December 21, 2017

Mr. Daniel P. Wolf
Executive Secretary
Minnesota Public Utilities Commission
121 7th Place E., Suite 350
Saint Paul, Minnesota 55101

Re: Trimont Wind I, LLC - Large Wind Energy Conversion System
Site Permit Amendment Application
PUC Docket: IP6907/WS-13-258, EQB Permit: 03-72-LWECS-TRIMONT

Dear Mr. Wolf:

Trimont Wind I, LLC (Trimont Wind), a subsidiary of Avangrid Renewables, LLC (f/k/a Iberdrola Renewables, LLC), currently operates an existing 100.5 megawatt (MW) wind energy generation facility located in Martin and Jackson Counties, Minnesota. The Minnesota Environmental Quality Board issued Trimont Wind a Large Wind Energy Conversion System (LWECS) Site Permit (PUC Docket: IP6907/WS-13-258, EQB Permit: 03-72-LWECS-TRIMONT) on June 17, 2004 and amended it on October 21, 2004. The Site Permit expires June 30, 2034. The facility includes 67 1.5-MW General Electric (GE) turbines and commenced commercial operation in December 2005. The facility received a Certificate of Need (CON) from the Minnesota Public Utilities Commission (PUC) on June 2, 2004 (Docket IP-6339/CN-03-1841).

Trimont Wind is proposing to conduct facility upgrades for the purpose of increasing efficiency, reliability, and energy output and extending the life of the wind energy facility. The proposed upgrades would consist of retrofitting the existing wind turbines by replacing turbine equipment with new components. The turbine retrofits would include replacing equipment in the nacelle (such as the gearbox, oil cooler, drive shaft, and pitch drive), refurbishing the generator, replacing the rotor (nose cone, hub, and blades), and updating the electronic controls.

Accordingly, Trimont Wind submits three copies of the attached application for the Project. Trimont will e-file the application in PUC Docket: IP6907/WS-13-258 as well. If you have any questions regarding this information, please feel free to contact me at 612-886-1467 or adam.sokolski@avangrid.com.

Sincerely,

Adam M. Sokolski

cc: David Birkholz, Minnesota Commerce Department, Office of Energy Resources
Sarah Emery, Avangrid Renewables
Dan Flo and Amanda Bohnenblust, Barr Engineering
Eric F. Swanson and Elizabeth H. Schmiesing, Winthrop & Weinstine

Enclosure: Site Permit Amendment Application

Avangrid Renewables, LLC
1125 NW Couch St, Suite 700,
Portland, OR 97209

Large Wind Energy Conversion System
Site Permit Amendment Application
PUC Docket: IP6907/WS-13-258
EQB Permit: 03-72-LWECS-TRIMONT

Trimont Wind I, LLC

Prepared for
Trimont Wind I, LLC
a subsidiary of
Avangrid Renewables, LLC

AVANGRID
RENEWABLES

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December 2017

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Large Wind Energy Conversion System
Site Permit Amendment Application
Trimont Wind I, LLC

December 2017

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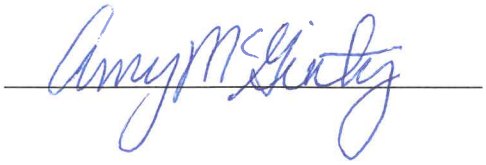
Acronyms and Abbreviations

Acronym	Description
ABPP	Avian and Bat Protection Plan
ADT	Average Daily Traffic
CON	Certificate of Need
CSAH	County State Aid Highways
CWP	Corporate Wildlife Plan
dBA	decibels, A-weighted scale
DNR	Minnesota Department of Natural Resources
DOC	Department of Commerce
EERA	Energy Environmental Review and Analysis
EQB	Environmental Quality Board
FAA	Federal Aviation Administration
FCC	Federal Communications Commission
ft	feet
FEMA	Federal Emergency Management Agency
GE	General Electric
GRE	Great River Energy
HPZ	High-potential Zone
hrs/yr	hours per year
IFR	instrument flight rules
kV	kilovolt
LWECS	Large Wind Energy Conversion System
m	meters
m/s	meters/second
MBS	Minnesota Biological Survey
MISO	Midcontinent Independent System Operator
MnDOT	Minnesota Department of Transportation
MPCA	Minnesota Pollution Control Agency
MW	megawatt
NCF	Net Capacity Factor
NHIS	Natural Heritage Information System
NLEB	Northern long-eared bat
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
PUC	Public Utilities Commission
RD	rotor diameter
RECs	renewable energy credits
ROW	right-of-way
RPBB	Rusty patched bumblebee

SCADA	Supervisory Control and Data Acquisition
SDS	State Disposal System
SHPO	State Historic Preservation Office
SWPPP	Stormwater Pollution Prevention Plan
SWCA	Soil and Water Conservation District
TAWF	Trimont Area Wind Farmers
Trimont Wind	Trimont Wind I, LLC
TV	television
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
WMRS	Wildlife Monitoring and Reporting System

Important Terms Used in this Application

Term	Description
Facility	Trimont Wind's existing 100.5 megawatt (MW) wind energy generation facility located in Martin and Jackson Counties, Minnesota
Project	Proposed upgrades to the existing Facility, consisting of retrofitting the existing wind turbines by replacing select components with new components and increasing the rotor diameter by installing longer blades.
Retrofit	Trimont Wind's terminology for the turbine upgrades that are the subject of this application. The retrofit process includes replacing select turbine components and installing longer turbine blades, thereby increasing both the rotor diameter and electricity output. The turbine locations will not change and the towers will remain the same height. In this way, the term "retrofit" is consistent with the PUC's unofficial term for this kind of activity, a "partial repowering."
Site Boundary	The boundary that was documented in the 2004 Site Permit and that is not subject to change as part of the proposed Project.

Applicant:	Trimont Wind I, LLC
Address:	1125 NW Couch Street Suite 600 Portland, Oregon 97209
Phone:	(503) 796-7000
Authorized Representative:	Amy McGinty, Vice President Avangrid Renewables, LLC
Signature:	
Preparers of Application:	Sarah Emery and Adam Sokolski Avangrid Renewables, LLC Amanda Bohnenblust and Daniel Flo Barr Engineering Co.

Introduction

Trimont Wind I, LLC (Trimont Wind), a subsidiary of Avangrid Renewables, LLC, currently operates an existing 100.5-megawatt (MW) wind energy generation facility located in Martin and Jackson counties, Minnesota (Facility) (Figure 1). The Minnesota Environmental Quality Board (EQB) issued Trimont Wind a Large Wind Energy Conversion System (LWECS) Site Permit (PUC Docket: IP6907/WS-13-258, EQB Permit: 03-72-LWECS-TRIMONT) on June 17, 2004 and amended it on October 21, 2004 (Site Permit) (Attachment A). The Site Permit expires June 30, 2034. The Facility includes 67 1.5-MW General Electric (GE) turbines and commenced commercial operation in December 2005. The Facility received a Certificate of Need (CON) from the Minnesota Public Utilities Commission (PUC) on June 2, 2004 (Docket IP-6339/CN-03-1841). The Site Permit boundaries on Figure 1-Figure 15 reflect the boundary permitted in 2004.

Avangrid Renewables, LLC is a subsidiary of AVANGRID, Inc. and part of the IBERDROLA Group. IBERDROLA, S.A., is an international energy company with the largest renewable asset base of any company in the world. Avangrid Renewables, LLC is headquartered in Portland, Oregon, and has more than $10 billion of operating assets totaling more than 6,000 MW of owned and controlled wind and solar generation in 22 U.S. states. Avangrid Renewables recently changed its legal name from Iberdrola Renewables, LLC. Avangrid Renewables owns and operates approximately 550 MW of wind energy in Minnesota including the 100.5-MW Trimont Wind Project, the 99-MW Elm Creek I Wind Project, the 148.8-MW Elm Creek II Wind Project, the 51-MW Moraine I Wind Project, the 50-MW Moraine II Wind Project, and the 150-MW MinnDakota Wind Project (100 MW in MN and 50 MW in SD).

Trimont Wind is partnered with Trimont Area Wind Farm, LLC (TAWF), which consists of more than 40 local farmer and landowner members who own land covering 35 square miles straddling the Martin-Jackson county line. TAWF owners are members of South Central Electric Association, a member-owner of Great River Energy (GRE). TAWF's owners not only receive the traditional lease payments for turbine and infrastructure siting but they also own an interest in the Facility's gross revenues through a revenue participation interest agreement.

Trimont Wind is pursuing a power purchase agreement (PPA) with a Minnesota customer for the output from the retrofitted plant. The PPA will provide the customer with a long-term supply of wind generated electricity at a competitive price, along with state of the art wind turbine technology. If a PPA is not achieved in the near term, Trimont Wind will be able to sell energy into the MISO market and related products such as renewable energy credits (RECs) to other customers until a long-term PPA is executed.

Trimont Wind is proposing to conduct Facility upgrades for the purposes of increasing the wind energy Facility efficiency, reliability, energy output and prolonging the useful life of the Facility. This proposed upgrade would install state of the art wind turbine technology that would enable the Facility to more efficiently utilize the site's wind resources, as is described in Minnesota Statutes Chapter 216F, and increase annual production and the net capacity factor (NCF) approximately 15%. Retrofitting these turbines would also avoid the decommissioning of the Facility and construction of a new facility, which is consistent with the principals of environmental preservation, sustainable development, and the efficient

use of resources consistent with Minnesota Statute Chapter 216F.03. The proposed upgrades consist of retrofitting the existing wind turbines by replacing turbine equipment with new components (referred to herein as "the Project"). The turbine retrofits would include replacing equipment in the nacelle (such as the gearbox, oil cooler, drive shaft, and pitch drive), refurbishing the generator from 1.5 to 1.6 MW, replacing the rotor (nose cone, hub, and blades), and updating the electronic controls.

To accomplish these improvements, Trimont Wind requests that the PUC amend the Site Permit as follows: Specifically, Trimont Wind requests the following changes to the existing permit:

- Permit construction of the retrofit Project;
- Increase the rotor diameter of all existing turbines from 77 meters (m) to 91 m;
- Increase the allowed turbine output from 1.5 to 1.6 MW;
- Increase the nameplate capacity of the Facility from 100.5 MW to 107.2 MW; and
- Extend the permit expiration date from June 30, 2034, to 30 years from amended permit issuance.

In addition, Trimont Wind will request an adjustment to permitted setbacks for certain wind turbines that would no longer comply with current setback requirements as a result of the proposed rotor diameter increase.

Statutory Authority

Minnesota Statutes Chapter 216F and Minnesota Rules Chapter 7854 govern the site permits for LWECS facilities, defined as "a combination of wind energy conversion systems with a combined nameplate capacity of 5,000 kilowatts or more."

Accordingly, Trimont Wind prepared this application for a site permit amendment in consultation with Minnesota Department of Commerce (DOC) staff and in accordance with the following, where applicable:

- The DOC – Office of Energy Resources – Energy Environmental Review and Analysis (EERA) "Application Guidance for Site Permitting of Large Wind Energy Conversion Systems in Minnesota" (refer to References) (1);
- The Site Permit (2); and
- Recently issued LWECS Site Permits to provide context regarding items that may have changed since original permit issuance.

Based on conversations with DOC and PUC staff, Trimont Wind used the Site Permit to structure this application for an amended permit. Only those parts of the Site Permit that would be changed as a result of the requested changes and resulting permit amendment are addressed in detail in this application. A table summarizing the requested changes is provided in Attachment B. In all other cases, Trimont Wind has simply noted that this request would result in "no change to permit language".

State Policy

Retrofitting existing turbines and an extension of the Site Permit term will allow Trimont Wind to more efficiently utilize the site's wind resources as is described in Minnesota Statutes Chapter 216F. Retrofitting these turbines avoids decommissioning the Facility and construction of a new facility, which is consistent with the principals of environmental preservation, sustainable development, and the efficient use of resources consistent with Minnesota Statute Chapter 216F.03.

Facility Ownership

Consistent with the original Site Permit Application dated March 12, 2004, Trimont Wind will continue to own and operate the Facility.

Community Benefits

Retrofitting Trimont Wind will provide long-term revenue streams for participating landowners, for Jackson and Martin counties, and for Kimball and Cedar townships. The retrofit of the Facility will provide long-term employment certainty by continuing to employ eight full-time employees to operate and maintain the Trimont Wind turbines until 2045.

In addition, over the operating history of the Facility through 2016, Trimont Wind paid approximately $400,000 annually in production taxes to the state of Minnesota, which resulted in approximately $1.7 million and $2.6 million in production taxes paid to Jackson and Martin counties, respectively. The retrofitted turbines will increase the NCF and annual energy production approximately 15%. The increased annual energy production and permit extension to 2045 would result in an increase in wind production taxes paid to the counties. The retrofit and permit extension would result in an estimated additional $2.3 million and $3.5 million total in production taxes to Jackson and Martin counties.

Existing Environment

The current existing environment is similar to the conditions presented in the original Site Permit application. Table 1 summarizes the changes to the existing environment since 2004. Notably, since operation of Trimont Wind began in 2005, three additional wind facilities have been constructed and operate in the vicinity of Trimont Wind. Also, there are more pork production farms within Martin and Jackson counties. Figure 1 through Figure 12 illustrate the current conditions for the Facility regarding:

- Figure 1 Site Location
- Figure 2 Project Area and Facilities
- Figure 3 Public Land Ownership and Recreation
- Figure 4 Turbine Layout and Constraints
- Figure 5 Land Cover Map
- Figure 6 Zoning Map

- Figure 7 Topographic Map
- Figure 8 FEMA Floodplain Map
- Figure 9 Wetlands Inventory Map
- Figure 10 Surface Waters Map
- Figure 11 Unique Natural Features
- Figure 12 Land Ownership

Table 1 Summary of Existing Environment Conditions

Item	Pre-construction (2004 conditions)[1]	Current (2017)	Evaluation of Changes
Land Use	The majority of the land within the Facility boundary was used for agricultural purposes (soybeans, corn, and livestock). The remaining land consisted of grasslands.	No change from preconstruction conditions.[2]	
Residences	There were approximately 44 residences within the Facility area at the time of initial construction and commencement of operations.	No change from preconstruction conditions.	
Demographics	The populations of Jackson and Martin counties were 11,268 and 21,802, respectively. The per capita income in Cedar and Kimball townships was higher than their respective county averages.	The populations of Jackson and Martin counties are 10,266 and 20,840, respectively. Based on the 2010 census, the per capita income in Cedar and Kimball townships is higher than their respective county averages.[3]	The counties experienced a population decline; however, per capita income in Kimball and Cedar townships remained above their respective county averages.
Utilities	There were three utility rights-of-way (ROWs) in the area. Xcel Energy had a 345 kV (kilovolt) transmission line running southwest to northeast. This transmission line crossed Northern Natural Gas's natural gas pipeline near the Martin County Substation and the GRE Lakefield Generating Station. In addition, a water pipeline entered the Lakefield Generating Station that extends from the City of Trimont.	The 345 kV transmission line, natural gas pipeline, and water pipeline operating at the time of initial Facility construction are still present. There are three additional LWECS facilities located generally to the north, southwest, and south of the Trimont Wind Facility (Odell-200MW, Elm Creek I - 99 MW, and Elm Creek II - 148.8 MW).	Additional LWECS facilities developed subsequent to the construction of Trimont Wind.

Item	Pre-construction (2004 conditions)[1]	Current (2017)	Evaluation of Changes
Roads	There were four County State Aid Highways (CSAH) within the Facility area. In Jackson County, CSAH 29 was two miles east of the western edge of the Facility area and turns east toward Martin County, one mile north of CSAH 28, which is part of the southern border of the Facility area. CSAH 28 becomes CSAH 44 in Martin County. CSAH 7 in Martin County is the eastern border of the Facility area.	No change from preconstruction conditions.	
Traffic	The functional capacity of a two-lane paved rural highway is in excess of 5,000 vehicles per day, or Average Daily Traffic (ADT). The highest existing ADT in or near the Facility was below 300 vehicles per day.	The highest existing ADT in or near the Facility is 405 vehicles per day (Jackson County Road 28/Martin County Road 44) along the southern portion of the Facility.[4]	The ADT increased; however, it is still below the functional capacity of a paved rural highway. There may be a temporary increase in traffic during the retrofitting activities as a result of deliveries to the Facility.

Note(s):
(1) Trimont Wind Project, MEQB Permit Application for a Large Wind Energy Conversion System, March 12, 2004.
(2) U.S. Department of Agriculture, 2012 Census of Agriculture
(3) U.S. Census Bureau, 2010 Census data
(4) 2016 Traffic Volume General Highway Map, Martin County, MN and 2014 Traffic Volume General Highway Map, Jackson County, MN (Minnesota Department of Transportation (MnDOT)

I. Site Permit

The retrofit being proposed by Trimont Wind would increase the nameplate capacity of the Facility from 100.5 MW to 107.2 MW (refer to Table 2 and Table 3). The proposed Project would not result in a change to the Facility boundaries.

II. Project Description

The existing Facility is located within Jackson and Martin counties, Minnesota (Figure 1). The proposed Project includes construction and temporary disturbance to replace or refurbish equipment at each turbine as follows:

- Component replacement within the nacelles (gearbox, oil cooler, drive shaft, pitch drive, etc.);
- Refurbish generator from 1.5 to 1.6 MW;
- Update the electronic controls; and

- Replace rotor assemblies (nose cone, hub, and blades). The rotor diameter is proposed to increase from 77 m to 91 m. The increase in rotor diameter will increase the total tip height of the turbines (Table 2, Figure 13).

Table 2 Existing and Proposed Turbine Dimensions

Design Parameter	Existing	Proposed	Change
Hub Height	80 m (262 feet [ft])	80 m (262 ft)	No change
Rotor Diameter	77 m (253 ft)	91 m (299 ft)	14 m (46 ft)
Total Tip Height	118.5 m (389 ft)	125.5 m (412 ft)	7 m (23 ft)
Nameplate Capacity	100.5 MW	107.2 MW	6.7 MW

There will be no changes to the Facility boundary, turbine locations, turbine towers, meteorological towers, or underground electrical collection system outside of the substation. Figure 2 illustrates the existing Facility boundary and components.

The retrofit would increase individual turbine generator capacity from 1.5 MW to 1.6 MW and the nameplate capacity would correspondingly increase from 100.5 MW to 107.2 MW. The Facility currently has an Interconnection Agreement (IA) with Midcontinent Independent System Operator, Inc. (MISO) and Xcel Energy (Xcel) which allows for generation up to 105 MW net at the point of interconnection. Trimont Wind will need to go through an IA amendment process with MISO and Xcel to identify the retrofit equipment and to agree to continue to cap the output of the Facility to 105 MW. Trimont Wind would establish and maintain settings in the Facility's Supervisory Control and Data Acquisition (SCADA) and windfarm management system to ensure the Facility does not exceed the net 105 MW limit at the point of interconnection. In the future, Trimont Wind may make a MISO interconnection request to increase its interconnection rights at the Facility to accommodate the 107.2 MW pursuant to processes and standards established in the MISO Tariff.

The retrofit would also increase the Trimont Wind NCF, which is a measurement of the efficiency of converting the wind into electricity. After the retrofit, Trimont Wind estimates the NCF will increase approximately 15% and will similarly increase annual energy production.

Construction activities at each turbine would require approximately seven to 11 days at each turbine to complete the retrofit, and construction may occur at multiple turbines simultaneously to minimize Facility downtime. Trimont Wind estimates completion of all Project work by December 31, 2020. It is anticipated that Trimont Wind's construction contractor would use an approximate 400 foot by 400 foot temporary laydown area adjacent to each turbine as the retrofit construction zone. Additional temporary construction laydown areas would include a five-acre area to support construction equipment and materials and a separate two-acre area for generator retrofits. The contractor would use existing access roads that may be upgraded to support deliveries including adding temporary turning radii at entrance roads and temporarily widening access roads. Turbine components removed from turbines will be

handled, processed, treated, stored, reused, disposed of or recycled per regulations. It is anticipated that wind turbine blades will be recycled. At this time, crane types for construction are unknown, but if track cranes are moved between turbines across agricultural fields, Trimont Wind will coordinate with landowners. Prior to construction, the presence of wetlands near crane paths will be evaluated and impacts to wetlands will be avoided to the extent possible, or permits sought if wetland impacts cannot be avoided completely.

Trimont Wind is conducting evaluations of the existing wind turbines to determine suitability for the Project. GE conducted a Mechanical Loads Analysis for the repower retrofit inputting actual and historical wind speed data from the site into their loads model which produced a 'pass' result, indicating the existing equipment (tower, bedplate, yaw bearing, etc.) are suitable to receive the new equipment (gearbox, main shaft, hub, pitch system, and blades) and the continue to operate, within design parameters after the retrofit. Trimont Wind has also hired Barr Engineering to evaluate foundations and Mott MacDonald to evaluate the electrical system. Based on preliminary results, some of the turbine foundations require further analysis. Additional investigations will be conducted to determine if any foundations will require structural upgrades prior to Project construction. The current foundations contain 248 cubic yards of concrete. The electrical system study determined that the collector system is suitable to accept the retrofit and minor upgrades will be necessary at the substation to adjust ground bonding. The results of these preliminary engineering studies support the proposed retrofit and requested permit amendment.

Table 3 includes the existing language from the Site Permit and the proposed modifications to reflect the scope of the Project.

Table 3 Existing Permitted and Proposed Project Descriptions

Existing Permit Text	Proposed Modification
The 100.5-Megawatt LWECS authorized to be constructed in this Permit is referred to as the Trimont Wind Project ("Project"). The Project will consist of up to 67 turbines, using 1.5 MW or 1.6 MW [manufacturer to be determined] wind turbines with a maximum nameplate capacity of 100.5 MW. Turbines are interconnected by communication and electrical power collection facilities within the wind farm. These facilities will include transformers and underground collection lines and overhead feeder lines that will deliver wind-generated power to GRE's Martin County Substation located in Section 19 in Cedar Township in Martin County. Turbine blades will have a [70-82] meter rotor diameter, depending on the turbine model installed.	The 107.2-Megawatt LWECS authorized to be constructed in this Permit is referred to as the Trimont Wind Project ("Project"). The Project will consist of up to 67 turbines, using 1.6 MW GE wind turbines with a maximum nameplate capacity of 107.2 MW. Turbines are interconnected by communication and electrical power collection facilities within the wind farm. These facilities will include transformers and underground collection lines and overhead feeder lines that will deliver wind-generated power to GRE's Martin County Substation located in Section 19 in Cedar Township in Martin County. Turbine blades will have a 91 meter rotor diameter. Trimont Wind would establish and maintain settings in the Facility's SCADA and windfarm management system to ensure the Facility does not exceed the net 105 MW limit at the point of interconnection. In the future, Trimont Wind may make a MISO interconnection request to increase its interconnection rights at the Facility to accommodate the 107.2 MW pursuant to processes and standards established in the MISO Tariff.

III. Conditions

A. General Construction Conditions

1. Site Plan

Prior to commencing construction, Trimont Wind will submit engineering information for turbine retrofits, access road modifications, and construction laydown areas to the PUC. There will be no changes to locations of turbines, access roads, electrical equipment, collector and feeder lines, and other associated facilities. Therefore, no additional changes are necessary to this section of the Site Permit.

2. Field Representative

Trimont Wind and its contractors will follow the requirements of this condition during execution of the retrofitting activities. Therefore, no changes are necessary to this section of the Site Permit.

3. Preconstruction Meeting

Trimont Wind proposes to update the existing permit language to reflect recently issued Site Permits as detailed in Table 4.

Table 4 Preconstruction Meeting Permit Condition

Existing Permit Text	Proposed Modification
Prior to the start of any construction, the Permittee shall conduct a preconstruction meeting with the person designated by the MEQB to coordinate monitoring of construction activities.	Prior to the start of any construction, the Permittee shall participate in a pre-construction meeting with the Department of Commerce and Commission staff to review pre-construction filing requirements, scheduling, and to coordinate monitoring of construction and site restoration activities. Copies of pending studies will be provided at the pre-construction meeting. Within 14 days following the pre-construction meeting, the Permittee shall file with the Commission, a summary of the topics reviewed and discussed and a list of attendees. The Permittee shall indicate in the filing the construction start date.

4. Notice of Permit Conditions

Trimont Wind will inform all employees, contractors, and other persons involved in the retrofitting of the Facility turbines, as well as operational staff. Therefore, no changes are necessary to this section of the Site Permit.

B. Mitigation Site Measures

1. Mitigation Site Measures B.1 through B.8 and B.10 through B.17

Unless otherwise noted as a change to the original permit conditions, Trimont Wind will follow the mitigation site measures identified in the Site Permit during turbine retrofitting activities. Trimont Wind recommends that the mitigation site measures for soil erosion and sediment control be updated. No changes from the original permit conditions are recommended for these following sections of the Site

Permit, and Trimont Wind will continue to honor the original conditions as they carry forward to the new amended Site Permit:

- Site Clearance
- Topsoil Segregation
- Compaction
- Livestock Protection
- Fences
- Drainage Tile
- Equipment Storage
- Public Roads
- Turbine Access Roads
- Private Roads
- Cleanup
- Tree Removal
- Restoration
- Hazardous Waste
- Application of Herbicides
- Public Safety
- Fire Protection
- Tower Identification

9. Soil Erosion and Sediment Control

It is anticipated that the construction activities associated with the Project will exceed one acre of ground disturbance. Trimont Wind will seek National Pollutant Discharge Elimination System (NPDES)/State Disposal System (SDS) Construction Stormwater Permit coverage from the Minnesota Pollution Control Agency (MPCA), including the development of a Stormwater Pollution Prevention Plan (SWPPP) that will describe methods to control erosion and runoff. Therefore, Trimont Wind proposes to update the existing permit language to reflect recently issued Site Permits as detailed in Table 5.

Table 5 Soil Erosion and Sediment Control Permit Condition

Existing Permit Text	Proposed Modification
The Permittee shall develop a Soil Erosion and Sediment Control Plan prior to construction and submit the Plan to the MEQB. This Plan may be the same plan submitted to the Minnesota Pollution Control Agency as part of a storm water runoff permit application. A goal of the Soil Erosion and Sediment Control Plan is to minimize soil erosion, to re-vegetate non-cropland and range areas disturbed by construction with wildlife conservation species, and wherever possible, to plant native tall grass prairie species in cooperation with landowners. The Soil Erosion and Sediment Control Plan shall address what types of erosion control measures will be implemented during each project phase, and shall at a minimum identify plans for grading, construction and drainage of roads and turbine pads; necessary soil information; detailed design features to maintain downstream water quality; a comprehensive re-vegetation plan to maintain and ensure adequate erosion control and slope stability and to restore the site after temporary project activities; and measures to minimize the area of surface disturbance. Other practices shall include containing excavated material, protecting exposed soil, and stabilizing restored material and removal of silt fences or barriers when the area is stabilized. The plan shall identify methods for disposal or storage of excavated material. Erosion and sedimentation control measures shall be installed prior to construction and maintained throughout the project's life.	The Permittee shall implement those erosion prevention and sediment control practices recommended by the Minnesota Pollution Control Agency Construction Stormwater Program. If construction of the facility disturbs more than one acre of land, or is sited in an area designated by the Minnesota Pollution Control Agency as having potential for impacts to water resources, the Permittee shall obtain a National Pollutant Discharge Elimination System (NPDES)/State Disposal System (SDS) Construction Stormwater Permit from the Minnesota Pollution Control Agency that provides for the development of a Stormwater Pollution Prevention Plan (SWPPP) that describes methods to control erosion and runoff. The Permittee shall implement reasonable measures to minimize erosion and sedimentation during construction and shall employ perimeter sediment controls, protect exposed soil by promptly planting, seeding, using erosion control blankets and turf reinforcement mats, stabilizing slopes, protecting storm drain inlets, protecting soil stockpiles, and controlling vehicle tracking. Contours shall be graded as required so that all surfaces provide for proper drainage blend with the natural terrain, and are left in a condition that will facilitate re-vegetation and prevent erosion. All areas disturbed during construction of the facilities shall be returned to preconstruction conditions.

C. Setbacks

The setbacks that are applicable to new LWECS permits in Minnesota, as described in the PUC's General Wind Permit Standards, are presented in Table 6 and on Figure 4. Jackson County Ordinance 734 (Windpower Management) includes setback requirements for facilities with capacities less than 25 MW. The Martin County Renewably Energy Ordinance includes setback requirements for facilities that are not otherwise subject to PUC jurisdiction. Therefore, only the PUC LWECS setbacks apply to the Trimont Wind Facility.

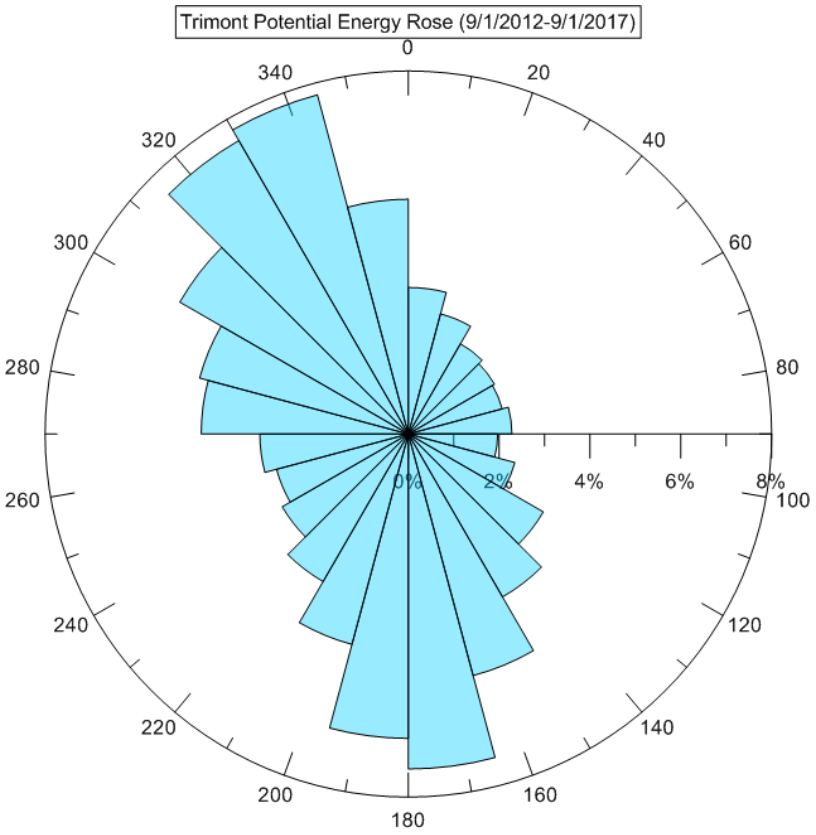
Table 6 LWECS Setbacks

Setback Requirement	Distance for Setback	Authority
Wind Access Buffer – Prevailing Wind Directions	Five times the rotor diameter	PUC General Wind Permit Standards[1]
Wind Access Buffer – Non-Prevailing Wind Directions	Three times the rotor diameter	PUC General Wind Permit Standards[1]
Internal Turbine Spacing – Prevailing Wind Directions	Five times the rotor diameter	PUC General Wind Permit Standards[1]
Internal Turbine Spacing – Non-Prevailing Wind Directions	Three times the rotor diameter	PUC General Wind Permit Standards[1]
Residences	At least 500 ft (150m) and sufficient distance to meet noise standards.	PUC General Wind Permit Standards[1]
Noise	Setback distance calculated based on site layout and turbine for each residential receiver. State standard 50 decibels, A-weighted scale (dBA).	Minnesota Pollution Control Agency[2]
Public Roads and Recreational Trails	No closer than 250 ft (75m) from the edge of the public ROW. Trails considered on a case-by-case basis. Setbacks are measured from the center of the tower.	PUC General Wind Permit Standards[1]
Wetlands	No turbines within public water wetlands. Collector and/or feeder lines can be within wetlands with approval from the agency having jurisdiction.	PUC General Wind Permit Standards[1]
Native Prairie	Facility infrastructure cannot be within a native prairie without an approved protection plan.	PUC General Wind Permit Standards[1]
Sand and Gravel Operations	Facility infrastructure cannot be within active sand and gravel operations without landowner approval.	PUC General Wind Permit Standards[1]
Aviation	Facility infrastructure cannot create an obstruction to navigable airspace.	PUC General Wind Permit Standards[1]

Note(s):
(1) Order Establishing General Wind Permit Standards, Docket Number E,G-999/M-07-1102, January 11, 2008
(2) Minnesota Rules Chapter 7030

1. Wind Access Buffer

The PUC General Wind Standards enacted after the issuance of the Trimont Wind Site Permit specify that turbine placement cannot be less than five rotor diameters (RD) from all boundaries of wind and land rights on the predominant wind axis and three RD on the secondary wind axis, without the approval of the permitting authority (3). Based on the wind energy rose provided below for the Facility from 2012 to the present, the prevailing wind directions are the northwest and south, and the non-prevailing wind directions are east and west.



Trimont Wind applied current PUC wind access buffer requirements using the prevailing wind data from the Facility and the proposed increased rotor diameter as illustrated on Figure 4. As a result of the proposed retrofit with the larger rotor diameter, 21 turbines would not meet the wind access buffer setback (Table 7). At these locations, the 5 rotor diameter buffer overlaps the nearest non-participating landowner parcel on a prevailing wind axis (generally N/NW to S/SE).

The tower locations will not change with this retrofit. As shown on Figure 4 and summarized in Table 7, wind access buffer exceedances are minor and range from 16 to 226 ft (5 to 69 m) for 21 turbines. The distance extending onto adjacent non-participating properties is within the 250 ft public road setback and for some locations the 500 ft home setback. Because of the change in rotor diameter from 77 m to 91 m, Trimont Wind requests an adjustment to the wind access buffer requirements to allow the 21 turbines listed in Table 7 to operate with the 91 m rotor diameter without additional site control.

