

Staff Report of Investigation

Black Fork Wind Project
Case Number 10-2865-EL-BGN

August 31, 2011



John Kasich, Governor

Todd Snitchler, Chairman



Power Siting
Board

In the Matter of an Application by Black Fork Wind)
Energy, LLC, for a Certificate of Environmental)
Compatibility and Public Need for the Black Fork Wind) **Case No. 10-2865-EL-BGN**
Project)

Staff Report of Investigation

Submitted to the
OHIO POWER SITING BOARD

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BEFORE THE POWER SITING BOARD OF THE STATE OF OHIO

**In the Matter of an Application by Black Fork Wind)
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Compatibility and Public Need for the Black Fork Wind) Case No. 10-2865-EL-BGN
Project)**

Members of the Board:

Todd Snitchler, Chairman, PUCO
Christiane Schmenk, Director, ODD
Dr. Ted Wymyslo, Director, ODH
Jim Zehringer, Director, ODA
Scott Nally, Director, Ohio EPA
David Mustine, Director, ODNR
Dr. Ali Keyhani, Public Member

Louis Blessing, Jr., State Representative
Jay Goyal, State Representative
Tom Sawyer, State Senator
David Daniels, State Senator

To the Honorable Power Siting Board:

In accordance with provisions of the Ohio Revised Code (ORC) Section 4906.07(C), and the Commission's rules, the Staff has completed its investigation in the above matter and submits its findings and recommendations in this staff report for consideration by the Ohio Power Siting Board (Board).

The *Staff Report of Investigation* has been prepared by the Staff of the Public Utilities Commission of Ohio. The findings and recommendations contained in this report are the result of Staff coordination with the Ohio Environmental Protection Agency, the Ohio Department of Health, the Ohio Department of Development, the Ohio Department of Natural Resources, and the Ohio Department of Agriculture. In addition, the Staff coordinated with the Ohio Department of Transportation, the Ohio Historic Preservation Office (OHPO), the U.S. Fish and Wildlife Service, the U.S. Army Corps of Engineers, and the Federal Aviation Administration.

In accordance with ORC Sections 4906.07 and 4906.12, copies of this staff report have been filed with the Docketing Division of the Public Utilities Commission of Ohio on behalf of the Ohio Power Siting Board and served upon the Applicant or its authorized representative, the parties of record, and the main public libraries of the political subdivisions in the project area.

The staff report presents the results of the Staff's investigation conducted in accordance with ORC Chapter 4906 and the Rules of the Board, and does not purport to reflect the views of the Board nor should any party to the instant proceeding consider the Board in any manner constrained by the findings and recommendations set forth herein.

Respectfully submitted,


Klaus Lambeck, Chief
Facilities, Siting, & Environmental Analysis Division

ACRONYMS

AEP	American Electric Power
BMP	best management practices
dBA	decibels (A-weighted)
DOW	ODNR Division of Wildlife
FAA	Federal Aviation Administration
HDD	horizontal directional drill(ing)
Hz	hertz
kV	kilovolts
MW	megawatts
NERC	North American Electric Reliability Corporation
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
O&M	operations and maintenance
OAC	Ohio Administrative Code
ODA	Ohio Department of Agriculture
ODD	Ohio Department of Development
ODH	Ohio Department of Health
ODNR	Ohio Department of Natural Resources
ODOT	Ohio Department of Transportation
Ohio EPA	Ohio Environmental Protection Agency
OHPO	Ohio Historic Preservation Office
OPSB	Ohio Power Siting Board
ORC	Ohio Revised Code
PUCO	Public Utilities Commission of Ohio
SPCC	Spill Prevention, Containment, and Countermeasure
SWPPP	Storm Water Pollution Prevention Plan
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service

I. POWERS AND DUTIES

OHIO POWER SITING BOARD

The Ohio Power Siting Board (Board or OPSB) was created on November 15, 1981, by amended Substitute House Bill 694 as a separate entity within the Public Utilities Commission of Ohio (PUCO). The authority of the Board is outlined in Ohio Revised Code (ORC) Chapter 4906.

The Board is authorized to issue certificates of environmental compatibility and public need for the construction, operation, and maintenance of major utility facilities as defined in ORC Section 4906.01. Included within this definition are: electric generating plants and associated facilities designed for, or capable of, operation at 50 megawatts (MW) or more; electric transmission lines and associated facilities of a design capacity greater than or equal to 125 kilovolts (kV); and gas and natural gas transmission lines and associated facilities designed for, or capable of, transporting gas or natural gas at pressures in excess of 125 pounds per square inch. In addition, per ORC Section 4906.20, the Board authority applies to economically significant wind farms, defined in ORC 4906.13(A) as wind turbines and associated facilities with a single interconnection to the electrical grid and designed for, or capable of, operation at an aggregate capacity of five MW or greater but less than 50 MW.

