a degree that causes, or is likely to cause, injury to an eagle, or a decrease in productivity or nest abandonment by substantially interfering with normal breeding, feeding, or sheltering behavior (50 CFR 22.3).

The BGEPA authorizes the Secretary of the Interior to permit the take of bald or golden eagles for several defined purposes, including when "necessary to permit the taking of such eagles for the protection of wildlife or of agricultural or other interests in any particular locality." Based on this authority, the USFWS published a final rule (Eagle Permit Rule) on September 11, 2009 (see 50 CFR Parts 13 and 22) establishing two new permit types: 1) individual permits that can be authorized in limited instances of disturbance and in certain situations where other forms of take may occur, such as human or eagle health and safety; and 2) programmatic permits that may authorize incidental take that occurs over a longer period of time or across a larger area (USFWS 2016a). On December 16, 2016, the USFWS issued a revised Eagle Permit Rule that includes changes to the regulations for eagle incidental take permits and eagle nest take permits. The revisions to the Eagle Permit Rule went into effect on January 17, 2017, and include changes to permit issuance criteria, duration (including a maximum permit term of 30 years), compensatory mitigation standards, and permit application requirements.

1.1.2 State

1.1.2.1 NORTH DAKOTA CENTURY CODE CHAPTER 20.1-01-03

Pursuant to North Dakota Century Code Chapter 20.1-01-03 "the ownership of and title to all wildlife within the state is with the State of North Dakota for the purpose of regulating the enjoyment, use, possession, disposition, and conservation thereof, and for maintaining action for damages. Any person catching, killing, taking, trapping, or possessing any wildlife protected by law at any time or in any manner is deemed to have consented that the title thereto remains in the state for the purpose of regulating the taking, use, possession, and disposition thereof. The state, through the office of attorney general, may institute and maintain any action for damages against any person who unlawfully causes, or has caused within this state, the death, destruction, or injury of wildlife, except as may be authorized by law" (North Dakota Century Code 20.1-01-03).

1.1.2.2 STATE OF NORTH DAKOTA SPECIES OF CONSERVATION PRIORITY

The 2015 *North Dakota State Wildlife Action Plan* (SWAP) (Dyke et al. 2015) serves as the principal document for safeguarding rare and declining wildlife species in the state. The SWAP addresses 115 species that are assigned to one of three species of conservation priority (SCP) categories based on their conservation need.

- SCP Level I species are those with a high level of conservation priority due to declining populations in North Dakota or across the species' range, or because North Dakota constitutes the core breeding range for a species that is at-risk range-wide. There are 37 SCP Level I species in the state.
- SCP Level II species are those with a moderate level of conservation priority, or species with a high level of conservation priority but substantial funding available. There are 43 SCP Level II species in the state.
- SCP Level III species are those with a moderate level of conservation priority but are believed to be peripheral or non-breeding in North Dakota. There are 35 SCP Level III species in the state.

Species designated as SCP are managed by the State of North Dakota under North Dakota Century Code Chapter 20.1-01-03 to benefit species of greatest conservation need and to ensure that common wildlife remain common (Hagen et al. 2005). While SCP species are not afforded any specific state regulatory protections, the State may consider impacts to these species during Public Service Commission review of the Project under the North Dakota Siting Act for energy conversion and transmission facilities, which is codified in Chapter 49-22 of the North Dakota Century Code.

2 METHODS

The preliminary site assessment and site characterization were completed using a combination of existing information obtained from publicly available sources including reports, published literature, online agency databases, geographic information system (GIS) data, and field reconnaissance.

2.1 Review of Existing Information and Publicly Available Sources

SWCA reviewed the following data sources to complete this study.

- USFWS Information for Planning and Conservation (IPaC) online mapping tool (USFWS 2021a) (Appendix A)
- USFWS Critical Habitat Mapper (USFWS 2020a)
- Wetlands of International Importance (Ramsar 2021)
- Wild and Scenic Rivers (National Wild and Scenic Rivers System 2021)
- National Hydrography Dataset (NHD) (U.S. Geological Survey [USGS] 2021)
- USFWS National Wetlands Inventory (NWI) data (USFWS 2021b)
- USGS National Land Cover Database (NLCD) (Yang et al. 2018)
- North Dakota 2015 SWAP (Dyke et al. 2015)
- National Audubon Society (Audubon) Important Bird Areas (IBAs) (Audubon 2021)
- USFWS Birds of Conservation Concern (BCC) (USFWS 2021c)
- eBird: An online database of bird distribution and abundance (eBird 2021)
- All About Birds data (Cornell Lab of Ornithology 2019)
- USGS North American Breeding Bird Survey (BBS) database (Pardieck et al. 2020)
- Western Hemisphere Shorebird Reserve Network (WHSRN) sites (WHSRN 2021)
- Species-specific migration corridors (e.g., whooping crane [*Grus americana*] migration corridor) (Pearse, Rabbe, Bidwell et al. 2018; Pearse, Rabbe, Juliusson et al. 2018)
- Natural Resources Conservation Service (NRCS) Land Resource Regions and Major Land Resource Areas of the United States, the Caribbean, and the Pacific Basin (NRCS 2006)
- NRCS Web Soil Survey (NRCS 2021a)
- The Nature Conservancy's Priority Conservation Areas (The Nature Conservancy 2021)
- USFWS National Wildlife Refuges (USFWS 2021e)
- Wilderness Areas of the United States (Wilderness Connect 2021)
- State parks (North Dakota Parks and Recreation Department 2019)

From these sources, SWCA developed a land cover map, an NHD/NWI areas map, a map of state and federally managed land, and a list of species of concern (see Section 3.4 for definition) with potential to occur in the 1-mile buffer and those species' typical habitat requirements. Based on species' habitat descriptions obtained from sources listed above, SWCA noted possible ecological attractants or habitat features for each species, such as large snags for bald eagles (federally protected under BGEPA) and forested areas for northern long-eared bats (*Myotis septentrionalis*; federally threatened).

One Energy also submitted a data request to the North Dakota Natural Heritage Inventory (NHI) on July 16, 2021, to obtain occurrence records for species of concern within the Development Area and adjacent lands. One Energy received an official response from the North Dakota NHI on July 27, 2021; the North

Dakota NHI report is provided in Appendix B. The North Dakota NHI review did not return any documented occurrences of rare plant or animal species within the Development Area or an approximate one-mile radius of the Development Area.

2.2 Site Reconnaissance

An SWCA biologist with expertise in the ecology of special-status species in the region conducted a site reconnaissance within the Development Area and 1-mile buffer on June 11, 2021. The site reconnaissance was conducted via windshield and pedestrian survey from public roads. The objectives were to:

- ground-truth NLCD land cover types and locations;
- document areas where land cover types provide potential habitat for species of concern (see Section 3.4);
- inspect areas of potential habitat for species of concern noted during the desktop assessment;
- document readily observable features that may attract wildlife; and
- record incidental wildlife observations.

Results of the field reconnaissance are included as part of individual sections in this report. Field-based wetland and waters of the U.S. verification was not conducted as part of the field reconnaissance. That effort will occur separately, if necessary, due to the specialized nature of conducting wetland delineations and required land access permission. Methodology and results of that effort will be detailed in a separate report.

3 RESULTS

3.1 Environmental Setting

The Development Area is within the Rolling Soft Shale Plain (MLRA) 54 (NRCS 2006). This area is in the Missouri Plateau, Unglaciated, and Missouri Plateau, Glaciated, Sections of the Great Plains Province of the Interior Plains. MRLA 54 is dominantly unglaciated, but the eastern and northern edges have been glaciated. The topography of this MLRA is characterized as occurring on an old, moderately dissected, rolling plain with some local badlands, buttes, and isolated hills. Terraces are adjacent to broad flood plains along most of the major drainages.

The average annual precipitation in this area is 14 to 18 inches (355–455 millimeters). Most of the rainfall occurs as convective thunderstorms during the growing season. Approximately half of the annual precipitation occurs as snow in the winter. The average annual temperature is 38 to 46 degrees Fahrenheit (3 to 8 degrees Celsius). The freeze-free period averages about 150 days and ranges from 130 to 165 days (NRCS 2006).

Soils within the Development Area and 1-mile buffer consist of primarily loams, silty clay loams, and fine sandy loams (NRCS 2021a). A considerable amount of soil disturbance has occurred as a result of existing development, including an oil refinery. Additional soil disturbance has occurred as a result of decades of agricultural practices (e.g., cultivation and cattle ranching). Existing modifications within the Development Area and 1-mile buffer include facilities associated with the existing oil refinery (i.e., access roads, parking areas, and associated buildings) and farmsteads and facilities associated with

farming and ranching (i.e., access roads and associated outbuildings). Existing electrical distribution lines and a railroad also occur within the Development Area and 1-mile buffer.

3.2 Land Cover

Land cover within the Development Area is predominantly cultivated crops, followed by herbaceous and developed lands. Land cover within the 1-mile buffer is predominantly shrub/scrub, followed by cultivated crops, and herbaceous (Table 1). During the June 2021 site reconnaissance, land cover was found to be generally consistent with NLCD mapping as described below (Figure 2; see Table 1).

Table 1. NLCD Land Cover Types within the Development Area and 1-mile buffer

Land/Vegetation Cover Type	Development Area (acres)	Percent of Development Area (acres)	1-mile Buffer (acres)	Percent of 1-mile Buffer (acres)
Cultivated crops	22.5	71.8	1,017.9	31.2
Herbaceous	3.7	11.9	600.7	15.4
Developed	2.6	8.2	463.3	11.9
Shrub/Scrub	1.5	4.8	1,218.1	31.2
Emergent herbaceous wetlands	0.6	1.9	149.9	3.8
Open water	0.3	0.9	94.9	2.4
Hay/Pasture	0.2	0.5	249.3	6.4
Deciduous forest	-	-	60.8	1.6
Woody wetlands	-	-	46.3	1.2
Mixed forest	-	-	1.3	<0.1
Barren land	-	-	0.2	<0.1
Total	**31.1**	**100.0**	**3,902.7**	**100.0**

Source: Yang et al. 2018.

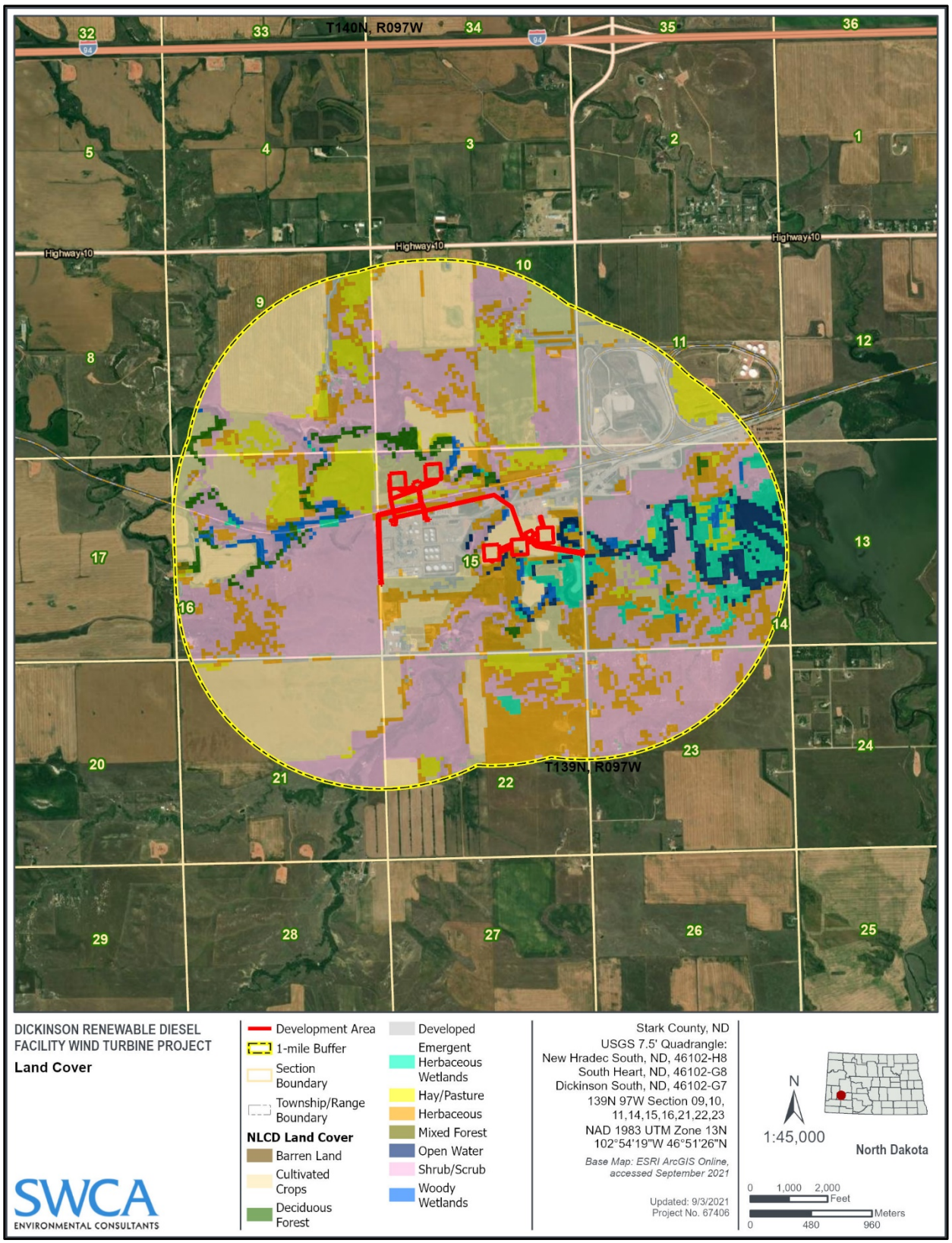

Figure 2. Land cover within the Dickinson Renewable Diesel Facility Wind Turbine Project Development Area and 1-mile buffer, Stark County, North Dakota.

3.3 Wetlands and Waters

The Development Area contains a small portion of the Heart River, though no additional notable water features are present. Notable water features within the 1-mile buffer include the Heart River, Edward Arthur Patterson Lake, and NHD-mapped unnamed streams (Figure 3) (USGS 2021). The mapped NHD watercourses within the Development Area and 1-mile buffer are summarized in Table 2.

Table 2. NHD Watercourses within the Development Area and 1-mile buffer

Feature Type	Length within Development Area (miles)	Length within 1-mile Buffer (miles)
Perennial stream	<0.1	4.3
Artificial path	<0.1	5.6
Intermittent stream	–	9.2
Total	**<0.1**	**19.1**

Review of the NHD identified one waterbody comprising approximately 0.4 acre (1.1%) of the Development Area. While this NHD waterbody is mapped as a lake/pond, it appears to be associated with the Heart River. An additional 10 waterbodies comprising approximately 81.6 acres (2.1%) of the 1-mile buffer were identified. The mapped NHD waterbodies within the Development Area and 1-mile buffer are summarized in Table 3.