Table 7 Turbines Wind Access Buffer Summary

Turbine Number	Wind Access Buffer Exceedance, Prevailing-Wind* in feet (meters)	Adjacent Land Status
1	16 (5)	Odell Wind
4	75 (23)	Odell Wind and Unleased (between Trimont & Odell)
6	121 (37)	Unleased (between Trimont & Odell)
7	131 (40)	Unleased (within Trimont), Home
12	226 (69)	Unleased (within Trimont)
16	46 (14)	Unleased (between Trimont & Odell)
22	108 (33)	Unleased (between Trimont, Odell & Elm Creek II), Home
23	118 (36)	Unleased (between Trimont, Odell & Elm Creek II), Home
24	30 (9)	Unleased (between Trimont & Odell), Home
25	39 (12)	Unleased (between Trimont & Odell), Home
34	125 (38)	Unleased (between Trimont & Elm Creek II), Home
46	174 (53)	Unleased (between Trimont, Odell & Elm Creek I)
47	75 (23)	Unleased (between Trimont & Odell)
48	66 (20)	Unleased (between Trimont & Odell)
52	56 (17)	Unleased (between Trimont & Elm Creek II), Home
53	43 (13)	Unleased (between Trimont & Elm Creek II), Home
55	148 (45)	Unleased (between Trimont & Elm Creek II), Home
56	43 (13)	Unleased (between Trimont & Elm Creek II)
57	102 (31)	Unleased (between Trimont & Elm Creek II), Home
58	98 (30)	Unleased (between Trimont & Elm Creek II)
59	98 (30)	Unleased (between Trimont & Elm Creek II)

*Distance by which 5 rotor diameter buffer overlaps the nearest non-participating landowner parcel on a prevailing wind axis (generally N/NW to S/SE)

2. Residences

The PUC's General Wind Permit Standards enacted after the issuance of the Trimont Wind Site Permit specify that turbines must be at least 500 ft (150 m) from residences (3). Trimont Wind verified residence locations in June 2017. All residences are over 800 ft from the nearest turbine. Therefore, the proposed turbine retrofits will comply with the current Site Permit and the PUC's General Wind Permit Standards for residences and no changes are necessary to this section of the permit.

3. Roads

Trimont Wind turbine locations were originally constructed in compliance with the 250-foot setback for road ROWs and state or other recreational trails in the vicinity of the Facility. Therefore, the proposed turbine retrofits will comply with the current Site Permit and the PUC's General Wind Permit Standards for roads and no changes are necessary to this section of the permit.

4. Wildlife Management Areas

The PUC's General Wind Permit Standards apply the wind access buffer setback requirement to public lands where the permittee does not have wind access rights (3). While not specifically defined, this includes but is not limited to:

- Wildlife Management Areas
- State Game Refuges
- State Wildlife Management Areas
- State Parks
- Scientific and Natural Areas

As illustrated on Figure 3, the turbines are not located on public lands. There are two State Conservation Easements within the Facility boundary, but Trimont Wind holds wind access rights to these parcels. Therefore, Trimont Wind is in compliance with the current Site Permit conditions and will continue to be so after completion of the proposed turbine retrofitting activities.

5. Wetlands

The PUC General Wind Standards do not allow turbines or aboveground structures within Public Waters (3), but there is no specific setback applicable to all other wetlands and waters. The existing Facility does not have roads or turbines located within Public Waters, as defined in Minnesota Statue Chapter 103G and the retrofitting activities will not affect Public Waters (refer to Figure 10). Trimont Wind has a 50-year license agreement with Minnesota DNR to construct, maintain, and operate underground electric collection and communication lines located under Public Waters at the Facility. Trimont Wind will locate laydown areas and temporary access routes outside of Public Waters and wetlands identified on Figure 9 and 10. Therefore, Trimont Wind is compliant with the current Site Permit conditions and will continue to be so after completion of the proposed turbine retrofitting activities.

In addition, the existing turbines and aboveground infrastructure are not within 150 ft (45 m) of Protected Water Shoreland in Jackson County (refer to Figure 6). The proposed retrofitting activities do not include modifications to the location of Facility infrastructure, therefore Trimont Wind is compliant with Jackson County Shoreland requirements.

In areas of potential construction disturbance a wetland delineation will be conducted. If temporary or permanent impacts to wetlands or waters may occur due to retrofit construction, then those impacts will

be permitted with the applicable agencies (U.S. Army Corps of Engineers [USACE], Department of Natural Resources [DNR], Jackson or Martin County Soil and Water Conservation District [SWCD]).

6. Native Prairie

The PUC General Wind Standards specify that turbines and associated facilities cannot be within native prairie unless approved in a native prairie protection plan (3). The Minnesota Biological Survey (MBS) includes an inventory of native plant communities. Barr Engineering, on behalf of Trimont Wind, reviewed the MBS data within one mile of the Facility (refer to Figure 11). A native plant community consisting of dry hill prairie is located within the Facility boundary. Trimont Wind will locate laydown areas and temporary access routes outside of MBS sites. Therefore, a prairie protection and management plan is not necessary and Trimont Wind is compliant with the current Site Permit conditions and will continue to be so after completion of the proposed retrofitting activities.

7. Other

No active sand and gravel operations exist within the Site Boundary. Therefore, Trimont Wind is in compliance with the current Site Permit conditions and will continue to be so after completion of the proposed turbine retrofitting activities.

D. Preconstruction Surveys

1. Biological Preservation Survey

Trimont Wind conducted a preconstruction inventory of the biological resources potentially present within the Site Boundary in 2004. The findings from the original Biological Preservation Survey Report concluded that pre-construction surveys of wetlands, wildlife resources, and native prairie in the vicinity of the proposed turbine locations and access roads, or related construction activities will avoid or not significantly impact the wetlands, wildlife resources, and native prairie in the Site Boundary (5).

To evaluate current conditions, Barr Engineering completed a review of threatened and endangered plant and wildlife species within one mile of the proposed Project area using the Minnesota DNR Natural Heritage Information System (NHIS) database through an existing license agreement. According to the NHIS database, there are records for one threatened caddisfly (*Ironoquia punctatissima*) and one endangered caddisfly (*Limnephilus secludens*) within one mile of the proposed Project (refer to Figure 11). Both are caddisfly species that rely on aquatic habitat for the larval stages of life. Therefore, based on the scope of the proposed turbine retrofitting, impacts to the state-listed species are not anticipated.

The United States Fish and Wildlife (USFWS) County Distribution list identifies two federally threatened species, the northern long-eared bat (NLEB; *Myotis septentrionalis*) and prairie bush clover (*Lespedeza leptostachya*) as occurring in Jackson and Martin counties. One federally-endangered species, the rusty patched bumble bee (RPBB; *Bombus affinis*) is known to occur in Jackson County (6).

Suitable summer habitat for the NLEB includes upland forest, with trees measuring greater than three inches diameter at breast height with loose or peeling bark. NLEB winter habitat includes caves and mines.

According to data provided by USFWS and DNR, there are no known, occupied roost trees or hibernacula in Jackson or Martin County. According to the 4(d) rule, associated programmatic Biological Opinion, and guidance provided by the USFWS, incidental take resulting from wind energy development and operation is not prohibited, provided conservation measures set forth in the 4(d) rule are followed to protect hibernacula and known, occupied maternity roost trees. Additionally, the 4(d) rule encourages voluntary conservation measures and best management practices such as feathering to reduce risk to all bats, including NLEB. Trimont Wind has adopted feathering/pause-to-cut-in during fall migration as discussed below in the Avian and Bat Protection Plan (ABPP). Impacts to NLEB are not anticipated.

Prairie bush clover occurs in native tallgrass prairie. This habitat is not present in the Project area; therefore, impacts to prairie bush clover are not anticipated.

The Project does not occur within an RPBB High-potential Zone (HPZ). Primary habitat elements including undisturbed soil for hibernation and a floral blooms for foraging are not present within the Project area; therefore, according to USFWS guidance and lack of suitable habitat, impacts to the RPBB are not anticipated.

Avian and Bat Protection Plan

Avangrid Renewables' ABPP was developed in cooperation with the USFWS in 2008. The ABPP was created to comply with internal policies; USFWS federal Endangered Species, Migratory Birds Treaty, and Bald and Golden Eagle Protection Acts; and state wildlife agency regulations. In an effort to keep current with regulatory changes, Avangrid Renewables implemented a Corporate Wildlife Plan (CWP) in 2015 that updates and supersedes the 2008 ABPP and its Policy. The CWP supports processes and practices intended to avoid and minimize impacts to all wildlife (with emphasis on birds and bats) and their habitats. To implement the CWP, Avangrid Renewables developed a Wildlife Monitoring and Reporting System (WMRS) for internally reporting bird and bat fatalities discovered during operations. The WMRS incorporates aspects of Tier 4 and 5 of USFWS Land-Based Wind Energy Guidelines (7). The WMRS consists of a systematic approach to monitoring and reporting bird and bat fatalities (Tier 4) and to assessing trends of a given wind plant. Avangrid Renewables uses the resulting information to implement adaptive management actions, as necessary, to minimize or avoid risk to birds or bats and identify mitigation measures. WMRS consists of voluntary operational monitoring for birds and bats (Attachment C).

In addition to implementation of the ABPP, to reduce potential adverse impacts to bats, Trimont Wind implements a voluntary strategy of feathering/pause-to-cut-in for turbines at wind speeds up to three meters/second (m/s), from one-half hour before sunset to one-half hour after sunrise, between July 15th and October 15th, when temperatures are over 50^{o} Fahrenheit.

2. Archeological Resources

Trimont Wind conducted preconstruction surveys in 2004 and provided the results to the State Historic Preservation Office (SHPO) for review and concurrence with the findings in accordance with the Site Permit. The SHPO concurred that the initial construction of the Facility would not affect known

archeological resources per the correspondence dated November 8, 2004 and December 29, 2004. Because the Project will not result in changes to existing turbine locations, roads, or electrical lines, no impacts to archaeological resources are anticipated. However, temporary laydown areas and/or temporary construction for access roads could potentially affect historic properties. If construction activities will extend outside of the previously surveyed corridors, Trimont Wind will consult with the SHPO to determine if Project activities may affect historic properties, either listed or potentially eligible for inclusion on the National Register of Historic Places (NRHP). Trimont Wind will coordinate any necessary mitigation measures for unanticipated finds with the SHPO.

3. Electromagnetic Interference

Trimont Wind conducted preconstruction television (TV) and microwave signal assessments in 2005. The TV Broadcast Off-Air Reception Measurement Report prepared by Comsearch concluded that the construction of the Trimont Wind Facility would not likely adversely affect TV reception in the area (8), and no complaints have been received during the life of the Facility. In 2004, Trimont Wind also commissioned a Licensed Microwave and Land Mobile Fixed Base Station Search with Comsearch to evaluate the potential affects to microwave signal paths as a result of the original Facility construction and identified five microwave paths that intersected the Facility area and 10 land mobile sites within the Site boundary (9).

In 2017, Trimont Wind commissioned Comsearch to conduct assessments of the potential effects of the proposed turbine retrofits on microwave signals, communication towers, and government radar (Attachment D). Comsearch identified two microwave paths intersecting the Trimont Wind Project area of interest. The Fresnel Zones for these microwave paths were calculated and mapped in relation to 67 turbines with a rotor diameter of 91 m and a hub height of 80 m. No turbines were found to have potential obstruction with the microwave systems in the area. Additionally, no impacts to communication towers or government radar are anticipated.

Trimont Wind will not operate the Project so as to cause TV interference contrary to Federal Communications Commission (FCC) regulations or other law. In the event of a problem after construction, Trimont Wind will work with affected residents to determine the cause of interference and, where necessary, reestablish acceptable reception in a timely fashion.

E. Site Layout Restrictions

1. Wind Turbine Towers

Trimont Wind is not proposing to modify the current hub height of the turbines (80 m) as a result of the proposed retrofitting activities.

2. Meteorological Towers

Trimont Wind is not proposing to modify the existing meteorological tower as a result of the proposed retrofitting activities.

3. Noise

The PUC's General Wind Permit Standards enacted after the issuance of the Trimont Wind Site Permit specify that turbines must comply with the state noise standard (the most restrictive of which is 50 dBA at night) (3). The sound power level of the existing wind turbines is 104.0 dBA and the proposed retrofit results in a slight increase of 2.5 dBA, resulting in a sound power level of 106.5 dBA. The MPCA's "A Guide to Noise Control in Minnesota" identifies that changes of approximately one dBA are not noticeable and the threshold of a perceivable difference is about three dBA (4).

A sound model based on the vendor's stated sound power level showed that all existing turbines are compliant with the current Site Permit noise standard. A preliminary sound model was conducted for the proposed retrofit based on the vendor's 106.5 dBA sound power level (refer to Figure 14). Trimont Wind will coordinate with the turbine manufacturer on potential noise mitigation measures, such as installing low noise trailing edges on blades at specific turbines as needed, to maintain Facility noise levels in compliance with state standards. The final noise model will be provided to the PUC at the preconstruction meeting.

4. Federal Aviation Administration

The existing turbines and meteorological tower are marked as required by the Federal Aviation Administration (FAA). In 2017, Trimont Wind commissioned Capitol Air Space Group to conduct an Obstruction Evaluation and Airspace Analysis to identify obstacle clearance surfaces established by the FAA that could limit increasing existing wind turbine heights as a result of the proposed increased rotor diameter (refer to Attachment E). Capitol Airspace evaluated all 14 CFR Part 77 imaginary surfaces, published instrument approach and departure procedures, visual flight rules operations, FAA minimum vectoring altitudes, minimum instrument flight rules (IFR) altitudes, and enroute operations and concluded that none of the Trimont Wind turbines would exceed obstruction levels. Trimont Wind plans to file for FAA determinations in the future and will provide those determinations to PUC prior to construction.

Trimont Wind is also aware that aerial crop spraying occurs near and within the Facility. Trimont Wind turbines have FAA permits and are lit per FAA requirements.

5. Turbine Spacing

Trimont Wind applied current PUC wind access buffer requirements using the prevailing wind data from the Facility and the proposed increased rotor diameter, illustrated on Figure 4. As a result of the proposed retrofit with the larger rotor diameter, 21 turbines would not meet the wind access buffer requirements (Table 7). At these locations, the 5 rotor diameter buffer overlaps the nearest non-participating landowner parcel on a prevailing wind axis (generally N/NW to S/SE).

The tower locations will not change with this retrofit. As shown on Figure 4 and summarized in Table 7, wind access buffer exceedances are minor and range from 16 to 226 ft (5 to 69 m). The distance extending onto adjacent properties is within the 250 ft public road setback and for some locations the 500 ft home setback. Because of the change in rotor diameter from 77 m to 91 m, Trimont Wind requests an

adjustment to the wind access buffer requirements to allow the 21 turbines listed in Table 7 to operate with the 91 m rotor diameter without additional site control.

6. Footprint Minimization

The proposed retrofitting activities are consistent with this Site Permit condition as Trimont Wind is not proposing to increase the amount of land currently impacted by the Facility operations. Therefore, no changes are necessary to this section of the Site Permit.

7. Electrical Cables

Approximately 30 miles of collector lines are present within the Site Boundary. The electrical system study determined that the collector system is suitable to accept the retrofit and minor upgrades will be necessary at the substation to adjust ground bonding. The results of these preliminary engineering studies support the proposed retrofit. No changes are necessary to this section of the Site Permit.

8. Feeder Lines

The proposed retrofitting activities do not include modifications to the existing feeder lines. Therefore, no changes are necessary to this section of the Site Permit.

F. Studies

1. Wake Loss Studies

Trimont Wind conducted an analysis in March 2005 for the original Facility construction that estimated wake losses for each turbine (10). The tower locations will not change with this retrofit. Since 2013, annual energy losses due to icing are minor and range from 0.0 to 0.7 percent of generation. Trimont Wind plans to evaluate the potential wake losses as a result of implementing the proposed turbine retrofitting activities and will provide a wake loss analysis to the PUC prior to construction.

2. Noise

Refer to Section E.3 of this application for details regarding noise studies. There are no changes necessary to this section of the Site Permit.

3. Shadow Flicker

Trimont Wind modeled shadow flicker at residences for the existing turbines and retrofit turbines. When the Trimont Wind Facility was built, shadow flicker analyses were not required. Preliminary model results of the proposed realistic case considered average monthly regional cloud cover, historic facility wind direction and operational availability of 98%. Preliminary model results for the existing turbines indicate that six receptors exceed 30 hours per year (hrs/yr) and range from 30 to 61 hrs/yr. Preliminary model results for the retrofit turbines indicate that 10 receptors exceed 30 hrs/yr and range from 31 to 88 hrs/yr (Figure 15). Shadow receptors were modeled as omni-directional “greenhouses” (glass facades on all sides) and did not consider potential shielding by obstacles (trees or other tall vegetation, buildings, etc.).

G. Decommissioning/Restoration/Abandonment

1. Decommissioning Plan

Trimont Wind prepared and submitted to the PUC a decommissioning plan for the entire Facility in 2005. Trimont Wind is updating the decommissioning plan to address a 2045 decommissioning and to include the following requirements of Minnesota Rules Chapter 7854.500, subpart 13:

- the anticipated life of the Facility;
- the estimated decommissioning costs in current dollars;
- the method and schedule for updating the costs of decommissioning and restoration;
- the method of ensuring that financial assurance will be available for decommissioning and restoration; and
- the anticipated manner in which the Facility will be decommissioned and the site restored.

The updated decommissioning plan will be provided to the PUC at the preconstruction meeting.

2. Site Restoration

Trimont Wind will follow the requirements of this condition. Therefore, no changes are necessary to this section of the Trimont Wind Site Permit.

3. Abandoned Turbines

Trimont Wind will follow the requirements of this condition. Therefore, no changes are necessary to this section of the Site Permit.

H. Reporting

1. Project Energy Production

Trimont Wind will follow the requirements of this condition. Therefore, no changes are necessary to this section of the Site Permit.

2. Wind Resource Use

Trimont Wind proposes to update the existing permit language to reflect recently issued Site Permits as detailed in Table 8.

Table 8 Wind Resource Use Reporting Permit Condition

Existing Permit Text	Proposed Modification
Within three months after commercial operation begins, the Permittee shall provide the MEQB with viewer access to its supervisory control and data acquisition (SCADA) system to allow the MEQB to monitor and review the following average hourly data for each hour of commercial operation: (a) The power output of each turbine; (b) The wind speed and direction measured at all monitored heights at any temporary and permanent meteorological towers that is connected to the SCADA system, owned or operated by the Permittee, in or within one mile of the project site boundary; and (c) Temperature and any other meteorological parameters recorded at one permanent meteorological tower selected by the MEQB Chair. Once the Permittee provides the initial access, the MEQB shall be responsible for maintaining the remote viewer connection. The Permittee shall not be in violation of this Permit if remote connection is lost or the SCADA system goes down. The Permittee shall not be required to provide the MEQB with viewer access to the SCADA system if doing so would be in violation of any standards or requirements imposed upon the Permittee by the federal government or any national organization with authority over the Permittee. In the event the MEQB is not provided access to the SCADA system, the Permittee shall file a quarterly report (due January 15, April 15, July 15, and October 15) with the MEQB with the same data specified above. After two years of commercial operation, the MEQB Chair may reduce or eliminate the requirements of this condition. The provisions of paragraph III.K.5. shall apply to the MEQB's review of this data.	The Permittee shall, by February 1st following each complete or partial calendar year of operation, file with the Commission the average monthly and average annual wind speed collected at one permanent meteorological tower during the preceding year or partial year of operation. This information shall be filed electronically and may be trade secret.

3. Extraordinary Events

Trimont Wind will follow the requirements of this condition. Therefore, no changes are necessary to this section of the Site Permit.

4. Complaints

Prior to the commencement of the retrofitting activities, Trimont Wind will review its complaint procedures and update if necessary to meet the requirements specified in Minnesota Rules Chapter 7829 Parts 1500 and 1700.

Prior to the commencement of the retrofitting activities, Trimont Wind will coordinate with landowners on location of drain tiles in the vicinity of construction activities. Trimont Wind will continue to work directly with landowners to address complaints regarding damage to drain tiles and cropsassociated with construction. No changes are necessary to this section of the Site Permit.

I. Final Construction

1. As-Built Plans and Specifications

The Project will not change the existing as-built turbine locations. Trimont Wind will follow the requirements of this condition. Therefore, no changes are necessary to this section of the Site Permit.

2. Final Boundaries

As previously discussed, Trimont Wind is not proposing to extend the Facility boundaries beyond the originally permitted footprint. Therefore, no changes are necessary to this section of the Site Permit.

3. Expansion of Site Boundaries

As previously discussed, Trimont Wind is not proposing to extend the Facility boundaries beyond the originally permitted footprint. Therefore, no changes are necessary to this section of the Site Permit.

J. Authority to Construct LWECS

1. Wind Rights

Trimont Wind is not seeking new wind rights as a result of the proposed turbine retrofitting activities. Therefore, no changes are necessary to this section of the Site Permit.

2. Other Permit Applications

Trimont Wind understands that it does not hold exclusive wind access rights within the boundaries of the Facility and that another person could seek its own site permit. Therefore, no changes are necessary to this section of the Site Permit.

3. Preemption of Other Laws

Trimont Wind will seek any necessary authorizations to complete the proposed retrofitting activities. Such authorizations may include, but are not limited to NPDES/SDS for Construction Stormwater discharges from the MPCA. Therefore, no changes are necessary to this section of the Site Permit.

K. Miscellaneous

1. Periodic Review

No changes are necessary to this section of the Site Permit.

2. Failure to Commence Construction

Trimont Wind proposes to update the existing permit language to reflect recently issued Site Permits, and allow sufficient time to commence construction, while accommodating weather and road restrictions, as detailed in Table 9.

Table 9 Failure to Commence Construction

Existing Permit Text	Proposed Modification
If the Permittee has not completed the pre-construction surveys required in paragraph III.D. and commenced construction of the LWECS within two years of the issuance of this Permit, the Permittee must advise the MEQB of the reason construction has not commenced. In such event, the MEQB may determine whether this Permit should be revoked. No revocation of this Permit may be undertaken except in accordance with applicable statutes and rules, including Minn. Stat. section 116C.645.	If the Permittee has not completed the pre-construction surveys required under this permit and commenced construction of the project within three years of the issuance of this permit, the Permittee must advise the Commission of the reason construction has not commenced. In such event, the Commission shall make a determination as to whether this permit should be amended or revoked. No revocation of this permit may be undertaken except in accordance with applicable statutes and rules, including Minn. R. 7854.1300.

3. Modification of Conditions

No changes are necessary to this section of the Site Permit.

4. Revocation or Suspension of the Permit

No changes are necessary to this section of the Site Permit.

5. Proprietary Information

No changes are necessary to this section of the Site Permit.

6. Transfer of Permit

Trimont Wind proposes to update the existing permit language to reflect recently issued Site Permits as detailed in Table 10.

Table 10 Transfer of Permit Condition

Existing Permit Text	Proposed Modification
The Permittee may not transfer this Permit without the approval of the MEQB. If the Permittee desires to transfer this Permit, the holder shall advise the MEQB in writing of such desire. The Permittee shall provide the MEQB with such information about the transfer as the MEQB requires to reach a decision. The MEQB may impose additional conditions on any new Permittee as part of the approval of the transfer.	The Permittee may request at any time that the Commission transfer this permit to another person or entity. The Permittee shall provide the name and description of the person or entity to whom the permit is requested to be transferred, the reasons for the transfer, a description of the facilities affected, and the proposed effective date of the transfer. The person to whom the permit is to be transferred shall provide the Commission with such information as the Commission shall require to determine whether the new Permittee can comply with the conditions of the permit. The Commission may authorize transfer of the permit after affording the Permittee, the new Permittee, and interested persons such process as is required. The Commission may impose additional conditions on any new permittee as part of the approval of the transfer. Within 20 days after the date of the notice provided in Section 10.5, the Permittee shall file a notice describing its ownership structure, identifying, as applicable: (a) the owner(s) of the financial and governance interests of the Permittee; (b) the owner(s) of the majority financial and governance interests of the Permittee's owners; and (c) the Permittee's ultimate parent entity (meaning the entity which is not controlled by any other entity). The Permittee shall immediately notify the Commission of: (a) a change in owner(s) of the majority* financial or governance interests in the Permittee; (b) a change in owner(s) of the majority* financial or governance interests of the Permittee's owners; or (c) a sale which changes the parent entity of the Permittee. *When there are only co-equal 50/50 percent interests, any change shall be considered a change in majority interest. The Permittee shall notify the Commission of: (a) the sale of a parent entity or a majority interest in the Permittee; (b) the sale of a majority interest of the Permittee's owners or majority interest of the owners; or (c) a sale which changes the entity with ultimate control over the Permittee.

7. Other Permits

Trimont Wind will seek any necessary authorizations to complete the proposed retrofitting activities. Such authorizations may include, but are not limited to NPDES/SDS for Construction Stormwater discharge from the MPCA. Therefore, no changes are necessary to this section of the Site Permit.

8. Site Manager

Trimont Wind operations and maintenance building is located at 167 220th Street, Trimont, MN 56176. Trimont Wind will provide the PUC with contact information for the retrofit construction contact at the preconstruction meeting. No changes are necessary to this section of the Site Permit.

9. Notice to Local Residents

No changes are necessary to this section of the Site Permit.

10. Right of Entry

No changes are necessary to this section of the Site Permit.

11. More Stringent Rules

No changes are necessary to this section of the Site Permit.

L. Expiration Date

Trimont Wind proposes to update the existing permit language to reflect recently issued Site Permits as detailed in Table 11.

Table 11 Transfer of Permit Condition

Existing Permit Text	Proposed Modification
This permit shall expire on June 30, 2034.	This permit shall expire 30 years from amended permit issuance.

IV. References

1. **Minnesota Department of Commerce.** *Application Guidance for Site Permitting of Large Wind Energy Conversion Systems in Minnesota.* August 2010.

2. Site Permit for Large Wind Energy Conversion System. *Trimont Wind I, LLC.* June 17, 2004. Vols. 03-72-LWECS-TRIMONT.

3. **Minnesota Public Utilities Commission.** *Order Establishing General Wind Permit Standards.* 2008. Docket E,G-999/M-07-1102.

4. **Minnesota Pollution Control Agency.** *A Guide to Noise Control in Minnesota: Acoustical Properties, Measurement, Analysis, and Regulation.* 2015.

5. **HDR Engineering, Inc.** *Biological Preservation Survey Report.* 2004.

6. **U.S. Fish and Wildlife Service.** Endangered Species in Minnesota, County Distribution of Federally-Listed Threatened and Endangered Species. [Online] September 18, 2017. [Cited: October 12, 2017.] https://www.fws.gov/midwest/endangered/lists/pdf/MinnesotaCtyList18Sept2017.pdf.

7. —. *Land-Based Wind Energy Guidelines.* 2012.

8. **Comsearch.** *TV Broadcast Off-air Reception Measurement Report - Trimont Wind I LLC.* 2005.

9. —. *Licensed Microwave and Land Mobile Fixed Base Station Search.* 2004.

10. **Trimont Wind I, LLC.** *Trimont Estimated Wake Loss Analysis.* 2005.

Figures

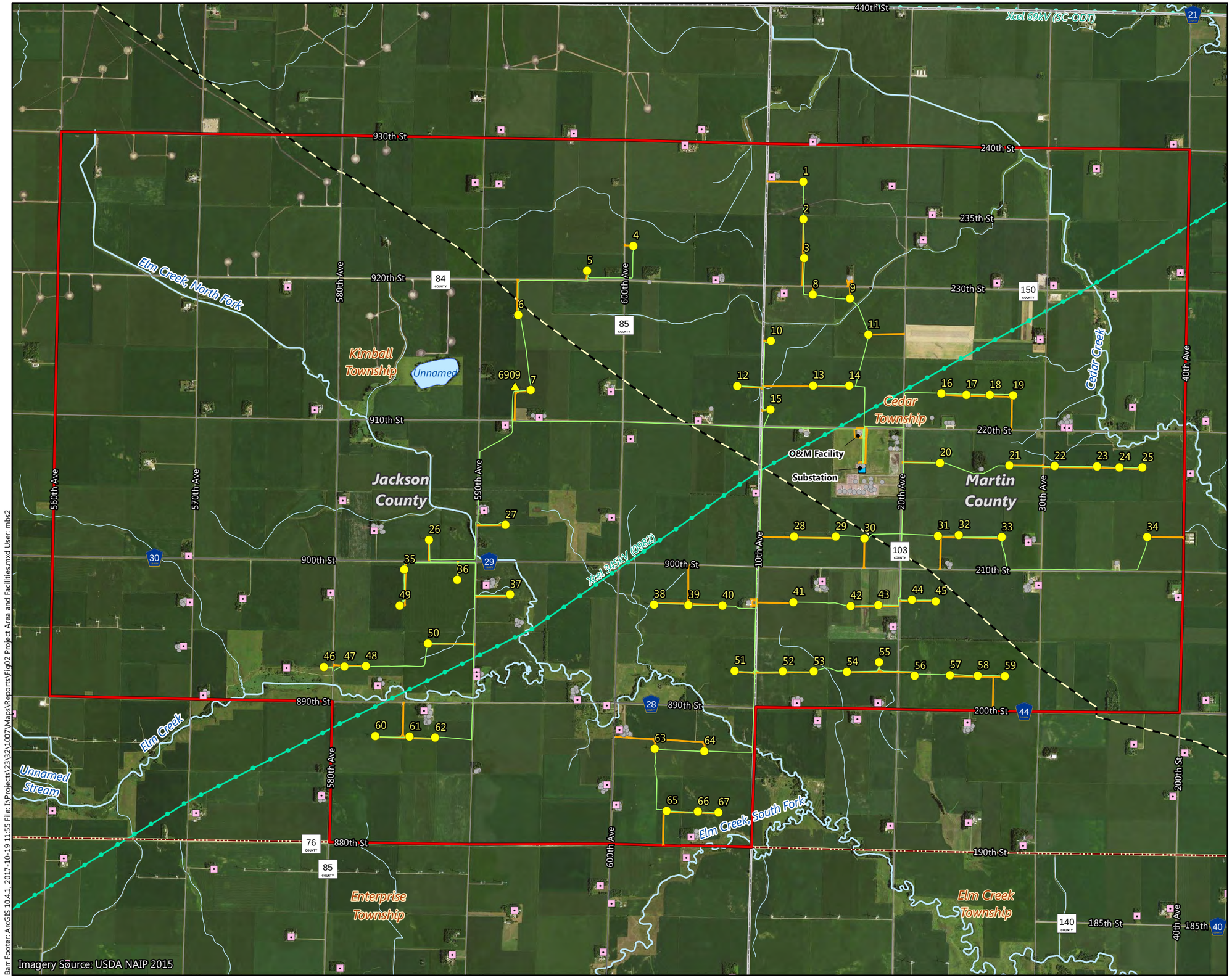
Turbine Location
Permanent Met Tower Location
Project Boundary (2004)
Municipal Boundary
Civil Township
County Boundary

Miles
3 0 3

Kilometers
5 0 5

Figure 1

SITE LOCATION
Trimont Wind Project
Trimont Wind I, LLC
Jackson & Martin Co., Minnesota



Turbine Location
Permanent Met Tower Location
Collection Lines
Access Road
Substation
O&M Facility
Project Boundary (2004)

Residence Location (6/6/2017)
Other Structure
345kV Transmission Line
116kV - 500kV
Approximate Natural Gas Pipeline
NHD Watercourse
PWI Watercourse
PWI Basin
Civil Township
County Boundary

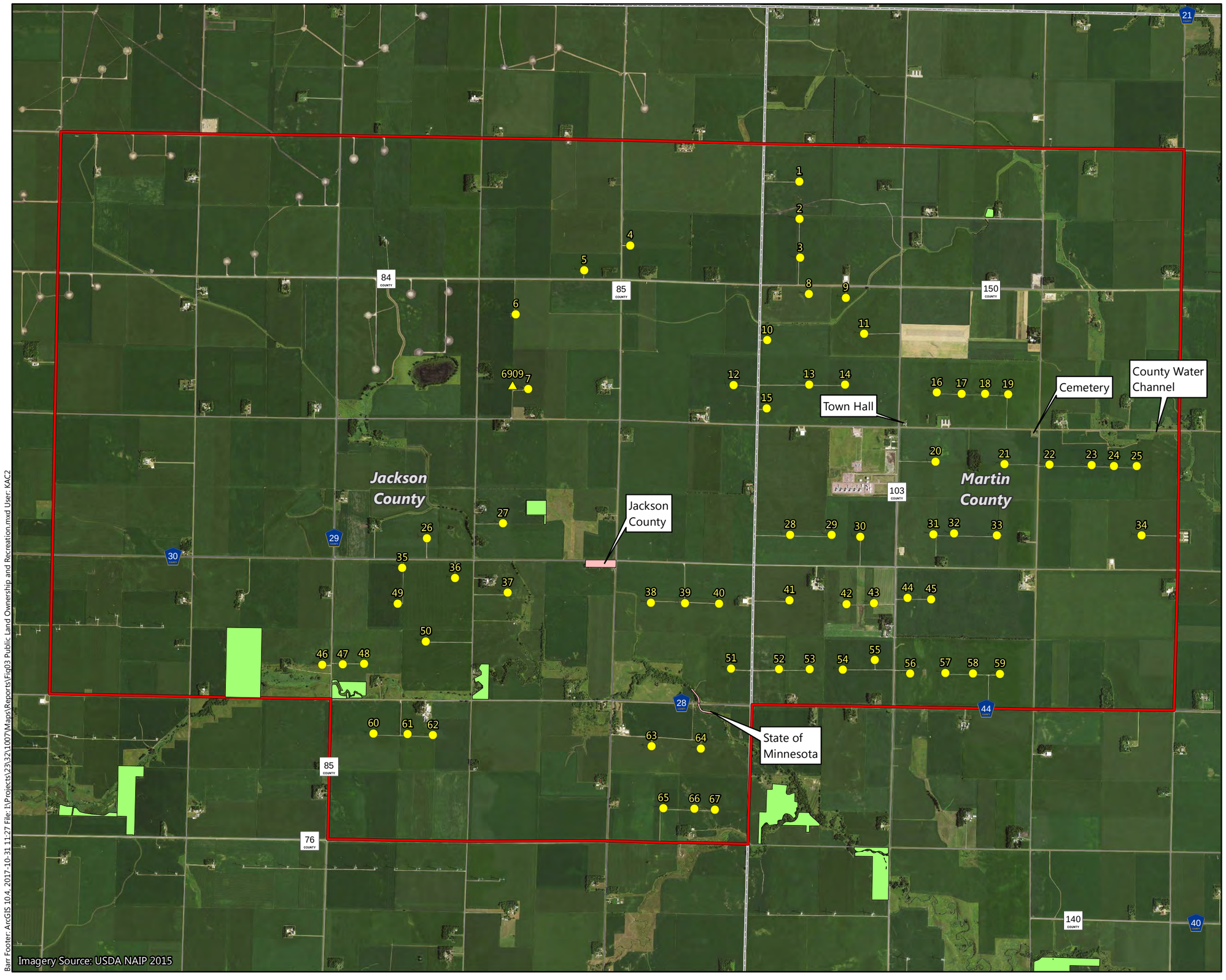
Feet
3,500 0 3,500

Meters
1,000 0 1,000

Figure 2

PROJECT AREA AND FACILITIES
Trimont Wind Project
Trimont Wind I, LLC
Jackson & Martin Co., Minnesota

Barr Footer: ArcGIS 10.4.1, 2017-10-19 11:55 File: I:\Projects\23\32\1007\Maps\Reports\Fig02 Project Area and Facilities.mxd User: mbs2