Membership of the Board is specified in ORC Section 4906.02(A). The voting members include: the Chairman of the PUCO who serves as Chairman of the Board; the directors of the Ohio Environmental Protection Agency (Ohio EPA), the Ohio Department of Health (ODH), the Ohio Department of Development (ODD), the Ohio Department of Agriculture (ODA), and the Ohio Department of Natural Resources (ODNR); and a member of the public, specified as an engineer, appointed by the Governor from a list of three nominees provided by the Ohio Consumers' Counsel. Ex-officio Board members include two members (with alternates) from each house of the Ohio General Assembly.

NATURE OF INVESTIGATION

The OPSB has promulgated rules and regulations, found in Chapter 4906 of the Ohio Administrative Code (OAC), which establish application procedures for major utility facilities and wind farms.

Application Procedures

Any person that wishes to construct a major utility facility or economically significant wind farm in this state must first submit to the OPSB an application for a certificate of environmental compatibility and public need.¹ The application must include a description of the facility and its location, summary of environmental studies, a statement explaining the need for the facility and how it fits into the applicant's energy forecasts (for transmission projects), and any other information the OPSB may consider relevant.²

Within 60 days of receiving an application, the OPSB must determine whether it is sufficiently complete to begin an investigation.³ If an application is considered complete, the Chairman of the OPSB will cause a public hearing to be held 60 to 90 days after the official filing date of the

¹ ORC 4906.04 and 4906.20

² ORC 4906.10(A)(1) and 4906.20(B)(1)

³ OAC 4906-5-05(A)

completed application. At the public hearing, any person may provide written or oral testimony and may be examined by the parties.⁴ Parties include the Applicant, public officials, and any person who has been granted a motion of leave for intervention.⁵

Staff Investigation and Report

The Chairman will also cause each application to be investigated and a report published not less than 15 days prior to the public hearing. The report sets forth the nature of the investigation and contains the findings and conditions recommended by Staff. The Board's Staff, which consists of career professionals drawn from the Staff of the PUCO and other member agencies of the OPSB, coordinates its investigation among the agencies represented on the Board and with other interested agencies such as the Ohio Department of Transportation (ODOT), the Ohio Historical Society, and the U.S. Fish and Wildlife Service (USFWS).

The technical investigations and evaluations are conducted under guidance of the OPSB rules and regulations in OAC Chapter 4906. The recommended findings resulting from the Staff's investigation are described in the staff report pursuant to ORC Section 4906.07(C). The report does not represent the views or opinions of the OPSB and is only one piece of evidence that the Board may consider when making its decision. Once published, the report becomes a part of the record and is served upon all parties to the proceeding and is made available to any person upon request.⁶ A record of the public hearings and all evidence, including the staff report, may be examined by the public at anytime.⁷

Board Decision

The OPSB may approve, condition and approve, or deny an application for a certificate of environmental compatibility and public need. If the OPSB approves, or modifies and approves an application, it will issue a certificate subject to conditions. The certificate is also conditioned upon the facility being in compliance with standards and rules adopted under the ORC.⁸

Upon rendering its decision, the OPSB must issue an opinion stating its reasons for approving, modifying and approving, or denying an application for a certificate of environmental compatibility and public need.⁹ A copy of the OPSB's decision and its opinion is memorialized upon the record and must be served upon all parties to the proceeding.¹⁰ Any party to the proceeding that believes its issues were not adequately addressed by the OPSB may submit within 30 days an application for rehearing.¹¹ An entry on rehearing will be issued by the OPSB within 30 days and may be appealed within 60 days to the Supreme Court of Ohio.¹²

⁴ ORC 4906.07

⁵ ORC 4906.08(A)

⁶ ORC 4906.07(C) and 4906.10

⁷ ORC 4906.09 and 4906.12

⁸ ORC 4906.10(A) and (B)

⁹ ORC 4906.11

¹⁰ ORC 4906.10(C)

¹¹ ORC 4903.10 and 4906.12

¹² ORC 4903.11, 4903.12, and 4906.12

CRITERIA

The recommendations and conditions in this *Staff Report of Investigation* were developed pursuant to the criteria set forth in ORC Section 4906.07(C), which requires, in part, that the staff report shall contain recommended findings with regard to ORC Section 4906.10(A).