Table 3. NHD Waterbodies within the Development Area and 1-mile buffer

Waterbody Type	Number within Development Area	Acres within Development Area	Percent of Development Area	Number within 1-mile Buffer	Acres within 1-mile Buffer	Percent of 1-mile Buffer
Lake/Pond – Perennial	1	0.4	1.1	2	76.0	1.9
Lake/Pond – Intermittent	–	–	–	7	3.1	0.1
Swamp/Marsh	–	–	–	1	2.5	0.1
Total	**1**	**0.4**	**1.1**	**10**	**81.6**	**2.1**

The USFWS generates NWI maps based on aerial photographs and infrared interpretation. SWCA reviewed NWI data (USFWS 2021b) to obtain broad-scale information regarding wetlands within the Development Area and 1-mile buffer. NWI data indicate that the Development Area contains four mapped wetland features comprising approximately 0.7 acre (approximately 2.2% of the Development Area) and include lakes, freshwater emergent wetlands, and riverine habitat (see Figure 3). NWI data indicate that the 1-mile buffer contains an additional 113 mapped wetland features comprising approximately 224.9 acres (approximately 5.7% of the 1-mile buffer). The NWI wetland covering the most area in the 1-mile buffer consists of a lake (approximately 106.9 acres, or 2.7% of the 1-mile buffer); however, freshwater ponds, freshwater emergent wetlands, riverine habitats, and freshwater forested/shrub wetlands are also mapped within the 1-mile buffer (see Figure 3). These mapped wetland features exist in the Development Area and throughout the 1-mile buffer. During the site reconnaissance, SWCA noted that many of these wetlands are wetlands associated with the Heart River or Edward Arthur

Patterson Lake or are associated with other mapped NHD streams. The mapped NWI wetlands within the Development Area and 1-mile buffer are summarized in Table 4.

Table 4. NWI Wetland Types within the Development Area and 1-mile buffer

Wetland Type	Number within Development Area	Acres within Development Area	Percent of Development Area	Number within 1-mile Buffer	Acres within 1-mile Buffer	Percent of 1-mile Buffer
Freshwater emergent wetland	2	0.3	1.0	67	74.3	1.9
Freshwater pond	–	–	–	12	9.3	0.2
Lake	1	0.3	1.0	2	106.6	2.7
Riverine	1	0.1	0.2	25	30.8	0.8
Freshwater forested/Shrub wetland	–	–	–	7	3.2	0.1
Total	**4**	**0.7**	**2.2**	**113**	**224.1**	**5.7**

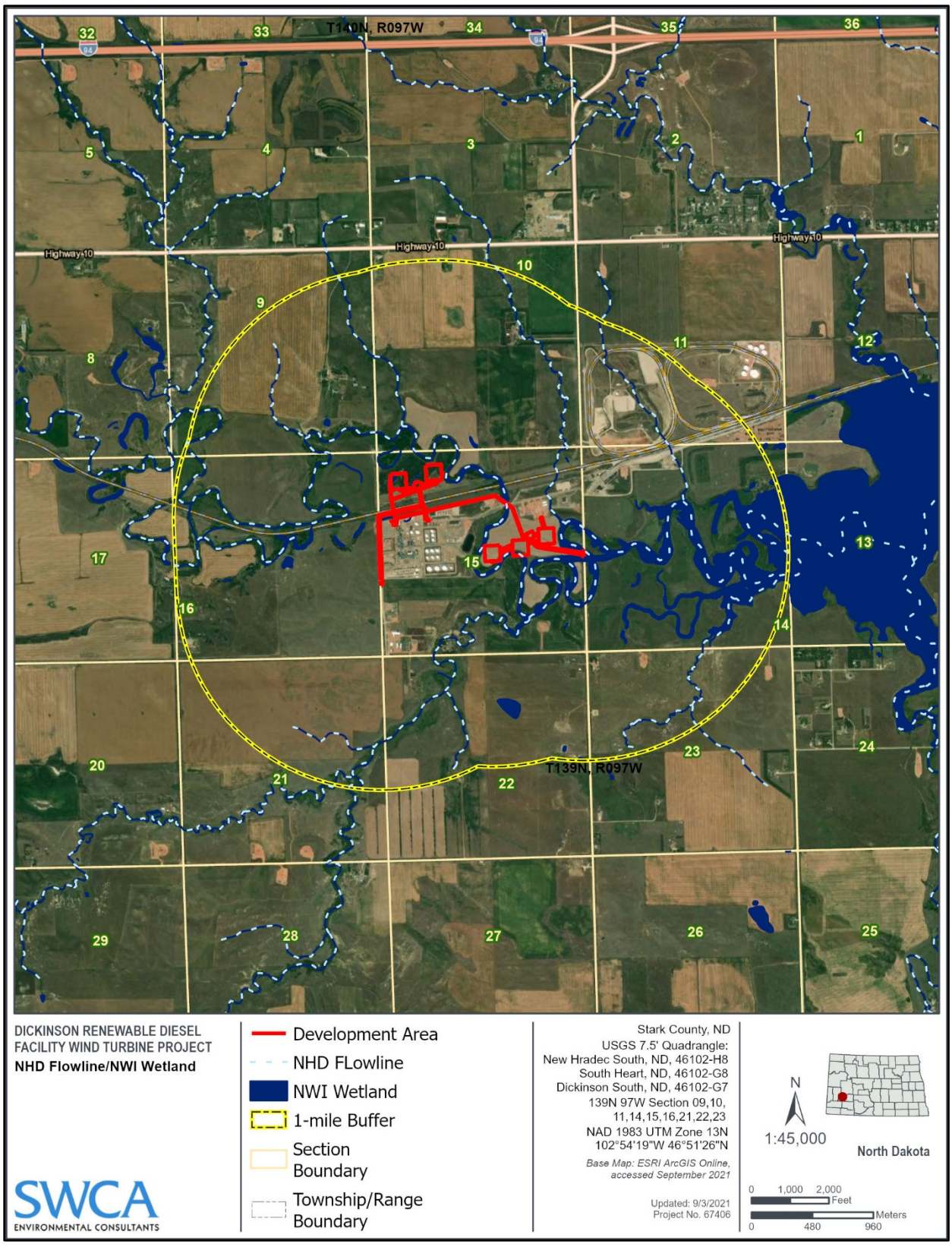

Figure 3. NHD Flowlines and NWI wetlands within the Dickinson Renewable Diesel Facility Wind Turbine Project Development Area and 1-mile buffer, Stark County, North Dakota.

3.4 Wildlife and Plant Species

Wildlife and plant species of concern, for purposes of this report, are considered:

- threatened and endangered species pursuant to Section 4 of the ESA, as amended;
- species designated by the USFWS as Proposed, Candidate, Species of Concern, and Nonessential Experimental Populations;
- bald eagles and golden eagles protected under the BGEPA;
- SCP Levels I, II, and III species listed in the North Dakota SWAP (Dyke et al. 2015); and
- BCC species as listed by the USFWS (2021c) and defined as "species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing under the ESA of 1973."

The potential for each species of concern to occur in the Development Area or 1-mile buffer was classified according to the categories listed below. Because not all species are accommodated precisely by a given category (i.e., category definitions may be too restrictive), an expanded rationale for each category assignment was provided for some species.

- Known to occur—the species has been documented in the Development Area or 1-mile buffer by a reliable observer.
- May occur—the Development Area or 1-mile buffer is within the species' currently known range, and vegetation communities, soils, or other habitat conditions resemble those known to be used by the species.
- Unlikely to occur—the Development Area or 1-mile buffer is within the species' currently known range, but vegetation communities, soils, or other habitat conditions do not resemble those known to be used by the species, or the Development Area or 1-mile buffer is clearly outside the species' currently known range.

3.4.1 Federally Protected Species

The IPaC search identified the following two federally listed species as having potential to occur in the Development Area and 1-mile buffer (USFWS 2021a) (see Appendix A).

- Whooping crane (federally endangered and a state SCP III species)
- Northern long-eared bat (federally threatened and a state SCP I species)

The Development Area and 1-mile buffer are within both species' geographical range and contain potentially suitable habitat as described in Sections 3.4.1.1 and 3.4.1.2 below.

In addition, SWCA's review of the North Dakota SWAP identified three additional federally listed species whose possible or historical ranges in North Dakota overlap the 1-mile buffer (Dyke et al. 2015). As presented in Appendix C, these three species are piping plover (*Charadrius melodus*; federally threatened and a state SCP Level II species), red knot (*Calidris canutus rufa*; federally threatened and a state SCP Level III species), and black-footed ferret (*Mustela nigripes;* federally endangered and a state SCP Level II species). These species are unlikely to occur within the Development Area or 1-mile buffer based on range and habitat characteristics.

3.4.1.1 WHOOPING CRANE

North Dakota is within the whooping crane migration corridor and the species may stop over in suitable habitat anywhere within the corridor (Pearse, Rabbe, Bidwell et al. 2018; Pearse, Rabbe, Juliusson et al. 2018). Suitable stopover habitat includes cropland and pastures, wet meadows, shallow marshes, and waterbodies (USFWS 2010).

The 95% whooping crane migration corridor is the area that encompasses 95% of all whooping crane sightings recorded during seasonal migrations from Aransas National Wildlife Refuge in Texas to Wood Buffalo National Park in Alberta, Canada (as delineated by Pearse, Rabbe, Bidwell et al. 2018 and Pearse, Rabbe, Juliusson et al. 2018). The Development Area and 1-mile buffer are within the 95% migration corridor, which indicates that it is possible for the species to be present within the Development Area and 1-mile buffer at some point of the year during annual migration. Niemuth et al. (2018) developed a model and predictive map showing relative probability of occurrence across North Dakota and South Dakota using GIS data layers and validation using independent, unbiased locations from GPS-collared whooping cranes to predict habitat use by migrant whooping cranes. The model indicates that relative probability of use by migrant whooping cranes is low within the Development Area and 1-mile buffer (Niemuth et al. 2018).

Review of the USFWS Whooping Crane Tracking Project Database indicates there are no whooping crane observation records within 10 miles of the Development Area. The closest whooping crane observation is from fall 1977, approximately 22.5 miles northeast of the Development Area. The second closest observation is from spring 2018, approximately 25.85 miles northeast of the Development Area (USFWS 2021d). Agricultural land and wetlands within the 1-mile buffer may provide potentially suitable stopover habitat for whooping cranes. Therefore, the whooping crane may occur as an overhead migrant within the Development Area or 1-mile Buffer.

3.4.1.2 NORTHERN LONG-EARED BAT

The range of northern long-eared bat extends throughout most of southern Canada, as well as the eastern and midwestern United States (excluding parts of the southeast United States) and is primarily associated with North American forests (USFWS 2018). The northern long-eared bat hibernates during winter months in caves and mines with constant temperatures and very high humidity (USFWS 2019). Summer habitat for the northern long-eared bat consists of forested areas with trees greater than 3 inches in diameter at breast height (USFWS 2019). Northern long-eared bats roost in live trees and/or snags that have exfoliating bark, cracks, crevices, and/or cavities (USFWS 2019). The species typically forages in forest interiors. These wooded areas may be dense or loose aggregates of trees with variable amounts of canopy closure (USFWS 2020b). Northern long-eared bats also may roost in human-made structures such as buildings, barns, bridges, and bat houses (USFWS 2019).

The USFWS lists the northern long-eared bat as possibly present in Stark County, indicating that Stark County is within the range of the species and may contain suitable habitat. However, the species is considered rare in North Dakota and has only been identified in a few locations in the state (Dyke et al. 2015). The few documentations of the species are from forested habitat in the Turtle Mountains approximately 200 miles northeast of the Development Area, and in the riparian corridors of the Little Missouri and Missouri Rivers approximately 100 miles east at the closest point and approximately 30 miles west at the closest point to the Development Area (Dyke et al. 2015). Additionally, the northern long-eared bat was documented during a bat presence study between 2009 and 2012 in the Missouri River Valley (Nelson et al. 2015). The North Dakota NHI review of the proposed project did not identify any records of sensitive species within the Development Area or within an approximate one-mile radius of the Development Area, including northern long-eared bat. To date, no northern long-eared bat hibernacula

have been identified in North Dakota (Dyke et al. 2015). The closest known hibernacula to the Development Area occur in the Black Hills, South Dakota, approximately 170 miles southwest of the Development Area (South Dakota Bat Working Group 2004).

Northern long-eared bats are considered a forest interior species. A study of northern long-eared bats within a managed forest in West Virginia found that this species forages in areas with forest patch sizes between 114 and 161 acres (Owen et al. 2003). Research conducted in Michigan and Prince Edward Island, Canada, within a landscape dominated by agricultural activity showed that northern long-eared bats may use woodlots as small as 15 acres (Foster and Kurta 1999; Henderson and Broders 2008). Recent studies from Michigan suggest that northern long-eared bats may use woodlots as small as 10 acres (Natalie Gates, USFWS, personal communication, July 16, 2019). SWCA reviewed recent aerial imagery, combined with NLCD land cover data, to delineate forested areas within the Development Area and a 2-mile buffer. A 2-mile buffer was assessed to capture any potential habitat within a larger radius surrounding the development area. Forest patches smaller than 10 acres were considered unsuitable for northern long-eared bats. Using this criterion, approximately 18.7 acres of forested habitat may be suitable for northern long-eared bat within a 2-mile buffer. Of the 18.7 acres of contiguous forested habitat, approximately 0.3 acre of forested habitat occurs within the Development Area that may be suitable for northern long-eared bat (Figure 4). Observations made during the site reconnaissance visit indicate that suitable habitat in the Development Area and 1-mile buffer for northern long-eared bats is limited and occurs primarily in the form of trees along the Heart River.

Federal listing of the northern long-eared bat includes a 4(d) rule that identifies specific protections and prohibitions on incidental take in counties affected by white-nose syndrome. Stark County is within the white-nose syndrome zone for the northern long-eared bat (USFWS 2016b); therefore, the 4(d) rule would apply. The 4(d) rule would only affect the proposed project in terms of tree-clearing restrictions if a roost tree or hibernaculum were confirmed to be present within 0.25 mile of the proposed project, if a known roost tree or occupied maternity roost tree were destroyed, or if removal of trees occurs within a 150-foot radius of a maternity roost tree during the pup season (USFWS 2016b).

Based on species range and the presence, albeit limited, of potentially suitable habitat, the northern long-eared bat may occur within the Development Area and 1-mile buffer. However, SWCA expects the likelihood of occurrence in the Development Area and 1-mile buffer to be low due to the lack of records, paucity of known hibernacula, or maternity roost trees within the state.

The range and habitat requirements for all federally listed and North Dakota species of conservation species with the potential to occur within the Development Area or 1-mile buffer, including the northern long-eared bat, are provided in Table C-1 in Appendix C.