Turbine Location
Permanent Met Tower Location
Project Boundary (2004)
BWSR Conservation Easements (Rim Reserve)
Publically Owned Land
County Boundary

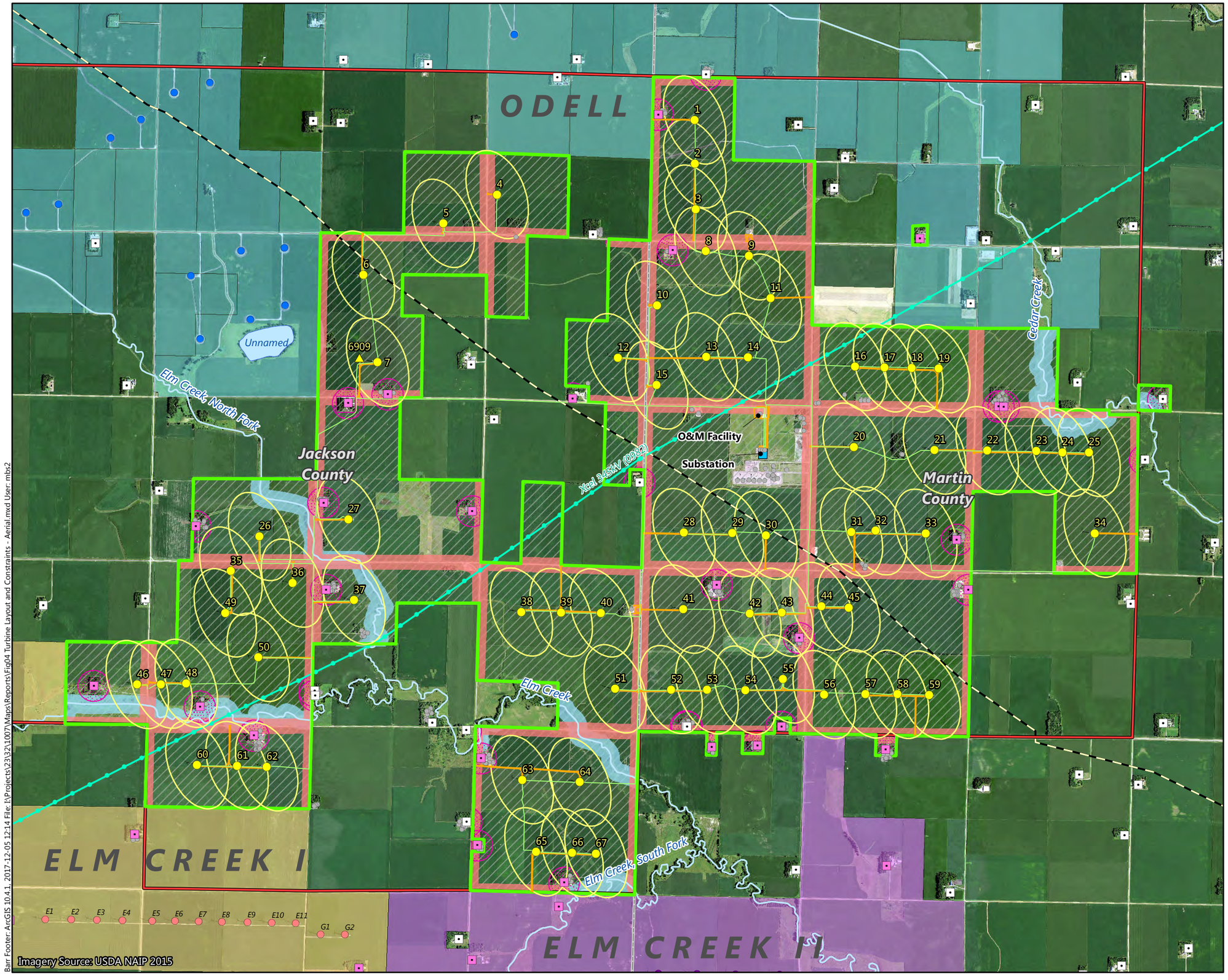
Feet
3,500 0 3,500

Meters
1,000 0 1,000

Figure 3

PUBLIC LAND OWNERSHIP AND RECREATION
Trimont Wind Project
Trimont Wind I, LLC
Jackson & Martin Co., Minnesota

Barr Footer: ArcGIS 10.4, 2017-10-31 11:27 File: I:\Projects\23\32\1007\Maps\Reports\Fig03 Public Land Ownership and Recreation.mxd User: KAC2



Turbine Location
Permanent Met Tower Location
Collection Lines
Access Road
Substation
O&M Facility
Trimont Lease Area
Trimont Project Boundary (2004)
Odell Turbine Location
Elm Creek I Turbine
Elm Creek II Turbine

Residence Locations (6/6/2017)

Participating Residence
Non-Participating Residence
Other Structure

345kV Transmission Line
Approximate Natural Gas Pipeline
PWI Watercourse
PWI Basin
PWI Setback
Wind Access Buffer (Prevailing Wind)
Residence Setback - 500 ft
Road Setback - 250 ft
Odell Leased Land
Elm Creek I Leased Land
Elm Creek II Leased Land
County Boundary

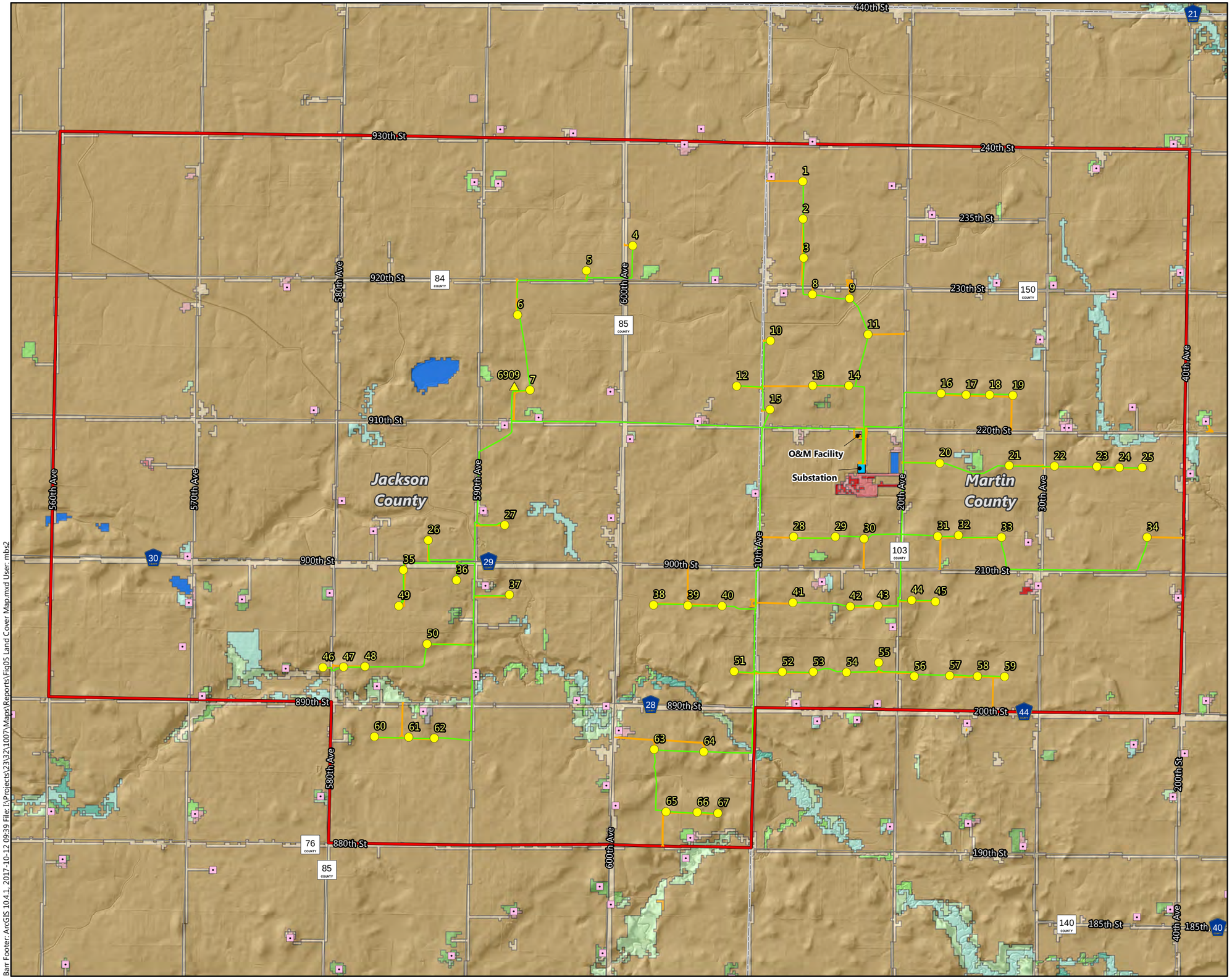
N

Feet
3,000 0 3,000

Figure 4

TURBINE LAYOUT AND CONSTRAINTS
Trimont Wind Project
Trimont Wind I, LLC
Jackson & Martin Co., Minnesota

Barr Footer: ArcGIS 10.4.1, 2017-12-05 12:14 File: I:\Projects\23\32\1007\Maps\Reports\Fig04 Turbine Layout and Constraints - Aerial.mxd User: mbs2



Turbine Location
Permanent Met Tower Location
Collection Lines
Access Road
Substation
O&M Facility
Project Boundary (2004)

Residence Location (6/6/2017)
County Boundary

Land Cover (NLCD, 2011)
- Developed, Open Space
- Developed, Low Intensity
- Developed, Medium Intensity
- Developed, High Intensity
- Barren Land
- Shrub/Scrub
- Cultivated Crops
- Herbaceuous
- Deciduous Forest
- Mixed Forest
- Emergent Herbaceuous Wetlands
- Woody Wetlands
- Open Water

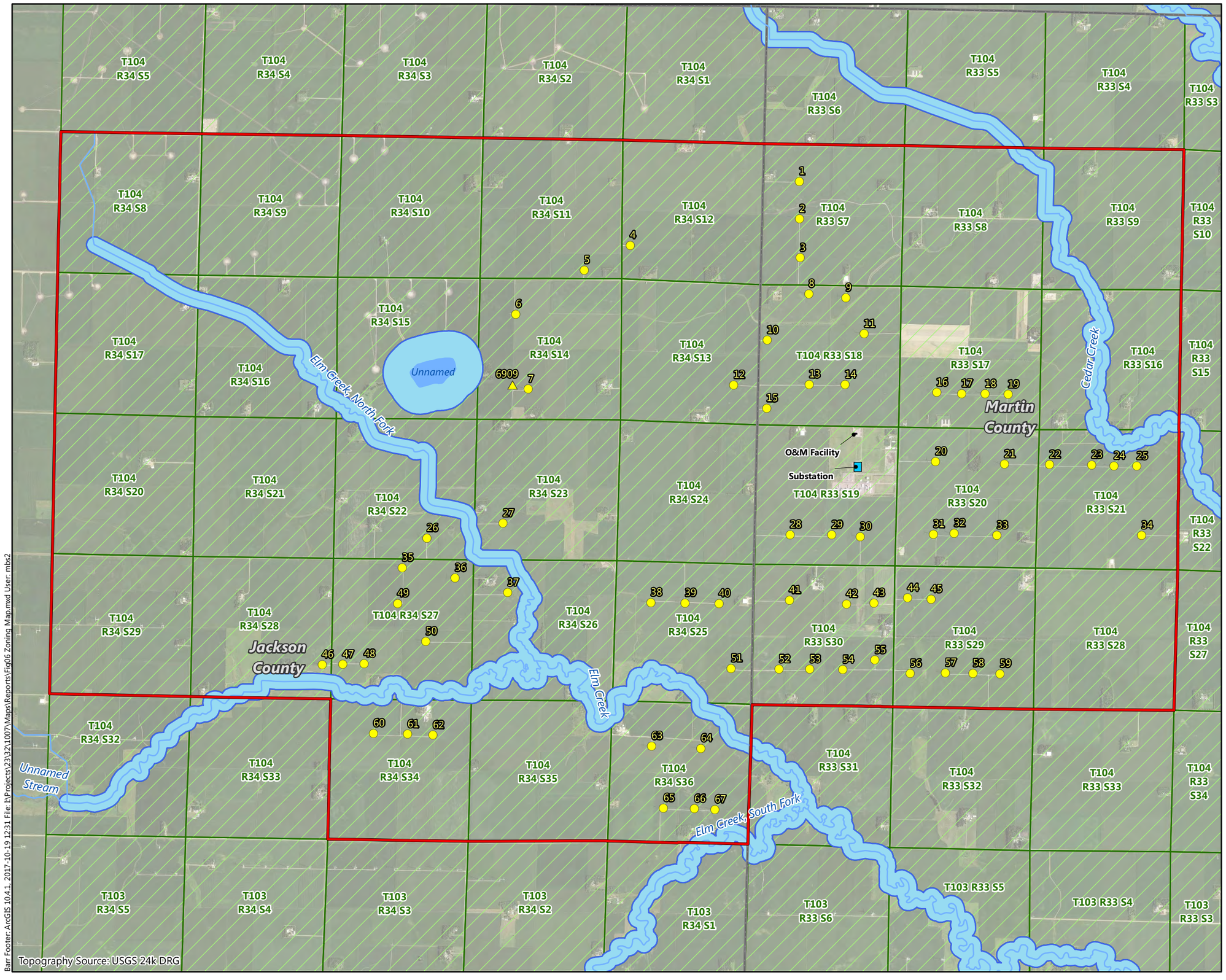
Feet
3,500 0 3,500

Meters
1,000 0 1,000

Figure 5

LAND COVER MAP
Trimont Wind Project
Trimont Wind I, LLC
Jackson & Martin Co., Minnesota

Barr Footer: ArcGIS 10.4.1, 2017-10-12 09:39 File: I:\Projects\23132\1007\Maps\Reports\Fig05 Land Cover Map.mxd User: mbs2



Topography Source: USGS 24k DRG

Barr Footer: ArcGIS 10.4.1, 2017-10-19 12:31 File: I:\Projects\23\32\1007\Maps\Reports\Fig06 Zoning Map.mxd User: mbs2

Turbine Location
Permanent Met Tower Location
Substation
O&M Facility
Project Boundary (2004)

County Boundary

Zoning Map
Agricultural Zoned
Protected Water Shoreland

Feet
3,500 0 3,500

Meters
1,000 0 1,000

Figure 6

ZONING MAP
Trimont Wind Project
Trimont Wind I, LLC
Jackson & Martin Co., Minnesota

Turbine Location
Permanent Met Tower Location
Collection Lines
Access Road
Substation
O&M Facility
Project Boundary (2004)
County Boundary

Feet
3,500 0 3,500

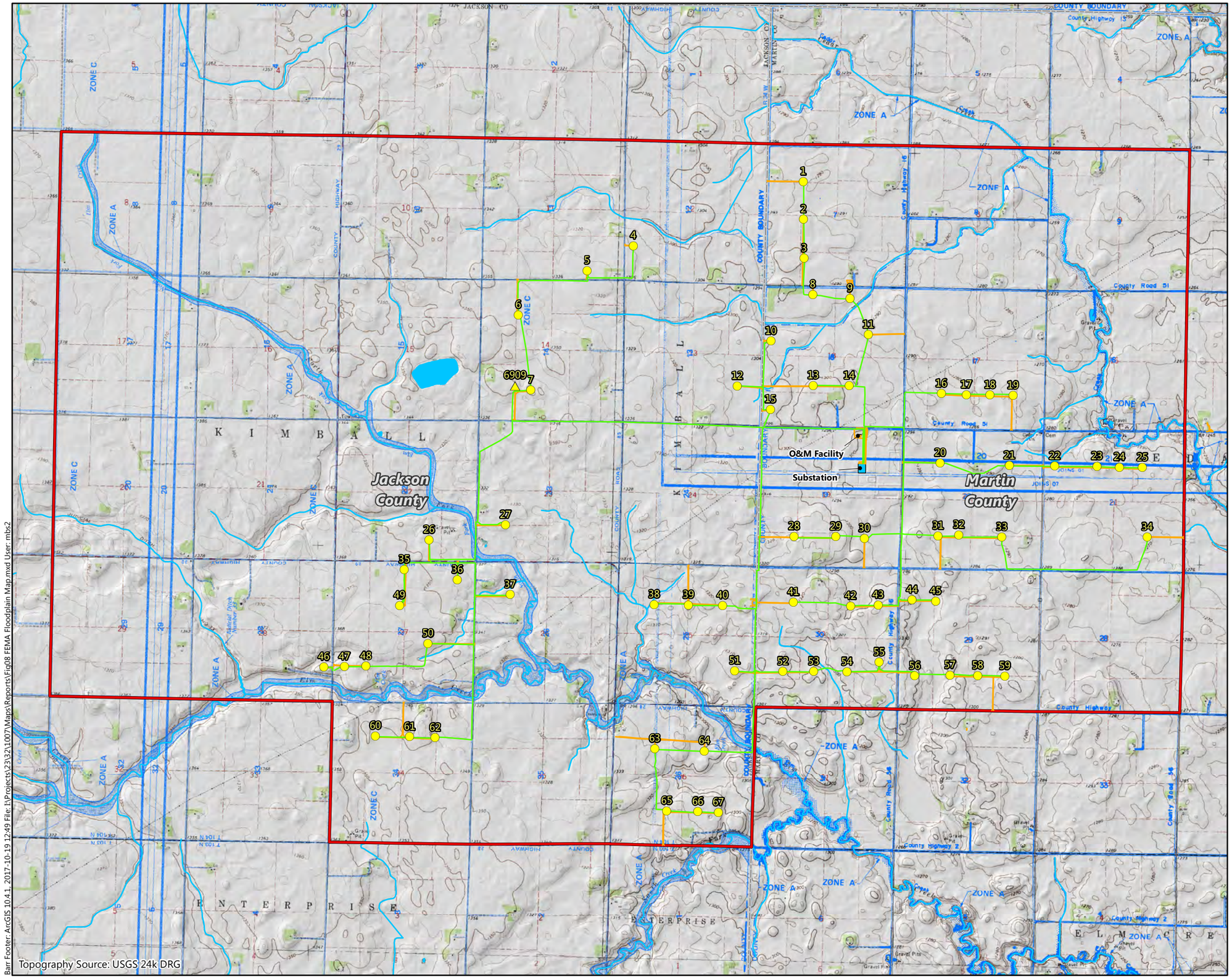
Meters
1,000 0 1,000

Figure 7

TOPOGRAPHIC MAP
Trimont Wind Project
Trimont Wind I, LLC
Jackson & Martin Co., Minnesota

Topography Source: USGS 24k DRG

Barr Footer: ArcGIS 10.4.1, 2017-10-19 12:39 File: I:\Projects\23\32\L007\Maps\Reports\Fig07 Topographic Map.mxd User: mbs2



Barr Footer: ArcGIS 10.4.1, 2017-10-19 12:49 File: I:\Projects\23\32\1007\Maps\Reports\Fig08 FEMA Floodplain Map.mxd User: mbs2

- Turbine Location
- Permanent Met Tower Location
- Collection Lines
- Access Road
- Substation
- O&M Facility
- Project Boundary (2004)
- NHD Watercourse (USGS)
- NHD Waterbody (USGS)
- Zone A Flood Hazard Areas* (Applies only to blue hatched areas adjacent to watercourses. Other blue line work shown is incidental.)
- County Boundary

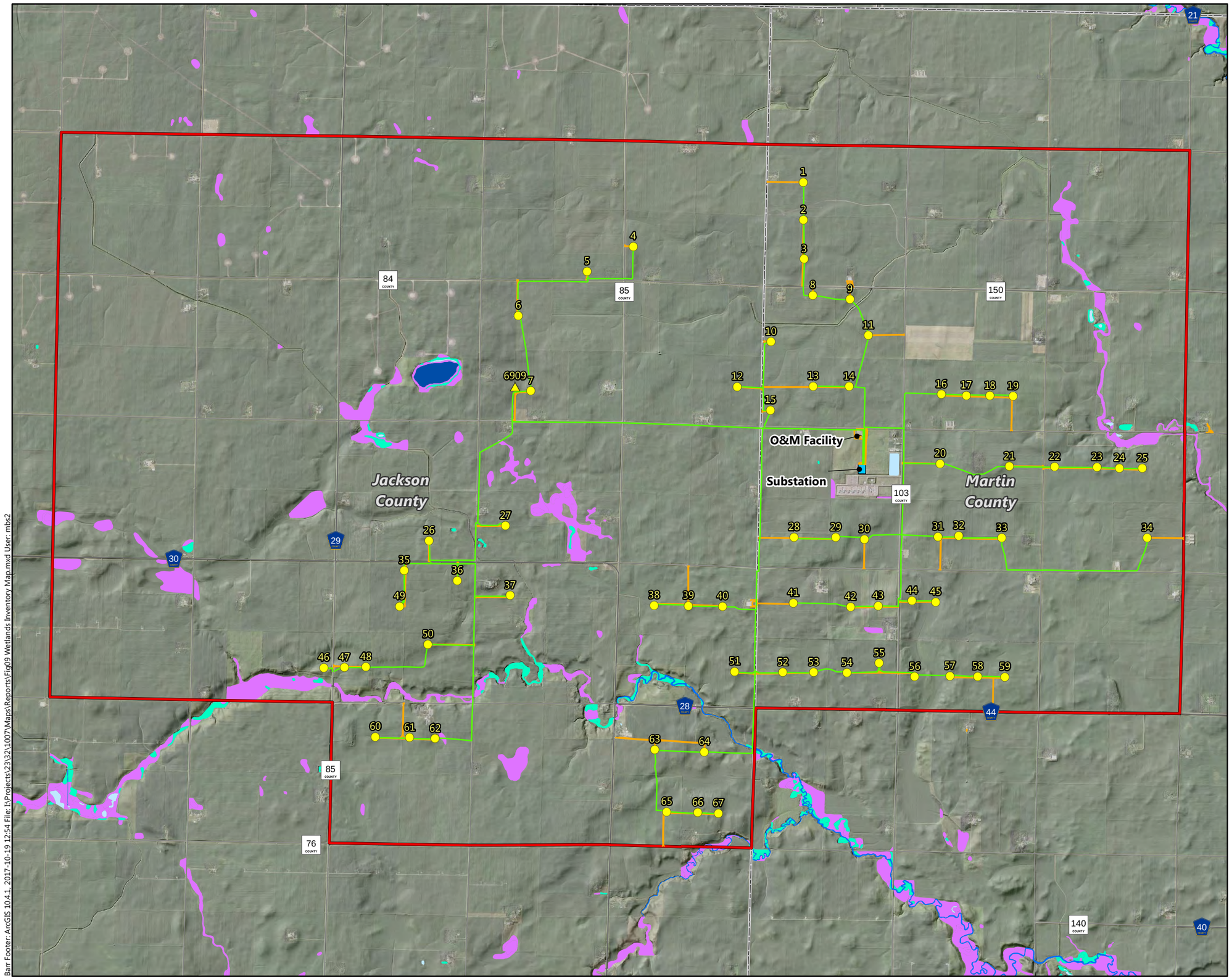
**Floodplain maps georeferenced from Jackson and Martin County FIRMs. Neither county has been updated to DFIRMs at this time and no GIS data is available.*

Feet
3,500 0 3,500

Meters
1,000 0 1,000

Figure 8

FEMA FLOODPLAIN MAP
Trimont Wind Project
Trimont Wind I, LLC
Jackson & Martin Co., Minnesota



Turbine Location
Permanent Met Tower Location
Collection Lines
Access Road
Substation
O&M Facility
Project Boundary (2004)

County Boundary

National Wetland Inventory (MN Update)
Freshwater Emergent Wetland
Freshwater Forested/Shrub Wetland
Freshwater Pond
Riverine
Lake

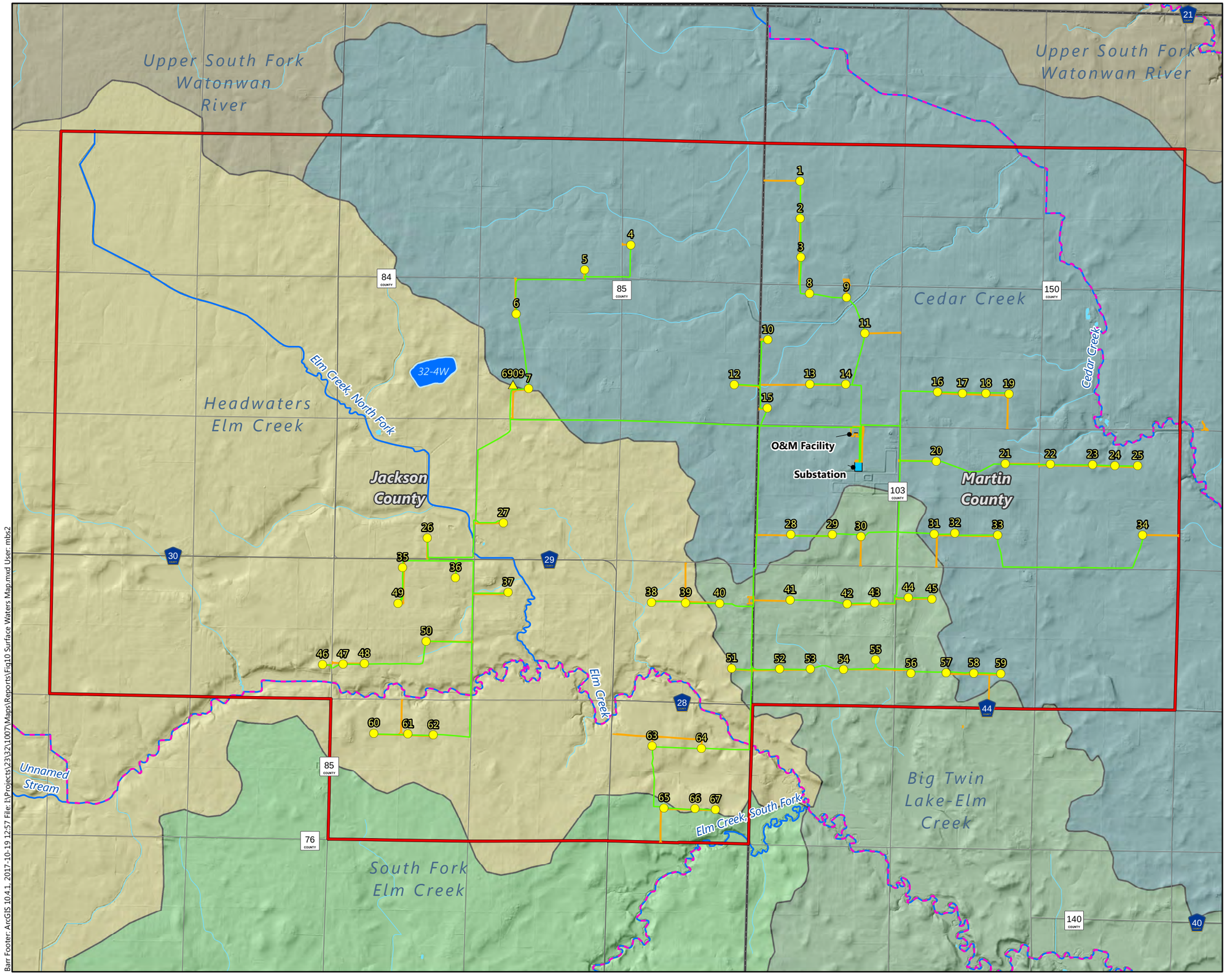
Feet
3,500 0 3,500

Meters
1,000 0 1,000

Figure 9

WETLANDS INVENTORY MAP
Trimont Wind Project
Trimont Wind I, LLC
Jackson & Martin Co., Minnesota

Barr Footer: ArcGIS 10.4.1, 2017-10-19 12:54 File: I:\Projects\23\32\1007\Maps\Reports\Fig09 Wetlands Inventory Map.mxd User: mbs2



Turbine Location
Permanent Met Tower Location
Collection Lines
Access Road
Substation
O&M Facility
Project Boundary (2004)

NHD Watercourse (USGS)
PWI Watercourse (DNR)
Impaired Stream (MPCA)
PWI Wetland (DNR)
County Boundary

Watershed (NHD, HUC-12)
Big Twin Lake-Elm Creek
Cedar Creek
Headwaters Elm Creek
South Fork Elm Creek
Upper South Fork Watonwan River

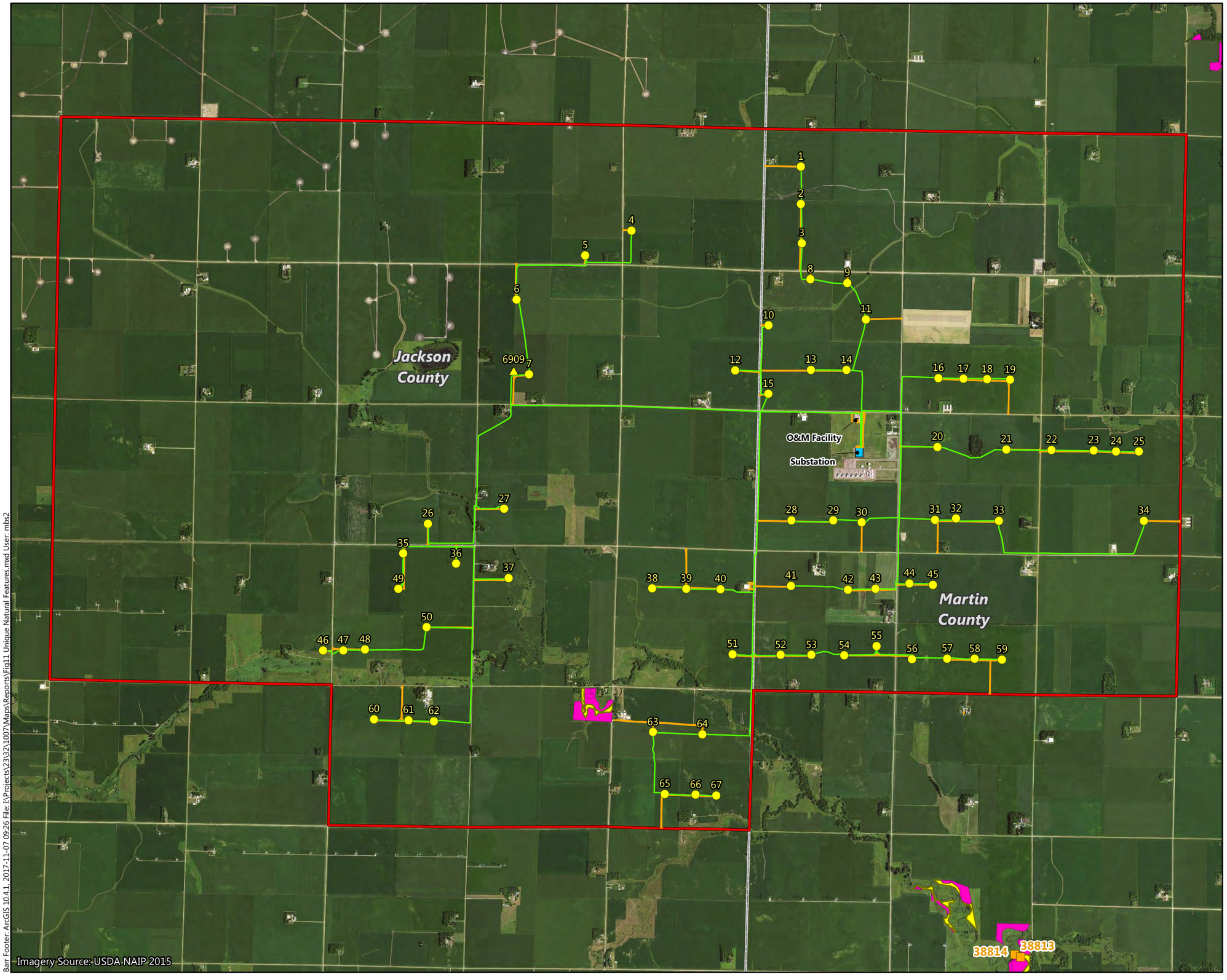
Feet
3,500 0 3,500

Meters
1,200 0 1,200

Figure 10

SURFACE WATERS MAP
Trimont Wind Project
Trimont Wind I, LLC
Jackson & Martin Co., Minnesota

Barr Footer: ArcGIS 10.4.1, 2017-10-19 12:57 File: I:\Projects\23\32\1007\Maps\Reports\Fig10 Surface Waters Map.mxd User: mbs2



Turbine Location
Permanent Met Tower Location
Collection Lines
Access Road
Substation
O&M Facility
Project Boundary (2004)

Rare Natural Features (MN DNR, NHIS)
Invertebrate Animal Element Occurance (Labelled with EO ID number)

Native Plant Community (MN DNR, MBS)
Dry Hill Prairie (Southern)
Mesic Prairie (Southern)
County Boundary