Section 4906.10(A) of the ORC reads in part:

The Board shall not grant a certificate for the construction, operation, and maintenance of a major utility facility, either as proposed or as modified by the Board, unless it finds and determines all of the following:

- (1) The basis of the need for the facility if the facility is an electric transmission line or gas or natural gas transmission line;
- (2) The nature of the probable environmental impact;
- (3) That the facility represents the minimum adverse environmental impact, considering the state of available technology and the nature and economics of the various alternatives, and other pertinent considerations;
- (4) In the case of an electric transmission line or generation facility, that the facility is consistent with regional plans for expansion of the electric power grid of the electric systems serving this state and interconnected utility systems and that the facility will serve the interests of electric system economy and reliability;
- (5) That the facility will comply with Chapters 3704., 3734., and 6111. of the Revised Code and all rules and standards adopted under those chapters and under Sections 1501.33, 1501.34, and 4561.32 of the Revised Code. In determining whether the facility will comply with all rules and standards adopted under Section 4561.32 of the Revised Code, the Board shall consult with the ODOT Office of Aviation of the Division of Multi-Modal Planning and Programs of the Department of Transportation under Section 4561.341 of the Revised Code.
- (6) That the facility will serve the public interest, convenience, and necessity;
- (7) In addition to the provisions contained in divisions (A)(1) through (A)(6) of this section and rules adopted under those divisions, what its impact will be on the viability as agricultural land of any land in an existing agricultural district established under Chapter 929. of the Revised Code that is located within the site and alternative site of the proposed major utility facility. Rules adopted to evaluate impact under division (A)(7) of this section shall not require the compilation, creation, submission, or production of any information, document, or other data pertaining to land not located within the site and alternate site.
- (8) That the facility incorporates maximum feasible water conservation practices as determined by the Board, considering available technology and the nature and economics of the various alternatives.

II. APPLICATION

APPLICANT

In this proceeding, Black Fork Wind Energy, LLC (Applicant) is seeking authority to construct a wind-powered electric generating facility, or wind farm, in Richland and Crawford counties, Ohio. The wind farm, including all leases and facility assets, would be owned and operated by the Applicant. In addition, a substation owned by the Applicant and a switchyard owned by American Electric Power (AEP) would collect and deliver the energy through a new 138 kV transmission line that would be built and owned by AEP. Black Fork Wind Energy, LLC, is a wholly-owned subsidiary of Element Power US, LLC (Element Power), headquartered in Portland, Oregon. Element Power develops, acquires, builds, and operates utility-scale solar and wind power facilities. Element Power is owned by Hudson Clean Energy Partners, a leading global private equity firm investing in renewable power.

HISTORY OF THE APPLICATION

Prior to formally submitting its application, the Applicant consulted with the Staff and representatives of the Board, including the Ohio EPA, regarding application procedures.

On December 1, 2010, the Applicant filed a pre-application notification letter regarding the project. On December 16, 2010, the Applicant held a public informational meeting at Shelby High School in Shelby, Ohio.

On March 9, 2011, the Applicant filed a Motion for Waivers under OAC 4906-1-03. On March 10, 2011, the Applicant filed a Motion for Protective Order under OAC 4906-7-01(B)(8)(c).

On March 10, 2011, the Applicant filed its application for a certificate to construct the proposed wind-powered electric generating facility in Crawford and Richland counties, Ohio.

On March 22, 2011, the Ohio Farm Bureau Federation made a motion to intervene in the case.

On April 28, 2011, Staff and the Applicant filed a joint motion for an extension of time of the completeness review period.

On May 3, 2011, the Administrative Law Judge filed an Entry pertaining to the Farm Federation's motion to intervene, the Applicant's waiver and protective order requests, and the request for an extension of time for completeness review.

On May 19, 2011, John Warrington, Tiro, Ohio, requested to intervene in the case.

On May 24, 2011, the Applicant filed a notice of project boundary revision for the proposed wind project.

On June 10, 2011, the Board Chairman issued a letter to the Applicant stating that the application, as supplemented with subsequent filings, had been found to comply with the requirements of Chapter 4906-01, et seq., OAC.

On June 22, 2011, the Administrative Law Judge issued an Entry scheduling a local public hearing for this case to take place on Thursday, September 15, 2011, at 6:00 p.m., at the Shelby Senior High School, 109 West Smiley Avenue, Shelby, Ohio 44875. The adjudicatory hearing will commence on Monday, September 19, 2011, at 10:00 a.m., 11th floor, Hearing Room 11-D,

at the offices of the Public Utilities Commission of Ohio, 180 East Broad Street, Columbus, Ohio, 43215-3793.

On June 24, 2011, the Richland County Engineer and the Board of County Commissioners of Richland County, Ohio, made motions to intervene in the case. On June 27, 2011, the Board of County Commissioners of Crawford County, Ohio, made a motion to intervene in the case.

On July 8, 2011, the Board of Township Trustees of Plymouth Township and the Board of Township Trustees of Sharon Township made motions to intervene in the case. On July 14, 2011, the Board of Township Trustees of Sandusky Township made a motion to intervene in the case.

On July 21, 2011, Loren Gledhill, Carol Gledhill, and Mary Studer of Crestline, Ohio, requested to intervene in the case.

On July 22, 2011, certain intervenors filed a motion to extend the date for parties to file an Issues List pertaining to the case.