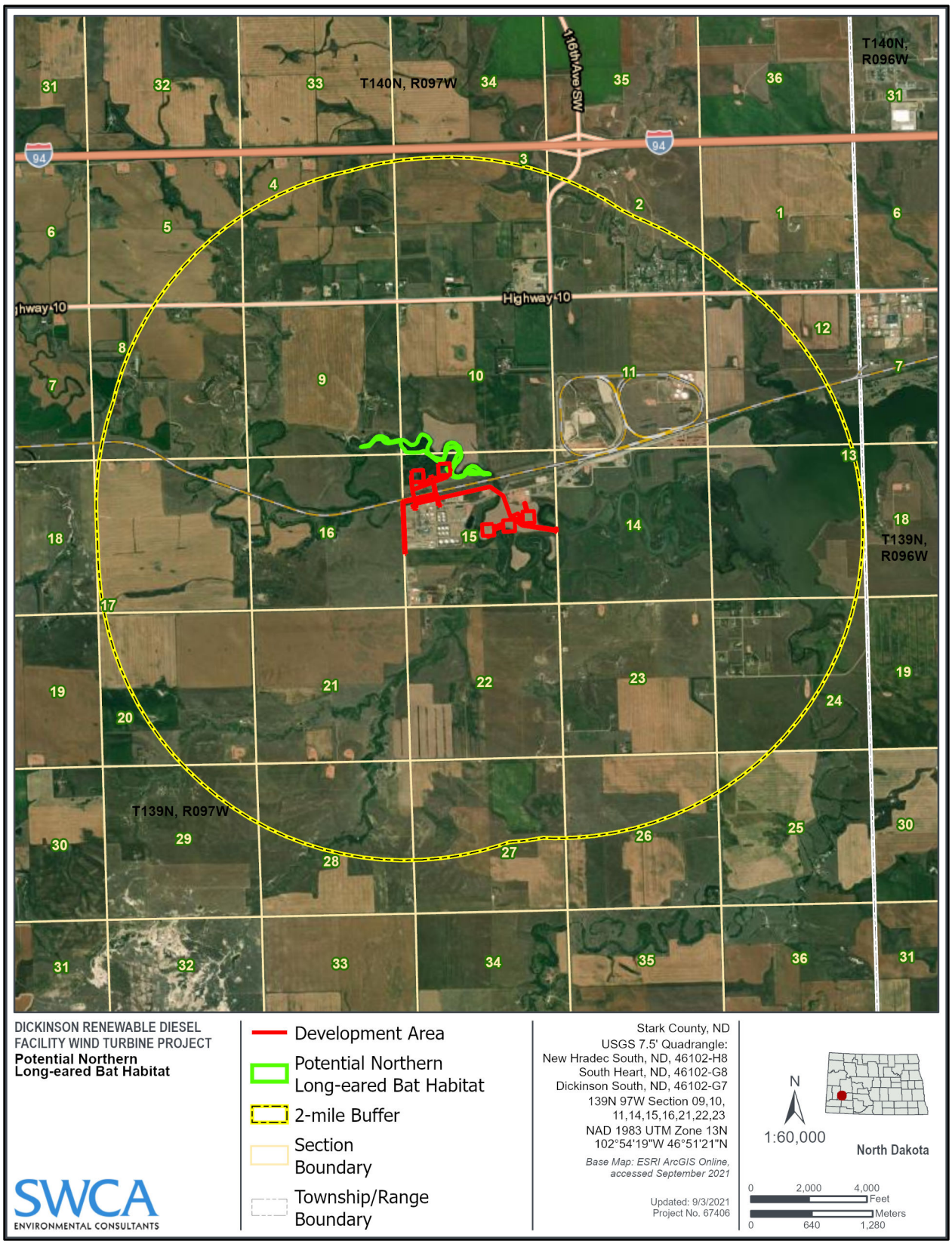

Figure 4. Suitable northern long-eared bat habitat within the Dickinson Renewable Diesel Facility Wind Turbine Project Development Area and 2-mile buffer, Stark County, North Dakota.

3.4.1.3 EAGLES

The Development Area and 1-mile buffer are within the year-round range for bald eagles and within the migration range for golden eagles (see Appendix C). Bald and golden eagles are afforded protection under the BGEPA. No incidental observations of bald or golden eagles, or their nests, were made during the site reconnaissance visit. A discussion of each species, and their likelihood of occurrence in the Development Area or 1-mile buffer, follows.

3.4.1.4 BALD EAGLE

Bald eagle primary range within the state includes eastern North Dakota and the Missouri River corridor (Dyke et al. 2015). Stark County is included in the secondary range for this species in North Dakota. The bald eagle is both a year-round resident and a migrant species in the state. Bald eagle habitat includes large rivers, lakes, or wetlands near mature stands of trees or a single large tree. Bald eagles build stick nests as large as 10 feet in diameter in trees, and occasionally on human-made structures (USFWS 2007), typically less than 1.2 miles from open water (Dyke et al. 2015).

A 2009 statewide census conducted by the North Dakota Game and Fish Department (NDGFD) documented 66 nests thought to be occupied by bald eagles, none of which occurred in Stark County (Johnson 2009). The majority of nests were located in live cottonwood trees. The eBird database returned no bald eagle observations within the Development Area or 1-mile buffer; however, two recent observations were recorded approximately 0.1 mile west of the 1-mile buffer. Both observations were located at the corner of 39th Street southwest and 115th Avenue southwest. An observation of two adults was made on April 8, 2021, and an observation of one adult was observed on April 28, 2021, in the vicinity of the Heart River and Edward Arthur Patterson Lake (eBird 2021). One Energy submitted a request to NDGFD for records of known bald eagle nests within two miles of the Development Area; One Energy received a response on August 3, 2021 stating that no bald eagle nests are known within two miles of the Development Area.

Trees suitable for nesting bald eagles were not observed within the Development Area during site reconnaissance; however, suitable nesting tress (i.e., large, mature cottonwood trees) were observed within the 1-mile buffer adjacent to the Development Area and associated with the Heart River and Edward Arthur Patterson Lake. Wetlands and streams within the Development Area and 1-mile buffer associated with the Heart River or Edward Arthur Patterson Lake have the potential to attract migrant waterfowl and, therefore, bald eagles during spring and fall migration. Potential bald eagle prey items within the Development Area and 1-mile buffer also likely include carrion, fish, mammals, and waterfowl (Dyke et al. 2015). Open water including lakes, streams, or ponds are present within and surrounding the Development Area and 1-mile buffer (see Section 3.3; see Figure 3).

Due to the presence of suitable foraging habitat within the Development Area and 1-mile buffer and known eagle occurrences nearby, bald eagles are expected to be present in the Development Area and 1-mile buffer during any season.

3.4.1.5 GOLDEN EAGLES

Golden eagles favor partially or completely open country, particularly near mountains, hills, and cliffs. They use a variety of habitats ranging from arctic to desert, including tundra, shrublands, grasslands, coniferous forests, farmland, and areas along rivers and streams (Cornell Lab of Ornithology 2019). Golden eagles are uncommon in North Dakota and the Development Area and 1-mile buffer occur in the secondary range for this species. (Dyke et al. 2015). Key areas for the golden eagle in the state include the badlands of western North Dakota and the Lake Sakakawea breaks (Dyke et al. 2015).

Review of the eBird database returned no golden eagle observations within the Development Area or 1-mile buffer. The closest golden eagle observation was recorded approximately 1.18 miles east of the 1-mile buffer. The observation was located near where 114th Avenue southwest enters the Edward Arthur Patterson Lake Recreation Area. One golden eagle adult was observed on April 10, 2019, in the vicinity of Edward Arthur Patterson Lake (eBird 2021). One Energy submitted a request to NDGFD for records of known golden eagle nests within two miles of the Development Area; One Energy received a response on August 3, 2021 stating that no golden eagle nests are known within two miles of the Development Area. The closest known golden eagle nest is located approximately 3.5 miles outside of the Development Area.

Potential golden eagle main prey items within the Development Area or 1-mile buffer may include rabbits (e.g., eastern cottontail [*Sylvilagus floridanus*], white-tailed jackrabbit [*Lepus townsendii*]). Secondary prey items with potential to be present in the Development Area or 1-mile buffer include waterfowl species, carrion (e.g., cattle, coyote [*Canis latrans*]), and skunk (*Mephitis mephitis*) (Dyke et al. 2015). Potential prey concentration areas within the Development Area and 1-mile buffer include wetlands and open water features associated with the Heart River and Edward Arthur Patterson Lake containing waterfowl.

Due to the Development Area and 1-mile buffer being within the secondary range of the golden eagle, the presence of suitable foraging habitat, known eagle occurrences nearby, and because available prey bases may be present, there is potential for golden eagles to pass through the Development Area or 1-mile buffer during any season (Cornell Lab of Ornithology 2019).

Eagle migration concentration sites are associated with negative barriers, such as large bodies of water, or mountain ridges that offer energy-efficient flight via updrafts. The nearest known raptor migration sites are where the main Pembina Gorge and Little Pembina Gorge join near Windygates, Manitoba, approximately 260 miles northeast of the Development Area (Hawk Migration Association of North America 2021). The USFWS defines an *important eagle use area* as "an eagle nest, foraging area, or communal roost site that eagles rely on for breeding, sheltering, or feeding, and the landscape features surrounding such nest, foraging area, or roost site that are essential for the continued viability of the site for breeding, feeding, or sheltering eagles" (USFWS 2013:12).

At this stage, no important eagle use areas or migration concentration sites have been identified within the Development Area or 1-mile buffer. No known communal eagle roost sites—generally associated with bald eagles—are within or proximal to the Development Area and 1-mile buffer; however, this may be because of a lack of surveys rather than a lack of presence.

3.4.2 Birds of Conservation Concern

The USFWS's BCC (USFWS 2021c) identifies species within ecological Bird Conservation Regions (BCRs) that are priorities for conservation action with the intent to prevent or remove the need for ESA listing by taking proactive management and conservation actions. The Development Area is within BCR 17, Badlands and Prairies (USFWS 2021c). Twenty-six (26) BCC species are listed for BCR 17. The USFWS BCC species for BCR 17, their habitat affinities, and their potential for occurrence within the Development Area or 1-mile buffer are listed in Table C-1 in Appendix C. No BCC species were observed within the Development Area or 1-mile buffer during field reconnaissance. Based on results of the Tiers 1 and 2 site assessments and the habitat affinities of the BCC species, 20 BCC species have potential to occur within the Development Area or 1-mile buffer (see Table C-1 in Appendix C).

3.4.3 State of North Dakota Species of Conservation Priority

SWCA assessed all 115 North Dakota SCP species for the potential to occur within the Development Area or 1-mile buffer based on species range and habitat characteristics (refer to Table C-1 in Appendix C). Of those species, 48 species categorized as SCP Levels I, II, or III may occur within the Development Area or 1-mile buffer, including two federally listed species and bald and golden eagles. None of these species were observed within the Development Area or 1-mile buffer during the field reconnaissance visit. All remaining SCP species assessed were determined to be unlikely to occur within the Development Area or 1-mile buffer based on range and habitat characteristics.

The Development Area is within the SWAP's Heart River focus area. The Heart River travels approximately 180 miles through western North Dakota, where land use practices have contributed to conservation concerns such as reduced riparian width, lack of native riparian plant diversity, stream bank erosion, channel sedimentation, and increased runoff. While various SCP species may occur within the Heart River focus area, key species of conservation priority for this area, as listed in the SWAP, include the northern redbelly dace (*Chrosomus eos*) and flathead chub (*Platygobio gracilis)*.

The North Dakota SCP species, their habitat affinities, and their potential for occurrence within the Development Area or 1-mile buffer are provided in Table C-1 in Appendix C.

3.4.4 U.S. Geological Survey Breeding Bird Survey

The USGS BBS is a volunteer-based program designed to monitor the status and trends of North American breeding bird populations. Annual surveys are conducted, typically in June, along established 24.5-mile-long road routes with 3-minute point counts performed every 0.5 mile. BBS data are used to monitor bird populations across North America and inform researchers and wildlife managers (such as the USFWS, state natural heritage programs, and Partners in Flight) of significant changes in bird population levels.

The nearest BBS route (Pardieck et al. 2020), Dickinson Route (64021), is located approximately 6.6 miles north of the Development Area (Figure 5). The habitat along the Dickinson Route is similar to that within the Development Area and 1-mile buffer (i.e., primarily agricultural fields with emergent wetlands and open water features) (Google Earth 2021). The 10 most common birds recorded on the BBS route in 2019 (the most recent year that data were available) are characteristic of open habitats within a mixed agricultural landscape (Table 5). None of these species are federally listed as threatened or endangered, SCP species, or BCC; however, six BCC were recorded along this route in 2019: Baird's sparrow (*Ammodramus bairdii*), Sprague's pipit (*Anthus spragueii)*, marbled godwit (*Limosa fedoa*), grasshopper sparrow (*Ammodramus savannarum*), northern harrier (*Circus hudsonius*), and bobolink (*Dolichonyx oryzivorus*).

Table 5. Most Common Species Observed on the Dickinson Route in 2019

Common Name*	Scientific Name
Western meadowlark	*Sturnella neglecta*
Ring-necked pheasant	*Phasianus colchicus*
Mourning dove	*Zenaida macroura*
Horned lark	*Eremophila alpestris*

Red-winged blackbird	*Agelaius phoeniceus*
Brown headed cowbird	*Molothrus ater*
American robin	*Turdus migratorius*
Savannah sparrow	*Passerculus sandwichensis*
Bobolink	*Dolichonyx oryzivorus*
Cliff swallow	*Petrochelidon pyrrhonota*

* Species are listed in order of abundance.

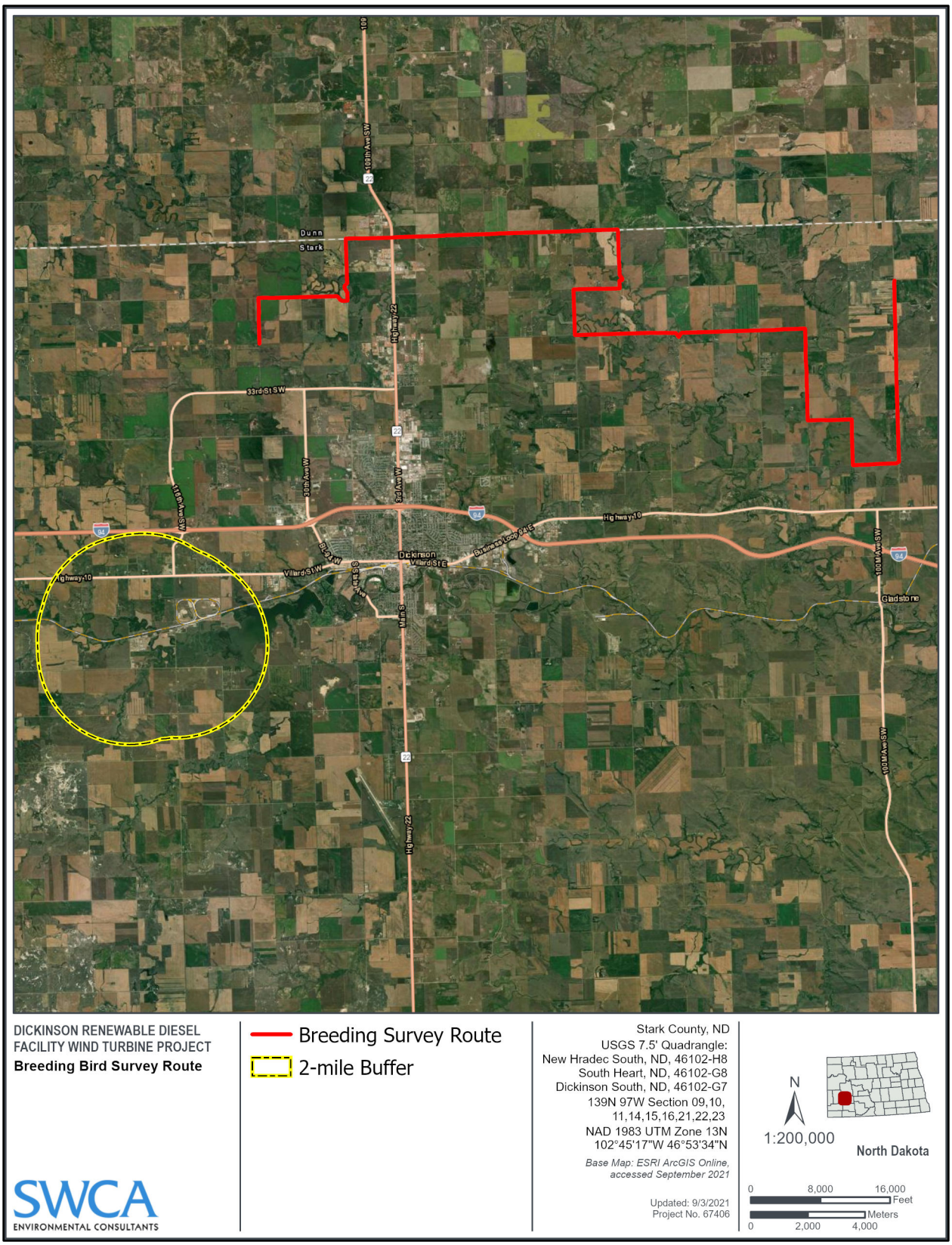

Figure 5. Breeding Bird Survey Route closest to the Dickinson Renewable Diesel Facility Wind Turbine Project 2-mile buffer, Stark County, North Dakota.