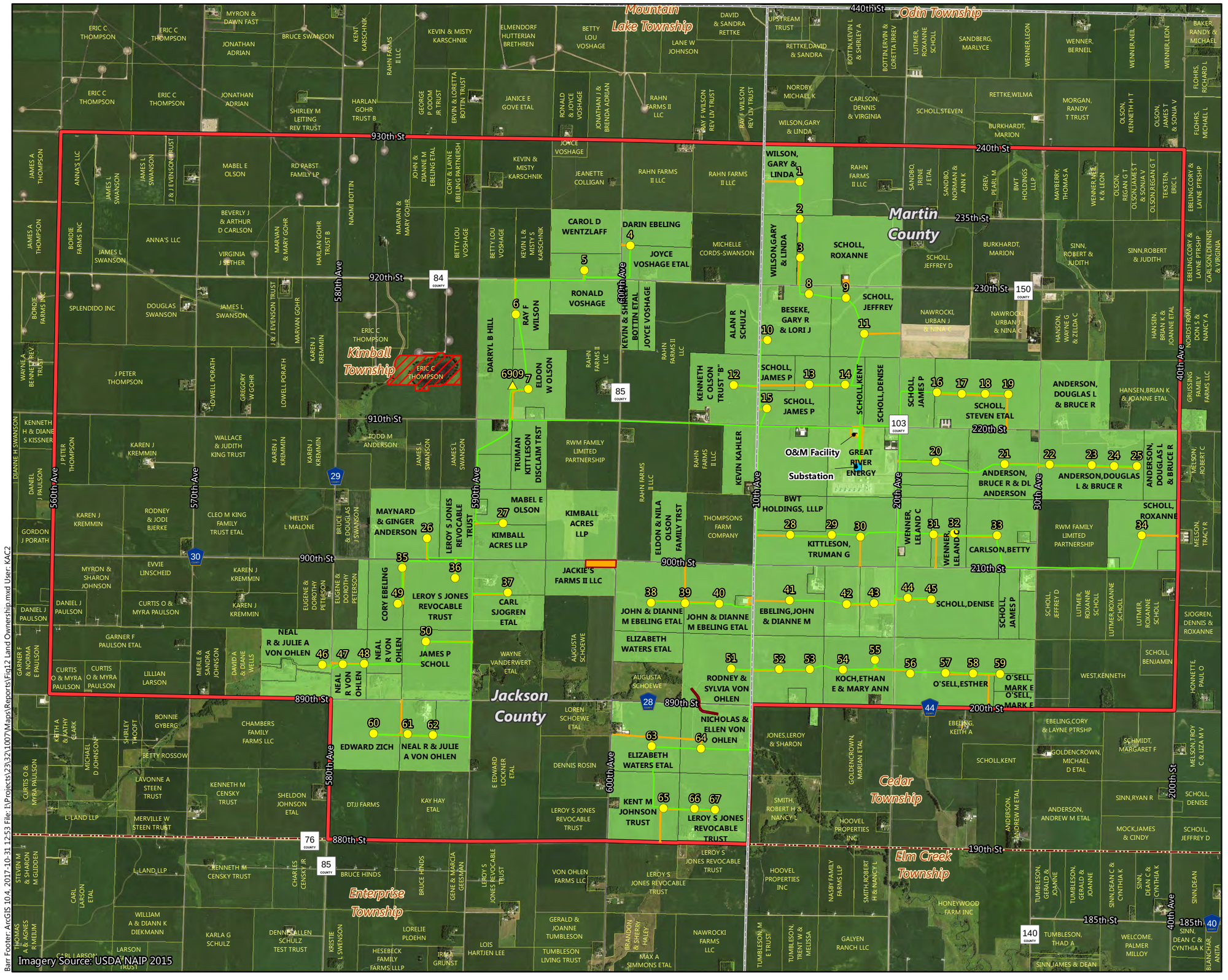
Feet
3,500 0 3,500

Meters
1,000 0 1,000

Figure 11

UNIQUE NATURAL FEATURES
Trimont Wind Project
Trimont Wind I, LLC
Jackson & Martin Co., Minnesota

Barr Footer: ArcGIS 10.4.1, 2017-11-07 09:26 File: I:\Projects\23\32\1007\Maps\Reports\Fig11 Unique Natural Features.mxd User: mbs2



Barr Footer: ArcGIS 10.4, 2017-10-31 12:53 File: I:\Projects\23\32\1007\Maps\Reports\Fig12 Land Ownership.mxd User: KAC2

- Turbine Location
- Permanent Met Tower Location
- Collection Lines
- Access Road
- Substation
- O&M Facility
- Project Boundary (2004)
- County Land
- State Land
- DNR Area
- Non-Participating Parcel
- Participating Parcel
- Civil Township
- County Boundary

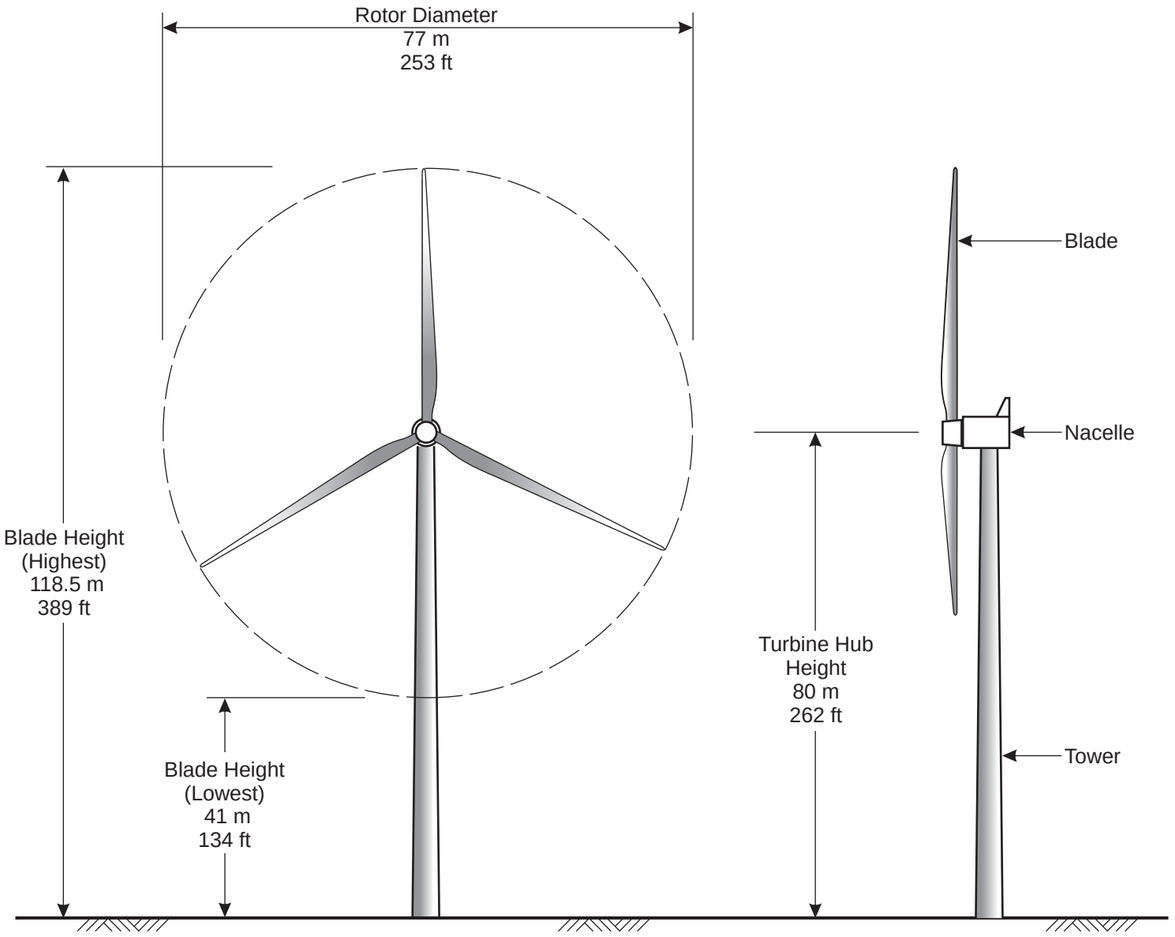
Parcel data recieved from Jackson County (10/3/2017) and Martin County (9/29/2017).

Feet
3,500 0 3,500

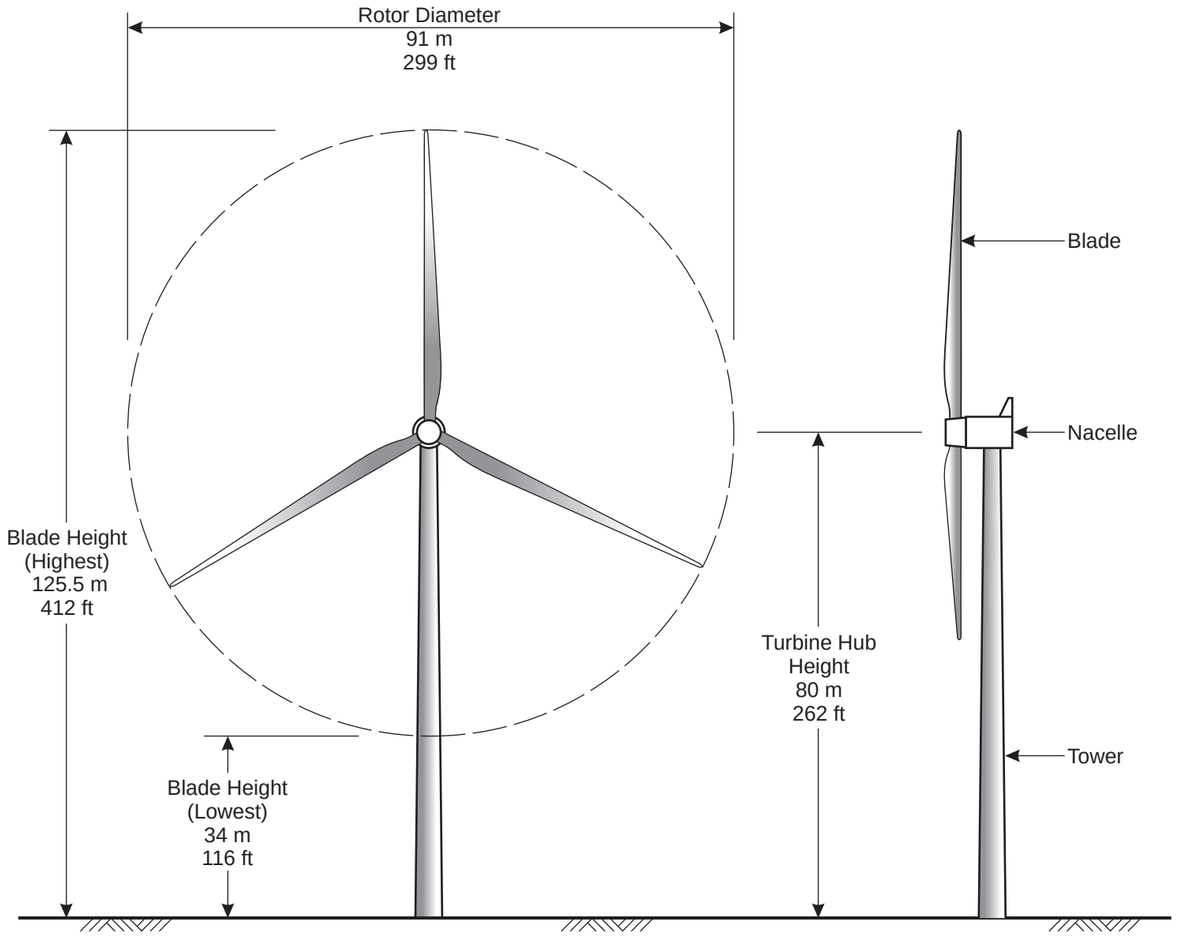
Meters
1,000 0 1,000

Figure 12

LAND OWNERSHIP
Trimont Wind Project
Trimont Wind I, LLC
Jackson & Martin Co., Minnesota



EXISTING WIND TURBINE DESIGN
Not to Scale



PROPOSED WIND TURBINE DESIGN
Not to Scale

Design Parameter	Existing	Proposed	Change
Hub Height	80 m (262 feet [ft])	80 m (262 ft)	No change
Rotor Diameter	77 m (253 ft)	91 m (299 ft)	14 m (46 ft)
Total Tip Height	118.5 m (389 ft)	125.5 m (412 ft)	7 m (23 ft)

Figure 13
WIND TURBINE DESIGN FEATURES
Trimont Wind Project
Trimont Wind I, LLC
Jackson & Martin Co., Minnesota

P:\Mpls\23 MN\32323321007\WorkFiles\Permitting\Permit Amendment\Application_Figures\Wind Turbine Design Features.CDR RLG 10-19-17

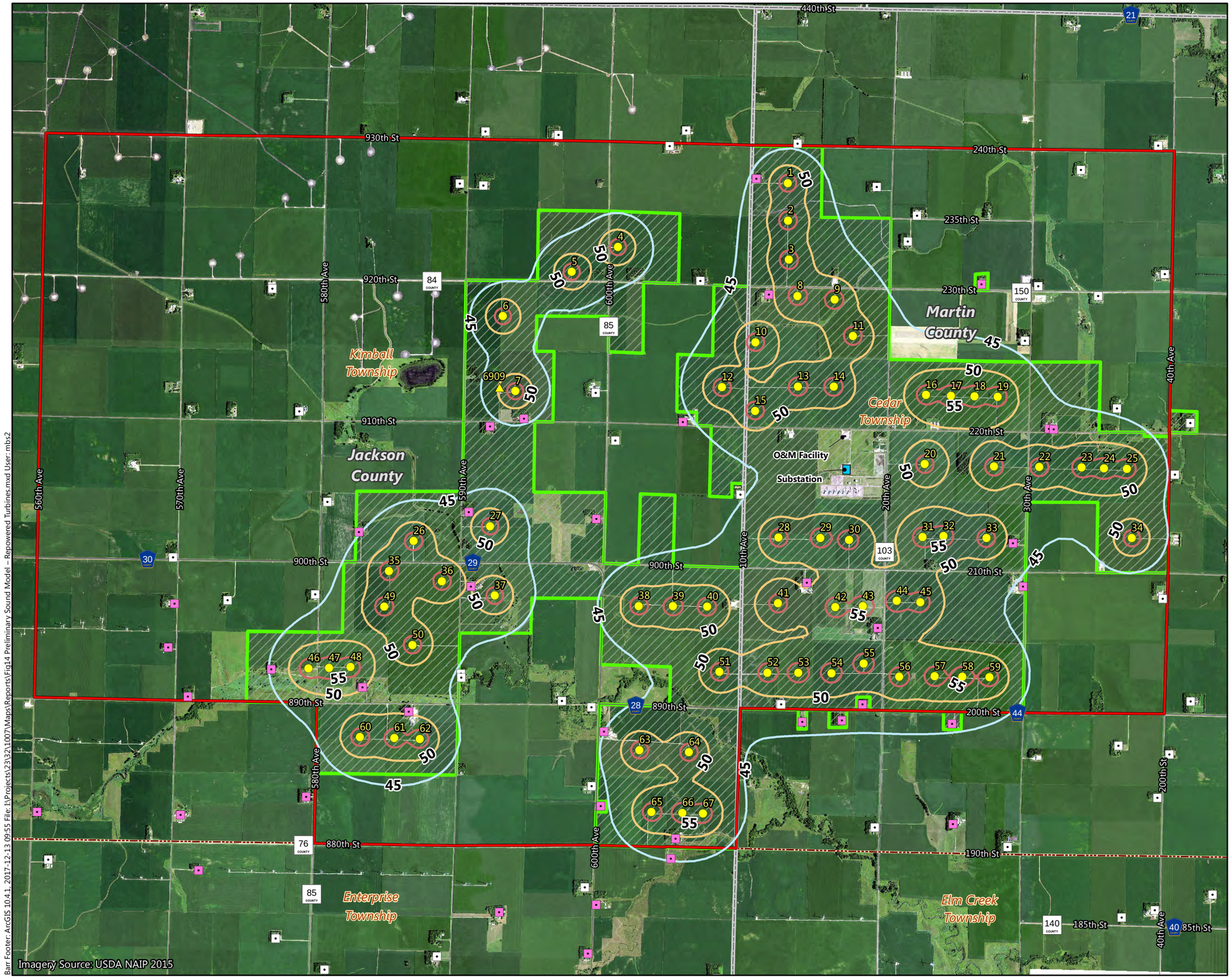
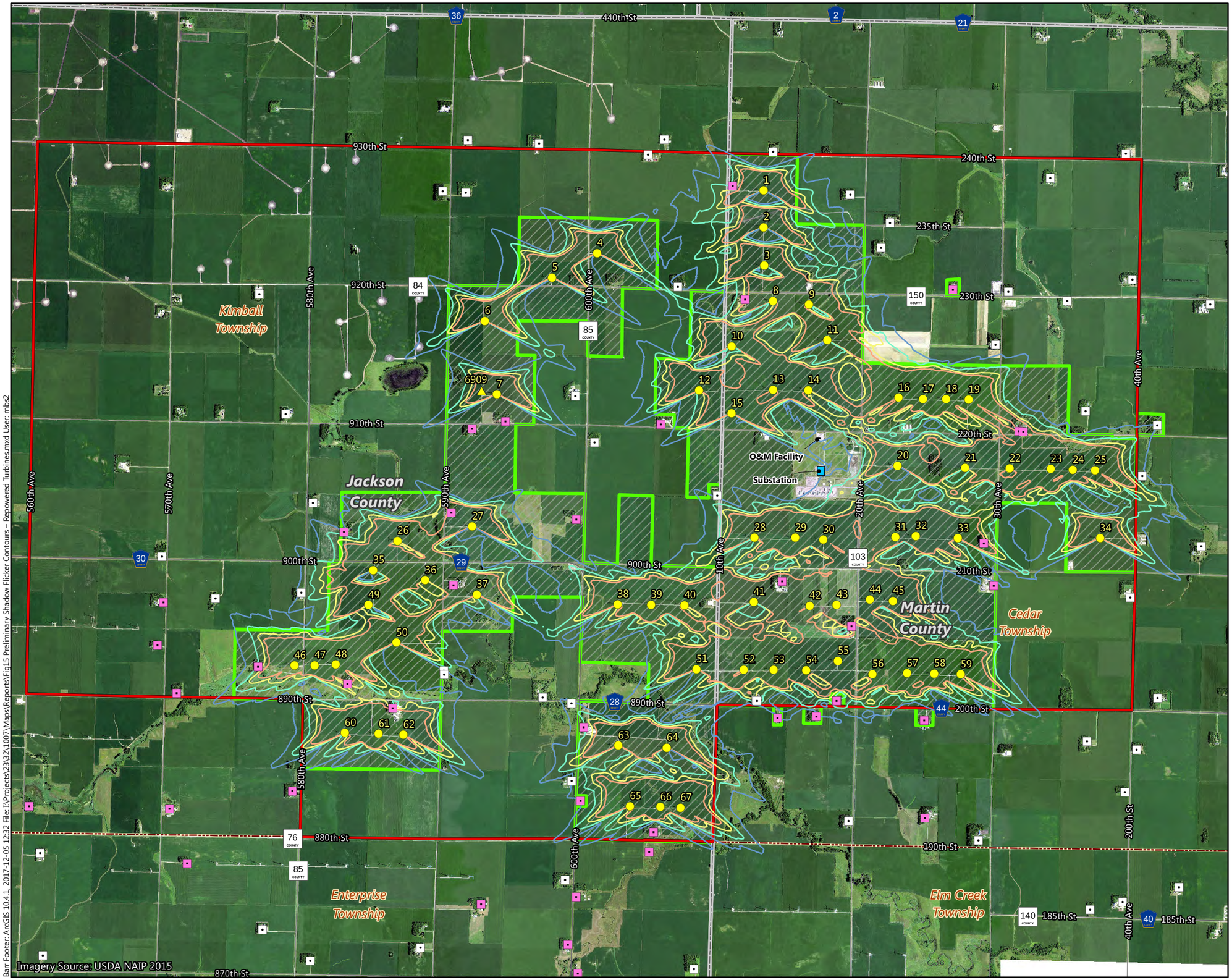


Figure 14

PRELIMINARY SOUND MODEL – REPOWERED TURBINES
Trimont Wind Project
Trimont Wind I, LLC
Jackson & Martin Co., Minnesota



Turbine Location
Permanent Met Tower Location
Substation
O&M Facility
Project Boundary (2004)

Residence Locations (6/6/2017)
Participating Residence
Non-Participating Residence
Lease Area

Preliminary Shadow Flicker Contour
(Shadow Hours per Year, Repowered Turbines)
10
20
30
40
Civil Township
County Boundary

Feet
3,500 0 3,500

Meters
1,000 0 1,000

Figure 15

PRELIMINARY SHADOW FLICKER CONTOURS - REPOWERED TURBINES
Trimont Wind Project
Trimont Wind I, LLC
Jackson & Martin Co., Minnesota

Attachments

Attachment A

Original Permit and Amended Permit

SITE PERMIT

FOR

LARGE WIND ENERGY CONVERSION SYSTEM

IN

MARTIN AND JACKSON COUNTIES, MINNESOTA

ISSUED TO

TRIMONT WIND I, LLC

PERMIT NO. 03-72-LWECS-TRIMONT

In accordance with Minnesota Statutes Section 116C.694, this Site Permit is issued to

TRIMONT WIND I, LLC

Trimont Wind I, LLC is authorized to construct and operate a 100.5-Megawatt nameplate capacity Large Wind Energy Conversion System on the site identified in this Site Permit and in compliance with the conditions contained in this Permit.

This Permit shall expire on June 30, 2034.

Dated: June 17, 2004

Robert A. Schroeder, Chair
Minnesota Environmental Quality Board

I. SITE PERMIT

This Site Permit for a Large Wind Energy Conversion System (LWECS) authorizes Trimont Wind I, LLC, (hereinafter "Permittee") to construct a 100.5 Megawatt (MW) LWECS and associated facilities in Martin and Jackson Counties, Minnesota, on a site of approximately 22,400 acres in accordance with the conditions contained in this Permit. The preliminary site boundary is shown on the map that is attached hereto as Figure 1.

II. PROJECT DESCRIPTION

The 100.5-Megawatt LWECS authorized to be constructed in this Permit is referred to as the Trimont Wind Project ("Project"). The Project will consist of up to 67 turbines, using 1.5 MW or 1.6 MW [manufacturer to be determined] wind turbines with a maximum nameplate capacity of 100.5 MW. Turbines are interconnected by communication and electrical power collection facilities within the wind farm. These facilities will include transformers and underground collection lines and overhead feeder lines that will deliver wind-generated power to GRE's Martin County Substation located in Section 19 in Cedar Township in Martin County. Turbine blades will have a [70-82] meter rotor diameter, depending on the turbine model installed.

III. CONDITIONS

The following conditions shall apply to site preparation, construction, cleanup, restoration, operation, maintenance, abandonment, decommissioning and all other phases of the LWECS. The Minnesota Environmental Quality Board ("MEQB") preserves all available remedies for violation of any of these Permit conditions, including revocation or modification of the Permit.

A. GENERAL CONSTRUCTION CONDITIONS

1. SITE PLAN

Prior to commencing construction, the Permittee shall submit to the MEQB a site plan for all turbines, roads, electrical equipment, collector and feeder lines and other associated facilities to be constructed and engineering drawings for site preparation, construction of the facilities, and restoration of the site due to construction. The Permittee may submit a site plan and engineering drawings for only a portion of the LWECS if the Permittee is prepared to commence construction on certain parts of the project before completing the site plan and engineering drawings for other parts of the LWECS. If it is discovered during construction that conditions preclude the use of a proposed site for location of a turbine, the Permittee shall move or relocate the turbine to an acceptable site within the project boundaries. The Permittee shall notify the EQB of any turbines that are to be relocated before the turbine is constructed on the new site.

2. FIELD REPRESENTATIVE

Prior to the start of construction and continuously throughout construction and site restoration, the Permittee shall designate a field representative responsible for overseeing compliance with the conditions of this Permit. This person (or a designee) shall be accessible by telephone during

normal business hours. This person's address, phone number and emergency phone number shall be provided to the MEQB, who may make the number available to local residents and officials and other interested persons. The Permittee may change the field representative by notification to the MEQB.

3. PRECONSTRUCTION MEETING

Prior to the start of any construction, the Permittee shall conduct a preconstruction meeting with the person designated by the MEQB to coordinate monitoring of construction activities.

4. NOTICE OF PERMIT CONDITIONS

The Permittee shall inform all employees, contractors, and other persons involved in the construction of the LWECS of the terms and conditions of this Permit.

B. MITIGATION MEASURES

1. SITE CLEARANCE

The Permittee shall disturb or clear the site only to the extent necessary to assure suitable access for construction, safe operation, and maintenance of the LWECS.

2. TOPSOIL PROTECTION

The Permittee shall implement measures to protect and segregate topsoil from subsoil in cultivated lands unless otherwise negotiated with the affected landowner.

3. COMPACTION

The Permittee shall implement measures to minimize compaction of all lands during all phases of the project's life and shall confine compaction to as small an area as practicable.

4. LIVESTOCK PROTECTION

The Permittee shall take precautions to protect livestock during all phases of the project's life.

5. FENCES

The Permittee shall promptly replace or repair all fences and gates removed or damaged during all phases of the project's life unless otherwise negotiated with the affected landowner. When the Permittee installs a gate where electric fences are present, the Permittee shall provide for continuity in the electric fence circuit.

6. DRAINAGE TILE

The Permittee shall promptly repair or replace all drainage tiles broken or damaged during all phases of the project's life unless otherwise negotiated with the affected landowner.

7. EQUIPMENT STORAGE

The Permittee shall not locate temporary equipment staging areas for site construction and restoration on cultivated land unless otherwise negotiated with the affected landowner. Temporary staging areas shall not be located in wetlands or native prairie.

8. ROADS

(a) Public Roads

Prior to commencement of construction, the Permittee shall identify all state, county or township roads that will be used for the LWECS project and shall notify the MEQB and the state, county or township governing body having jurisdiction over the roads to determine if the governmental body needs to inspect the roads prior to use of these roads. Where practical, existing roadways shall be used for all activities associated with the LWECS. Where practical, all-weather roads shall be used to deliver cement, turbines, towers, assembled nacelles and all other heavy components to and from the turbine sites.

The Permittee shall, prior to the use of such roads, make satisfactory arrangements with the appropriate state, county or township governmental body having jurisdiction over roads to be used for construction of the LWECS for maintenance and repair of roads that will be subject to extra wear and tear due to transportation of equipment and LWECS components. The Permittee shall notify the MEQB of such arrangements upon request of the MEQB.

(b) Turbine Access Roads

The Permittee shall construct the smallest number of turbine access roads it can. Access roads shall be low profile roads so that farming equipment can cross them and shall be covered with Class 5 gravel or similar material. When access roads are constructed across streams and drainage ways, the access roads shall be designed in a manner so runoff from the upper portions of the watershed can readily flow to the lower portion of the watershed.

(c) Private Roads

The Permittee shall promptly repair private roads or lanes damaged when moving equipment or when obtaining access to the site, unless otherwise negotiated with the affected landowner.

9. SOIL EROSION AND SEDIMENT CONTROL

The Permittee shall develop a Soil Erosion and Sediment Control Plan prior to construction and submit the Plan to the MEQB. This Plan may be the same plan submitted to the Minnesota

Pollution Control Agency as part of a storm water runoff permit application. A goal of the Soil Erosion and Sediment Control Plan is to minimize soil erosion, to re-vegetate non-cropland and range areas disturbed by construction with wildlife conservation species, and wherever possible, to plant native tall grass prairie species in cooperation with landowners.

The Soil Erosion and Sediment Control Plan shall address what types of erosion control measures will be implemented during each project phase, and shall at a minimum identify plans for grading, construction and drainage of roads and turbine pads; necessary soil information; detailed design features to maintain downstream water quality; a comprehensive re-vegetation plan to maintain and ensure adequate erosion control and slope stability and to restore the site after temporary project activities; and measures to minimize the area of surface disturbance. Other practices shall include containing excavated material, protecting exposed soil, and stabilizing restored material and removal of silt fences or barriers when the area is stabilized. The plan shall identify methods for disposal or storage of excavated material. Erosion and sedimentation control measures shall be installed prior to construction and maintained throughout the project's life.

10. CLEANUP

The Permittee shall remove all waste and scrap that is the product of construction, operation, restoration and maintenance from the site and properly dispose of it upon completion of each task. Personal litter, bottles, and paper deposited by site personnel shall be removed on a daily basis.

11. TREE REMOVAL

The Permittee shall minimize the removal of trees and the Permittee shall not remove groves of trees or shelter belts without notification to the MEQB and the approval of the affected landowner.

12. RESTORATION

The Permittee shall, as soon as practical following construction of each turbine, considering the weather and preferences of the landowner, restore the area affected by any LWECS activities to the condition that existed immediately before construction began, to the extent possible. The time period may be no longer than six months after completion of construction of the turbine. Restoration shall be compatible with the safe operation, maintenance, and inspection of the LWECS.

13. HAZARDOUS WASTE

The Permittee shall be responsible for compliance with all laws applicable to the generation, storage, transportation, clean up and disposal of hazardous wastes generated during any phase of the project's life.

14. APPLICATION OF HERBICIDES

The Permittee shall restrict herbicide use to those herbicides and methods of application approved by the Minnesota Department of Agriculture and the U.S. Environmental Protection Agency. Selective foliage or basal application shall be used when practicable. The Permittee shall contact the landowner or his designee to obtain approval for the use of herbicide prior to any application on their property. The landowner may request that there be no application of herbicides on any part of the site within the landowner's property. All herbicides shall be applied in a safe and cautious manner so as to not damage crops, orchards, tree farms, or gardens. The Permittee shall also, at least ten days prior to the application, notify beekeepers with an active, licensed apiary within one mile of the proposed application site of the day the company intends to apply herbicide so that precautionary measures may be taken by the beekeeper.

15. PUBLIC SAFETY

The Permittee shall provide educational materials to landowners within the site boundaries and, upon request, to interested persons, about the project and any restrictions or dangers associated with the LWECS project. The Permittee shall also provide any necessary safety measures, such as warning signs and gates for traffic control or to restrict public access.

16. FIRE PROTECTION

The Permittee shall prepare a fire protection plan in consultation with the fire department having jurisdiction over the area prior to LWECS construction. The Permittee shall submit a copy of the plan to the MEQB upon request.

17. TOWER IDENTIFICATION

All turbine towers shall be marked with a visible identification number.

C. SETBACKS

1. WIND ACCESS BUFFER

Wind turbine towers shall not be placed less than 5 rotor diameters from the perimeter of the site without the approval of the MEQB. Wind turbine towers within the project boundaries shall not be placed less than 5 rotor diameters from the boundary of any property on which the Permittee does not hold the wind rights.

2. RESIDENCES

Wind turbine towers shall not be located closer than 500 feet from the nearest occupied dwelling.

3. ROADS

Wind turbine towers shall not be located closer than 250 feet from the edge of the nearest public road right-of-way.

4. WILDLIFE MANAGEMENT AREAS

Wind turbines and associated facilities including foundations, access roads, underground cable, and transformers, shall not be located in State Wildlife Management Areas or Scientific and Natural Areas or in county parks. These areas may be used in establishing the wind access buffer required by paragraph III.C.1.

5. WETLANDS

Wind turbines and all associated facilities, including foundations, access roads, underground cable, and transformers, shall not be placed in public waters wetlands, as defined in Minnesota Stat. section 103G.005 subp.15a.

6. NATIVE PRAIRIE

The Permittee shall, with the advice of the DNR and any others selected by the Permittee, prepare a prairie protection and management plan and submit it to the MEQB Chair and DNR Commissioner within 60 days after issuance of this Permit. The plan shall address steps to be taken to identify native prairie within the project area, measures to avoid impacts to native prairie, and measures to mitigate for impacts if unavoidable. Wind turbines and all associated facilities, including foundations, access roads, underground cable and transformers, shall not be placed in native prairie unless addressed in the prairie protection and management plan. Unavoidable impacts to native prairie shall be mitigated by restoration or management of other native prairie areas that are in degraded condition, or by conveyance of conservation easements, or by other means agreed to by the Permittee and MEQB chair.

7. OTHER

Wind turbines and all associated facilities, including foundations, access roads, underground cable, and transformers shall not be located within active sand and gravel operations, unless otherwise negotiated with the owner of the sand and gravel operation.

D. PRECONSTRUCTION SURVEYS

1. BIOLOGICAL PRESERVATION SURVEY

The Permittee, in consultation with DNR and other interested parties, shall conduct a pre-construction inventory of existing wildlife management areas, scientific and natural areas, recreation areas, wetlands, native prairies and forests, and any other biologically sensitive areas within the site. The results of the survey shall be submitted to the MEQB and DNR Commissioner prior to the commencement of construction.

2. ARCHAEOLOGICAL RESOURCES

Prior to commencement of any construction, the Permittee shall conduct an archaeological reconnaissance survey within the area that will be permanently or temporarily impacted during construction or operation of the LWECS. The survey results shall be provided to the State Historic Preservation Office at the Minnesota Historical Society (MHS) and the Office of the State Archaeologist to determine whether cultural resources are present. Any unrecorded cultural resources that are found shall be evaluated for integrity and potential listing on the National Register of Historic Places. Undocumented resources that are eligible for listing on the National Register of Historic Places shall be avoided. All archaeological investigations shall meet the Minnesota Historical Society Standards and Guidelines for Archaeology and Historical Preservation. If any federal funding, permit or license is involved or required, the Permittee shall notify the MHS as soon as possible in the planning process to coordinate section 106 (36 C.F.R 800) review.

Prior to construction, construction workers shall be trained about the need to avoid cultural properties, how to identify cultural properties, and procedures to follow if undocumented cultural properties, including gravesites, are found during construction. If any archaeological sites are found during construction, the Permittee shall immediately stop work at the site and shall mark and preserve the site and notify the MEQB and the MHS about the discovery. The MEQB and the MHS shall have three working days from the time the agency is notified to conduct an inspection of the site if either agency shall choose to do so. On the fourth day after notification, the Permittee may begin work on the site unless the MHS has directed that work shall cease. In such event, work shall not continue until the MHS determines that construction can proceed.

3. ELECTROMAGNETIC INTERFERENCE

Within sixty days after issuance of this Permit, the Permittee shall submit a plan to the MEQB for conducting an assessment of television signal reception and microwave signal patterns in the project area prior to commencement of construction of the project. The assessment shall be designed to provide data that can be used in the future to determine whether the turbines and associated facilities are the cause of disruption or interference of television reception or microwave patterns in the event residents should complain about such disruption or interference after the turbines are placed in operation. The assessment shall be completed prior to operation of the turbines. The Permittee shall be responsible for alleviating any disruption or interference of these services caused by the turbines or any associated facilities.

The Permittee shall not operate the LWECS and associated facilities so as to cause microwave, television, radio, telecommunications or navigation interference contrary to Federal Communications Commission (FCC) regulations or other law. In the event the LWECS and its associated facilities or its operations cause such interference, the Permittee shall take timely measures necessary to correct the problem.

E. SITE LAYOUT RESTRICTIONS

1. WIND TURBINE TOWERS

Structures for wind turbines shall be self-supporting tubular towers. The towers shall not be more than 262 feet (80 meters) above grade at hub height.

2. METEOROLOGICAL TOWERS

Permanent towers up to 100 feet high for meteorological equipment shall be free standing. Temporary meteorological towers, which are those that will be removed after completion of construction, and all meteorological towers over 100 feet high may be guyed if the landowner has given written permission and the guys are properly marked with safety shields.

3. NOISE

The wind turbine towers shall be placed such that the Permittee shall comply with noise standards established by the Minnesota Pollution Control Agency at all times at all appropriate locations. Turbines shall be moved or modified or removed from service if necessary to comply with this condition. The Permittee or its contractor may install and operate turbines as close as the minimum setback required in this Permit, but in all cases shall comply with PCA standards.

4. FEDERAL AVIATION ADMINISTRATION

Towers shall be marked as required by the Federal Aviation Administration (FAA). There shall be no lights on the towers other than what is required by the FAA. This restriction shall not apply to infrared heating devices used to protect the wind monitoring equipment.

5. TURBINE SPACING

The turbine towers shall be constructed within the site as shown on the map attached as Figure 1. The turbine towers shall be spaced no closer than 3 rotor diameters (RD) for crosswind spacing (distance between turbines) and 6 RD downwind spacing (distance between strings of turbines). If required during final micro siting of the turbine towers to account for topographic conditions, the Chair may authorize up to ten percent of the towers to be sited closer than the above spacing restrictions. Any other changes in spacing requirements shall be addressed on a case-by-case basis with the MEQB.

6. FOOTPRINT MINIMIZATION

The Permittee shall design and construct the LWECS so as to minimize the amount of land that is impacted by the LWECS. Associated facilities in the vicinity of turbines such as electrical/electronic boxes, transformers and monitoring systems shall, to the greatest extent feasible, be mounted on the foundations used for turbine towers or inside the towers unless otherwise negotiated with the affected landowner.

7. ELECTRICAL CABLES

The Permittee shall place electrical lines, known as collectors, and communication cables underground when located on private property. Collectors and cables shall also be placed within or adjacent to the land necessary for turbine access roads unless otherwise negotiated with the affected landowner. This paragraph does not apply to feeder lines.

8. FEEDER LINES

The Permittee shall place overhead 34.5 kV electric lines, known as feeders, on public rights-of-way, if a public right-of-way exists. A change in routes may be made as long as feeders remain on public rights-of-way and approval has been obtained from the governmental unit responsible for the affected right-of-way. If no public right-of-way exists, the Permittee may place feeders on private property. When placing feeders on private property, the Permittee shall place the feeder in accordance with the easement negotiated with the affected landowner. Notwithstanding any of the requirements in paragraph III.D. to conduct surveys before any construction can commence, the Permittee may begin immediately upon issuance of this permit to construct the 34.5 kV feeder lines that will be required as part of this project. The Permittee shall submit the site plan and engineering drawings required under paragraph III.A.1. for the feeder lines before commencing construction. Any guy wires on the structures for feeder lines shall be marked with safety shields.

F. STUDIES

1. WAKE LOSS STUDIES

The Permittee shall provide, to the MEQB, with the site plan required by paragraph III.A.1., the preconstruction micro siting analysis leading to the final tower locations and an estimate of total project wake losses. The Permittee shall provide to the MEQB any operational wake loss studies conducted on this project.

2. NOISE

On request of the MEQB Chair, the Permittee shall submit a proposal to the MEQB Chair for the conduct of a noise study. Upon the approval of the MEQB Chair the Permittee shall carryout the study. The study shall be designed to determine the noise levels at various distances from the turbines at various wind directions and speeds.

G. DECOMMISSIONING/RESTORATION/ABANDONMENT

1. DECOMMISSIONING PLAN

Prior to commencement of construction, the Permittee shall submit to the MEQB a Decommissioning Plan describing the manner in which the Permittee anticipates decommissioning the project in accordance with the requirements of Minn. Rules part

4401.0450, subp. 13. The Permittee shall ensure that it carries out its obligation to provide for the resources necessary to fulfill its requirements to properly decommission the project at the appropriate time. The MEQB may at any time request the Permittee to file a report with the MEQB describing how the Permittee is fulfilling these requirements.

2. SITE RESTORATION

Upon expiration of this Permit, or upon earlier termination of operation of the LWECS, the Permittee shall have the obligation to dismantle and remove from the site all towers, turbine generators, transformers, overhead and underground cables, foundations, buildings and ancillary equipment to a depth of four feet. To the extent possible the Permittee shall restore and reclaim the site to its pre-project topography and topsoil quality. All access roads shall be removed unless written approval is given by the affected landowner requesting that one or more roads, or portions thereof, be retained. Any agreement for removal to a lesser depth or for no removal shall be recorded with the county and shall show the locations of all such foundations. All such agreements between the Permittee and the affected landowner shall be submitted to the MEQB prior to completion of restoration activities. The site shall be restored in accordance with the requirements of this condition within eighteen months after expiration.

3. ABANDONED TURBINES

The Permittee shall advise the MEQB of any turbines that are abandoned prior to termination of operation of the LWECS. The MEQB may require the Permittee to decommission any abandoned turbine.

H. REPORTING

1. PROJECT ENERGY PRODUCTION

The Permittee shall, by July 15 of each year, report to the MEQB on the monthly energy production of the project and the average monthly wind speed collected at one permanent meteorological tower selected by the MEQB Chair for the preceding year or partial year of operation. The report shall include copies of any project production reports filed with MAPP, FERC, or the MPUC or any other public regulatory agency. The Permittee shall describe the operational status and availability of the Project and any major outages, major repairs, or turbine performance improvements occurring in the previous year.

2. WIND RESOURCE USE

Within three months after commercial operation begins, the Permittee shall provide the MEQB with viewer access to its supervisory control and data acquisition (SCADA) system to allow the MEQB to monitor and review the following average hourly data for each hour of commercial operation:

(a) The power output of each turbine;

(b) The wind speed and direction measured at all monitored heights at any temporary and permanent meteorological towers that is connected to the SCADA system, owned or operated by the Permittee, in or within one mile of the project site boundary; and

(c) Temperature and any other meteorological parameters recorded at one permanent meteorological tower selected by the MEQB Chair.

Once the Permittee provides the initial access, the MEQB shall be responsible for maintaining the remote viewer connection. The Permittee shall not be in violation of this Permit if remote connection is lost or the SCADA system goes down. The Permittee shall not be required to provide the MEQB with viewer access to the SCADA system if doing so would be in violation of any standards or requirements imposed upon the Permittee by the federal government or any national organization with authority over the Permittee. In the event the MEQB is not provided access to the SCADA system, the Permittee shall file a quarterly report (due January 15, April 15, July 15, and October 15)with the MEQB with the same data specified above. After two years of commercial operation, the MEQB Chair may reduce or eliminate the requirements of this condition. The provisions of paragraph III.K.5. shall apply to the MEQB's review of this data.

3. EXTRAORDINARY EVENTS

Within 24 hours of an occurrence, the Permittee shall notify the MEQB of any extraordinary event. Extraordinary events include: tower collapse, turbine failure, thrown blade or hub, collector or feeder line failure, injured LWECS worker or private person, kills of threatened or endangered species, or discovery of an unexpectedly large number of dead birds of any variety on site. In the event of extraordinary avian mortality, the DNR shall also be notified within 24 hours. The Permittee shall, within 30 days of the occurrence, submit a report to the MEQB describing the cause of the occurrence and the steps taken to avoid future occurrences.

4. COMPLAINTS

Prior to the start of construction, the Permittee shall submit to the MEQB the company's procedures to be used to receive and respond to complaints. The Permittee shall report to the MEQB all complaints received concerning any part of the LWECS in accordance with the procedures provided in Exhibit 1 attached to this Permit.

I. FINAL CONSTRUCTION

1. AS-BUILT PLANS AND SPECIFICATIONS

Within 60 days after completion of construction, the Permittee shall submit to the MEQB a copy of the as-built plans and specifications. The Permittee must also submit this data in a geographic information system (GIS) compatible format so that the MEQB can place it into the Department of Administration's Land Management Information Center geographic data clearinghouse.

2. FINAL BOUNDARIES

After completion of construction, the MEQB shall determine the final boundaries of the site required for this project. This Permit shall be modified, after notice and opportunity for public hearing, to represent the actual site required by the Permittee to operate the project authorized by this Permit.

3. EXPANSION OF SITE BOUNDARIES

No expansion of the site boundaries described in this Permit shall be authorized without the approval of the MEQB. The Permittee may submit to the MEQB a request for a change in the boundaries of the site for the LWECS. The MEQB will respond to the requested change in accordance with applicable statutes and rules.

J. AUTHORITY TO CONSTRUCT LWECS

1. WIND RIGHTS.

The Permittee shall advise the MEQB of the obtaining of exclusive wind rights within the boundaries of the LWECS authorized by this Permit within 30 days of receiving such wind rights. The Permittee shall submit documentation of such exclusive wind rights if requested by the MEQB.

2. OTHER PERMIT APPLICATIONS.

Nothing in this Permit shall be construed to preclude any other person from seeking a site permit to construct a large wind energy conversion system in any area within the boundaries of the project covered by this Permit if the Permittee does not hold exclusive wind rights for such areas.

3. PREEMPTION OF OTHER LAWS

Pursuant to Minn. Stat. § 116C.697, this Site Permit shall be the only site approval required for the location of this project, and this Permit shall supersede and preempt all zoning, building, and land use rules, regulations, and ordinances adopted by regional, county, local, and special purpose governments. Nothing in this Permit shall release the Permittee from any obligation imposed by law that is not superseded or preempted by law.

K. MISCELLANEOUS

1. PERIODIC REVIEW

The MEQB shall initiate a review of this Permit and the applicable conditions at least once every five years. The purpose of the periodic review is to allow the MEQB, the Permittee, and other interested persons an opportunity to consider modifications in the conditions of the Permit. No modification may be made except in accordance with applicable statutes and rules.

2. FAILURE TO COMMENCE CONSTRUCTION

If the Permittee has not completed the pre-construction surveys required in paragraph III.D. and commenced construction of the LWECS within two years of the issuance of this Permit, the Permittee must advise the MEQB of the reason construction has not commenced. In such event, the MEQB may determine whether this Permit should be revoked. No revocation of this Permit may be undertaken except in accordance with applicable statutes and rules, including Minn. Stat. section 116C.645.

3. MODIFICATION OF CONDITIONS

After notice and opportunity for hearing, this Permit may be modified or amended for cause including but not limited to the following:

(a) Violation of any condition in this Permit;

(b) Endangerment of human health or the environment by operation of the facility; or

(c) Existence of other grounds established by rule.

4. REVOCATION OR SUSPENSION OF THE PERMIT

The MEQB may take action to suspend or revoke this Permit upon the grounds that:

(a) A false statement was knowingly made in the application or in accompanying statements or studies required of the applicant, and a true statement would have warranted a change in the board's findings;

(b) There has been a failure to comply with material conditions of this Permit, or there has been a failure to maintain health and safety standards; or

(c) There has been a material violation of a provision of an applicable statute or rule or an order of the MEQB.

In the event the MEQB shall determine that it is appropriate to consider revocation or suspension of this Permit, the MEQB shall proceed in accordance with the requirements of Minn. Stat. section 116C.645 to determine the appropriate action. Upon a finding of any of the above, the MEQB may require the Permittee to undertake corrective measures in lieu of having the Permit suspended or revoked.

5. PROPRIETARY INFORMATION

Certain information required to be submitted to the MEQB under this Permit, including energy production and wake loss data, may constitute trade secret information or other type of

proprietary information under the Data Practices Act or other law and is not to be made available to persons outside the agency. The Permittee must satisfy requirements of applicable law to obtain the protection afforded by the law.

6. TRANSFER OF PERMIT

The Permittee may not transfer this Permit without the approval of the MEQB. If the Permittee desires to transfer this Permit, the holder shall advise the MEQB in writing of such desire. The Permittee shall provide the MEQB with such information about the transfer as the MEQB requires to reach a decision. The MEQB may impose additional conditions on any new Permittee as part of the approval of the transfer.

7. OTHER PERMITS

The Permittee shall be responsible for acquiring any other federal, state, or local permits or authorizations that may be required to construct and operate a LWECS within the authorized site. The Permittee shall submit a copy of such permits and authorizations to the MEQB upon request.

8. SITE MANAGER

The Permittee shall designate a Site Manager who shall be the contact person for the MEQB to contact with questions about the LWECS. The Permittee shall provide the MEQB with the name, address, and phone numbers of the project site manager prior to placing any turbine into operation. This information shall be maintained current by informing the MEQB of any changes as they become effective.

9. NOTICE TO LOCAL RESIDENTS

The Permittee shall, within ten working days of receipt of this Permit, send a copy of the Permit to the office of the auditor of each county in which the site is located and to the clerk of each city and township within the site boundaries. If applicable, the Permittee shall also, within 10 working days of issuance, send a copy of this Permit to each regional development commission, local fire district, soil and water conservation district, watershed district, and watershed management district office with jurisdiction in the county where the site is located. Within thirty days of issuance of this Permit, the Permittee shall send a copy of the Permit to each affected landowner within the site. In no case shall the affected landowner receive the site permit less than five days prior to the start of construction on their property.

10. RIGHT OF ENTRY

The Permittee shall allow representatives of the MEQB to perform the following, upon presentation of credentials:

(a) To enter upon the facilities easement of the site property for the purpose of obtaining information, examining records, and conducting surveys or investigations.

(b) To bring such equipment upon the facilities easement of the property as is necessary to conduct such surveys and investigations.

(c) To sample and monitor upon the facilities easement of the property; and

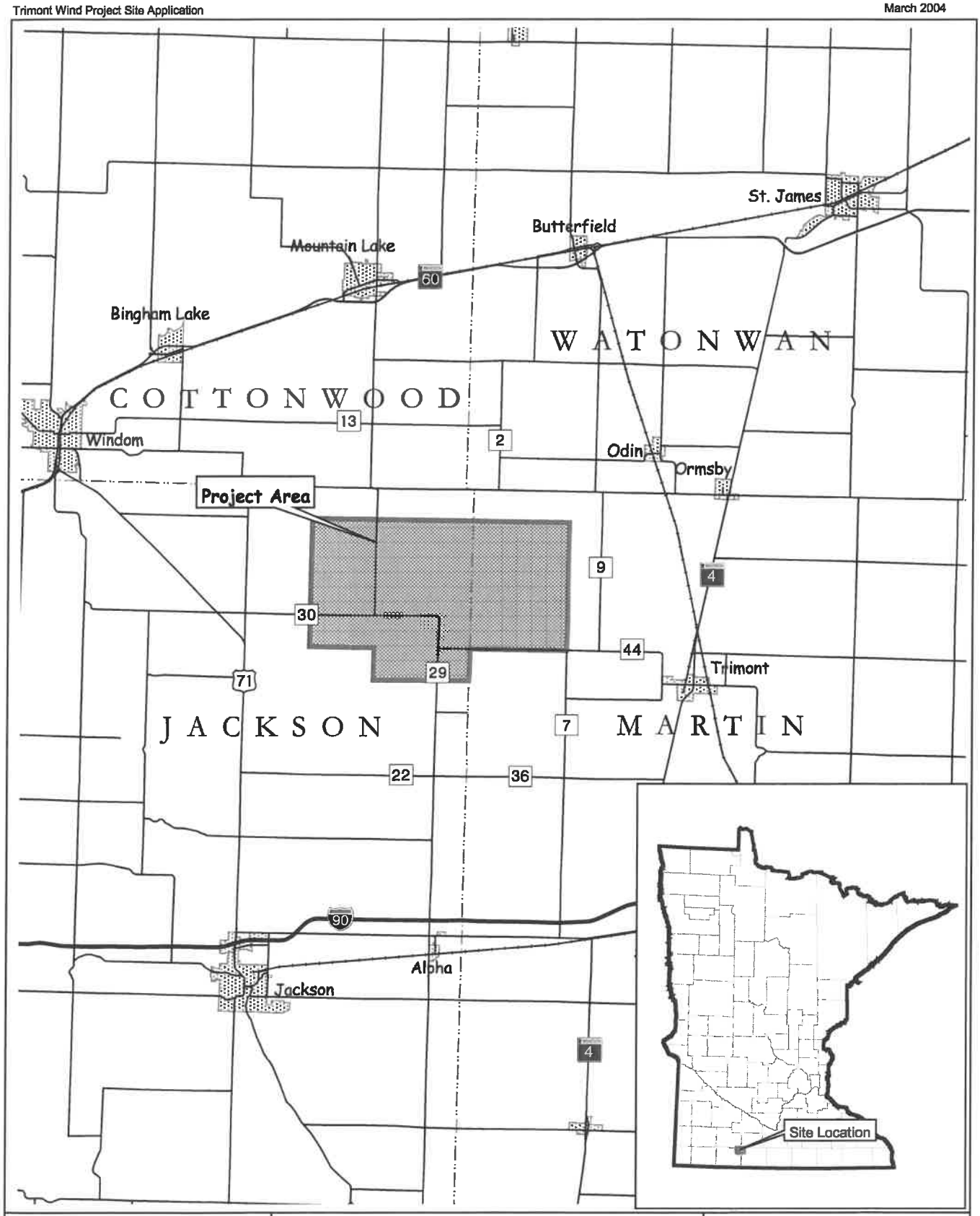
(d) To examine and copy any documents pertaining to compliance with the conditions of this Permit.

11. MORE STRINGENT RULES

The MEQB's issuance of this Site Permit does not prevent the future adoption by the MEQB of rules or orders more stringent than those now in existence and does not prevent the enforcement of these more stringent rules and orders against the Permittee.

L. EXPIRATION DATE

This Permit shall expire on July 31, 2034.



Preliminary

HDR

Figure 1
Project Vicinity Map
Trimont Wind I, LLC
Trimont Wind Project
Jackson & Martin Counties, MN

N

0 2 4 6 Miles

EXHIBIT 1

ENVIRONMENTAL QUALITY BOARD
COMPLAINT REPORT PROCEDURES FOR
LARGE WIND ENERGY CONVERSION SYSTEMS

1. Purpose

   To establish a uniform and timely method of reporting complaints received by the Permittee concerning the Permit conditions for site preparation, construction, cleanup and restoration, and resolution of such complaints.

2. Scope

   This reporting plan encompasses complaint report procedures and frequency.

3. Applicability

   The procedures shall be used for all complaints received by the Permittee.

4. Definitions

   Complaint - A statement presented by a person expressing dissatisfaction, resentment, or discontent as a direct result of the LWECS and associated facilities. Complaints do not include requests, inquiries, questions or general comments.

   Substantial Complaint - Any complaints submitted to the Permittee in writing that, if substantiated, could result in Permit modification or suspension pursuant to the applicable regulations.

   Person - An individual, partnership, joint venture, private or public corporation, association, firm, public service company, cooperative, political subdivision, municipal corporation, government agency, public utility district, or any other entity, public or private, however organized.

5. Responsibilities

   Everyone involved with any phase of the LWECS is responsible to ensure expeditious and equitable resolution of all complaints. It is therefore necessary to establish a uniform method for documenting and handling complaints related to this LWECS project. The following procedures will satisfy this requirement:

A. The Permittee shall document all complaints by maintaining a record of all applicable information concerning the complaint, including the following:

1. Name of the Permittee and project.
2. Name of complainant, address and phone number.
3. Precise property description or tract numbers (where applicable).
4. Nature of complaint.
5. Response given.
6. Name of person receiving complaint and date of receipt.
7. Name of person reporting complaint to the MEQB and phone number.
8. Final disposition and date.

B. The Permittee shall assign an individual to summarize complaints for transmittal to the MEQB.

6. Requirements

The Permittee shall report all complaints to the MEQB according to the following schedule:

Immediate Reports - All substantial complaints shall be reported to the MEQB by phone the same day received or on the following working day for complaints received after working hours. Such reports are to be directed to Wind Permit Compliance at the following: 651-296-2871 or 651-296-2878 or 1-800-657-3794. Voice messages are acceptable.

Monthly Reports

By the 15th of each month, a summary of all complaints, including substantial complaints received or resolved during the proceeding month, and a copy of each complaint shall be sent to Wind Permit Compliance, Minnesota Environmental Quality Board, 300 Centennial Building, 658 Cedar Street, St. Paul, MN 55155.

7. Complaints Received by the MEQB

Copies of complaints received directly by the MEQB from aggrieved persons regarding site preparation, construction, cleanup, restoration, operation and maintenance shall be promptly sent to the Permittee.

EXHIBIT 2

BEST MANAGEMENT PRACTICES

No tracked or wheeled vehicles should be allowed in streambeds. All mechanized work should be conducted from the banks.

Erosion control measures should receive the utmost attention if construction occurs upslope of creeks or streams. Silt fences should be installed adjacent to the stream, and additional devices such as silt fences or check bales should be installed upslope. Devices should be inspected frequently, particularly following precipitation, to ensure they are effective and in good repair. Repairs or replacements should be made promptly. Erosion control measures should remain in place until vegetation begins to recover.

Removal of riparian vegetation should be kept to a minimum, and should occur sequentially as needed over the length of the project. Areas of disturbed soils should be mulched and/or reseeded promptly, preferably with native grasses and forbs. The site should be inspected following spring green-up to ensure vegetation is recovering as expected.

Construction, demolition and /or removal activities in the vicinity of streams should be conducted to prevent materials from falling into the water. Any materials that fall into the water or into areas below the ordinary high water line should be retrieved promptly, by hand or by equipment working from the banks, and disposed of in a manner consistent with state and local ordinances.

Any fill materials that must be placed below the ordinary high water line should be clean and free of fine materials, and should be locally-sourced, if possible. Final grade ratios should not exceed 3:1. If necessary, Class III riprap should be installed over geotextile material, such that stream banks are protected from scour. Riprap or other materials that already exist onsite should be minimally disturbed.

The applicant should meet with construction contractors before commencing the project, to ensure that all permit provisions are clearly understood. If the project is modified so that protected waters will be affected, the Permittee should contact the DNR Area Hydrologist for Jackson County, Jim Sehl, at 507-831-2900, or for Martin County, Leo Getsfried, at 507-389-2151, before proceeding.

STATE OF MINNESOTA
MINNESOTA ENVIRONMENTAL BOARD

In the Matter of the Request of Trimont Wind I, LLC, for Approval to Amend Its Site Permit for a 100.5 MW Large Wind Energy Conversion System in Martin and Jackson Counties To Allow Three Wind Turbines to be Located Within Five Rotor Diameters of the Site Boundary

MINNESOTA ENVIRONMENTAL QUALITY BOARD'S FINDINGS OF FACT, CONCLUSIONS OF LAW AND ORDER GRANTING APPROVAL FOR TURBINE SETBACK REQUIREMENTS AND AMENDING THE PERMIT

SITE PERMIT NO. O3-72-LWECS-TRIMONT

The above-entitled matter came before the Minnesota Environmental Quality Board at a regular meeting on October 21, 2004, pursuant to a request by Trimont Wind I, LLC, for an amendment to its site permit issued on June 17, 2004, to allow three wind turbines to be located within five rotor diameters of the site permit boundary.

STATEMENT OF ISSUE

Should the MEQB grant the request of Trimont Wind I, LLC to amend Condition III.C.1. of Site Permit 03-72-LWECS-Trimont issued on June 17, 2004, and allow Trimont to locate three turbines within five rotor diameters of areas where Trimont does not hold the wind rights?

Based upon the record and proceedings herein, the Minnesota Environmental Quality Board makes the following:

FINDINGS OF FACT

1. On June 17, 2004, the Minnesota Environmental Quality Board issued a site permit in accordance with its authority in Minnesota Statutes section 116C.694 to Trimont Wind I, LLC, for a 100.5 megawatt large wind energy conversion system in Martin and Jackson Counties.

2. Once a large wind energy conversion system site permit is issued, project developers engage in micrositing of the turbines. Micrositing allows the permittee to factor in the site permit requirements while seeking to maximize production and reduce the infrastructure costs associated with project development.

3. Since receiving approval of the Site Permit, Trimont has begun its micrositing efforts. Trimont has conducted geotechnical work at the site and has continued to monitor the wind resource in the area and to make minor refinements of the layout of the turbines to optimize project performance.

4. Condition III.C.1 of the Site Permit provides that the wind turbines shall not be placed less than 5 rotor diameters from the boundary of any property on which the permittee does not hold the wind rights. The purpose of this condition is to insure that the wind turbines do not interfere with the rights of neighboring landowners to utilize the wind resource on their property. When wind turbines extract energy from the wind, they change the air flow behind the turbine (downwind wakes). The air flow in the wake is more turbulent and its forward velocity is reduced. As the wake moves away from the turbine's rotor, it expands into the atmosphere and diminishes. Eventually, normal wind flow is restored by mixing the unaffected wind flows around the wake with the wake. The effects of wakes are significantly dissipated at a distance of ten rotor diameters. Therefore, the EQB has required a five rotor diameter setback in site permits, so that one project would not affect another one, thereby protecting the wind resource of each developer.

5. In a letter dated September 30, 2004, Trimont requested that the EQB allow the placement of three wind turbine towers closer than 5 rotor diameters from the site permit boundaries. The three turbines are numbers 7, 31, and 43. Trimont has provided a map displaying the turbine locations in question. This map is included in the EQB packet.

6. Turbine No. 7 is located in Section 36 of Jackson County. A drainage channel runs to the north and east of the proposed location for this turbine. Trimont would like to locate this turbine at a distance of 1292 feet from the drainage channel, which is equivalent to approximately 4.8 rotor diameters.

7. The drainage channel is not a suitable location for a wind turbine. Allowing Trimont to place a wind turbine less than 5 rotor diameters from the channel will not interfere with possible development of the wind resource in the future.

8. Turbines Nos. 31 and 43 are located in Section 20 of Martin County. The proposed locations for these two turbines are less than 5 rotor diameters from a nearby cemetery. Turbine No. 31 would be 980 feet from the cemetery, approximately 3.6 rotor diameters, and Turbine No. 43 would be 990 feet from the cemetery, approximately 3.7 rotor diameters.

9. No wind turbines will be located in the cemetery and any nearby wind turbines that might be constructed in the future will be more than 5 rotor diameters from Turbines Nos. 31 and 43.

10. The EQB allowed one other wind developer (Moraine Wind, LLC) to locate turbines less than five rotor diameters from the site boundary when such location

would not interfere with possible future development. This was done on February 20, 2003, when the Board amended Site Permit 01-10-LWECS-NE for a project in Murray and Pipestone Counties.

11. Minnesota Rules part 4401.0700 provides that the EQB can amend a site permit for a LWECS upon the request of any person, with notice to the permittee. In this case the permittee is the person who has requested the amendment.

12. The only amendment requested by Trimont is on the language of Condition III.C.1. Trimont has not requested an amendment of any other condition of the permit and the permit will remain in effect as issued on June 17, 2004.

Based on the foregoing Findings of Fact, the Board makes the following:

CONCLUSIONS

1. Minnesota Statutes section 116C.694 gives the MEQB authority to place conditions in a site permit and to modify a site permit.

2. Allowing Trimont Wind I, LLC, to construct the requested three turbines within five rotor diameters of a drainage channel and a cemetery will not result in an adverse impact on any neighboring landowners, nor jeopardize the development of future wind projects in the area.

3. Any Finding of Fact more properly considered a Conclusion, or any Conclusion more properly considered a Finding of Fact, is hereby expressly adopted as such.

Based on the Findings of Fact and Conclusions contained herein, and the entire record of the proceeding, the Minnesota Environmental Quality Board hereby makes the following:

ORDER

1. The Minnesota Environmental Quality Board hereby grants approval to Trimont Wind I, LLC. to locate Turbines Nos. 7, 31, and 43 closer than five rotor diameters from the property boundary and in the approximate locations shown on Exhibit A.

2. Condition III.C.1. in Site Permit No. 03-72-LWECS-Trimont is amended to read as follows:

   1. WIND ACCESS BUFFER

   Wind turbine towers shall not be placed less than 5 rotor diameters from the perimeter of the site without the approval of the MEQB. Wind turbine towers within the project boundaries shall not be placed less than 5 rotor diameters from the boundary of any property on which the Permittee does not hold the wind rights, except one turbine may be no less than four rotor diameters from a nearby drainage channel and two turbines may be no less than three rotor diameters from a nearby cemetery.

3. The enclosed map of the proposed locations of the wind turbines shall be incorporated into the Site Permit as amended.

Approved and adopted this 21st day of October, 2004

Robert A. Schroeder
Chair

Attachment B

Summary of Permit Amendment Modifications Table

Large Wind Energy Conversion System
PUC Docket: IP6907/WS-13-258
EQB Permit: 03-72-LWECS-TRIMONT
Trimont Wind I, LLC
Summary of Permit Amendment Modifications

Existing Permit Section Number	Existing Permit Heading	Existing Permit Page	Notes
I	SITE PERMIT	1	No changes to permit language
II	PROJECT DESCRIPTION	1	Update to reflect revised rotor diameter and model of turbines installed
III	CONDITIONS	1	No changes to permit language
A	GENERAL CONSTRUCTION CONDITIONS	1	Headline only, no language to modify
1	SITE PLAN	1	No changes to permit language
2	FIELD REPRESENTATIVE	1	No changes to permit language
3	PRECONSTRUCTION MEETING	2	Update to reflect recently issued Site Permits for other facilities
4	NOTICE OF PERMIT CONDITIONS	2	No changes to permit language
B	MITIGATION MEASURES	2	Headline only, no language to modify
1	SITE CLEARANCE	2	No changes to permit language
2	TOPSOIL PROTECTION	2	No changes to permit language
3	COMPACTION	2	No changes to permit language
4	LIVESTOCK PROTECTION	2	No changes to permit language
5	FENCES	2	No changes to permit language
6	DRAINAGE TILE	3	No changes to permit language
7	EQUIPMENT STORAGE	3	No changes to permit language
8	ROADS	3	No changes to permit language
9	SOIL EROSION AND SEDIMENT CONTROL	3	Update to reflect recently issued Site Permits for other facilities
10	CLEANUP	4	No changes to permit language
11	TREE REMOVAL	4	No changes to permit language
12	RESTORATION	4	No changes to permit language
13	HAZARDOUS WASTE	4	No changes to permit language
14	APPLICATION OF HERBICIDES	5	No changes to permit language
15	PUBLIC SAFETY	5	No changes to permit language
16	FIRE PROTECTION	5	No changes to permit language

Existing Permit Section Number	Existing Permit Heading	Existing Permit Page	Notes
17	TOWER IDENTIFICATION	5	No changes to permit language
C	SETBACKS	5	Headline only, no language to modify
1	WIND ACCESS BUFFER	5	Update to General Wind Permit Standards
2	RESIDENCES	5	No changes to permit language
3	ROADS	6	No changes to permit language
4	WILDLIFE MANAGEMENT AREAS	6	No changes to permit language
5	WETLANDS	6	No changes to permit language
6	NATIVE PRAIRIE	6	No changes to permit language
7	OTHER	6	No changes to permit language
D	PRECONSTRUCTION SURVEYS	6	Headline only, no language to modify
1	BIOLOGICAL PRESERVATION SURVEY	6	No changes to permit language
2	ARCHAEOLOGICAL RESOURCES	7	No changes to permit language
3	ELECTROMAGNETIC INTERFERENCE	7	No changes to permit language
E	SITE LAYOUT RESTRICTIONS	8	Headline only, no language to modify
1	WIND TURBINE TOWERS	8	No changes to permit language
2	METEOROLOGICAL TOWERS	8	No changes to permit language
3	NOISE	8	No changes to permit language
4	FEDERAL AVIATION ADMINISTRATION	8	No changes to permit language
5	TURBINE SPACING	8	Update to General Wind Permit Standards
6	FOOTPRINT MINIMIZATION	8	No changes to permit language
7	ELECTRICAL CABLES	9	No changes to permit language
8	FEEDER LINES	9	No changes to permit language
F	STUDIES	9	Headline only, no language to modify
1	WAKE LOSS STUDIES	9	No changes to permit language
2	NOISE	9	No changes to permit language
3	SHADOW FLICKER	n/a	Update to reflect recently issued Site Permits for other facilities
G	DECOMMISSIONING/RESTORATION /ABANDONMENT	9	Headline only, no language to modify
1	DECOMMISSIONING PLAN	9	No changes to permit language
2	SITE RESTORATION	10	No changes to permit language

Existing Permit Section Number	Existing Permit Heading	Existing Permit Page	Notes
3	ABANDONED TURBINES	10	No changes to permit language
H	REPORTING	10	Headline only, no language to modify
1	PROJECT ENERGY PRODUCTION	10	No changes to permit language
2	WIND RESOURCE USE	10	Update to reflect recently issued Site Permits for other facilities
3	EXTRAORDINARY EVENTS	11	No changes to permit language
4	COMPLAINTS	11	No changes to permit language
I	FINAL CONSTRUCTION	11	Headline only, no language to modify
1	AS-BUILT PLANS AND SPECIFICATIONS	11	No changes to permit language
2	FINAL BOUNDARIES	12	No changes to permit language
3	EXPANSION OF SITE BOUNDARIES	12	No changes to permit language
J	AUTHORITY TO CONSTRUCT LWECS	12	Headline only, no language to modify
1	WIND RIGHTS	12	No changes to permit language
2	OTHER PERMIT APPLICATIONS	12	No changes to permit language
3	PREEMPTION OF OTHER LAWS	12	No changes to permit language
K	MISCELLANEOUS	12	Headline only, no language to modify
1	PERIODIC REVIEW	12	No changes to permit language
2	FAILURE TO COMMENCE CONSTRUCTION	13	Update to reflect recently issued Site Permits for other facilities
3	MODIFICATION OF CONDITIONS	13	No changes to permit language
4	REVOCATION OR SUSPENSION OF THE PERMIT	13	No changes to permit language
5	PROPRIETARY INFORMATION	13	No changes to permit language
6	TRANSFER OF PERMIT	14	Update to reflect recently issued Site Permits for other facilities
7	OTHER PERMITS	14	No changes to permit language
8	SITE MANAGER	14	No changes to permit language
9	NOTICE TO LOCAL RESIDENTS	14	No changes to permit language
10	RIGHT OF ENTRY	14	No changes to permit language
11	MORE STRINGENT RULES	15	No changes to permit language
L	EXPIRATION DATE	15	Update to 30 years from permit issuance

Attachment C

Wildlife Monitoring and Reporting System

Wildlife Monitoring and Reporting System

Avangrid Renewables, LLC (AR) developed its initial corporate approach on avian and bat issues (called an Avian and Bat Protection Policy/Plan (ABPP; IR 2008)) in cooperation with the U.S. Fish and Wildlife Service (USFWS) in 2008. The ABPP was created to comply with AR internal policies; USFWS federal Endangered Species, Migratory Birds Treaty, and Bald and Golden Eagle Protection Acts; and state wildlife agency regulations. In an effort to keep current with regulatory changes, AR implemented a Corporate Wildlife Plan (CWP) in 2015 that updates and supersedes the 2008 ABPP and its Policy. The CWP supports processes and practices intended to avoid and minimize impacts to all wildlife (with emphasis on birds and bats) and their habitats at AR operational assets. To implement the CWP, AR developed a Wildlife Monitoring and Reporting System (WMRS) for internally reporting bird and bat fatalities discovered during asset operations. The WMRS incorporates aspects of Tier 4 and 5 of USFWS Land-Based Wind Energy Guidelines (WEG, USFWS 2012). The WMRS consists of a systematic approach to monitoring and reporting bird and bat fatalities (Tier 4) and to assessing long-term operational impacts (trends) of a given asset. Through the WMRS, AR uses the resulting information to implement adaptive management actions, as necessary, to minimize or avoid risk to birds or bats and identify mitigation measures. WMRS consists of two phases of voluntary operational monitoring for birds and bats: baseline and long-term.