3.4.5 Raptors

Sixteen (16) diurnal raptor species occur regularly in North Dakota (NDGFD 2019a). Based on known range and distribution, many of these species have the potential to occur within the Development Area or 1-mile buffer at some point during the year, either during the nesting season, migration, or winter. The habitat in the Development Area and 1-mile buffer (see Section 3.2) indicates that diurnal raptor species typical of open and agricultural landscapes, such as bald eagle, red-tailed hawk (*Buteo jamaicensis*), American kestrel (*Falco sparverius*), northern harrier (*Circus hudsonius*), and Swainson's hawk (*Buteo swainsoni*) may be present during the nesting season (approximately March 15–July 15).

Relatively few mature trees are present within the Development Area that could provide nesting habitat for tree nesting raptors, though mature trees suitable for nesting were observed within the 1-mile buffer. These trees may provide nesting habitat for species such as the red-tailed hawk and American kestrel (see Figure 2). Solitary trees or shelterbelts near agricultural fields may provide nesting habitat for species such as the Swainson's hawk. Wetland vegetation, such as cattails (*Typha* spp.) and willows (*Salix* spp.), may provide nesting habitat for species such as the northern harrier, which is a ground-nesting raptor species (see Figure 2).

One red-tailed hawk was observed in Development Area during the site reconnaissance visit.

3.4.6 Lekking Species

Lekking species are species that form seasonal aggregations characterized by male display. The Development Area and 1-mile buffer are within the primary range of the sharp-tailed grouse (*Tympanuchus phasianellus*) as mapped by the NDGFD (Dyke et al. 2015) and the species has been documented within 10 miles of the Development Area (eBird 2021). Sharp-tailed grouse are typically found in mixed-grass prairie interspersed with shrubs or small trees and are also known to nest in lightly grazed pasture or haylands. The Development Area consists of primarily cultivated cropland and as such is not likely to support nesting sharp-tailed grouse, though sharp-tailed grouse may forage within the Development Area. Suitable nesting and foraging habitat were observed within the 1-mile buffer during site reconnaissance. As such, the potential exists for sharp-tailed grouse leks and individuals to occur within the Development Area and 1-mile buffer.

3.4.7 Bats

Eleven (11) bat species are known to occur in North Dakota (Nelson et al. 2015). Based on known distribution, six bat species may occur in Stark County (Bat Conservation International 2021; Dyke et al. 2015). These species are eastern red bat (*Lasiurus borealis*), hoary bat (*L. cinereus*), little brown bat (*Myotis lucifugus*; an SCP Level I species), northern long-eared bat (federally threatened and an SCP Level I species), big brown bat (*Eptesicus fuscus*; an SCP Level I species), and silver-haired bat (*Lasionycteris noctivagans*) (Bat Conservation International 2021; Dyke et al. 2015).

A study between 2009 and 2012 that used mist netting and acoustic surveys to document bat species presence across North Dakota documented 10 bat species, either through capture via mist netting, or via acoustic surveys, in the Missouri River Valley of North Dakota (Nelson et al. 2015). Some of these species are the same as those listed above based on distribution range maps (Nelson et al. 2015). During the 2009 through 2012 study (Nelson et al. 2015) Townsend's big-eared bat (*Corynorhinus townsendii*; an SCP Level I species), big brown bat, silver-haired bat, little brown bat, the northern long-eared bat, eastern red bat, hoary bat, western small-footed bat *(Myotis ciliolabrum;* an SCP Level III species*)*, Long-legged bat *(Myotis Volans;* an SCP Level III species*)*, and long-eared bat (*Myotis evotis;* an SCP Level III species*)* were documented in the Missouri River Valley. The 1-mile buffer is approximately 30 miles west

at the closest point to the Missouri River; therefore, it is possible that these species may occur within the Development Area and 1-mile buffer. Of these species, the only federally listed bat species with potential to occur in the Development Area and 1-mile buffer is the northern long-eared bat (also an SCP Level I species), which is discussed in detail in Section 3.4.1.2. SCP bat species are discussed in Table C-1 in Appendix C.

Bat roosting sites may vary by species, season, and time of day (e.g., during the day, roosts are used for rest and raising young; at night, roosts are used for ingesting food, resting, and avoiding inclement weather or predators). Bats roost singly, in small groups, or in large numbers in naturally occurring and human-made structures including caves, rock crevices, bird nests, most parts of trees (e.g., inside cavities or hollow logs, under loose bark, inside furled leaves, on branches), mines, buildings, bridges, and culverts (Bat Conservation International 2021). Many bats raise their young in spring-season nursery or maternity roosts; site fidelity at these sites is highly variable (Bat Conservation International 2021). Hibernacula sites—commonly caves and abandoned mines—are typically restricted to those with relatively stable temperatures and relative humidity (Bat Conservation International 2021). Trees and human-made structures within the Development Area and 1-mile buffer could provide roosting habitat for several species of bats, though it is unknown whether the Development Area and 1-mile buffer contain sites that could be used as hibernacula by hibernating bats.

3.4.8 Staging Areas, Migration Stopovers, and Corridors

Staging areas are those with abundant, predictable food resources where, for example, birds prepare for an energetic challenge (typically a long flight over a geographic barrier) requiring substantial food stores (Warnock 2010). Such staging areas are seen for birds such as waterfowl, cranes, shorebirds, and songbirds. Examples of staging sites include Delaware Bay; Copper River Delta, Alaska; Platte and North Platte Rivers, Nebraska; Mono Lake, California; Great Salt Lake, Utah; and the Yucatan peninsula. Some smaller, lesser-known interior sites that do not meet WHSRN numeric criteria but provide consistent water availability and quality may also be important to some shorebird species that migrate in small flocks (Robinson and Warnock 1996).

The terms *stopover* and *staging area* are often used interchangeably. Stopover sites may be defined more broadly as sites where birds rest and feed during migration to refuel or avoid adverse conditions (Warnock 2010). Though most species migrate on broad fronts and stopover strategies among and within species are complex, fragments of forested areas and riparian corridors (i.e., oases relative to the surrounding landscape) often provide important stopover habitats.

The Development Area is within BCR 17 (Badlands and Prairies). BCR 17 contains many contiguous grassland tracts of significant size which is habitat for some of the healthiest populations of high priority dry-grassland birds in North America (North American Bird Conservation Initiative 2021). The wetlands associated with the Heart River and Edward Arthur Patterson Lake and open water features, including Edward Arthur Patterson Lake, that occur within the Development Area or 1-mile buffer are water sources which likely receive use by upland nesting waterfowl and broods.

The Development Area and 1-mile buffer do not contain negative barriers, such as large bodies of water, mountain ridges that offer energy-efficient flight via updrafts, or prominent north–south topography, which are features that would funnel migrant raptors. The Development Area and 1-mile buffer are within a known avian species-specific migration corridor, the whooping crane migration corridor, and the potential for migrating whooping cranes to stop over within the Development Area or 1-mile buffer does exist (Pearse, Rabbe, Bidwell et al. 2018; Pearse, Rabbe, Juliusson et al. 2018).

Bat migratory routes and stopover areas are poorly known (Baerwald and Barclay 2011; Baerwald et al. 2009; Dyke et al. 2015; Fleming and Eby 2003; Froidevaux et al. 2014). Emerging guidelines for pre-construction surveys have focused on identifying important wildlife habitat for bats such as hibernacula and maternity colonies and potential movement corridors between these important sites (Arnett and Baerwald 2013; Bennett and Hale 2018; Hein et al. 2013).

3.4.9 Plant Communities of Concern

The USFWS IPaC report does not list any federally protected plants as having the potential to occur within the Development Area or 1-mile buffer. The only federally listed plant species that occurs in North Dakota is the western prairie fringed orchid (*Platanthera praeclara*; federally threatened); however, the species is not known to occur in Stark County (NRCS 2021b). The Development Area and 1-mile buffer is either outside the known geographic or elevational range of federally listed plant species or it does not contain vegetation or landscape features known to support these species, or both.

The North Dakota NHI did not identify any significant ecological communities within an approximate one-mile radius of the Development Area (North Dakota NHI 2021). One significant ecological community, Needle-and-thread Mixed Grass Prairie (*Stipa comata – Bouteloua gracilis*/*Carex filifolia* prairie) was noted west, and outside, of the 1-mile buffer. However, this record dates to 1935 and the proposed project would not impact this community or any other known sensitive ecological communities.

Much of the native grasslands once abundant in North Dakota have disappeared or become heavily altered since European settlement in the late 1800s. As such, native grassland has a high conservation value due to its importance to species that rely on such habitat (Dyke et al. 2015). Native grasslands are unbroken: they have never been tilled or broken or may have been tilled in the late nineteenth or early twentieth century but without plows cutting deeply enough to destroy the soil profile and/or change the topography and grassland potential of the landscape.

During the site reconnaissance visit, SWCA did not identify any areas within the Development Area that have native grassland species.

3.4.10 Winter Ranges

The WEG (USFWS 2012) suggests evaluating the importance of winter ranges with respect to big game species. The Development Area and 1-mile buffer are outside of the established range for elk (*Cervus canadensis*), bighorn sheep (*Ovis canadensis),* and moose (*Alces alces*) in North Dakota. However, the Development Area and 1-mile buffer are within the established range for white-tailed deer (*Odocoileus virginianus*), pronghorn (*Antilocapra americana*), and mule deer (*Odocoileus hemionus*). None of these species were observed within the Development Area or 1-mile buffer by SWCA during site reconnaissance. White-tailed deer use a variety of habitats including riparian areas, forests, grasslands, or agricultural land, habitat which can be found within the Development Area and 1-mile buffer. White-tailed deer breed in late fall (November) and birth young from late May through late June (NDGFD 2019b). White-tailed deer may use agricultural land within the Development Area for foraging. Pronghorn primary range is in the extreme southwestern part of the state, with diminishing numbers north and east. Pronghorn are a landscape scale species that require large blocks of open continuous habitat. Sagebrush plains and shortgrass prairie associated with open terrain are common habitats. Pronghorn breeding peaks in mid-September and birth young late May to June (NDGFD 2019c). Mule deer are primarily found in the badlands adjacent to the Little Missouri River. Mule deer established range extends to the north and east to the breaks along the Missouri River. Their habitat includes sagebrush plains and shortgrass prairie associated with buttes and rough badlands terrain. Mule deer breeding peaks in mid-November and birth young from late May to June (NDGFD 2019d). Wetlands and open water features

described in Section 3.3 likely support migrating and wintering waterfowl or shorebirds, though the large size of the wetlands and pond complexes located east of the 1-mile buffer may attract more migrating individuals than those within the Development Area or 1-mile buffer.

3.5 Special-Status Lands and Lands of Biological Significance

There are no critical habitats within the Development Area, or within five miles of the Development Area. The closest critical habitat is for the piping plover (*Charadrius melodus*) approximately 53 miles northeast of the Development Area (USFWS 2020a).

There are no IBAs (Audubon 2021), WHSRN sites (WHSRN 2021), Wetlands of International Importance (Ramsar sites) (Ramsar 2021), Wilderness Areas (Wilderness Connect 2021), or Wild and Scenic Rivers (National Wild and Scenic Rivers System 2021), National Wildlife Refuges (USFWS 2021e), or state parks (North Dakota Parks and Recreation Department 2019) within the Development Area, or within five miles of the Development Area.

No other special designation areas occur within the Development Area, though lands associated with the Edward Arthur Patterson Lake Recreation Area, which is managed by the Bureau of Reclamation, occur adjacent to, though outside of, the Development Area. Additionally, Conservation Reserve Program easements occur within 5 miles of the Development Area.

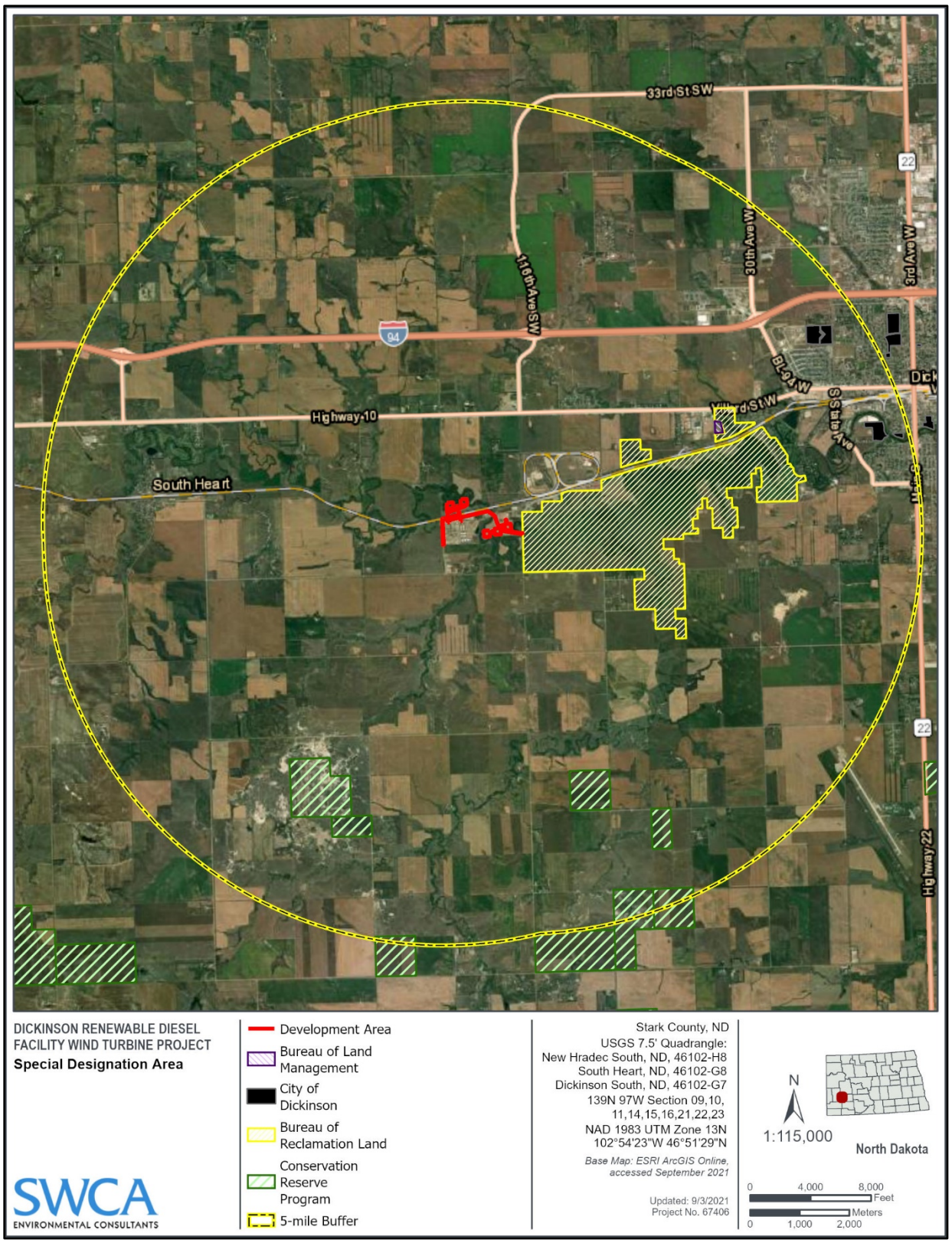

Figure 6. Special designation areas within 5 miles of Dickinson Renewable Diesel Facility Wind Turbine Project Development Area and 5-mile buffer, Stark County, North Dakota.

4 SUMMARY

This report evaluates all questions suggested for WEG Tiers 1 and 2, and ECPG Stage 1. The following is a summary of findings.

- Aquatic resources within the Development Area include freshwater emergent wetlands, and riverine habitat, although these habitats are limited. Aquatic resources within the 1-mile buffer include freshwater emergent wetlands, freshwater ponds, lakes, riverine, and freshwater forested/shrub wetlands.
- Two federally listed species, whooping crane and northern long-eared bat, may occur within the Development Area and 1-mile buffer. Based on the species' habitat and range requirements, anticipated use of the Development Area or 1-mile buffer by these species is expected to be occasional/rare.
- No bald eagle nests are known within two miles of the Development Area. However, bald eagles may occur in the Development Area or 1-mile buffer year-round.
- No golden eagle nests are known within two miles of the Development Area. However, golden eagles may occur within the Development Area or 1-mile buffer during any season or during spring and fall migration.
- Forty-eight (48) species designated as SCP Levels I, II, or III (including the two federally listed species, and bald and golden eagles) may occur within the Development Area or 1-mile buffer.
- Twenty (20) BCC species for BCR 17 may occur within the Development Area or 1-mile buffer.
- There are no critical habitats, IBAs, WHSRN sites, Wetlands of International Importance, Wilderness Area, Wildlife and Scenic Rivers, NWRs, or state parks within the Development Area or 1-mile buffer.
- No special designation areas occur within the Development Area, though special designation areas managed by Bureau of Reclamation (associated with the Edward Arthur Patterson Lake Recreation Area), and Conservation Reserve Program easements occur within a 5-mile buffer of the Development Area.
- There are no negative barriers, mountain ridges, or prominent north–south topography that would funnel migrant raptors within the Development Area or 1-mile buffer. There are no WHSRN staging or stopover areas within the Development Area or 1-mile buffer; however, the wetlands and open water features wetlands associated with the Heart River and Edward Arthur Patterson Lake within the Development Area and 1-mile buffer likely support migrating waterfowl and shorebird species.
- The Development Area and 1-mile buffer are within the range of one lekking species, the sharp-tailed grouse. Based on the species' range and habitat requirements, sharp-tailed grouse individuals and leks have potential to occur in the Development Area and 1-mile buffer but are not expected to nest within the Development Area.
- Based on information obtained during the Tier 1 Preliminary Site Evaluation and Tier 2 Site Characterization Study, overall risk to wildlife, including northern long-eared bat and whooping crane, is considered relatively low.

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APPENDIX A

Species and Critical Habitats List for the Development Area and 1-mile Buffer, USFWS Information for Planning and Consultation System

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

IPaC resource list

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

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

Location

Stark County, North Dakota

Local office

North Dakota Ecological Services Field Office

(701) 250-4481
(701) 355-8513

3425 Miriam Avenue
Bismarck, ND 58501-7926

http://www.fws.gov/northdakotafieldoffice/endspecies/endangered_species.htm

Endangered species

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

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

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

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

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

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

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

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1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

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

Mammals

NAME	STATUS

Northern Long-eared Bat Myotis septentrionalis Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9045	Threatened

Birds

NAME	STATUS
Whooping Crane Grus americana There is **final** critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/758	Endangered

Critical habitats

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

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

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

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ

below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

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

NAME	BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)
Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Dec 1 to Aug 31
Golden Eagle Aquila chrysaetos This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/1680	Breeds Jan 1 to Aug 31
Lesser Yellowlegs Tringa flavipes This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9679	Breeds elsewhere
Long-eared Owl asio otus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3631	Breeds Mar 1 to Jul 15

Marbled Godwit Limosa fedoa — Breeds May 1 to Jul 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9481

Red-headed Woodpecker Melanerpes erythrocephalus — Breeds May 10 to Sep 10
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Willet Tringa semipalmata — Breeds Apr 20 to Aug 5
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Probability of Presence Summary

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

Probability of Presence (■)

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

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

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

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

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

Survey Effort (|)

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

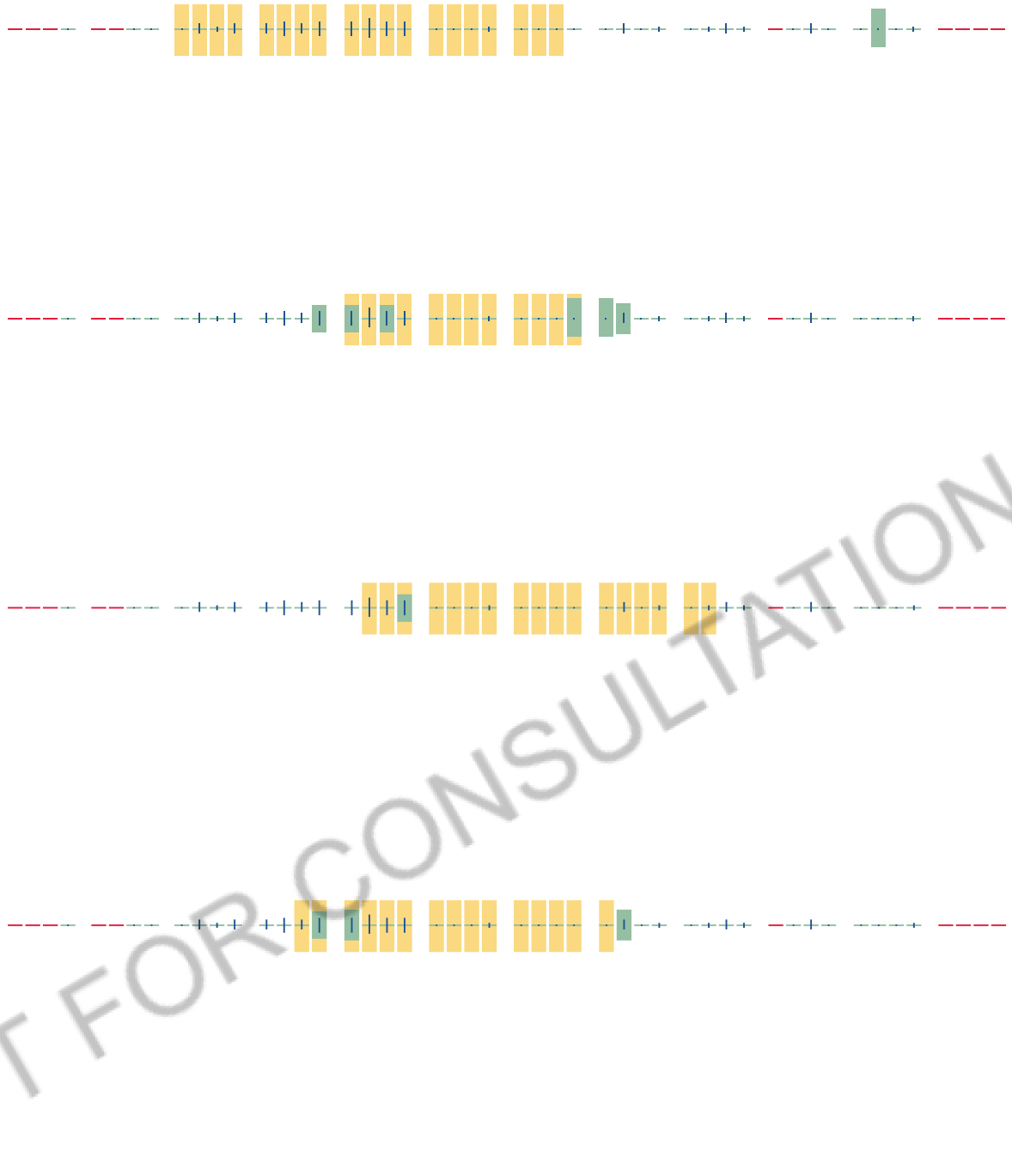
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

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



Long-eared Owl BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Marbled Godwit BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Red-headed Woodpecker BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Willet BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

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

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

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

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

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

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the AKN Phenology Tool.

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

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

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

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

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

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

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

Details about birds that are potentially affected by offshore projects

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

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

What if I have eagles on my list?

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

Proper Interpretation and Use of Your Migratory Bird Report

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

Facilities

National Wildlife Refuge lands

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

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

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

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

FRESHWATER EMERGENT WETLAND

- PEM1Ch
- PEM1C
- PEM1A
- PEM1Ah

FRESHWATER FORESTED/SHRUB WETLAND

- PFOAh
- PFOA

FRESHWATER POND

- PABFh
- PUSC
- PUBFx
- PABKx

LAKE

- L2ABFh

RIVERINE

- R2UBF
- R4SBC
- R5UBH

A full description for each wetland code can be found at the National Wetlands Inventory website

Data limitations

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

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

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

Data exclusions

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

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

APPENDIX B

North Dakota Natural Heritage Program Records Search for the Development Area

NORTH Dakota | Parks & Recreation
Be Legendary.™

July 27, 2021

Jereme Kent
One Energy, LLC
12385 Township Road 215
Findlay, OH

Re: Marathon's Dickinson Renewables – WPC Dickinson Wind Farm

Dear Mr. Kent,

The North Dakota Parks and Recreation Department (NDPRD) has reviewed the above-referenced wind farm Project in Stark County, North Dakota. NDPRD's scope of authority and expertise covers properties that NDPRD owns, leases, or manages; properties protected under Section 6(f) of the Land and Water Conservation Fund (LWCF); rare plants and ecological communities established through the Natural Heritage Program.

The project does not appear to affect properties that NDPRD owns, leases, or manages.

The project does not appear to affect any properties protected under Section 6(f) of the LWCF.

The North Dakota Natural Heritage biological conservation database has reviewed the project to determine if any current or historical plant or animal species of concern or other significant ecological communities are known to occur within an approximate one-mile radius of the project area. Based on this review, we have no known rare species or significant ecological communities documented within or immediately adjacent to the project site. Because the Natural Heritage information is not based on a comprehensive inventory, there may be species of concern or otherwise significant ecological communities in the area that are not represented in the database. The absence of data may indicate that the project area has not been surveyed rather than confirm that it lacks natural heritage resources.

We appreciate your commitment to rare plant, animal, and ecological community conservation, management, and inter-agency cooperation to date. For additional information, please get in touch with Natural Resources Coordinator Kathy Duttenhefner at 701-328-5370, 701-220-3377 (cell), or kgduttenhefner@nd.gov.

Thank you for the opportunity to comment on the proposed project.

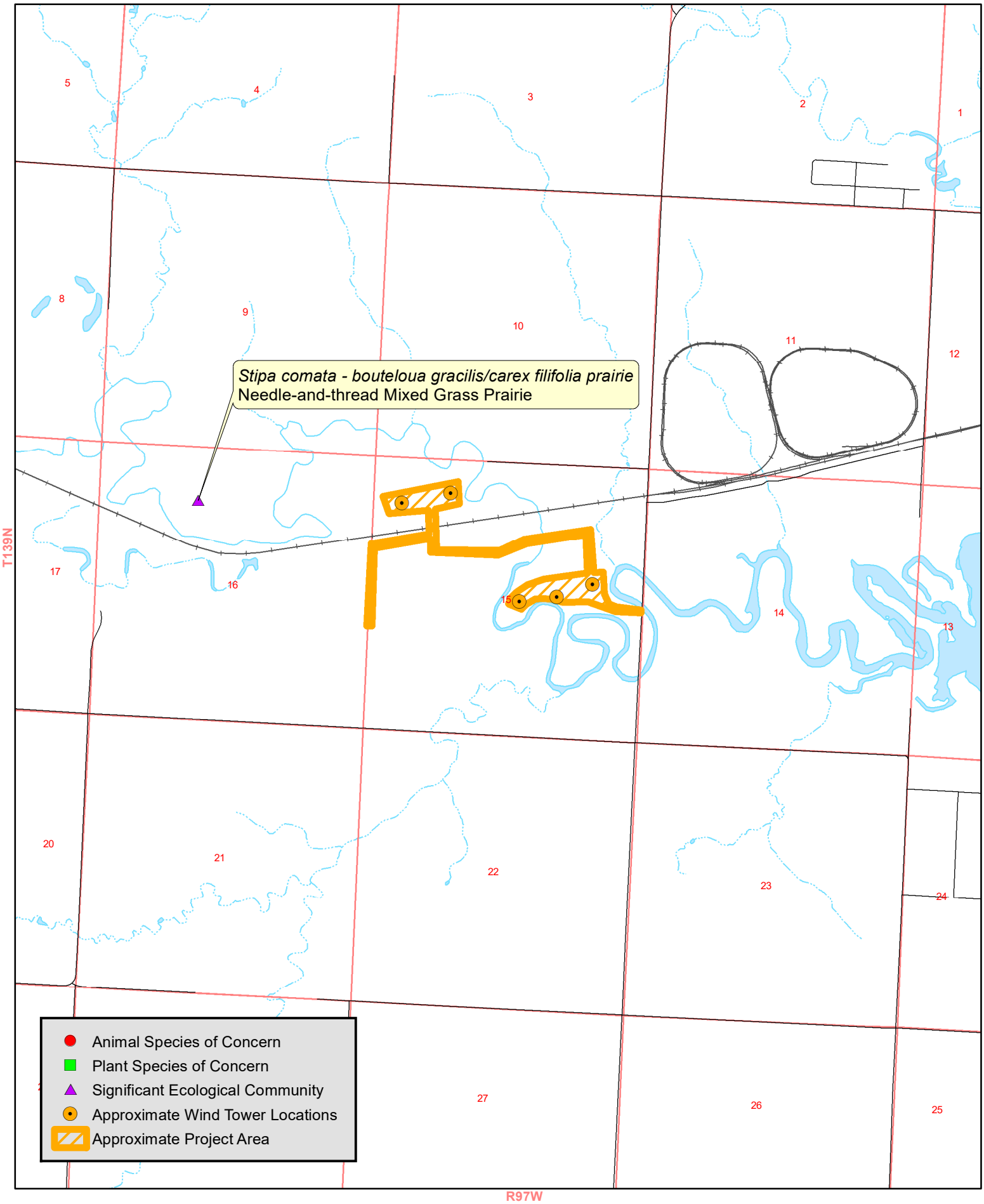
Kathy Duttenhefner

Kathy Duttenhefner
Coordinator/Biologist II, Natural Resources

1600 East Century Ave. Ste. 3 | Bismarck, ND 58503

PHONE: 701-328-5357 | FAX: 701-328-5363 | EMAIL: parkrec@nd.gov | WEBSITE: www.parkrec.nd.gov