Baseline monitoring, also referred to as a post-construction fatality survey, consists of short-term intensive surveys involving standardized carcass searches and bias trials for searcher efficiency and carcass removal and is performed by trained biologists. The monitoring is initiated once the facility is fully operational and conducted for one year, unless otherwise stipulated by a permit condition. It provides a baseline mortality rate that AR uses to determine whether estimated impact levels for an asset are consistent with reported data from other similar facilities in a region. An analysis of trends is conducted at five-year intervals to assess impacts and evaluate if monitoring should be continued as identified below or if monitoring should be shifted to focus on a species-specific concern.

Subsequently, long-term monitoring is comprised of three types of monitoring: 1) weekly scans for carcasses around the road and turbine pad of randomly selected turbines, conducted during the spring and fall migration seasons (for eight and 10 weeks, respectively) by the Environmental Coordinator (EC), 2) monthly scans for carcasses during the Spill Prevention Control and Countermeasures Turbine Checks at every turbine, and 3) everyday reporting of Incidental Observations found by all onsite field personnel. Ongoing training and audits occurs throughout the year, as needed. AR reports any discovery of a federal or state listed endangered or threatened species to the appropriate agency contact within 48 hours of confirmed species identification.

A key resource for implementation of the long-term monitoring is the onsite operations technician that is designated as the EC. The EC acts as the on-site environmental representative for wildlife issues and implementation of the WMRS at the asset, and works closely with the Plant Manager and Operations Wildlife Compliance Manager.

Attachment D

Microwave Study, Communication Tower Study, and Government Radar Analysis

Microwave Study

Wind Power GeoPlanner™

Microwave Study

Trimont Wind Project

Prepared on Behalf of
Avangrid Renewables

October 6, 2017

COMSEARCH®
A CommScope Company

Table of Contents

1. Introduction

Microwave bands that may be affected by the installation of wind turbine facilities operate over a wide frequency range (900 MHz – 23 GHz). Comsearch has developed and maintains comprehensive technical databases containing information on licensed microwave networks throughout the United States. These systems are the telecommunication backbone of the country, providing long-distance and local telephone service, backhaul for cellular and personal communication service, data interconnects for mainframe computers and the Internet, network controls for utilities and railroads, and various video services. This report focuses on the potential impact of wind turbines on licensed, proposed and applied non-federal government microwave systems.

2. Project Overview

Project Information

Name: Trimont Wind Project

County: Jackson and Martin

State: Minnesota

Number of Turbines: 67

Blade Diameter: 91 meters

Hub Height: 80 meters

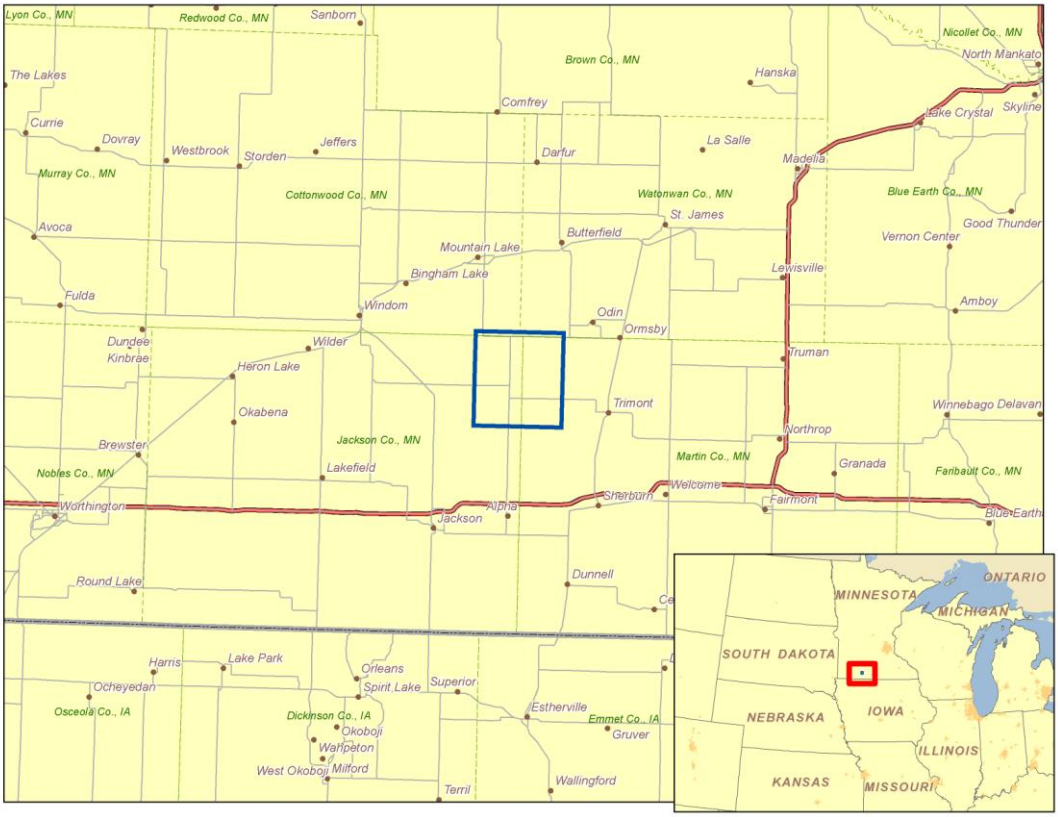


Figure 1: Area of Interest

3. Two-Dimensional Fresnel Zone Analysis

Methodology

Our obstruction analysis was performed using Comsearch's proprietary microwave database, which contains all non-government licensed, proposed and applied paths from 0.9 - 23 GHz[1]. First, we determined all microwave paths that intersect the area of interest[2] and listed them in Table 1. These paths and the area of interest that encompasses the planned turbine locations are shown in Figure 2.

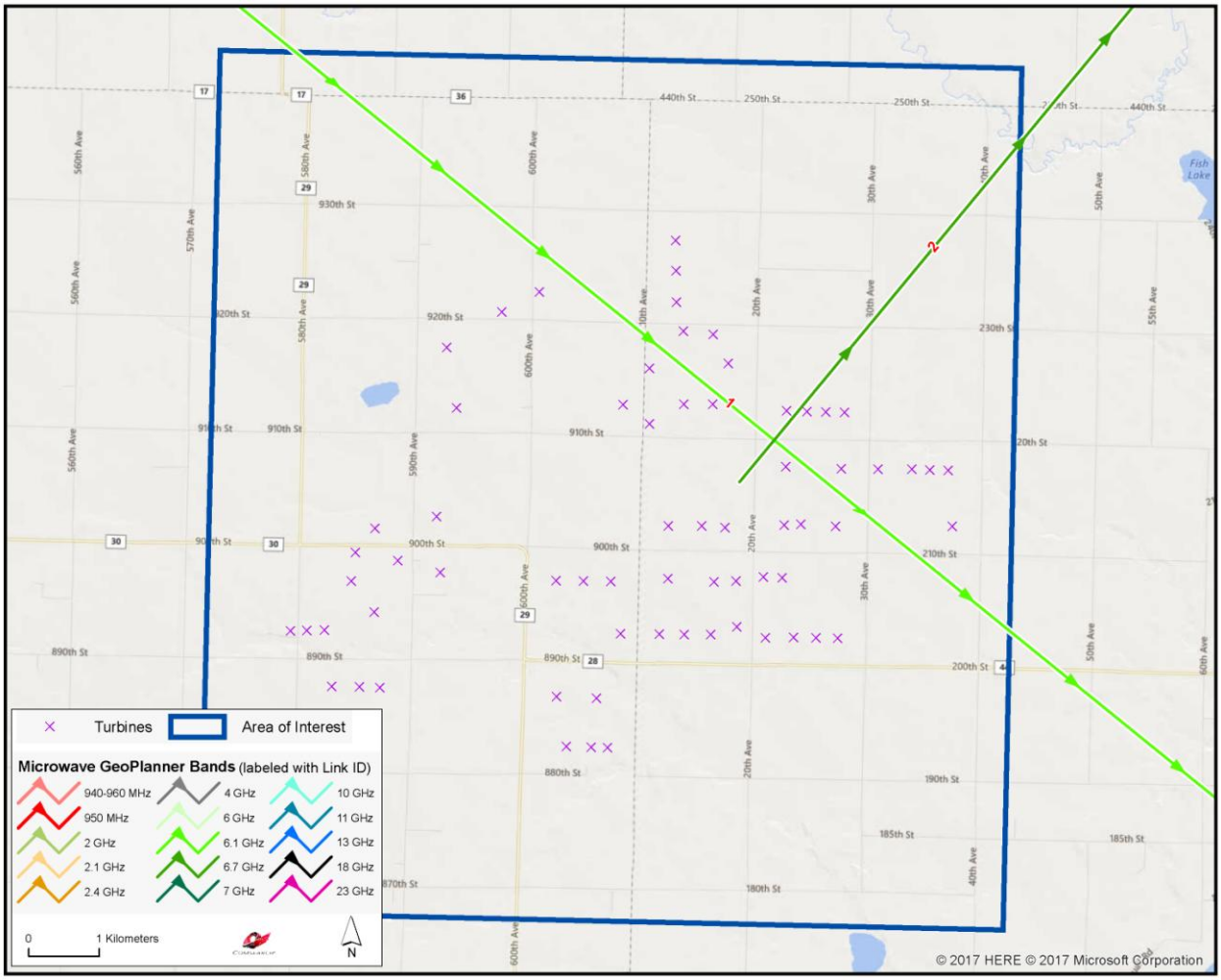


Figure 2: Microwave Paths that Intersect the Area of Interest

[1] Please note that this analysis does not include unlicensed microwave paths or federal government paths that are not registered with the FCC.

[2] We use FCC-licensed coordinates to determine which paths intersect the area of interest. It is possible that as-built coordinates may differ slightly from those on the FCC license.

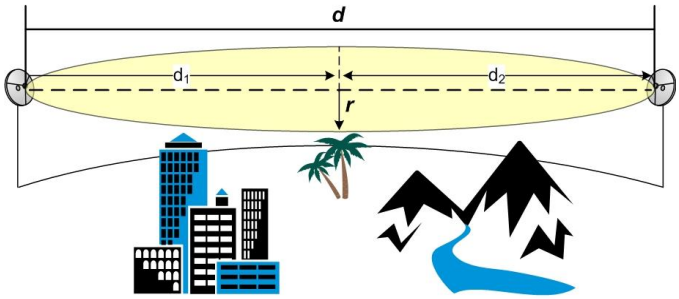
ID	Status	Callsign 1	Callsign 2	Band	Path Length (km)	Licensee
1	Licensed	WQDT291	WQDT292	Lower 6 GHz	49.45	Northern Border Pipeline Company
2	Licensed	WQCN602	WQCN603	Upper 6 GHz	23.70	Great River Energy

Table 1: Summary of Microwave Paths that Intersect the Area of Interest
(See enclosed mw_geopl.xlsx for more information and
GP_dict_matrix_description.xls for detailed field descriptions)

Verification of Coordinate Accuracy
It is possible that as-built coordinates may differ from those on the FCC license. For this project, both paths cross within close proximity of the proposed turbines and the tower locations for these paths will have a critical impact on the result. Therefore, we verified these locations using aerial photography. Some of the towers were found to be slightly off and were moved to their locations based on the aerial photos[3].

Next, we calculated a Fresnel Zone for each path based on the following formula:

$$r \cong 17.3\sqrt{\frac{n}{F_{GHz}}\left(\frac{d_1 d_2}{d_1 + d_2}\right)}$$



Where,
- r = Fresnel Zone radius at a specific point in the microwave path, meters
- n = Fresnel Zone number, 1
- F_{GHz} = Frequency of microwave system, GHz
- d_1 = Distance from antenna 1 to a specific point in the microwave path, kilometers
- d_2 = Distance from antenna 2 to a specific point in the microwave path, kilometers

[3] See enclosed mw_geopl.shp and mw_geopl_fcc.shp for details.

In general, this is the area where the planned wind turbines should be avoided, if possible. A depiction of the Fresnel Zones for each microwave path listed can be found in Figure 3 and Figure 4, and is also included in the enclosed shapefiles[4,5].

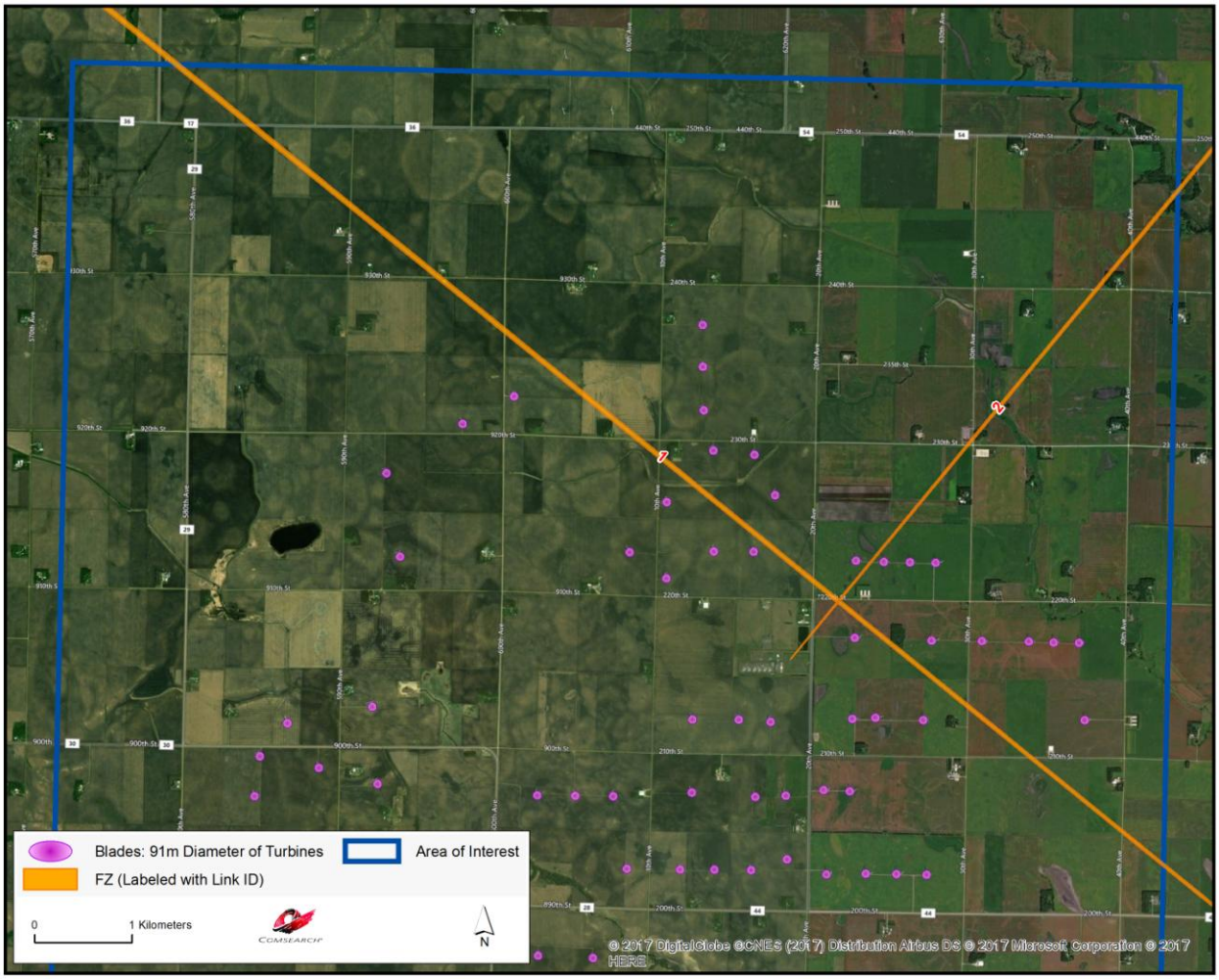


Figure 3: Microwave Paths with Fresnel Zones

[4] The ESRI® shapefiles enclosed are in NAD 83 UTM Zone 15 projected coordinate system.

[5] Comsearch makes no warranty as to the accuracy of the data included in this report beyond the date of the report. The data provided in this report is governed by Comsearch's data license notification and agreement located at http://www.comsearch.com/files/data_license.pdf.

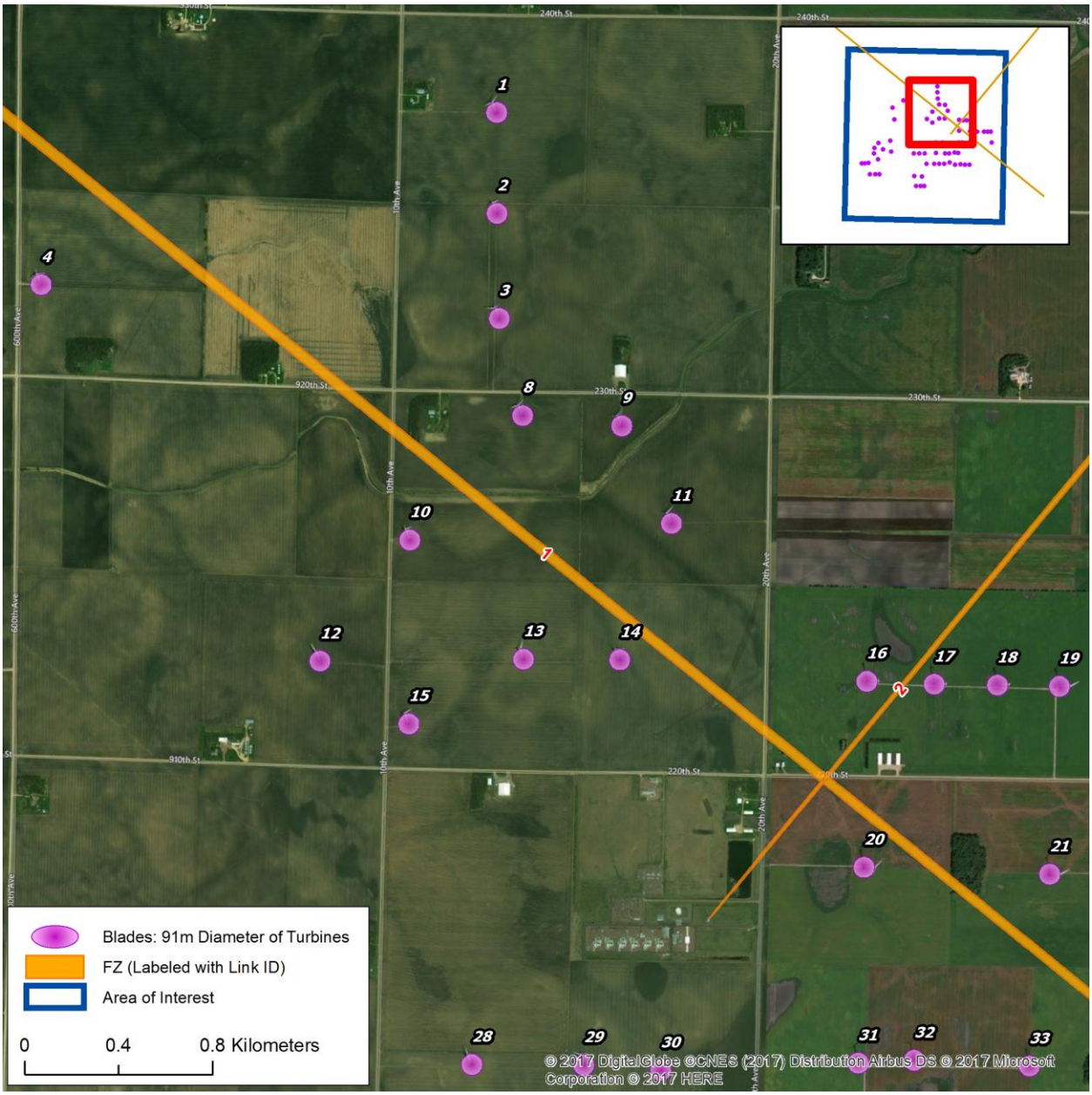


Figure 4: Microwave Paths with Fresnel Zones

4. Conclusion

Total Microwave Paths	Paths with Affected Fresnel Zones	Total Turbines	Turbines intersecting the Fresnel Zones
2	0	67	0

Table 2: Fresnel Zone Analysis Result

Our study identified two microwave paths intersecting the Trimont Wind Project area of interest. The Fresnel Zones for these microwave paths were calculated and mapped in order to assess the potential impact from the turbines. A total of 67 turbines were considered in the analysis, each with a blade diameter of 91 meters and a hub height of 80 meters. Of those turbines, none were found to have potential obstruction with the microwave systems in the area.

5. Contact

For questions or information regarding the Microwave Study, please contact:

Contact person: Denise Finney
Title: Account Manager
Company: Comsearch
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Telephone: 703-726-5650
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Email: dfinney@comsearch.com
Web site: www.comsearch.com

Communication Tower Study

Wind Power GeoPlanner™

Communication Tower Study

Trimont Wind Project

Prepared on Behalf of
Avangrid Renewables

October 12, 2017

COMSEARCH
A CommScope Company

Table of Contents

1. Introduction

This Communication Tower Study was performed for the Trimont Wind Project in Jackson and Martin Counties, Minnesota to identify the tower structures as well as FCC-licensed communication antennas that exist in the project area. This information is useful in the planning stages of the wind energy facilities to identify turbine setbacks and to prevent disruption to the services provided by the tenants on the towers. This data can be used in support of the wind energy facilities communications needs in addition to avoiding any potential impact to the current communications services provided in the region.

2. Summary of Results

The communication towers and antennas in the study area were derived from a variety of sources including the FCC's Antenna Structure Registration (ASR) database, Universal Licensing System (ULS), national and regional tower owner databases, and the local planning and zoning boards. The data[1] was imported into GIS software and the structures mapped in the wind energy area of interest. Each tower location is identified with a unique ID number associated with detailed structure and contact information provided in a spreadsheet attachment.

Two tower structures and eight communication antennas were identified within the Trimont Wind Project area using the data sources described in our methodology above. The structures found contain three of the eight communication antennas. The remaining antennas may be located on a variety of structure types such as guyed towers, monopoles, silos, rooftops or portable structures. The specific type of structure would normally need to be determined by an on-site visit.

Detailed information about the tower structures and communication antennas is provided in Table 1 and Table 2 including location coordinates, structure height above ground level, and owner-operator name[2].

A discussion of turbine setback distances is provided in section three.

[1] Comsearch makes no warranty as to the accuracy of the data included in this report beyond the date of the report. The data provided in this report is governed by Comsearch's data license notification and agreement located at http://www.comsearch.com/files/data_license.pdf.

[2] Please note that this report analyzes all known operators on the towers from data sources available to Comsearch. Unidentified operators may exist on the towers due to unlicensed or federal government systems, mobile phone operators with proprietary locations, erroneous data on the FCC license, and other factors beyond our control.

Tower ID	ASR Number	Owner	Structure Height AGL (m)	Latitude (NAD83)	Longitude (NAD83)
Tower001	N/A	Unknown	>53.64	43.79947222	-94.83711111
Tower002	N/A	Unknown	>55.5	43.80836111	-94.88941667

Table 1: Summary of Tower Structures

ID	Tower ID	Callsign	Service Type	Licensee	Antenna Height AGL (m)	Latitude (NAD83)	Longitude (NAD83)
1		WNWS216	Land Mobile	CHRISTOPHEL FARMS	27.0	43.74938889	-94.83080556
2		WSO724	Land Mobile	JOHN & KEITH EBELING PARTNERSHIP	21.0	43.78911111	-94.84525000
3		WPRG553	Land Mobile	TRIMONT, CITY OF	15.0	43.79855556	-94.83858333
4	Tower001	WPUT566	Land Mobile	GREAT RIVER ENERGY	51.8	43.79947222	-94.83711111
5	Tower001	WQCN602	Microwave	GREAT RIVER ENERGY	53.6	43.79947222	-94.83711111
6		WQES823	Land Mobile	KREMMIN II, WILLIAM A	37.0	43.80552778	-94.91805556
7	Tower002	WQMM717	Land Mobile	Iberdrola Renewables, LLC	55.5	43.80836111	-94.88941667
8		WQZC241	Land Mobile	BOTTIN & SONS	26.2	43.83788889	-94.89580556

Table 2: Summary of Communication Antennas

Figure 1: Communication Towers and Antennas within the Area of Interest

3. Discussion of Separation Distances

In planning the wind energy turbine locations, a conservative approach would dictate not locating any turbines in close proximity to existing tower structures to avoid any possible impact to the communications services provided by the structures. Reasonable distance between communication towers and wind turbine towers is a function of two things: (1) the physical turning radius of the wind turbine blades and (2) the characteristics of the communication systems on the communication tower.

Since wind turbine blades can rotate 360º, the first consideration of separation distance to other structures is clearance of the blades. If the blade radius is 50 meters, then a separation distance greater than 50 meters is necessary. From a practical standpoint, a setback distance greater than the maximum height of the turbine is necessary to insure a "fall" safety zone in the unlikely event of a turbine tower failure. Setback requirements for "fall" safety are typically specified by the local zoning ordinances.

The required separation distance based on the characteristics of the communication systems will vary depending on the type of communication antennas that are installed on the tower. For example, AM broadcast antennas should be separated by distances that allow for normal coverage which can extend up to 3 kilometers. For land mobile and mobile phone systems, setback distances are based on FCC interference emission limits from electrical devices in the land mobile and mobile phone frequency bands.

Finally, the tower structures identified could be a potential benefit in support of communications network needs for the wind energy facility. An example would be the implementation of a Supervisory Control and Data Acquisition (SCADA) system that monitors and provides communications access to the wind energy facility.

4. Conclusions

Our study identified two structures and eight communication antennas within the project area. They are used for microwave and land mobile services in the area.

5. Contact Us

For questions or information regarding the Communication Tower Study, please contact:

Contact person:	Denise Finney
Title:	Account Manager
Company:	Comsearch
Address:	19700 Janelia Farm Blvd., Ashburn, VA 20147
Telephone:	703-726-5650
Fax:	703-726-5595
Email:	dfinney@comsearch.com
Web site:	www.comsearch.com

Government RADAR Systems Analysis

Wind Power GeoPlanner™

ric

Government RADAR Systems Analysis

Trimont Wind Project

Prepared on Behalf of
Avangrid Renewables

October 16, 2017

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Table of Contents

1. Introduction

Comsearch was contracted by Avangrid Renewables to determine if there would be any significant degradation to the operational coverage of Government RADAR systems located near the proposed Trimont Wind Project in Jackson and Martin Counties, Minnesota. Figure 1 shows the location of the Trimont Wind Project area of interest.

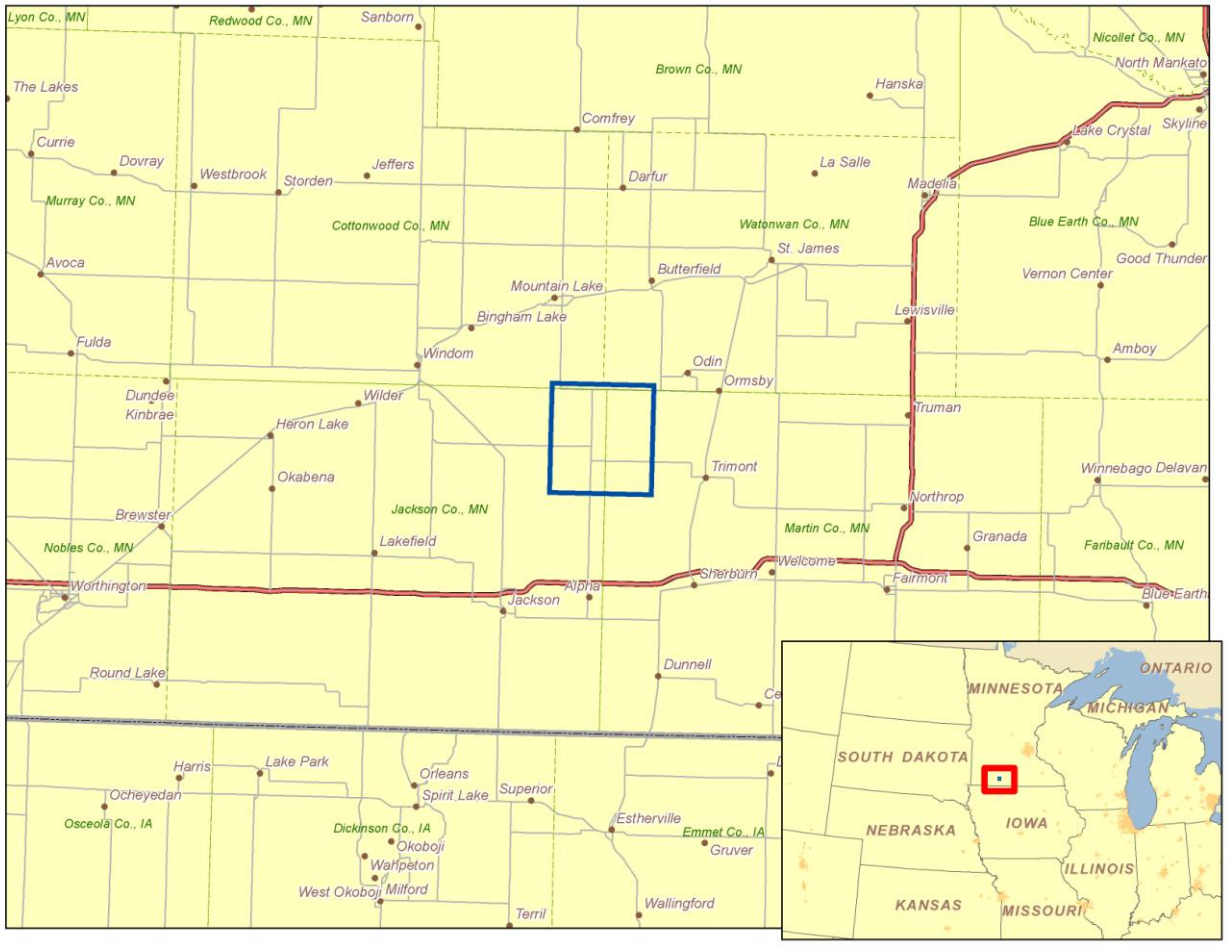

Figure 1: Trimont Wind Energy Project Area

2. Summary of Screening Results

There are three types of radar systems that Comsearch examined as part of this analysis: Department of Defense (DoD) military systems, Federal Aviation Administration (FAA) long range radar systems, and National Weather Service (NWS) NEXRAD WSR-88D systems.

Comsearch used the DoD RADAR screening tool to determine whether potential coverage issues were anticipated for the above systems. The geographical coordinates for the center point of the Trimont Wind Energy project area (43°47'53.88"N, 94°51'34.97"W) were used as an input parameter for the screening tool. The results of the screening showed that there were no potential issues with the Department of Defense (DoD) military operations, the National Weather Service (NWS) NEXRAD WSR-88D system, nor to FAA long range radar. In support of these findings, three figures and statements were captured from the DoD screening tool and are presented below.

Figure 2 shows the screening results for the DoD military system which is basically a sectional aeronautical chart centered on the wind project area.

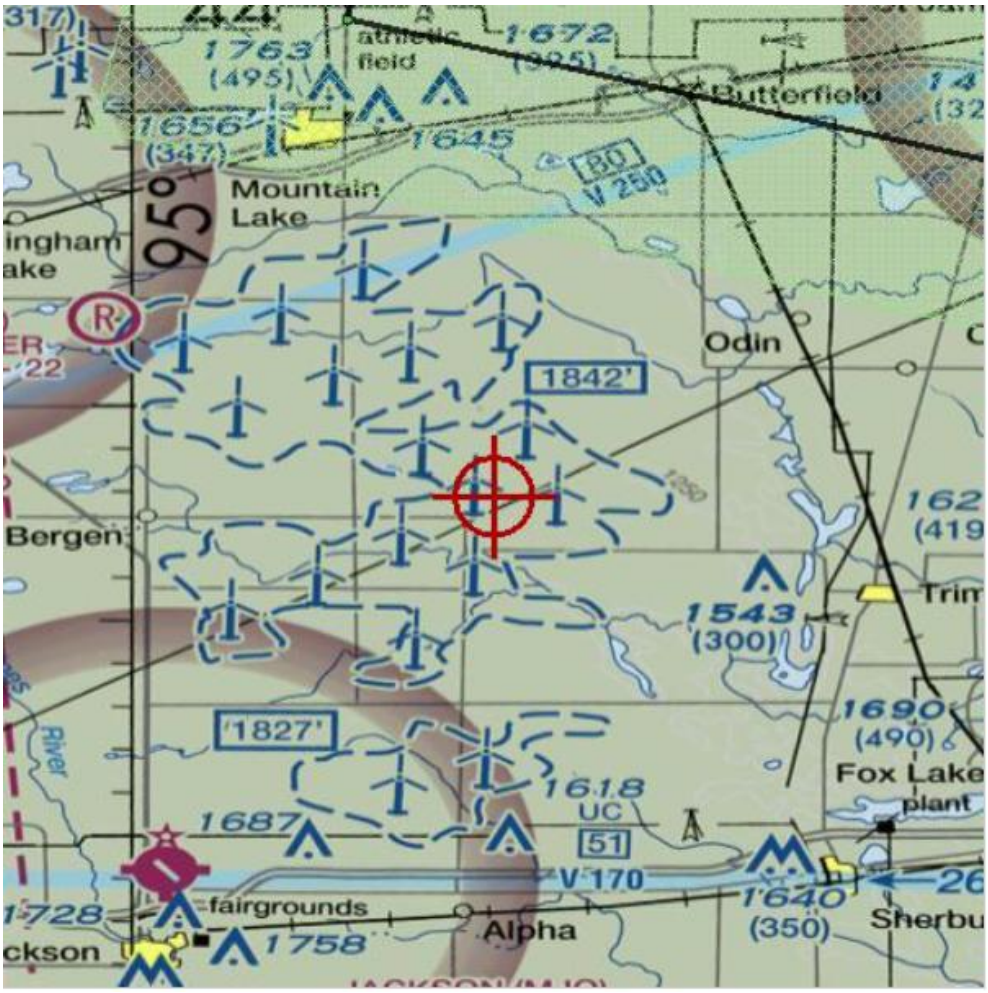

Figure 2: Screening Tool Diagram for DoD Military Systems

According to the DoD screening tool, there are no likely impacts to military airspace. The following contacts were provided for confirmation and documentation if required:

- Dr. Thomas (Thom) H. Rennie (214) 767-4678
  USAF Regional Environmental Coordinator
- US Navy Representative, FAA Central Service Area (817) 222-5930
  USN Regional Environmental Coordinator
- LTC Owen B. Castlemain (817) 222-5921
  USA Regional Environmental Coordinator
- US Navy Representative, FAA Central Service Area (817) 222-5930
  USMC Regional Environmental Coordinator

Figure 3 shows the screening results for the NEXRAD weather service systems. The screening tool map shows that the Trimont Wind Energy project will be located in the "Green" area of the NEXRAD systems located around the project area. The "Green" designation signifies that no obstruction to the radar line-of-sight (RLOS) is predicted for the surrounding radar systems. Since NEXRAD can detect wind turbines occasionally at great distances, NOAA would still like to know the location of all wind farm projects so that corrupted radar data can be flagged. All information regarding the wind project can be sent directly to NOAA at wind.energy.matters@noaa.gov or through the NTIA.