North Dakota Parks and Recreation Department
North Dakota Natural Heritage Inventory



July 2021

North Dakota Natural Heritage Inventory

Rare Animal and Plant Species and Significant Ecological Communities

State Scientific Name	State Common Name	State Rank	Global Rank	Federal Status	Township Range Section	County	Last Observation	Estimated Representation Accuracy	Precision
Stipa comata - bouteloua gracilis/carex filifolia prairie	Needle-and-thread Mixed Grass Prairie	S2	GNR		139N097W - 16; 140N098W - 34; 139N097W - 36; 139N097W - 27; 139N097W - 09; 139N098W - 36; 139N097W - 07; 140N097W - 36; 140N097W - 27; 139N097W - 29; 139N096W - 08; 138N097W - 10; 140N097W - 28; 140N097W - 19; 139N096W - 18; 140N097W - 29; 139N096W - 17	Stark	1935-08-03		G

APPENDIX C

Special-Status Species Reviewed for Their Potential to Occur in the Development Area and 1-mile Buffer

Table C-1. Species of Concern and Their Potential to Occur in the Development Area

Common Name (Scientific Name)	Status*		Habitat Requirements	Potential for Occurrence in Development Area and 1-mile buffer
	Federal	State		
Amphibians and Reptiles				
Canadian toad (*Anaxyrus hemiophrys*)	–	SCP I	Margins of wetlands, ponds, and lakes.	Unlikely to occur. The Development Area and 1-mile buffer are not within North Dakota Game and Fish Department (NDGFD) primary range. No secondary range is mapped by NDGFD.
False map turtle (*Graptemys pseudogeographica*)	–	SCP III	Large rivers or streams.	Unlikely to occur. The Development Area and 1-mile buffer are not within NDGFD primary range. No secondary range is mapped by NDGFD. In North Dakota, the species is known only from the Missouri River system below Garrison Dam.
Northern prairie skink (*Plestiodon septentrionalis*)	–	SCP III	Grassy hillsides with soft soil and small, flat rocks.	Unlikely to occur. The Development Area and 1-mile buffer are not within NDGFD primary or secondary range. The largest population in North Dakota likely occurs in grasslands in the southeastern-most portion of the state.
Plains hog-nosed snake (*Heterodon nasicus*)	–	SCP I	Sandy or gravelly areas of grasslands.	May occur during spring, summer, or fall. The Development Area and 1-mile buffer are within NDGFD primary range and contain appropriate habitat associations.
Plains spadefoot (*Spea bombifrons*)	–	SCP I	Open grasslands with sandy soils.	May occur during spring, summer, or fall. The Development Area and 1-mile buffer are within NDGFD primary range and contain appropriate habitat associations.
Sagebrush lizard (*Sceloporus graciosus*)	–	SCP III	Rocky sagebrush habitats of western North Dakota.	Unlikely to occur. The Development Area and 1-mile buffer are not within NDGFD primary range. No secondary range is mapped by NDGFD.
Short-horned lizard (*Phrynosoma hernandesi*)	–	SCP II	Arid landscapes, shortgrass prairie, and rough terrain of the badlands in western North Dakota.	Unlikely to occur. The Development Area and 1-mile buffer are not within NDGFD primary or secondary range.
Smooth green snake (*Opheodrys vernalis*)	–	SCP I	Grassland areas including native prairie or moist meadows.	May occur during spring, summer, or fall. The Development Area and 1-mile buffer are within NDGFD primary range and contain appropriate habitat associations.

Common Name (Scientific Name)	Status*		Habitat Requirements	Potential for Occurrence in Development Area and 1-mile buffer
	Federal	State		
Smooth softshell (*Apalone mutica*)	–	SCP III	Permanent streams or creeks with sandy or muddy substrate and sandy beaches.	Unlikely to occur. The Development Area and 1-mile buffer are not within NDGFD primary range. No secondary range is mapped by NDGFD. In North Dakota, known only from the extreme lower portion of the Missouri River system.
Spiny softshell (*Apalone spinifera*)	–	SCP III	Large permanent streams with sandy or muddy substrates.	Unlikely to occur. The Development Area and 1-mile buffer are not within NDGFD primary range. No secondary range is mapped by NDGFD. In North Dakota, known only from the Missouri River system below Garrison Dam and the headwaters of Lake Oahe.
Snapping turtle (*Chelydra serpentina*)	–	SCP II	Slow-moving rivers and streams high in sediment or large, permanent waterbodies with muddy bottoms.	May occur during spring, summer, or fall. The Development Area and 1-mile buffer are within NDGFD primary range and contain appropriate habitat associations.
Birds				
American dipper	BCC	-	Fast-moving rock streams.	Unlikely to occur. The Development Area and 1-mile buffer are not within species range and does not contain the preferred habitat.
American avocet (*Recurvirostra americana*)	–	SCP II	Shallow water of ephemeral, temporary, seasonal, permanent, or semi-permanent wetlands or lakes.	May occur during the breeding season. The Development Area and 1-mile buffer are within NDGFD secondary range and contain appropriate habitat associations. Documented within 10 miles of the Development Area.
American bittern (*Botaurus lentiginosus*)	–	SCP I	Wetlands with tall emergent vegetation and/or tall grasslands.	May occur during the breeding season. The Development Area and 1-mile buffer are within NDGFD secondary range and contains appropriate habitat associations. Documented within 10 miles of the Development Area.
American kestrel (*Falco sparverius*)	–	SCP II	Open or semi-open landscapes including agricultural fields, pastures, and grasslands.	May occur during the breeding season. The Development Area and 1-mile buffer are within NDGFD primary range and contain appropriate habitat associations. Documented within 10 miles of the Development Area.
American white pelican (*Pelecanus erythrorhynchos*)	–	SCP II	Large lakes and semi-permanent wetlands.	May occur during the breeding season or migration. The Development Area and 1-mile buffer are within NDGFD secondary range and contain appropriate habitat associations. Documented within 10 miles of Development Area.

Common Name (Scientific Name)	Status*		Habitat Requirements	Potential for Occurrence in Development Area and 1-mile buffer
	Federal	State		
Baird's sparrow (*Ammodramus bairdii*)	BCC	SCP I	Large tracts of native mixed-grass prairie or lightly grazed pastures.	May occur during the breeding season. The Development Area and 1-mile buffer are within NDGFD primary range and contain appropriate habitat associations.
Bald eagle (*Haliaeetus leucocephalus*)	BGEPA	SCP II	Large rivers, lakes, or wetlands with nearby mature stands of trees for nesting. Found year-round in North Dakota.	May occur year-round. The Development Area and 1-mile buffer are within NDGFD secondary range and contain trees and open water features that may be used by breeding bald eagles. Documented within 10 miles of the Development Area.
Black tern (*Chlidonias niger*)	BCC	SCP I	Shallow wetlands, semi-permanent wetlands, and lake margins that are surrounded by grassland.	May occur during the breeding season. The Development Area and 1-mile buffer are within NDGFD secondary range and contain appropriate habitat associations. Documented within 10 miles of the Development Area.
Black-billed cuckoo (*Coccyzus erythropthalmus*)	BCC	SCP I	Thickets or edges of woodlands, riparian areas, and shelterbelts of farmsteads.	May occur during the breeding season. The Development Area and 1-mile buffer are within NDGFD primary range and contain appropriate habitat associations.
Bobolink (*Dolichonyx oryzivorus*)	BCC	SCP II	Native or tame grasslands with dense vegetation.	May occur during the breeding season. The Development Area and 1-mile buffer are within NDGFD primary range and contain appropriate habitat associations. Documented within 10 miles of the Development Area.
Brewer's sparrow (*Spizella breweri*)	–	SCP III	Big sagebrush within shortgrass prairie landscapes of western North Dakota.	Unlikely to occur. The Development Area and 1-mile buffer are not within NDGFD primary or secondary range and do not contain the preferred habitat for this species.
Burrowing owl (*Athene cunicularia*)	BCC	SCP II	Open grasslands with short vegetation including grazed pastures, native prairie, hayfields, and fallow agricultural fields. Black-tailed prairie dog (*Cynomys ludovicianus*) towns are key areas for this species	May occur during the breeding season. The Development Area and 1-mile buffer are within NDGFD secondary range.
California gull (*Larus californicus*)	BCC	–	Can be found in pastures, scrublands, parking lots, beaches, or lakes.	May occur during the breeding season. The Development Area and 1-mile buffer are within species range and contain appropriate habitat associations. Documented within 10 miles of the Development Area.

Common Name (Scientific Name)	Status*		Habitat Requirements	Potential for Occurrence in Development Area and 1-mile buffer
	Federal	State		
Canvasback (*Aythya valisineria*)	–	SCP II	A variety of wetland types, lakes, and marshes with emergent vegetation.	May occur during the breeding season. The Development Area and 1-mile buffer are within NDGFD secondary range and contain appropriate habitat associations. Documented within 10 miles of the Development Area.
Chestnut-collared longspur (*Calcarius ornatus*)	BCC	SCP I	Shortgrass or mixed-grass prairie.	May occur during the breeding season. The Development Area and 1-mile buffer are within NDGFD primary range and contain appropriate habitat associations.
Dickcissel (*Spiza americana*)	–	SCP II	Grassland habitats with dense vegetation including retired agricultural fields, Conservation Reserve Program (CRP) land, hedgerows, or grazed pastures.	May occur during the breeding season. The Development Area and 1-mile buffer are within NDGFD secondary range and contain appropriate habitat associations.
Ferruginous hawk (*Buteo regalis*)	BCC	SCP I	Open landscapes including native prairie.	May occur during the breeding season. The Development Area and 1-mile buffer are within NDGFD secondary range and contain appropriate habitat associations. Documented within 10 miles of the Development Area.
Franklin's gull (*Leucophaeus pipixcan*)	BCC	SCP I	Large open wetlands with some emergent vegetation and agricultural fields.	May occur during the breeding season. The Development Area and 1-mile buffer are not within NDGFD primary or secondary range and do not contain the preferred habitat for this species. Documented within 10 miles of Development Area.
Golden eagle (*Aquila chrysaetos*)	BGEPA	SCP II	Open landscapes of grasslands and shrublands, typically in western North Dakota.	May occur during migration or year-round. The Development Area and 1-mile buffer are within NDGFD secondary range and contain appropriate habitat associations. Documented within 10 miles of the Development Area.
Grasshopper sparrow (*Ammodramus savannarum*)	BCC	SCP I	Grasslands such as mixed-grass prairie or hayfields. Prefers vegetation of intermediate height, moderate litter depth, and sparse woody vegetation.	May occur during the breeding season. The Development Area and 1-mile buffer are within NDGFD primary range and contain appropriate habitat associations. Documented within 10 miles of the Development Area.
Greater prairie-chicken (*Tympanuchus cupido*)	–	SCP II	Undisturbed, native tallgrass prairie with nearby cropland.	Unlikely to occur. The Development Area and 1-mile buffer are not within NDGFD primary range. The two primary breeding populations occur in far eastern North Dakota.

Common Name (Scientific Name)	Status*		Habitat Requirements	Potential for Occurrence in Development Area and 1-mile buffer
	Federal	State		
Greater sage-grouse (*Centrocercus urophasianus*)	–	SCP I	Sagebrush habitats in the extreme southwest portion of the state.	Unlikely to occur. The Development Area and 1-mile buffer are outside of NDGFD primary range and do not contain the preferred habitat for this species.
Horned grebe (*Podiceps auritus*)	–	SCP I	Ponds and wetlands with emergent vegetation and large areas of open water.	May occur during the breeding season. The Development Area and 1-mile buffer are within NDGFD secondary range and contain appropriate habitat associations. Documented within 10 miles of the Development Area.
Lark bunting (*Calamospiza melanocorys*)	BCC	SCP I	Mixed-grass prairie with shrubs or fallow cropland.	May occur during the breeding season. The Development Area and 1-mile buffer are within NDGFD primary range and contain appropriate habitat associations. Documented within 10 miles of the Development Area.
Le Conte's sparrow (*Ammodramus leconteii*)	–	SCP II	A variety of open habitats including marshy or wet meadows, native and tame grasslands, CRP land, and idle pastures.	Unlikely to occur. The Development Area and 1-mile buffer are not within NDGFD primary or secondary range.
Least tern (Interior) (*Sterna antillarum athalassos*)	–	SCP II	Sparsely vegetated sandbars or salt flats along the Missouri River system.	Unlikely to occur. The Development Area and 1-mile buffer are not within NDGFD primary range. In North Dakota, the species only occurs in the Yellowstone River, Missouri River, Lake Sakakawea, and Lake Oahe, none of which occur in the Development Area or 1-mile buffer.
Lesser scaup (*Aythya affinis*)	–	SCP II	A variety of wetland types, lakes, and marshes with emergent vegetation.	May occur during the breeding season. The Development Area and 1-mile buffer are within NDGFD secondary range and contain appropriate habitat associations. Documented within 10 miles of the Development Area.
Lesser yellowlegs (*Tringa flavipes*)	BCC	–	Mudflats and shallow pools and marshes.	May occur during migration. The Development Area and 1-mile buffer are within migration range for this species and the Development Area and 1-mile buffer contain appropriate migration habitat. The species does not breed in North Dakota. Documented within 10 miles of the Development Area.
Lewis's woodpecker (*Melanerpes lewis*)	BCC	–	Open woodlands, sometimes close to human settlements.	Unlikely to occur. The Development Area and 1-mile buffer are not within species known range.