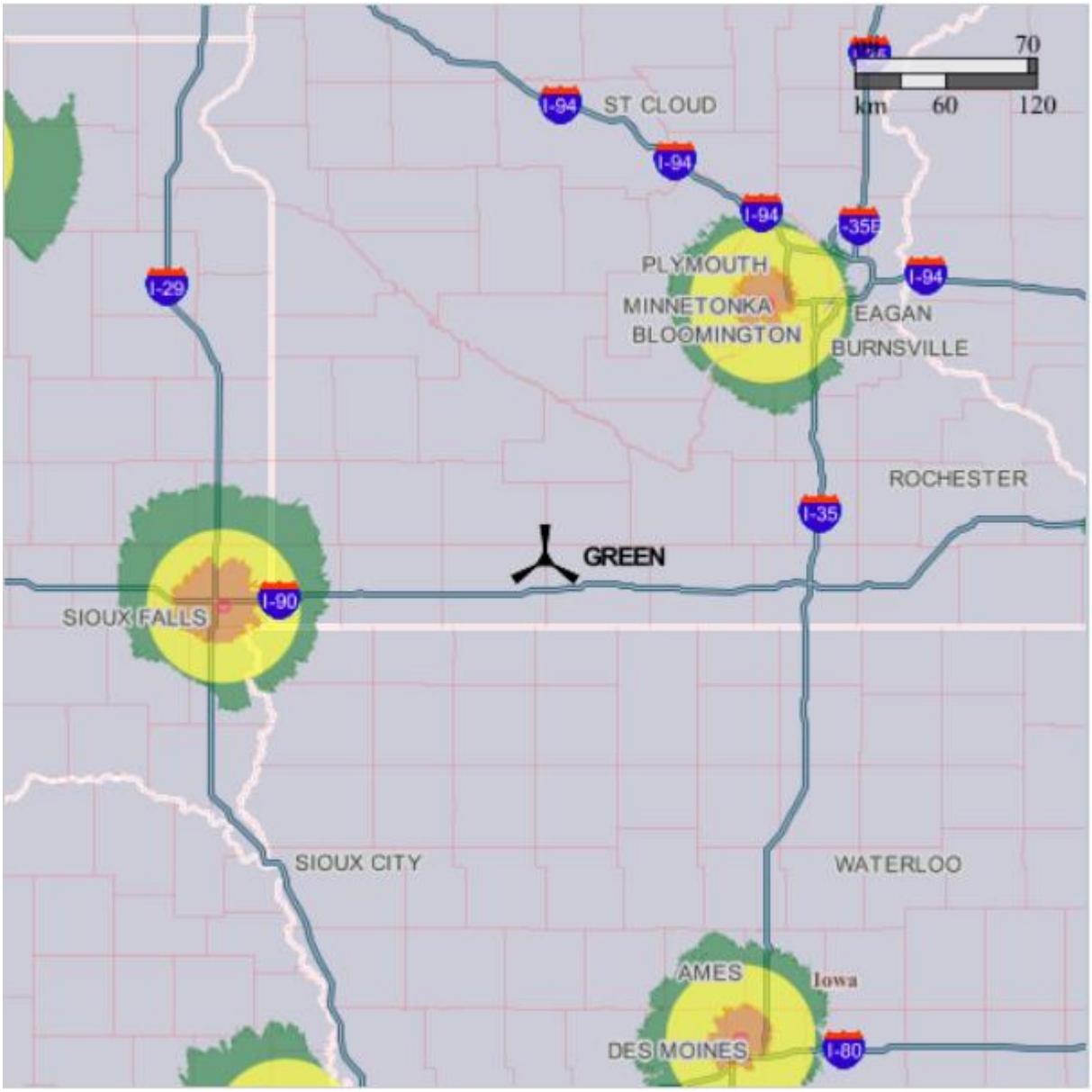

Figure 3: Screening Tool Diagram for Weather Service RADAR Coverage

Figure 4 shows the screening results for the FAA long range radar system. Based on the wind project location, there is no potential impact to any of the surrounding radars. Hence, the screening tool returned the "Green" designation for the Trimont Wind Energy Project. Nonetheless, an aeronautical study is required. This study is performed by the FAA upon receipt of Form 7460-1 which must be submitted for each of the proposed wind turbines.

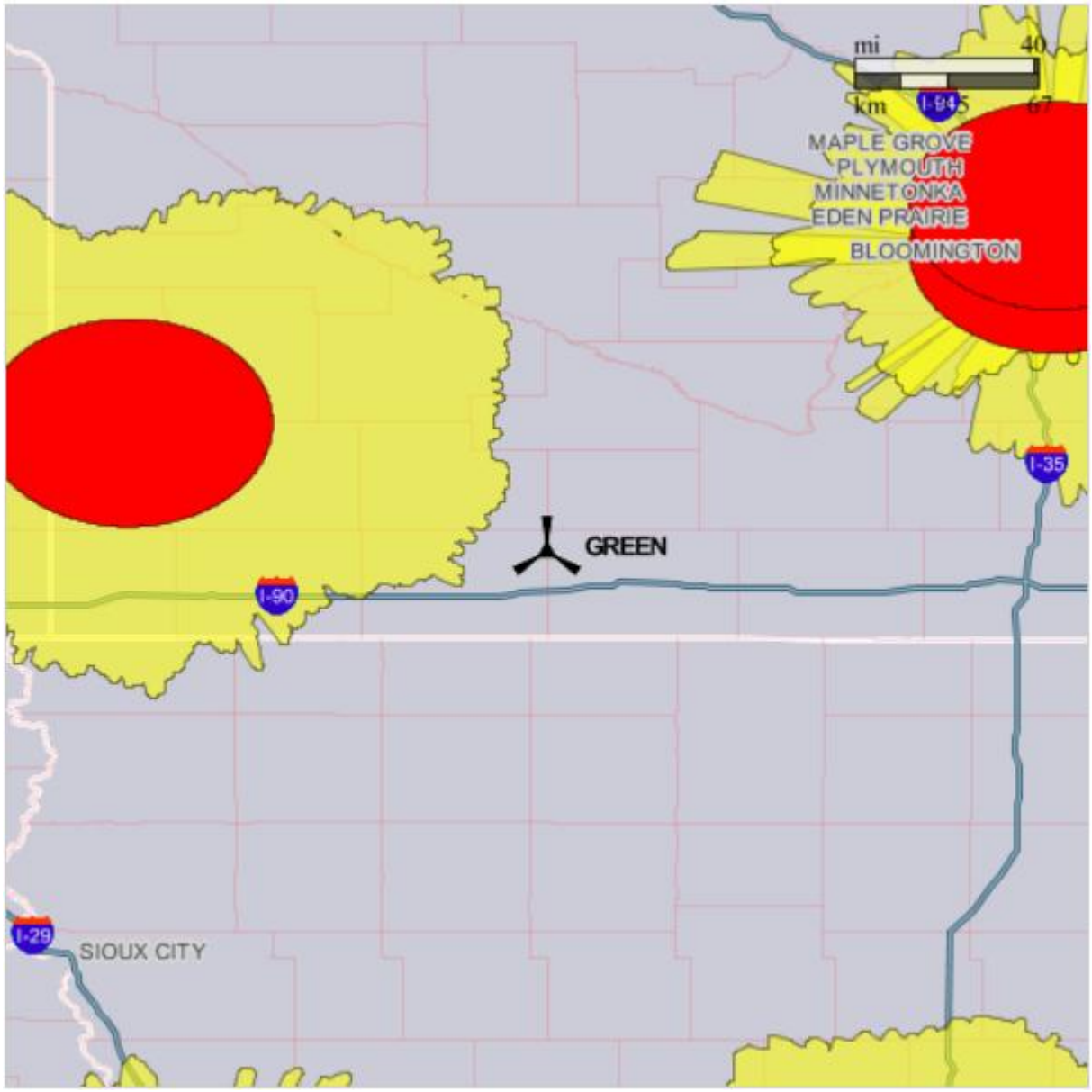

Figure 4: Screening Tool Diagram for FAA Long Range Radar Coverage

3. Analysis

To determine the potential impact of the proposed wind turbines on the FAA radar systems around the Trimont wind energy project, the line-of-sight (LOS) distance between a given radar and wind turbine is calculated. If the physical separation distance between a radar and wind turbine is within the LOS distance, then the wind turbine would have the potential to obstruct coverage and produce false targets for that particular radar. Otherwise, the wind turbine would be located over the horizon and beyond line-of-sight. The separation distance between a radar and wind turbine is based on their geographical coordinates, whereas the LOS distance is determined based on the sum of the horizon distances associated with a particular radar antenna and wind turbine.

The distance to the horizon for a radar antenna is a function of its height and is given by:

$$D_1 = (2*H_R)^{½} \qquad \text{(Equation 1)}$$

Where:

- D_1 = Distance from radar to horizon in miles
- H_R = Height of radar antenna above sea level in feet

Likewise, the distance to the horizon for a wind turbine is a function of the maximum height reached by the tip of the rotating blade and is given by:

$$D_2 = (2*H_{WT})^{½} \qquad \text{(Equation 2)}$$

$$H_{WT} = (H_h + R/2) \qquad \text{(Equation 3)}$$

Where:

- D_2 = Distance from wind turbine to horizon in miles
- H_{WT} = Max height of wind turbine blade tip above sea level in feet
- H_h= Hub height in feet
- R = Rotor diameter in feet

The LOS distance, in miles, is simply the sum of horizon distances as follows:

$$D_{LOS} = (D_1 + D_2) \qquad \text{(Equation 4)}$$

From Equation 2 and Equation 3, the horizon distance for each wind turbine is determined. If the geographical coordinates and heights for each FAA radar is provided, then their corresponding horizon distance as well as LOS distance can be calculated using Equation 1 and Equation 4, respectively.

4. Conclusions

Potential issues involving military operations in the same area as the Trimont Wind Energy Project were examined. Based on the DoD screening tool, no issues were identified.

According to the same screening tool, no issues were identified with the Weather Service's NEXRAD Radar Systems. Therefore, NOAA will not need to perform a detailed analysis but still requests that the Weather Service be informed about the wind project. The Weather Service can be informed through the NTIA notification process or by sending information regarding the wind project directly to NOAA at wind.energy.matters@noaa.gov.

The FAA will be informed of the wind project through the submission of the FAA Form 7460-1 that will be required for each of the proposed wind turbines. The FAA will then perform an aeronautical study and may respond to one or more of the form submissions with a finding that an individual wind turbine is a presumed hazard to aviation because of its obstruction of radar signal or degradation to the radar operation.

Potentially, there are three reasons that the FAA may object to the installation of wind turbines in the at-risk area depicted in Figure 4: (1) the wind turbines may create shadow zones which may prevent target detection, (2) there may be target loss because of clutter return (reflections from the wind turbines), and (3) the creation of false targets due to the reflections from the wind turbines.

In order to receive approval for a wind turbine that is declared as a presumed hazard to aviation operations, it is possible to show using the technical approach in Section 3 that the wind turbine would not be a hazard. Otherwise, the hazard finding could be mitigated by modifying the wind turbine dimensions and/or changing its location.

5. Contact

For questions or information regarding the Government RADAR System Analysis report, please contact:

Contact person: Denise Finney
Title: Account Manager
Company: Comsearch
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Email: dfinney@comsearch.com
Web site: www.comsearch.com

Attachment E

Obstruction Evaluation & Airspace Analysis

Trimont Wind Project

Avangrid Renewables

Jackson and Martin Counties, Minnesota

Obstruction Evaluation & Airspace Analysis

September 29, 2017

Capitol Airspace Group

capitolairspace.com

(703) 256 - 2485

5400 Shawnee Road, Suite 304
Alexandria, VA 22312
703-256-2485
capitolairspace.com

Summary

Capitol Airspace conducted an obstruction evaluation and airspace analysis for the Trimont wind project in Jackson and Martin Counties, Minnesota. The purpose for this analysis was to identify obstacle clearance surfaces established by the Federal Aviation Administration (FAA) that could limit increasing existing wind turbine heights from 399 to 412 feet above ground level (AGL). This analysis assessed height constraints overlying 67 existing wind turbine locations (black points, ***Figure 1***) to determine the likelihood of the FAA issuing favorable determinations of no hazard to 412 foot AGL wind turbines.

14 CFR Part 77.9 requires that all structures exceeding 200 feet AGL be submitted to the FAA so that an aeronautical study can be conducted. The FAA's objective in conducting aeronautical studies is to ensure that proposed structures do not have an effect on the safety of air navigation and the efficient utilization of navigable airspace by aircraft. The end result of an aeronautical study is the issuance of a determination of 'hazard' or 'no hazard' that can be used by the proponent to obtain necessary local construction permits. It should be noted that the FAA has no control over land use in the United States and cannot enforce the findings of its studies.

Height constraints overlying the Trimont wind project are either a constant 2,100 or 2,149 feet above mean sea level (AMSL) and are associated with instrument approach procedures and minimum instrument flight rules (IFR) altitude sectors. Proposed wind turbines that exceed these surfaces would require an increase to instrument approach procedure minimum altitudes, and/or minimum IFR altitudes. If the FAA determines one or the sum of these impacts to constitute a substantial adverse effect, they could result in determinations of hazard. However, United States Geological Survey (USGS) elevation data indicates that these surfaces should not limit increasing wind turbine heights to 412 feet AGL at any of the existing locations.

This analysis did not consider electromagnetic interference on communications, navigation, or radar surveillance systems.

Methodology

Capitol Airspace studied the proposed project using FAA Digital Obstacle File (DOF) location and site elevation information for the existing Trimont wind turbines. Using this information, Capitol Airspace generated graphical overlays to determine proximity to airports (***Figure 1***), published instrument procedures, enroute airways, FAA minimum vectoring altitude and minimum instrument flight rules (IFR) altitude charts, as well as military airspace and training routes.

Capitol Airspace evaluated all 14 CFR Part 77 imaginary surfaces, published instrument approach and departure procedures, visual flight rules operations, FAA minimum vectoring altitudes, minimum IFR altitudes, and enroute operations. All formulas, headings, altitudes, bearings and coordinates used during this study were derived from the following documents and data sources:

- 14 CFR Part 77 Safe, Efficient Use, and Preservation of the Navigable Airspace
- FAA Order 7400.2L Procedures for Handling Airspace Matters
- FAA Order 8260.3C United States Standard for Terminal Instrument Procedures
- FAA Order 8260.58A United States Standard for Performance Based Navigational (PBN) Instrument Procedure Design
- United States Government Flight Information Publication, US Terminal Procedures
- National Airspace System Resource Aeronautical Data

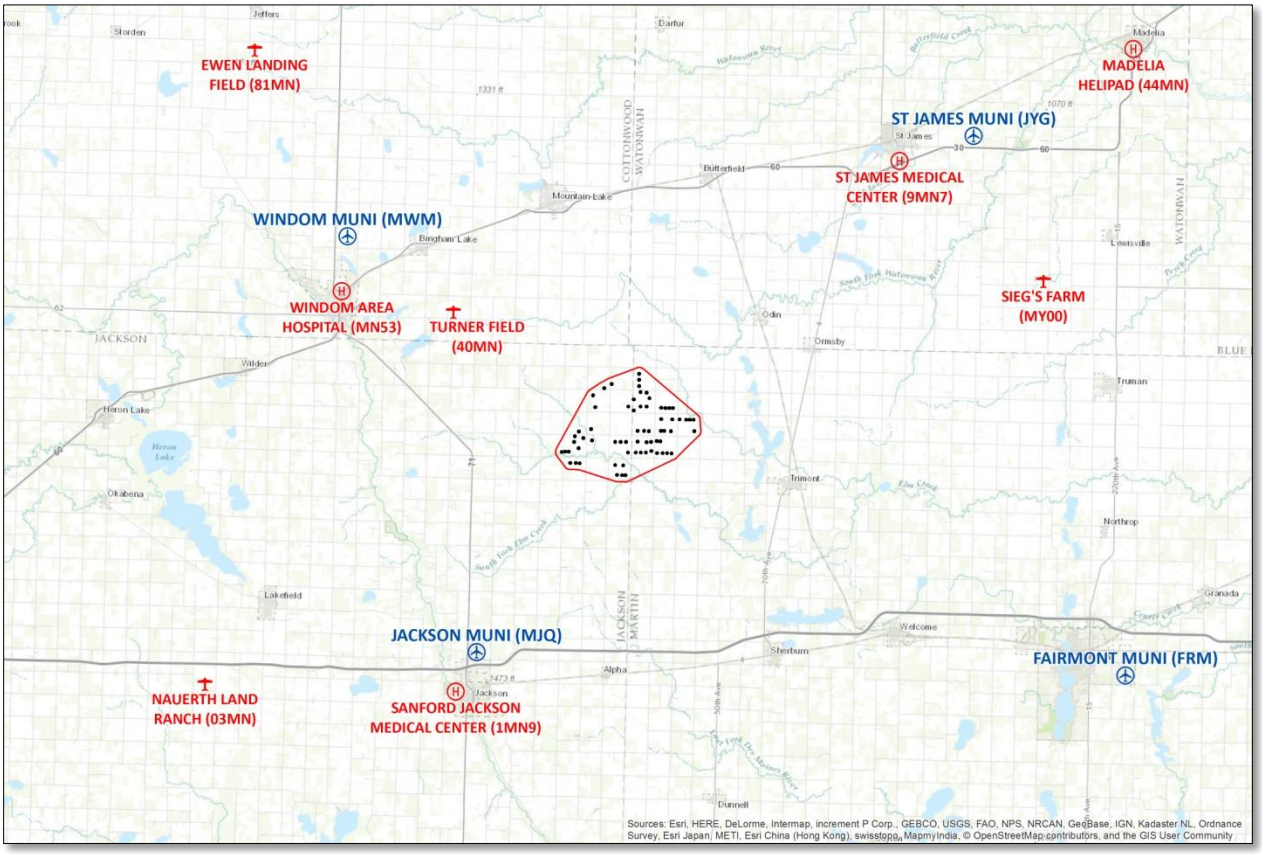


Figure 1: Public-use (blue) and private-use (red) airports in proximity to the Trimont wind project

Study Findings

14 CFR Part 77 Imaginary Surfaces

The FAA uses level and sloping imaginary surfaces to determine if a proposed structure is an obstruction to air navigation. Structures that are identified as obstructions are then subject to a full aeronautical study and increased scrutiny. Exceeding a Part 77 imaginary surface does not automatically result in the issuance of a determination of hazard. Proposed structures must have airspace impacts that constitute a substantial adverse effect in order to warrant the issuance of determinations of hazard.

Public-use airport 14 CFR Part 77 imaginary surfaces do not overlie the Trimont wind project (e.g., ***Figure 2***). As a result, 412 foot AGL wind turbines should not be identified as obstructions.

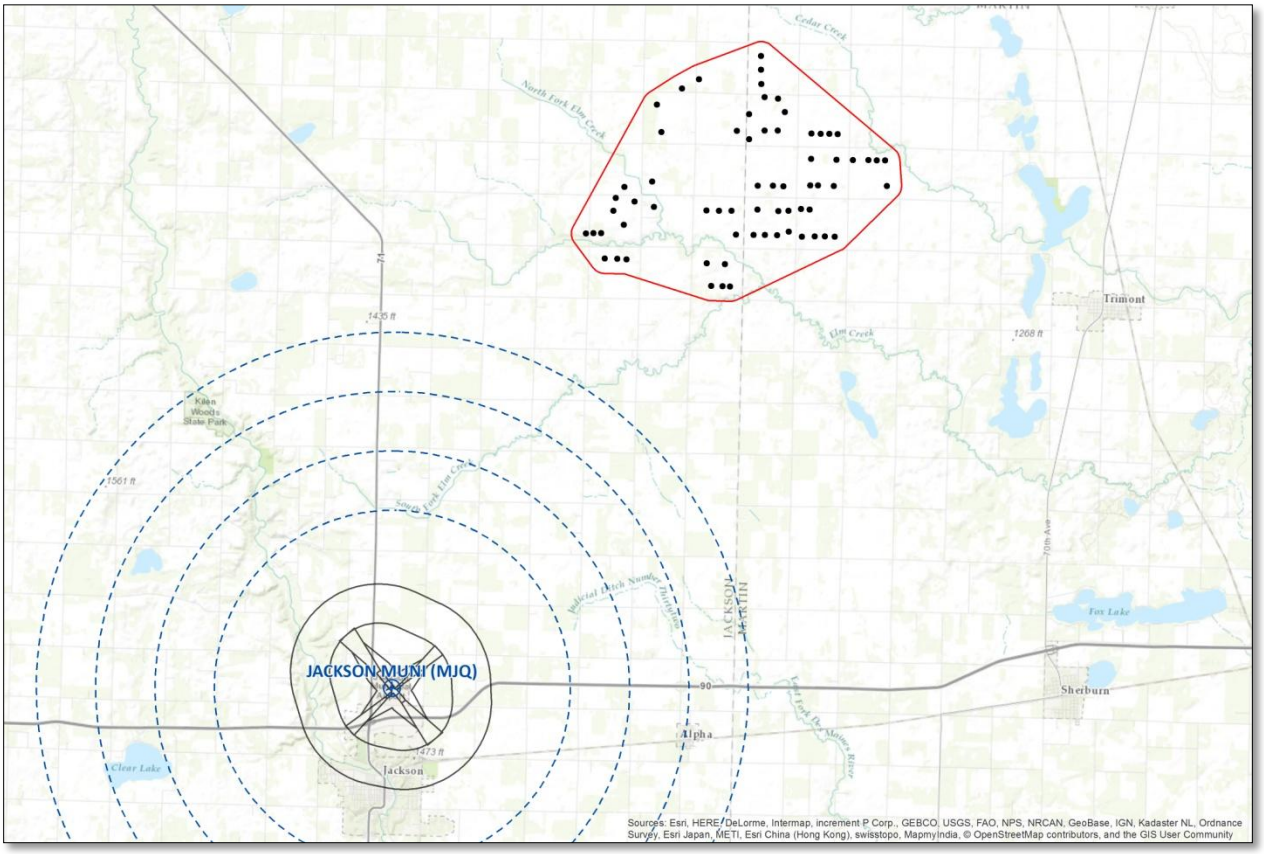


Figure 2: 14 CFR Part 77.17(a)(2) (blue) and Part 77.19 (gray) imaginary surfaces in proximity to the Trimont wind project

Visual Flight Rules (VFR) Traffic Pattern Airspace

VFR traffic pattern airspace is used by pilots operating during visual meteorological conditions. The airspace dimensions are based upon the category of aircraft which, in turn, is based upon the approach speed of the aircraft. 14 CFR Part 77.17(a)(2) and 77.19 (as applied to a *visual* runway) imaginary surfaces establish the obstacle clearance surface heights within VFR traffic pattern airspace.

VFR traffic pattern airspace (e.g., ***Figure 3***) does not overlie the Trimont wind project and should not limit 412 foot AGL wind turbines at any of the existing locations.

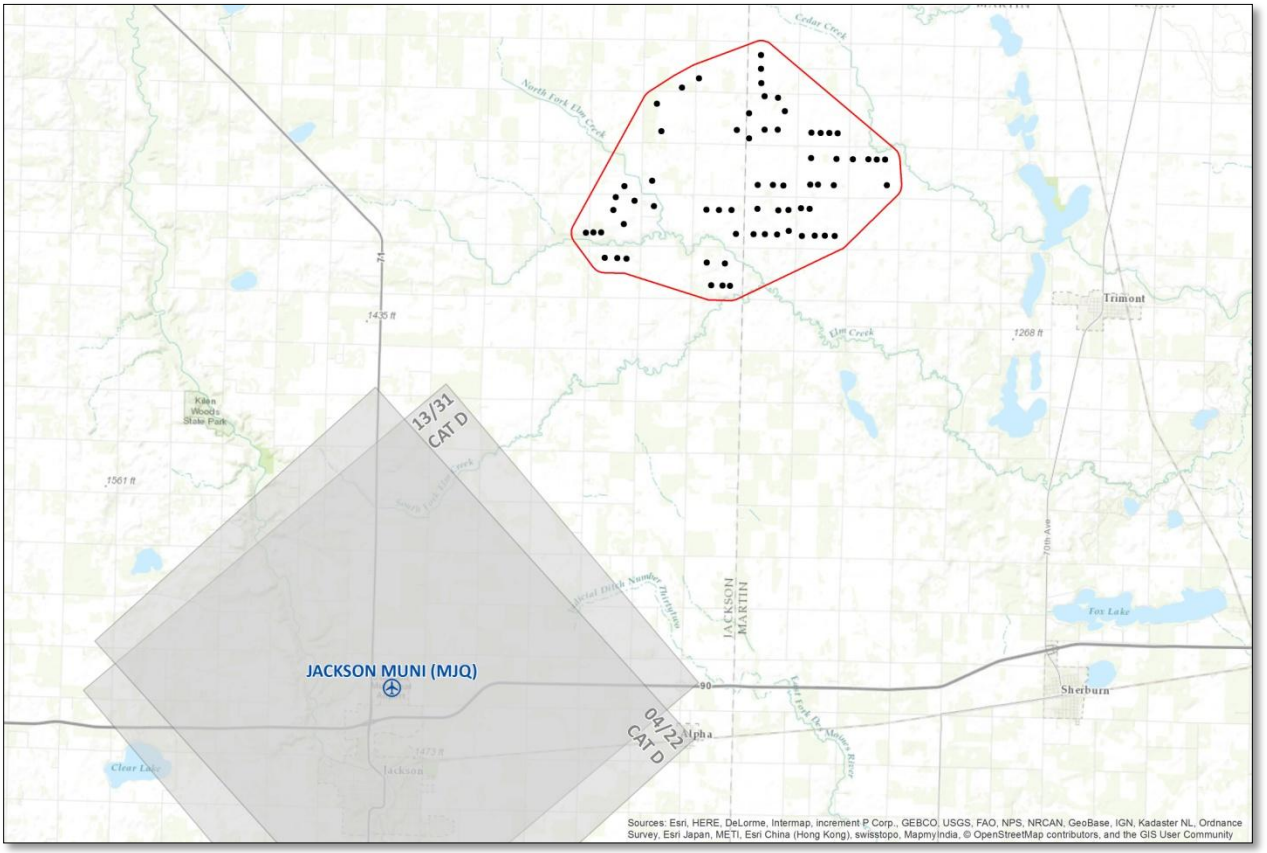


Figure 3: VFR traffic pattern airspace in proximity to the Trimont wind project

Instrument Departures

In order to ensure that aircraft departing during marginal weather conditions do not fly into terrain or obstacles, the FAA publishes instrument departure procedures that provide obstacle clearance to pilots as they transition between the terminal and enroute environments. These procedures contain specific routing and minimum climb gradients to ensure clearance from terrain and obstacles.

Proposed structures that exceed instrument departure procedure obstacle clearance surfaces would require an increase to minimum climb gradients and/or change to routing. If the FAA determines that this impact would constitute a substantial adverse effect, it could be used as the basis for determinations of hazard.

Instrument departure procedure obstacle clearance surfaces (e.g., ***Figure 4***) are in excess of other lower surfaces and should not limit 412 foot AGL wind turbines at any of the existing locations.

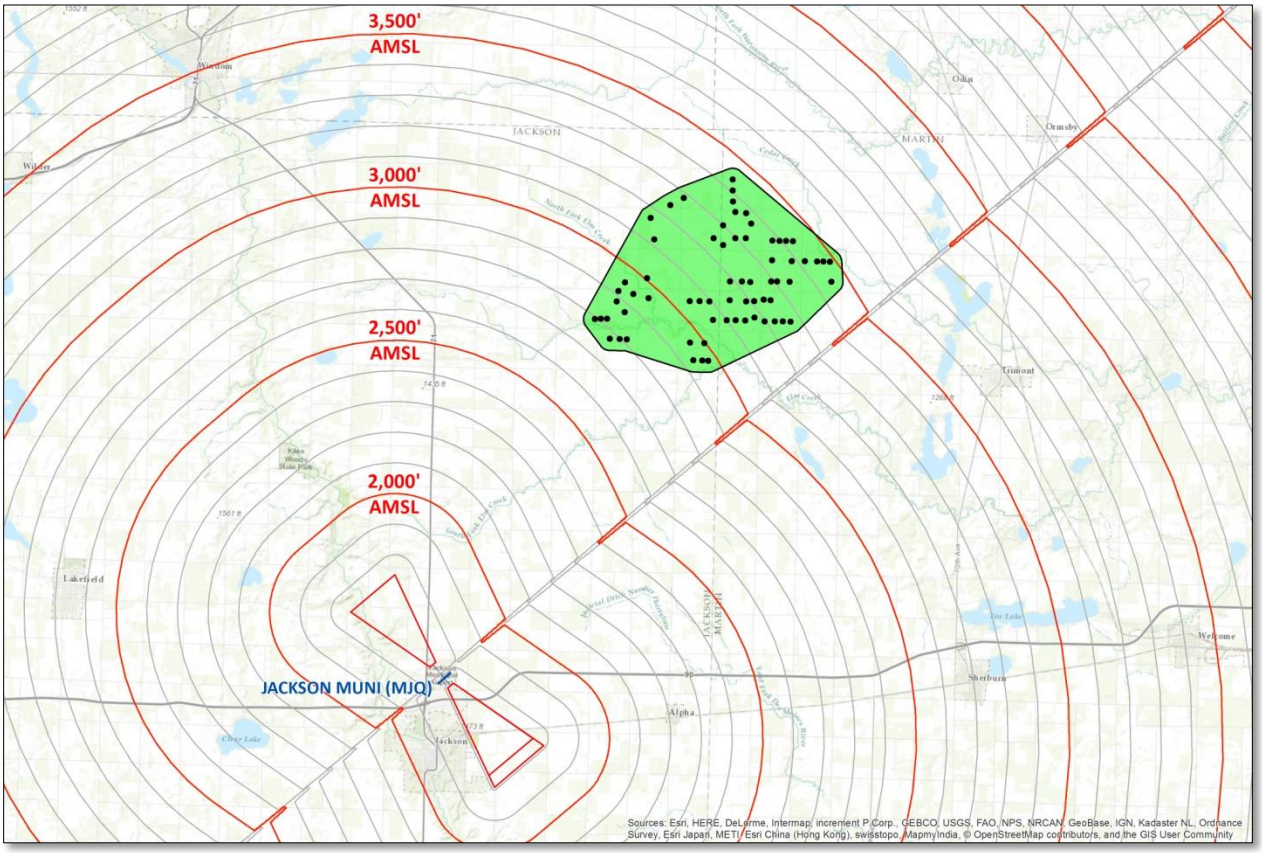


Figure 4: Jackson Municipal Airport (MJQ) obstacle departure procedure assessment

Instrument Approaches

Pilots operating during periods of reduced visibility and low cloud ceilings rely on terrestrial and satellite based navigational aids (NAVAIDS) in order to navigate from one point to another and to locate runways. The FAA publishes instrument approach procedures that provide course guidance to on-board avionics that aid the pilot in locating the runway. Capitol Airspace assessed a total of 17 published instrument approach procedures at six public-use airports in proximity to the Trimont wind project.

Proposed wind turbines that exceed instrument approach procedure obstacle clearance surfaces would require an increase to their minimum altitudes. Increases to these altitudes, especially critical *decision altitudes (DA)* and *minimum descent altitudes (MDA)*, can directly impact the efficiency of instrument approach procedures. If the FAA determines this impact to constitute a substantial adverse effect it could be used as the basis for determinations of hazard.

Fairmont Municipal (FRM)

RNAV (GPS) Approach to Runway 13

The hold-in-lieu of procedure turn minimum holding altitude is 3,100 feet AMSL; the associated obstacle clearance surface is 2,100 feet AMSL and is one of the lowest height constraints in the eastern section of the study area.

RNAV (GPS) Approach to Runway 31 (***Figure 5***)

The missed approach minimum holding altitude is 3,100 feet AMSL; the associated obstacle clearance surface is 2,100 feet AMSL and is one of the lowest height constraints in the eastern section of the study area.

VOR/DME Approach to Runway 13 (***Figure 6***)

The procedure turn completion altitude is 3,000 feet AMSL; the associated obstacle clearance surface is 2,000 feet AMSL and would be one of the lowest height constraints overlying the majority of the study area. However, FAA instrument flight procedure production plans indicate this procedure is scheduled to be cancelled on February 28, 2019. As a result, height constraints associated with this procedure are not included in the Composite Map (***Figure 12***).

USGS elevation data indicates that these surfaces should not limit 412 foot AGL wind turbines at any of the existing locations.