Common Name (Scientific Name)	Status*		Habitat Requirements	Potential for Occurrence in Development Area and 1-mile buffer
	Federal	State		
Loggerhead shrike (*Lanius ludovicianus*)	–	SCP II	Open habitats with short grass and scattered shrubs or low trees.	May occur during the breeding season. The Development Area and 1-mile buffer are within NDGFD primary range and contain appropriate habitat associations. Documented within 10 miles of the Development Area.
Long-eared owl (*Asio otus*)	BCC	–	Mix of dense cover for roosting, such as brushy thickets or conifer groves.	May occur during the breeding season. The Development Area and 1-mile buffer are within species known range and contain appropriate habitat associations. Documented within 10 miles of Development Area.
Long-billed curlew (*Numenius americanus*)	–	SCP I	Expansive, open grasslands with short vegetation such as short-grass or grazed mixed-grass prairie.	May occur during the breeding season. The Development Area and 1-mile buffer are within NDGFD secondary range and contain appropriate habitat associations. Documented within 10 miles of Development Area.
Marbled godwit (*Limosa fedoa*)	BCC	SCP I	Large expanses of short, sparse, or moderately vegetated uplands with nearby wetlands for nesting.	May occur during the breeding season. The Development Area and 1-mile buffer are within NDGFD secondary range and contain appropriate habitat associations. Documented within 10 miles of the Development Area.
McCown's longspur/Thick-billed longspur (*Calcarius mccownii*)	BCC	SCP III	Shortgrass prairie of western North Dakota.	Unlikely to occur. The Development Area and 1-mile buffer are not within the NDGFD possible range for this species.
Mountain plover (*Charadrius montanus*)	BCC	–	Nests in shortgrass prairie, especially in areas where blue grama (*Bouteloua gracilis*), buffalo grass (*Bouteloua dactyloides*), and western wheatgrass (*Pascopyrum smithii*) are dominant.	Unlikely to occur. The Development Area and 1-mile buffer are not within the known range for this species.
Nelson's sparrow (*Ammodramus nelsoni*)	–	SCP I	Shallow marshes or wet meadows on the edges of wetlands, damp areas with damp grass.	Unlikely to occur. The Development Area and 1-mile buffer are not within NDGFD primary or secondary range. However, the species has been documented within 10 miles of Development Area.
Northern harrier (*Circus cyaneus*)	BCC	SCP II	Grasslands and wetlands with dense vegetation for foraging and nesting. Forages over native or tame vegetation in wet or dry grasslands, wetlands, grazed pasture, or croplands.	May occur during the breeding season. The Development Area and 1-mile buffer are within NDGFD primary range and contain appropriate habitat associations. Documented within 10 miles of Development Area.

Common Name (Scientific Name)	Status*		Habitat Requirements	Potential for Occurrence in Development Area and 1-mile buffer
	Federal	State		
Northern pintail (*Anas acuta*)	–	SCP II	Wetland complexes with open water and nearby upland prairie.	May occur during the breeding season. The Development Area and 1-mile buffer are within NDGFD secondary range and contain appropriate habitat associations. Documented within 10 miles of the Development Area.
Peregrine falcon (*Falco peregrinus*)	–	SCP III	Native prairie, rocky cliffs near rivers, and the badlands area of western North Dakota.	Unlikely to occur. The Development Area and 1-mile buffer are within NDGFD possible range, though the species is considered rare in the state. The most recent naturally occurring nesting record in North Dakota is from 1954 on Bullion Butte in Billings County. Documented within 10 miles of the Development Area.
Pinyon Jay	BCC	–	Prefers open forests with pinyon pine and juniper.	Unlikely to occur. The Development Area and 1-mile buffer are not within the species known range.
Piping plover (*Charadrius melodus*)	T	SCP II	Sparsely vegetated shorelines of large rivers and alkali lakes. Sandbars of the Missouri River are a key area for the species in North Dakota.	Unlikely to occur. The Development Area and 1-mile buffer are not within NDGFD primary range; however, the Development Area is within NDGFD possible range. The Development Area does not contain the preferred habitat for the piping plover.
Prairie falcon (*Falco mexicanus*)	BCC	SCP II	Shortgrass prairie and shrub-steppe habitats of western North Dakota. Nests on cliffs, buttes, rock outcrops and ridges.	Unlikely to occur. The Development Area and 1-mile buffer are not within NDGFD primary or secondary range. The Development Area is within NDGFD possible range; however, it does not contain the preferred habitat for the prairie falcon. Documented within 10 miles of the Development Area.
Red-headed woodpecker (*Melanerpes erythrocephalus*)	BCC	SCP I	Stands of mature deciduous trees in shelterbelts, river bottoms, or near towns.	May occur during the breeding season. The Development Area and 1-mile buffer are within NDGFD secondary range and contain appropriate habitat associations. Documented within 10 miles of the Development Area.
Red knot (Rufa) (*Calidris canutus rufa*)	T	SCP III	Alkaline and freshwater lakes during migration. The species has been observed in the Missouri River system.	Unlikely to occur. The Development Area and 1-mile buffer are within NDGFD possible range, though the species is considered rare in the state and no consistent stopover sites are known within the state.
Sharp-tailed grouse (*Tympanuchus phasianellus*)	–	SCP II	Mixed-grass prairie and CRP grasslands interspersed with shrubs and small trees.	May occur year-round. The Development Area and 1-mile buffer are within NDGFD primary range and contain appropriate habitat associations.

Common Name (Scientific Name)	Status*		Habitat Requirements	Potential for Occurrence in Development Area and 1-mile buffer
	Federal	State		
Short-eared owl (*Asio flammeus*)	BCC	SCP II	Expansive, open grasslands, wetlands, native prairie, hay land, and retired cropland.	May occur year-round. The Development Area and 1-mile buffer are within NDGFD primary range and contain appropriate habitat associations.
Sprague's pipit (*Anthus spragueii*)	BCC	SCP I	Large tracts of mixed-grass prairie with vegetation of intermediate height and sparse to intermediate density.	May occur during the breeding season. The Development Area and 1-mile buffer are within NDGFD primary range and may contain suitable habitat association for this species.
Swainson's hawk (*Buteo swainsoni*)	–	SCP I	Open landscapes including agricultural land or grasslands with some trees and shrubs.	May occur during the breeding season. The Development Area and 1-mile buffer are within NDGFD primary range and contain appropriate habitat associations. Documented within 10 miles of the Development Area.
Upland sandpiper (*Bartramia longicauda*)	–	SCP II	Native and tame grassland, wetlands, or agricultural fields.	May occur during the breeding season. The Development Area and 1-mile buffer are within NDGFD secondary range and contain appropriate habitat associations. Documented within 10 miles of the Development Area.
Western meadowlark (*Sturnella neglecta*)	–	SCP II	Native or tame grasslands, roadsides, or hayfields.	May occur during the breeding season. The Development Area and 1-mile buffer are within NDGFD primary range and contain appropriate habitat associations. Documented within 10 miles of Development Area.
Whooping crane (*Grus americana*)	E	SCP III	Does not breed in North Dakota. During migration, uses wetlands and agricultural fields for foraging and roosting.	May occur during migration. The Development Area and 1-mile buffer are within NDGFD primary range and is within the 95% whooping crane migration corridor, indicating that it is relatively more likely for the species to occur in the Development Area or within the 1-mile buffer than in areas outside the 95% whooping crane migration corridor.
Willet (*Tringa semipalmatus*)	BCC	SCP II	Large tracts of short grasslands, especially native grassland. Also uses idle grassland and some grazed pasture.	May occur during the breeding season. The Development Area and 1-mile buffer are within NDGFD secondary range and the Development Area or 1-mile buffer may contain suitable grassland habitat for the species. Documented within 10 miles of the Development Area.
Wilson's phalarope (*Phalaropus tricolor*)	–	SCP I	Wetlands or the edges of wetlands that contain emergent vegetation and open shoreline for foraging. Nests in wet meadows or upland grasslands.	May occur during the breeding season. The Development Area and 1-mile buffer are within NDGFD secondary range and contain appropriate habitat associations. Documented within 10 miles of the Development Area.

Common Name (Scientific Name)	Status*		Habitat Requirements	Potential for Occurrence in Development Area and 1-mile buffer
	Federal	State		
Western Grebe (*Aechmophorus occidentalis*)	BCC	–	Large freshwater lakes and marshes with emergent vegetation along the edges.	May occur during the breeding season. The Development Area and 1-mile buffer are within species range and may contain suitable habitat for the species.
Yellow rail (*Coturnicops noveboracensis*)	–	SCP I	Wet meadows with moist soils, emergent vegetation, and shallow water.	Unlikely to occur. The Development Area and 1-mile buffer are not within NDGFD primary or secondary range.
Fish				
Blacknose shiner (*Notropis heterolepis*)	–	SCP III	Clear, vegetated pools of streams. Currently known from the Sheyenne River in Ransom County. Historically occurred in the Forest and Maple Rivers.	Unlikely to occur. The Development Area and 1-mile buffer are not within NDGFD primary, possible, or historical range of the species.
Blue sucker (*Cycleptus elongatus*)	–	SCP I	Fast currents of large turbid rivers. Occurs in the Missouri River system.	Unlikely to occur. The Development Area and 1-mile buffer are not within NDGFD primary or secondary range. The species only occurs in the Missouri River system. Key areas include the Missouri River's free flowing stretches above Lake Sakakawea and Lake Oahe and confluence areas of larger tributaries such as the Knife and Cannonball rivers.
Burbot (*Lota lota*)	–	SCP II	Large river systems and reservoirs.	Unlikely to occur. The Development Area and 1-mile buffer are not within NDGFD primary or secondary range. The species only occurs in the Missouri and Red River systems.
Carmine shiner (*Notropis percobromis*)	–	SCP III	Clear, fast streams with gravel or sandy substrates.	Unlikely to occur. The Development Area and 1-mile buffer are not within NDGFD primary, secondary, or possible range.
Chestnut lamprey (*Ichthyomyzon castaneus*)	–	SCP III	Larger river systems and lakes.	Unlikely to occur. The Development Area and 1-mile buffer are not within NDGFD primary or secondary ranges. In North Dakota, known only from the Red, Goose, and Sheyenne Rivers.
Finescale dace (*Phoxinus neogaeus*)	–	SCP III	Cool, boggy lakes and ponds, or streams that are approximately 1.0–3.0 meters wide and up to 0.5 meter deep.	Unlikely to occur. The Development Area and 1-mile buffer are not within NDGFD primary range. No secondary range is mapped by NDGFD. In North Dakota, known only from the Tongue River in the northeastern portion of the state.

Common Name (Scientific Name)	Status*		Habitat Requirements	Potential for Occurrence in Development Area and 1-mile buffer
	Federal	State		
Flathead chub (*Platygobio gracilis*)	–	SCP II	Slow turbid water with sand or gravel bottoms.	May occur year-round. The Development Area and 1-mile buffer are within NDGFD primary range and populations are known from the Heart River.
Hornyhead chub (*Nocomis biguttatus*)	–	SCP III	Pools and slow runs of clear, small rivers.	Unlikely to occur. The Development Area and 1-mile buffer are not within NDGFD primary or secondary range. In North Dakota, presently found in the Forest and Park Rivers. Historically occurred in the Sheyenne and Maple Rivers but has not been documented there recently.
Largescale stoneroller (*Campostoma oligolepis*)	–	SCP III	Pools and riffles of small, clear streams with gravel substrates.	Unlikely to occur. The Development Area and 1-mile buffer are not within NDGFD primary or possible range. In North Dakota, known only from the Forest River.
Logperch (*Percina caprodes*)	–	SCP III	Gravel-rocky areas of medium to large streams but can be found in most any habitat type.	Unlikely to occur. The Development Area and 1-mile buffer are not within NDGFD primary or secondary range.
Northern pearl dace (*Margariscus nachtriebi*)	–	SCP I	Cool and clear, shallow headwater streams with gravel or sand substrate.	Unlikely to occur. The Development Area and 1-mile buffer are not within current NDGFD primary or secondary range.
Northern redbelly dace (*Chrosomus eos*)	–	SCP II	Cold, clear headwater streams with slow moving water over silt bottoms. Vegetation is usually found nearby.	May occur year-round. The Development Area and 1-mile buffer are within NDGFD primary range. Populations are known from the Heart River.
Paddlefish (*Polyodon spathula*)	–	SCP II	Known from the Missouri and Yellowstone Rivers in western North Dakota. Prefers clam water of large rivers or areas of low flow behind sandbars.	Unlikely to occur. The Development Area and 1-mile buffer are not within NDGFD primary or secondary range.
Pallid sturgeon (*Scaphirhynchus albus*)	E	SCP II	Known from the Missouri and Yellowstone Rivers in western North Dakota.	Unlikely to occur. The Development Area and 1-mile buffer are not within NDGFD primary or historical range. No secondary range for this species is mapped by NDGFD.
Pugnose shiner (*Notropis anogenus*)	–	SCP III	Pools and small runs of clear streams. The last known occurrence of this species in North Dakota comes from the Forest River in 1964. May be extirpated from the state.	Unlikely to occur. The Development Area and 1-mile buffer are not within NDGFD historical range. No primary or secondary range for this species is mapped by NDGFD.

Common Name (Scientific Name)	Status*		Habitat Requirements	Potential for Occurrence in Development Area and 1-mile buffer
	Federal	State		
River darter (*Percina shumardi*)	–	SCP III	Rocky riffles of all size streams.	Unlikely to occur. The Development Area and 1-mile buffer are not within NDGFD historical range. No primary or secondary range for this species is mapped by NDGFD. In North Dakota, historically occurred in the Red and Sheyenne Rivers though the species is believed to be extirpated from the state.
Sicklefin chub (*Marcrhybopsis meeki*)	–	SCP I	Found within the main channels of the upper Missouri and Yellowstone Rivers in turbid water.	Unlikely to occur. The Development Area and 1-mile buffer are not within NDGFD primary or historical range. No secondary range for this species is mapped by NDGFD.
Silver chub (*Marcrhybopsis storeriana*)	–	SCP II	Sandy and silty substrates in pools or backwaters of small to large rivers.	Unlikely to occur. The Development Area and 1-mile buffer are not within NDGFD primary or historical range No secondary range for this species is mapped by NDGFD.
Silver lamprey (*Ichthyomyzon unicuspis*)	–	SCP III	In North Dakota, known only from the Red River, though recent surveys did not detect the species in the Red River (Dyke et al. 2015).	Unlikely to occur. The Development Area and 1-mile buffer are not within NDGFD primary range. No secondary range for this species is mapped by NDGFD.
Sturgeon chub (*Marcrhybopsis gelida*)	–	SCP I	Found within the main channels of the upper Missouri and Yellowstone Rivers in turbid water.	Unlikely to occur. The Development Area and 1-mile buffer are not within NDGFD primary, secondary, or historical range.
Trout-perch (*Percopsis omiscomaycus)*	–	SCP II	Found in lakes but may be found in deeper pools of rivers and streams. Bottom substrate is normally sand.	Unlikely to occur. The Development Area and 1-mile buffer are not within NDGFD primary or secondary range.
Yellow bullhead (*Ameriurus natalis)*	–	SCP III	Found in pools and slack water of streams. Bottom substrate normally soft (mud, silt).	Unlikely to occur. The Development Area and 1-mile buffer are not within NDGFD primary or possible range. No secondary range for this species is mapped by NDGFD.
Insects				
Dakota skipper (*Hesperia dacotae*)	T	SCP II	Native prairie dominated by bluestem grass (*Schizachyrium scoparium*; *Andropogon gerardii*) and several wildflower species.	Unlikely to occur. The Development Area and 1-mile buffer are not within NDGFD primary. No secondary range for this species is mapped by NDGFD.
Monarch butterfly (*Danaus plexippus*)	–	SCP I	Occurs wherever a high number of nectar sources are present.	May occur during the summer. The Development Area and 1-mile buffer are within NDGFD primary range and contain appropriate habitat associations.