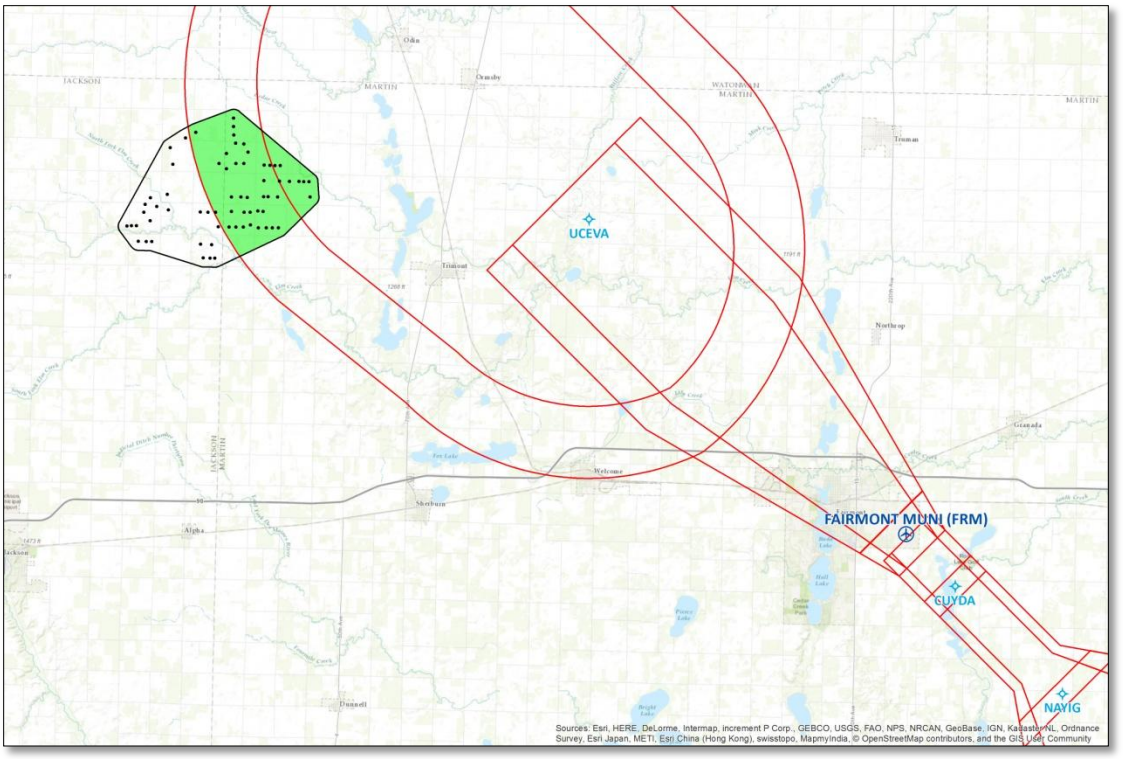


Figure 5: Fairmont Municipal Airport (FRM) RNAV (GPS) Approach to Runway 31

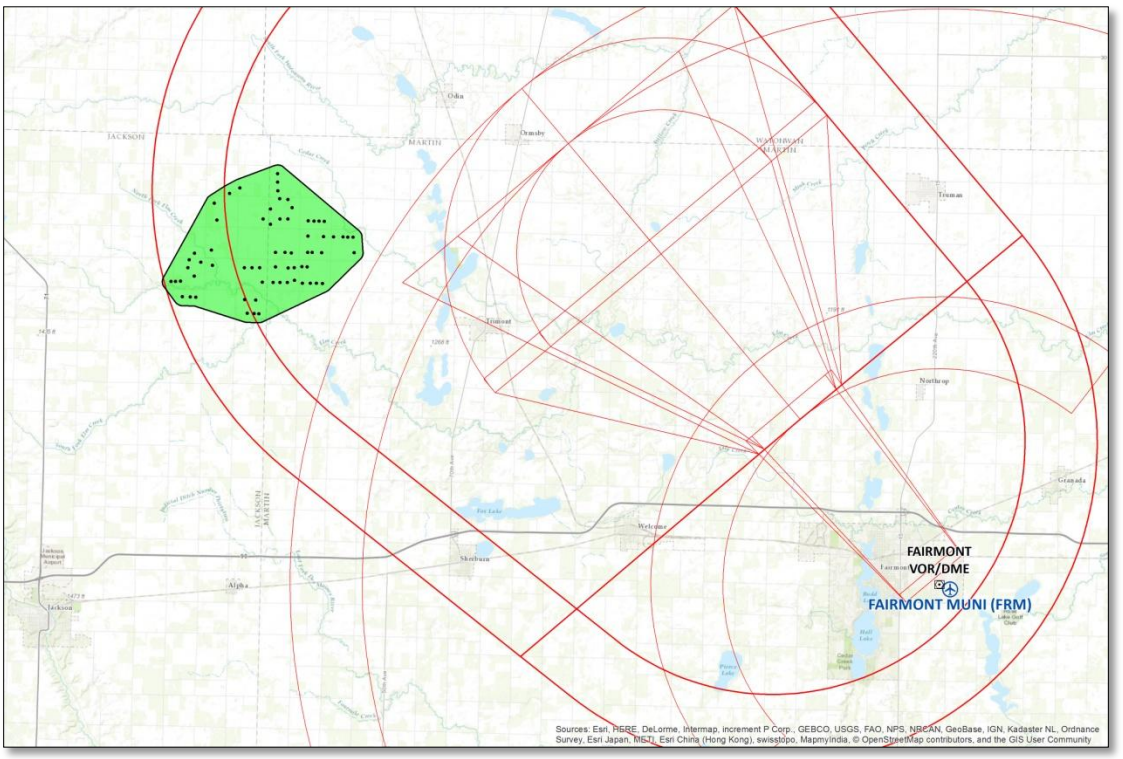


Figure 6: Fairmont Municipal Airport (FRM) VOR/DME Approach to Runway 13

Jackson Municipal (MJQ)

RNAV (GPS) Approach to Runway 13 (***Figure 7***)

The feeder segment minimum altitude is 3,100 feet AMSL; the associated obstacle clearance surface is 2,100 feet AMSL and is the lowest height constraint in northern, northeastern, and eastern sections of the study area. However, USGS elevation data indicates that this surface should not limit 412 foot AGL wind turbines at any of the existing locations.

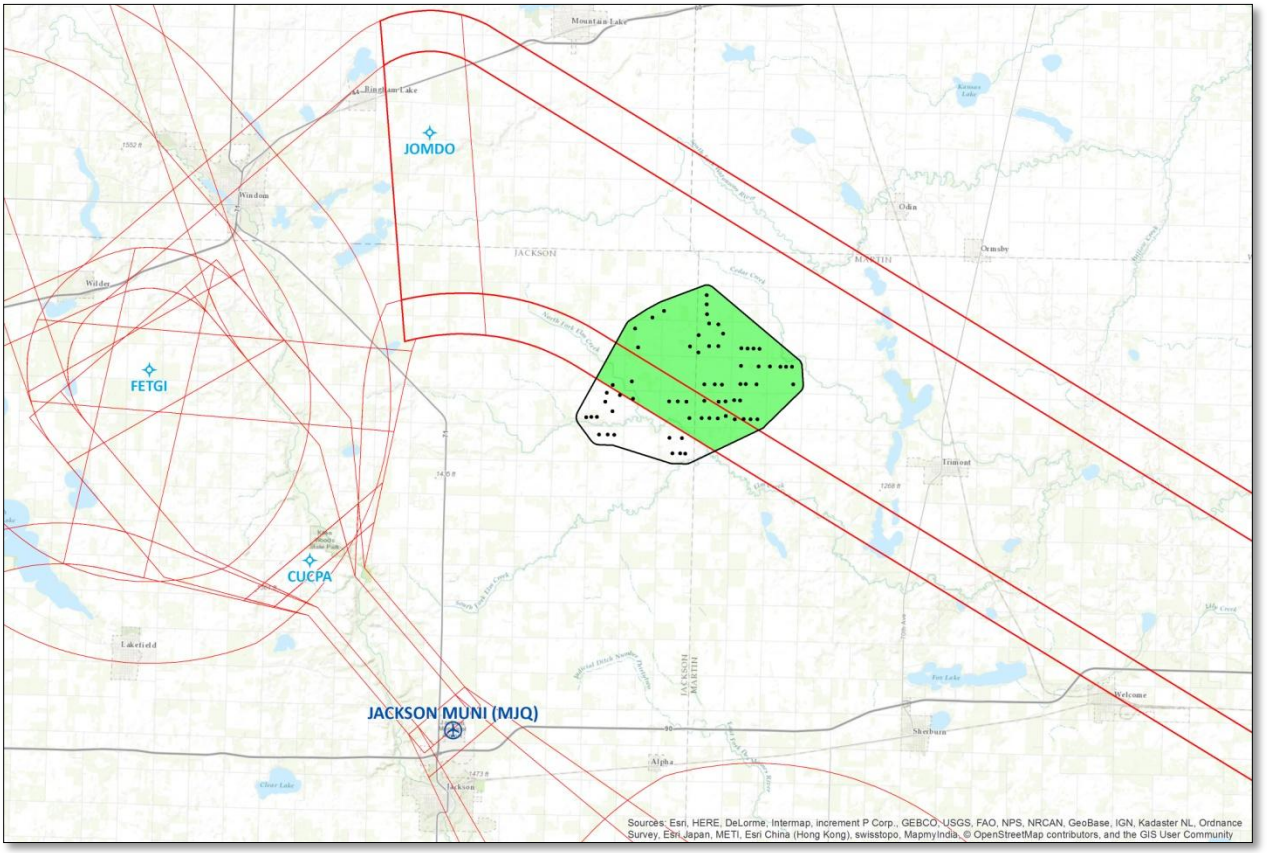


Figure 7: Jackson Municipal Airport (MJQ) RNAV (GPS) Approach to Runway 13

Instrument procedures assessed:

Fairmont Municipal (FRM)
ILS or Localizer Approach to Runway 31
RNAV (GPS) Approach to Runway 13
RNAV (GPS) Approach to Runway 31
VOR/DME Approach to Runway 13
(*Awaiting Cancellation*)
Copter ILS Approach to Runway 31

Window Municipal (MWM)
RNAV (GPS) Approach to Runway 17
RNAV (GPS) Approach to Runway 35

Jackson Municipal (MJQ)
RNAV (GPS) Approach to Runway 13
RNAV (GPS) Approach to Runway 31

St. James Municipal (JYG)
RNAV (GPS) Approach to Runway 15
RNAV (GPS) Approach to Runway 33
NDB Approach to Runway 33

Springfield Municipal (D42)
RNAV (GPS) Approach to Runway 13
RNAV (GPS) Approach to Runway 31
VOR/DME Approach to Runway 13

Estherville Municipal (EST)
RNAV (GPS) Approach to Runway 16
RNAV (GPS) Approach to Runway 34

Enroute Airways

Enroute airways provide pilots a means of navigation when flying from airport to airport and are defined by radials between VHF omni-directional ranges (VORs). The FAA publishes minimum altitudes for airways to ensure clearance from obstacles and terrain. The FAA requires that each airway have a minimum of 1,000 feet of obstacle clearance in non-mountainous areas and normally 2,000 feet in mountainous areas.

Proposed structures that exceed enroute airway obstacle clearance surfaces would require an increase to their minimum obstruction clearance altitudes (MOCA) and/or minimum enroute altitudes (MEA). If the FAA determines that this impact would affect a significant volume of operations it could be used as the basis for determination of hazard.

Enroute airway obstacle clearance surfaces (e.g., ***Figure 8***) are in excess of other lower surfaces and should not limit 412 foot AGL wind turbines at any of the existing locations.

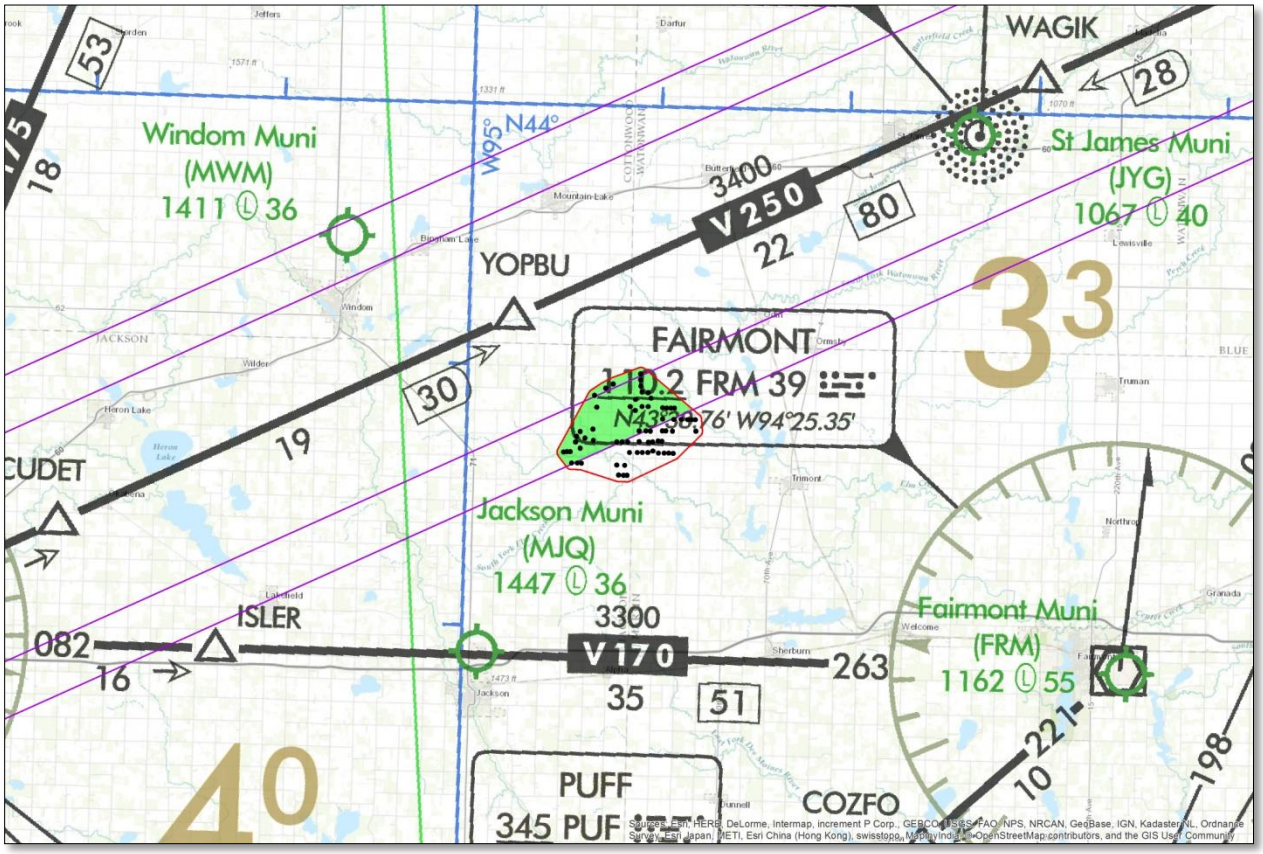


Figure 8: Low altitude enroute chart L-12 with V250 obstacle evaluation areas (purple)

Minimum Vectoring/IFR Altitudes

The FAA publishes minimum vectoring altitude (MVA) and minimum instrument flight rules (IFR) altitude charts that define sectors with the lowest altitudes at which air traffic controllers can issue radar vectors to aircraft based on obstacle clearance. The FAA requires that sectors have a minimum of 1,000 feet of obstacle clearance in non-mountainous areas and normally 2,000 feet in mountainous areas.

Proposed structures that exceed minimum vectoring/IFR altitude sector obstacle clearance surfaces would require an increase to the lowest altitudes useable by air traffic controllers for vectoring aircraft. If the FAA determines that this impact would affect a significant volume of operations, it could result in determinations of hazard.

Minneapolis (ZMP) Air Route Traffic Control Center (ARTCC)

Sector PFRM01 (***Figure 9***)

The minimum IFR altitude is 3,100 feet AMSL; the associated obstacle clearance surface is 2,149 feet AMSL and is the lowest height constraint overlying the western section of the study area. However, USGS elevation data indicates that this surface should not limit 412 foot AGL wind turbines at any of the existing locations.

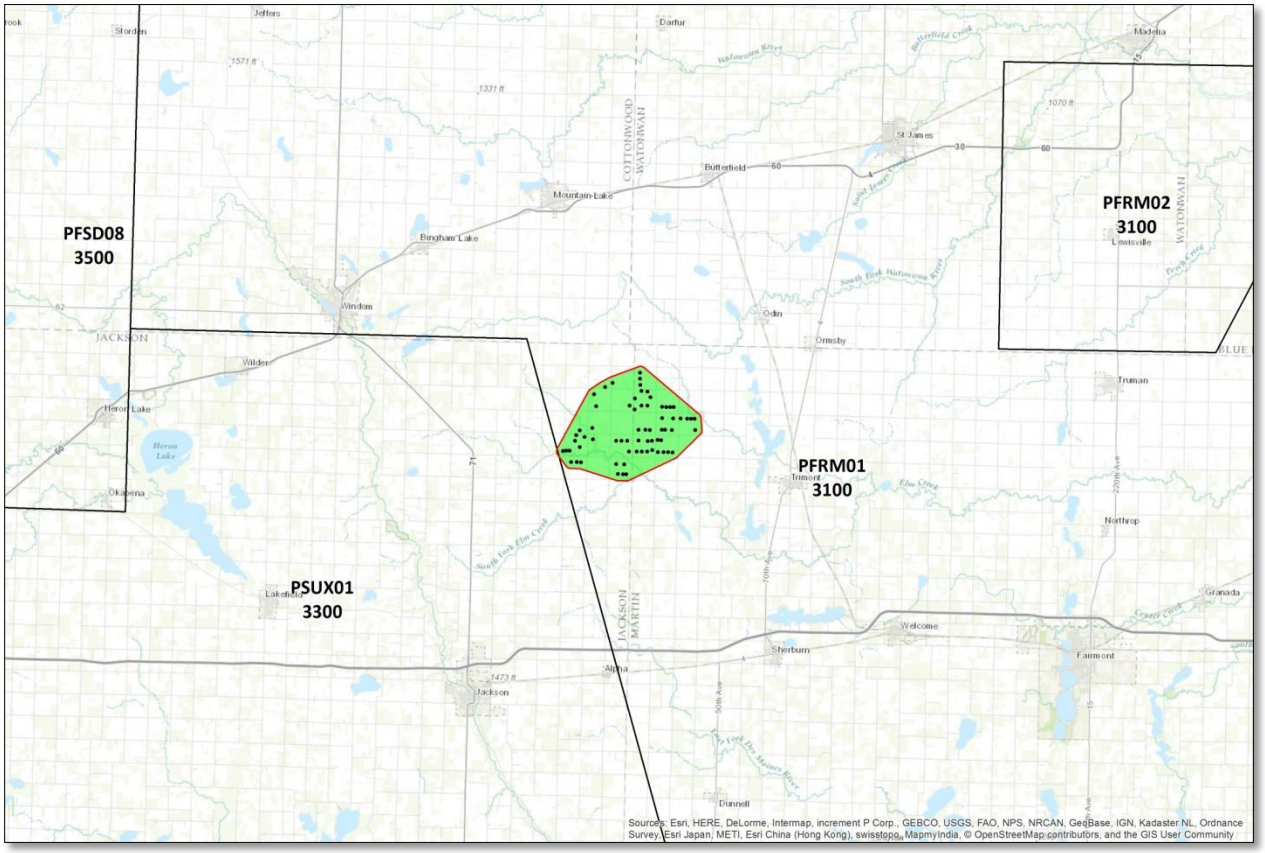


Figure 9: Minneapolis (ZMP) ARTCC minimum IFR altitude sectors (black)

Military Airspace and Training Routes

Since the FAA does not protect for military airspace or training routes, impact on their operations cannot result in a determination of hazard. However, the FAA will notify the military of proposed wind turbines located within these segments of airspace. If the planned development area is located on federal land, impact on military airspace or training routes may result in the denial of permits by the Bureau of Land Management.

Military airspace and training routes do not overlie the Trimont wind project (e.g., ***Figure 10***). Therefore, these segments of airspace should not result in military objections to increasing existing wind turbine heights to 412 feet AGL.

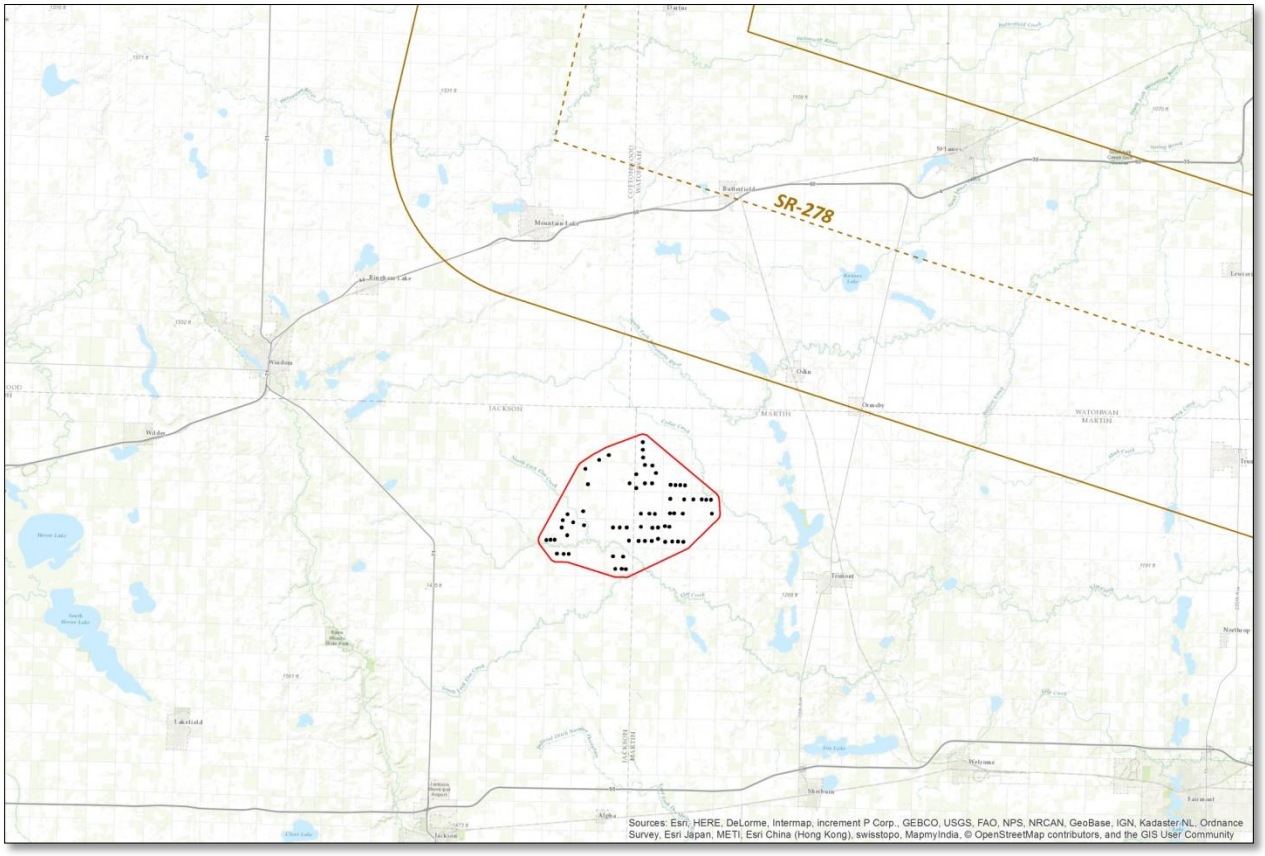


Figure 10: Military training routes in proximity to the Trimont wind project

Long Range and NEXRAD Radar

While Capitol Airspace did not assess for electromagnetic interference on communications, navigational or surveillance systems, the FAA/DOD preliminary screening tool was utilized to determine likely electromagnetic interference on long range and NEXRAD radars.[1] According to the Long Range Radar tool, the Trimont wind project is located in an area designated as 'Green' (left, ***Figure 11***). The FAA defines this area as follows:

> **Green:** No anticipated impact to Air Defense and Homeland Security radars. Aeronautical study required.

Further, according to the NEXRAD tool, the Trimont wind project is located in an area designated as 'Green: No Impact Zone' (right, ***Figure 11***). The FAA defines this area as follow:

> **Green: No Impact Zone.** Impacts not likely. NOAA will not perform a detailed analysis, but would still like to know about the project.

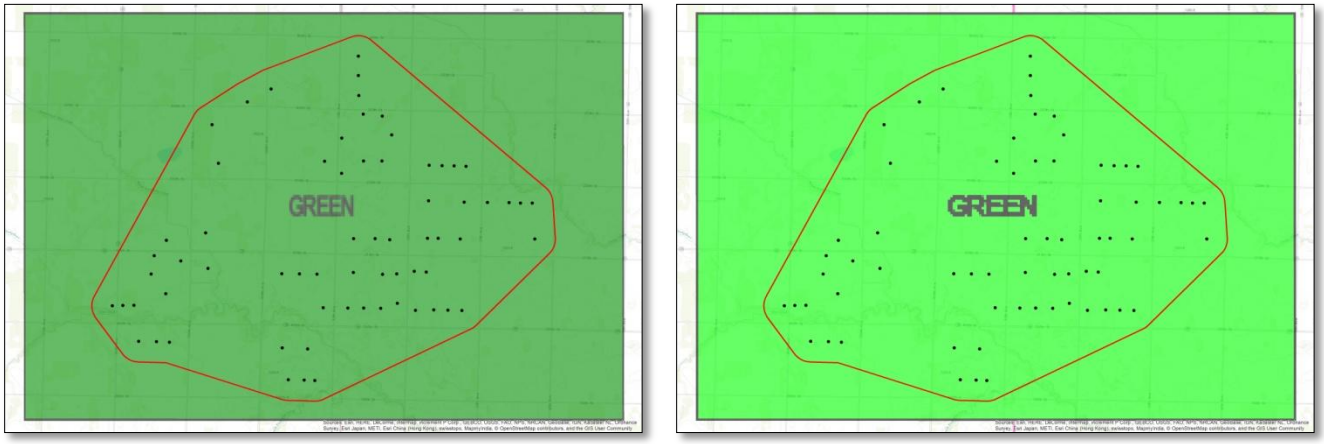


Figure 11: Long Range (left) and NEXRAD (right) radar screening tool results

[1] The preliminary screening tool does not consider turbine height nor does it consider the cumulative impact of existing turbines in proximity to the area studied.

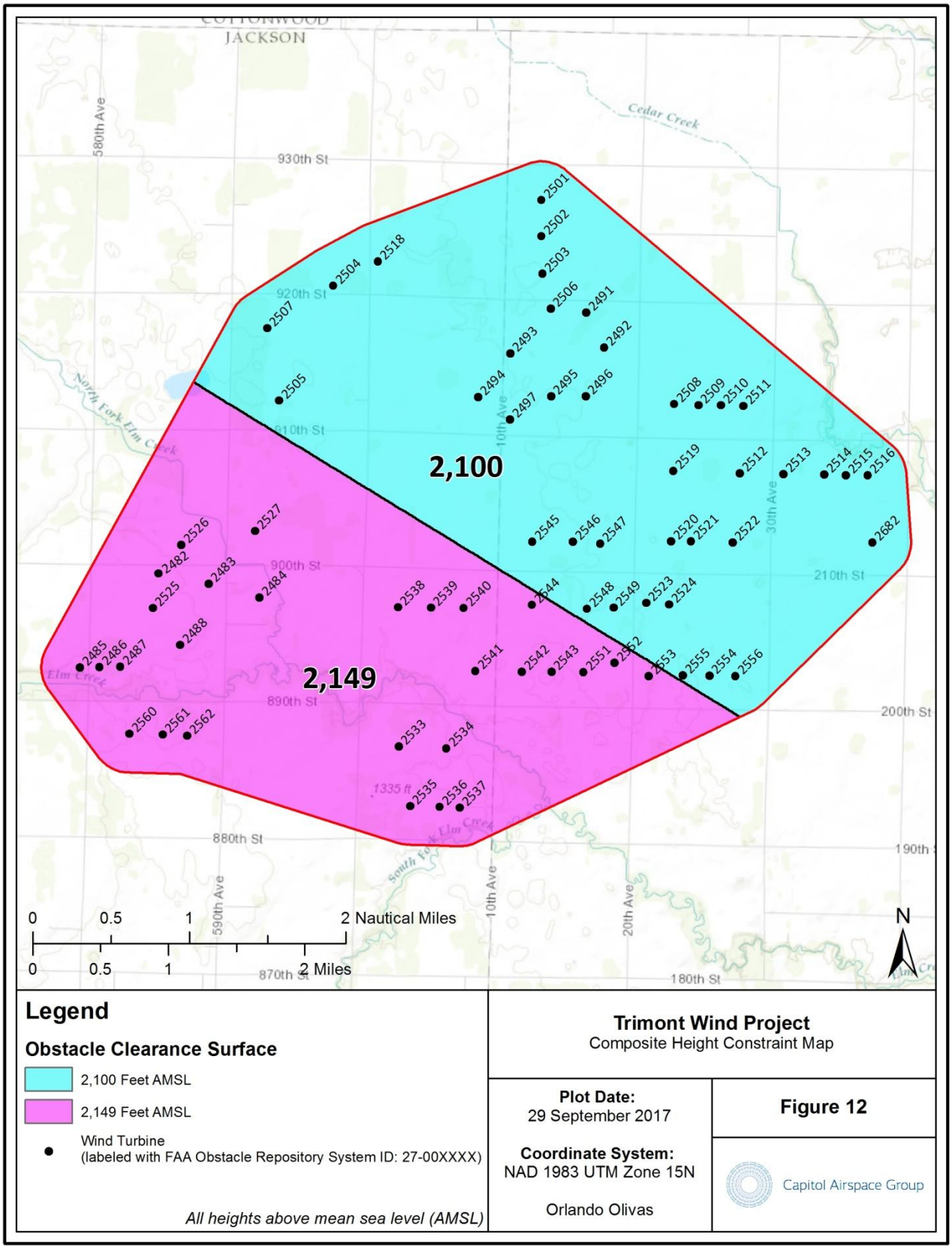
Conclusion

At an increased wind turbine height of 412 feet AGL, none of the Trimont wind turbines would exceed 14 CFR Part 77(a)(1), 77.17(a)(2) or 77.19 imaginary surfaces (***Figure 2***). However, wind turbines must also remain below obstacle clearance surfaces in order to avoid the likelihood of determinations of hazard.

Obstacle clearance surfaces overlying the Trimont wind project are either a constant 2,100 or 2,149 feet AMSL (***Figure 12***) and are associated with Fairmont Municipal Airport (FRM) (***Figure 5***) and Jackson Municipal Airport (MJQ) (***Figure 7***) instrument approach procedures, as well as a Minneapolis (ZMP) ARTCC minimum IFR altitude sector (***Figure 9***). Proposed wind turbines that exceed these surfaces would require an increase to instrument approach procedure minimum altitudes, and/or minimum IFR altitudes. If the FAA determines one or the sum of these impacts to constitute a substantial adverse effect, they could result in determinations of hazard. However, USGS elevation data indicates that these surfaces should not limit 412 foot AGL wind turbines at any of the existing locations.

The AGL Clearance Map (***Figure 13***) is based on USGS National Elevation Dataset (NED) 1/3 Arc Second data which has a vertical accuracy of generally +/- 7 meters. Therefore, the AGL Clearance Map should only be used for general planning purposes and not exact structure siting. In order to avoid the likelihood of determinations of hazard, proposed structure heights must adhere to the height constraints depicted in the Composite Map (***Figure 12***).

If you have any questions regarding the findings of this study, please contact ***Ron Morgan*** or ***Orlando Olivas*** at (703) 256-2485.



Legend

Obstacle Clearance Surface

- 2,100 Feet AMSL
- 2,149 Feet AMSL
- Wind Turbine (labeled with FAA Obstacle Repository System ID: 27-00XXXX)

All heights above mean sea level (AMSL)

Trimont Wind Project
Composite Height Constraint Map

Plot Date:
29 September 2017

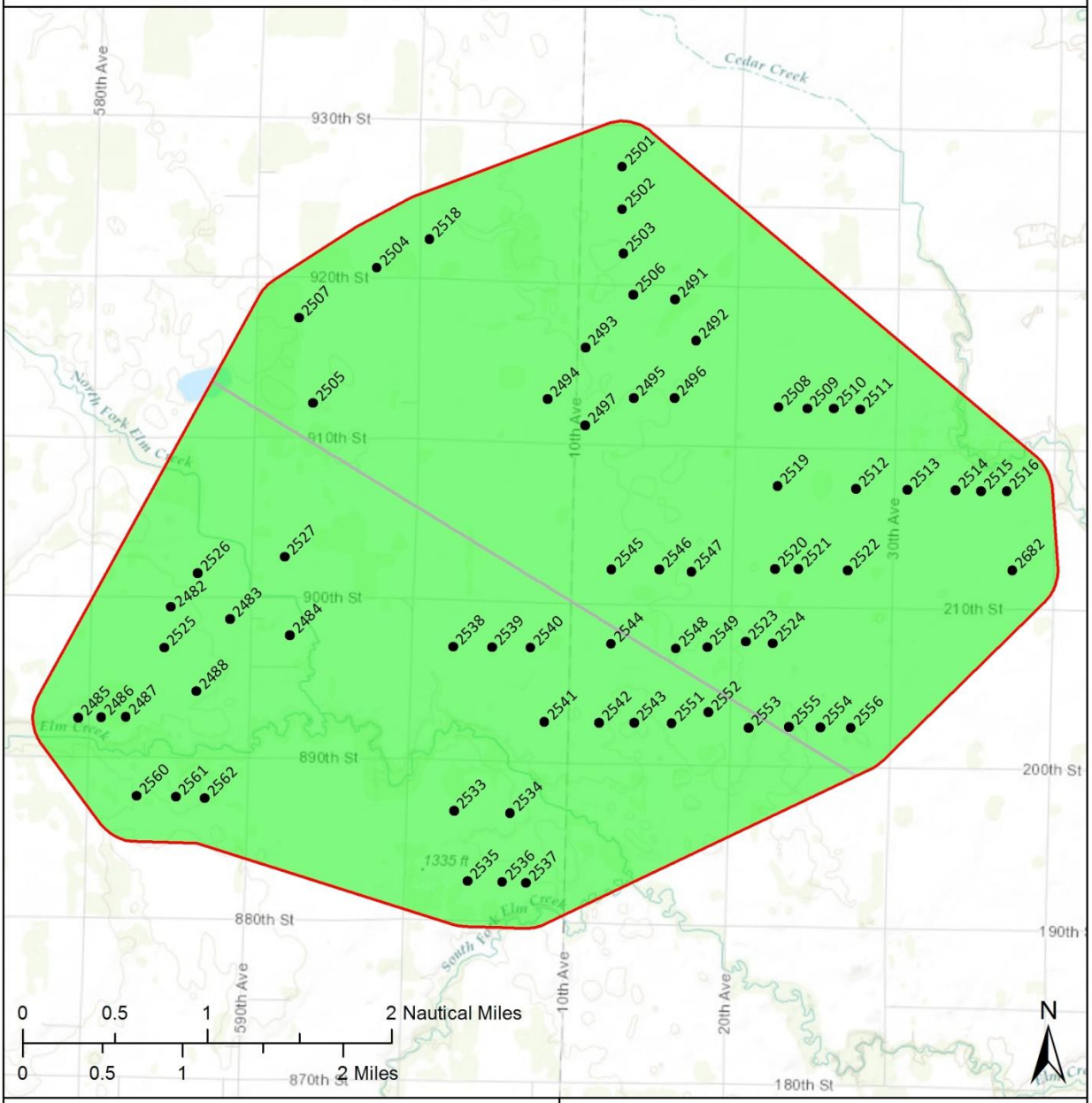
Coordinate System:
NAD 1983 UTM Zone 15N

Orlando Olivas

Figure 12

Capitol Airspace Group

The USGS 1/3 Arc Second Digital Elevation Model (DEM) data used to create this map has a vertical accuracy of +/- 7 meters. This map should only be used for general planning purposes and not exact structure siting.



Legend

Above Ground Level (AGL) Clearance

- < 412 Feet AGL
- ≥ 412 Feet AGL
- Wind Turbine (labeled with FAA Obstacle Repository System ID: 27-00XXXX)

Trimont Wind Project
Above Ground Level (AGL) Clearance Map

Plot Date:
29 September 2017

Figure 13

Coordinate System:
NAD 1983 UTM Zone 15N

Orlando Olivas

Capitol Airspace Group