Common Name (Scientific Name)	Status*		Habitat Requirements	Potential for Occurrence in Development Area and 1-mile buffer
	Federal	State		
Poweshiek skipperling (*Oarisma poweshiek*)	E	SCP II	High-quality native grasslands. Prefers wet to dry prairie with mesic hillsides near low, moist areas.	Unlikely to occur. The Development Area is not within NDGFD primary range. No secondary range for this species is mapped by NDGFD.
Regal fritillary (*Speyeria idalia*)	–	SCP I	Native prairie or wet meadow; frequently found in remnants of tallgrass prairie.	May occur during the summer. The Development Area and 1-mile buffer are within NDGFD primary range and may contain suitable habitat for the species.
Mammals				
American marten (*Martes americana*)	–	SCP II	Coniferous and mixed forests in the Turtle Mountains in extreme northern North Dakota.	Unlikely to occur. The Development Area and 1-mile buffer are not within NDGFD primary. No secondary range for this species is mapped by NDGFD. In North Dakota, this species is only known to occur in the Turtle Mountains region of Rolette and Bottineau Counties.
Arctic shrew (*Sorex arcticus*)	–	SCP III	Wet meadows and grass-sedge marshes. Known to occur in counties along the Canadian border.	Unlikely to occur. The Development Area and 1-mile buffer are not within NDGFD primary. No secondary range for this species is mapped by NDGFD.
Big brown bat (*Eptesicus fuscus*)	–	SCP I	The species does not have specific habitat requirements and can be found throughout the state if water and food sources are available.	May occur year-round, though hibernates during winter. The Development Area and 1-mile buffer are within NDGFD primary range and likely contains water and food sources that would support this species.
Black-footed ferret (*Mustela nigripes*)	E	SCP II	Requires presence of prairie dog (*Cynomys* sp.) towns. Believed to be extirpated from North Dakota but suitable habitat could be present in the Little Missouri National Grasslands of western North Dakota.	Unlikely to occur. The Development Area and 1-mile buffer are within NDGFD historical range for this species. No primary or secondary range for this species is mapped by NDGFD.
Black-tailed prairie dog (*Cynomys ludovicianus*)	–	SCP I	Prairie/grassland communities with short vegetation.	May occur year-round. The Development Area and 1-mile buffer are within NDGFD secondary range and the Development Area or 1-mile buffer contain appropriate habitat associations.
Eastern spotted skunk (*Spilogale putorius*)	–	SCP III	Wooded riparian corridors within prairie habitats. Will also use vegetated fence lines along agricultural fields.	Unlikely to occur. The Development Area and 1-mile buffer are not within NDGFD possible range. No primary or secondary range for this species is mapped by NDGFD. It is unclear whether the species has been extirpated from the state.

Common Name (Scientific Name)	Status*		Habitat Requirements	Potential for Occurrence in Development Area and 1-mile buffer
	Federal	State		
Gray fox (*Urocyon cinereoargenteus*)	–	SCP III	Shrubby vegetation associated with forested riparian areas. Found in agricultural landscapes and woodlots.	Unlikely to occur. The Development Area and 1-mile buffer are not within NDGFD possible range. No primary or secondary range for this species is mapped by NDGFD. It is unclear whether the species has been extirpated from the state.
Hispid pocket mouse (*Chaetodipus hispidus*)	–	SCP III	Short and mixed-grass prairie west of the Missouri River.	Unlikely to occur. The Development Area and 1-mile buffer are not within NDGFD primary range. No secondary range for this species is mapped by NDGFD. The species is found primarily in the southern portion of the state, west of the Missouri River.
Little brown bat (*Myotis lucifugus*)	–	SCP I	Generally associated with buildings (where they roost) near sources of flying insects. The species hibernates in caves and mines. No hibernacula have been identified in the state.	May occur year-round, though hibernates during winter. The Development Area and 1-mile buffer are within NDGFD primary range and contain appropriate habitat associations.
Long-eared bat (*Myotis evotis*)	–	SCP III	Rocky outcrops and cliffs in the badlands of western North Dakota.	Unlikely to occur. The Development Area and 1-mile buffer are not within NDGFD primary or secondary range.
Long-legged bat (*Myotis volans*)	–	SCP III	Conifer stands in the badlands of western North Dakota, as well as along the Missouri River.	Unlikely to occur. The Development Area and 1-mile buffer are not within NDGFD primary or possible range.
Merriam's shrew (*Sorex merriami*)	–	SCP III	Grasslands and sage-steppe habitat of extreme western North Dakota.	Unlikely to occur. The Development Area and 1-mile buffer are not within NDGFD possible range. No primary or secondary range for this species is mapped by NDGFD.
Northern long-eared bat (*Myotis septentrionalis*)	T	SCP I	Wooded habitat, where it roosts under loose tree bark.	May occur during spring, summer, or fall. The Development Area and 1-mile buffer are within NDGFD possible range and contain appropriate habitat associations. The species has only been identified in a few locations in the state including the Turtle Mountains along the Canadian border and the riparian corridors of the Little Missouri and Missouri Rivers. To date, no hibernacula have been identified for this species in North Dakota.
Plains pocket mouse (*Perognathus flavescens*)	–	SCP III	Grasslands with sandy soils or grassy areas with exposed sand dunes.	Unlikely to occur. The Development Area and 1-mile buffer are not within NDGFD primary range. No secondary range for this species is mapped by NDGFD.

Common Name (Scientific Name)	Status*		Habitat Requirements	Potential for Occurrence in Development Area and 1-mile buffer
	Federal	State		
Pygmy shrew (*Sorex hoyi*)	–	SCP II	Various habitat types including sandy, dry areas, woodlands, and pastures in northeastern North Dakota. Associated with grassland/wetland complexes.	Unlikely to occur. The Development Area and 1-mile buffer are not within NDGFD primary range. No secondary range for this species is mapped by NDGFD.
Richardson's ground squirrel (*Urocitellus richardsonii*)	–	SCP II	Rangeland including native or tame grasslands, with sandy loam or gravelly soils, in proximity to agricultural fields.	Unlikely to occur. The Development Area and 1-mile buffer are not within NDGFD primary range. No secondary range for this species is mapped by NDGFD.
River otter (*Lontra canadensis*)	–	SCP II	Rivers, streams, wetlands, lakes, and ponds.	May occur year-round. The Development Area and 1-mile buffer are within NDGFD possible range and contain habitat that could be used by the river otter.
Sagebrush vole (*Lemmiscus curtatus*)	–	SCP III	Semi-arid lands with typically loose, well-drained soil. Vegetation is normally sagebrush or rabbit brush with a grass component.	Unlikely to occur. The Development Area and 1-mile buffer are within NDGFD primary range; however, does not contain appropriate habitat associations.
Swift fox (*Vulpes velox*)	–	SCP II	Native prairie and open grasslands. Rare in North Dakota and may only occur in extreme western and southwestern portion of the state.	Unlikely to occur. The Development Area and 1-mile buffer are within NDGFD historical range for this species and not within possible range. No primary or secondary range for this species is mapped by NDGFD.
Townsend's big-eared bat (*Corynorhinus townsendii*)	–	SCP I	Found in the badlands of the Little Missouri River in the western portion of the state.	Unlikely to occur. The Development Area and 1-mile buffer are not within NDGFD primary range. No secondary range for this species is mapped by NDGFD. The species has only been found in the badlands near the Little Missouri River and in the Turtle Mountains along the Canadian border.
Western small-footed bat (*Myotis ciliolabrum*)	–	SCP III	Rocky cliffs and steep-sloped areas of western North Dakota along the Missouri and Little Missouri Rivers.	Unlikely to occur. The Development Area and 1-mile buffer are not within NDGFD primary or secondary range.
Mussels				
Black sandshell (*Ligumia recta*)	–	SCP II	Medium to large turbid rivers.	Unlikely to occur. The Development Area and 1-mile buffer are not within NDGFD primary, secondary, or historical range.
Creek heelsplitter (*Lasmigona compressa*)	–	SCP I	Headwaters of small to medium-sized streams. Has been found in the Pembina, Forest, Wintering, and Sheyenne Rivers.	Unlikely to occur. The Development Area and 1-mile buffer are not within NDGFD primary or historical range. No secondary range for this species is mapped by NDGFD.

Common Name (Scientific Name)	Status*		Habitat Requirements	Potential for Occurrence in Development Area and 1-mile buffer
	Federal	State		
Creeper (*Strophitus undulatus*)	–	SCP III	Streams of varying sizes and bottom substrates. In North Dakota, known only from the Forest River, South Branch of the Park River, and the Sheyenne River. The Sheyenne River appears to have the largest population.	Unlikely to occur. The Development Area and 1-mile buffer are not within NDGFD primary or secondary range.
Deertoe (*Truncilla truncata*)	–	SCP III	Medium to large rivers with mud, sand, or gravel substrates. In North Dakota, known only from the James River.	Unlikely to occur. The Development Area and 1-mile buffer are not within NDGFD primary range. No secondary range for this species is mapped by NDGFD.
Fragile papershell (*Leptodea fragilis*)	–	SCP III	Streams of varying sizes and bottom substrates. In North Dakota, known only from the James River.	Unlikely to occur. The Development Area and 1-mile buffer are not within NDGFD primary range. No secondary range for this species is mapped by NDGFD.
Mapleleaf (*Quadrula quadrula*)	–	SCP III	Medium to large rivers with gravel or mud substrates.	Unlikely to occur. The Development Area and 1-mile buffer are not within NDGFD primary range. No secondary range for this species is mapped by NDGFD.
Pink heelsplitter (*Potamilus alatus*)	–	SCP II	Large rivers with a channel width between 18 and 63 meters. Found in the Red and Sheyenne Rivers.	Unlikely to occur. The Development Area and 1-mile buffer are not within NDGFD primary range. No secondary range for this species is mapped by NDGFD.
Pink papershell (*Potamilus ohiensis*)	–	SCP I	Large river systems with mud, sand, or gravel substrate. Has only been collected from tributaries of the Missouri River with a stream width of 14–30 meters.	Unlikely to occur. The Development Area and 1-mile buffer are not within NDGFD primary range. No secondary range for this species is mapped by NDGFD.
Threeridge (*Amblema plicata*)	–	SCP I	Large river systems with mud, sand, or gravel substrate. Within North Dakota, known only from the Red and Sheyenne Rivers.	Unlikely to occur. The Development Area and 1-mile buffer are not within NDGFD primary range. No secondary range for this species is mapped by NDGFD.
Wabash pigtoe (*Fusconaia flava*)	–	SCP II	Large river systems with mud or sand substrate. Prefer channel width greater than 11 meters. Within North Dakota, known only from the Red and Sheyenne Rivers.	Unlikely to occur. The Development Area and 1-mile buffer are not within NDGFD primary range. No secondary range for this species is mapped by NDGFD.

Notes: Species include Eagle Act species, SCP Levels I, II, and III species listed in the State Wildlife Action Plan (Dyke et al. 2015), and Birds of Conservation Concern for Bird Conservation Region 17. Range or habitat requirement information and potential occurrence justification from Ammerman et al. (2012), Bat Conservation International (2021), Cornell Lab of Ornithology (2019), Dyke et al. (2015), eBird (2021), Reid (2006), Sibley (2000), USFWS (2019).

* Federal Status Definitions

BCC = Bird of Conservation Concern for Bird Conservation Region 17, BGEPA = Bald and Golden Eagle Protection Act, E = Endangered, T = Threatened

State Status Definitions

SCP = Species of Conservation Priority; species identified by Dyke et al. (2015) as having conservation priority. SCP Level I species are those categorized by Dyke et al. (2015) as having a "high level of conservation priority". SCP Level II species are those categorized by Dyke et al. (2015) as having a "moderate level of conservation priority". SCP Level III species are those categorized by Dyke et al. (2015) as having a "moderate level of conservation priority" but are believed to be peripheral or non-breeding in North Dakota.

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APPENDIX N

Dakota Prairie Refining, LLC Letter in Support of the Application

Dakota Prairie Refining, LLC
A subsidiary of Marathon Petroleum Corporation
539 S Main Street
Findlay, OH 45840

November 22, 2021

North Dakota Public Service Commission
600 E. Boulevard, Dept. 408
Bismarck, ND 58505-0480

RE: Letter in Support of the Application for a Certificate of Site Compatibility for the Dickinson Renewable Diesel Facility Wind Turbine Project

Dear Honorable Commissioners:

Dakota Prairie Refining, LLC (DPR) writes this letter in support of OEE XXXI LLC's (OE 31) application for a Certificate of Site Compatibility for the Dickinson Renewable Diesel Facility Wind Turbine Project (Project). DPR, a subsidiary of Marathon Petroleum Corporation (Marathon), owns the Dickinson Renewable Diesel Facility (Facility) though Marathon's 2019 acquisition of Andeavor.

We submit the following information in support of the application:

1. The Project will be located on land owned by DPR in Stark County, North Dakota and will directly power the Facility.

2. The Facility was originally constructed as a traditional fossil fuel refinery and commenced operation in 2015. The fossil fuel economics of the Facility proved unsustainable and DPR was acquired by Marathon in 2018. Marathon invested $500 million to convert the Facility to a renewable diesel facility in 2019. The Facility began producing renewable diesel in November 2020 and is currently the second largest operating renewable diesel facility in the United States.

3. As a renewable diesel facility, the Facility now processes nearly 4.5 million acres worth of agricultural feedstocks including, but not limited to, corn oil and soy oil each year. The fuels produced by this Facility are valued by their low carbon intensity (CI). Thus, as a renewable diesel facility it is imperative to continue to drive down CI to stay competitive.

4. To further lower the carbon intensity of the liquid fuels produced by the Facility, DPR made the decision to develop on-site renewable energy at the Facility. DPR ran a competitive bid process for both wind and solar options. Ultimately, DPR chose One Energy Enterprises LLC (One Energy), the parent company of OE 31, to install, own, and operate a wind energy project at the Facility because it proved to be the most economical and feasible clean energy solution.

5. One Energy has been operating a 1.5 MW wind energy project for Marathon at a pipeline pump station in Harpster, Ohio since 2016. That project has operated safely and without any material quality or performance issues. The years of experience that Marathon has with One Energy at the Harpster project helped inform DPR's selection of One Energy for this Project.

Dakota Prairie Refining, LLC
A subsidiary of Marathon Petroleum Corporation
539 S Main Street
Findlay, OH 45840

6. DPR chose not to own or operate the Project because the construction and operation of wind energy is not a core competency of DPR. The Project, is, however, being developed because it will add significant value for the Facility in both lower CI and long-term-fixed rate energy.
7. DPR has entered into a 20-year Renewable Energy Agreement with OE 31 to construct, own, and operate the Project.
8. The Project will be installed on DPR's property and has been designed so that nearly all of the energy produced will be consumed on-site by the Facility.
9. DPR's engineering team will supervise and oversee the Project design, construction, and operation, just as Marathon does with all major construction projects at its facilities.
10. DPR has reviewed the entire application being submitted by OE 31 and is supportive of the application.

In conclusion, DPR offers its strongest endorsement of the Project and requests that the Commission approve a Certificate of Site Compatibility for the Project.

Respectfully,

Rich Hernandez
Vice President
Dakota Prairie Refining, LLC