On July 26, 2011, Alan Price, Catherine Price, Thomas Karbula, Nick Rietschlin, and Mararet D. Rietschlin, all of Crestline, Ohio, requested to intervene in the case.

On July 27, 2011, Bradley F. Bauer and Debra Bauer of Crestline, Ohio, and Brett A. Heffner of Shelby, Ohio, requested to intervene in the case.

On August 1, 2011, Grover Reynolds of Crestline, Ohio, Gary J. Biglin and Karel A. Davis of Shelby, Ohio, and William P. Alt of Apopka, Florida requested to intervene in the case.

On August 12, 2011, the Applicant filed responses to Staff data requests and a Memorandum contra the requests of certain individuals to intervene in the case.

On August 22, 2011, John Warrington filed Discovery questions to be served on the Applicant.

On August 30, 2011, John Warrington filed testimony in opposition of the proposed project.

On August 30, 2011, the Applicant filed sample letters and a mailing list regarding notification.

On August 30, 2011, the ALJ filed an Entry regarding intervention status and procedures for the upcoming hearings.

This summary of the history of the application does not include every filing in case number 10-2865-EL-BGN. The docketing record for this case, which lists all documents filed to date, can be found in the Appendix to this report and online at <http://dis.puc.state.oh.us>.

PROJECT DESCRIPTION

The Applicant proposes to construct and operate the Black Fork Wind Farm project with up to 91 wind turbines and 200 MW of capacity near Shelby, Ohio.

Project Area

The project area covers 24,200 acres in Auburn, Jackson, Jefferson, and Vernon townships in Crawford County and Plymouth, Sandusky, and Sharon townships in Richland County. The facilities in the project area would be located on approximately 14,800 acres of leased private land with 150 participating landowners. The project area and proposed facilities are shown on the maps in this report.

Wind Turbines

The Applicant has designed the project to accommodate three possible turbine models depending on availability and cost at the time of ordering: the Vestas V100, which is preferred by the Applicant, the General Electric (GE) 1.6-100, and the Siemens SWT 2.3-101. The structures would consist of a three-bladed horizontal axis turbine and nacelle on top of an off-white monopole tubular steel tower. The turbine layout will not change as a result of the turbine model selected by the Applicant. However, the number of turbines constructed will depend on the turbine model chosen for the project, as each model has a different generation capacity. The Applicant proposed to use either 91 Vestas V100 turbines which are rated at 1.8 MW, 91 GE 1.6-100 turbines which are rated at 1.6 MW, or 86 Siemens SWT 2.3-101 turbines which are rated at 2.3 MW. The total height would vary by turbine model, ranging from 426 feet (130 meters) to 494 feet (150.5 meters). The hub height for the turbines would be between 262 feet (80 meters) and 328 feet (100 meters). The maximum rotor diameter would be 331 feet (101 meters).

The Applicant expects that the annual energy production for the Black Fork Wind Farm would be approximately 600,000 MWh.

Turbine Foundations and Assembly

The Applicant would prepare a wind turbine assembly area by grading and removing vegetation within a 150-foot radius, or less, around each turbine location. The Applicant would adjust the turbine assembly area in order to not impact environmentally sensitive resources. The foundation construction process would generally proceed from hole excavation, base formation, rebar assembly, pouring and setting of the concrete, backfilling and compacting, through to site restoration.

Test borings for the site-specific geotechnical investigation will be performed during the final design stage. Final turbine foundation design would be chosen upon the results of the full site-specific geotechnical investigation. The Applicant will use a spread footing foundation, which is a typical design for wind turbine foundations.

Electric Collection System

A 34.5 kV underground electric collection system would be installed to transfer the power from each wind turbine location to a collection substation where it would be connected to AEP's 138 kV electric transmission line at the AEP Howard substation. The 34.5 kV collection system would consist of approximately 60.2 miles of underground cable buried at a depth of four feet.

Limited use of overhead collection lines may be necessary and the locations will be provided when the wind farm design is finalized.

Electric Substation and Transmission Line

The collection substation facility would be located approximately one mile east of the intersection of State Route 598 and German Road. The substation would be on the north side of German Road and south of State Route 96. The substation would be designed to step-up the voltage from the 34.5 kV electric collection system to 138 kV. The substation would be enclosed by chain link fence and would contain a main step-up transformer, control building, and interconnection switchgear. The substation area would be up to three acres.

The Applicant intends on utilizing an open arm of AEP's existing Howard-Fostoria Central 138 kV towers to place a new 138 kV conductor. This conductor would transport energy generated from the project from the Applicant's new substation to AEP's existing Howard Substation, then distributed to the electric power grid.

O&M Building

The operations and maintenance (O&M) building would be used to house personnel and replacement materials. The proposed location of the O&M building is in the same area as the electric substation and construction laydown yard.

Permanent Meteorological Towers

The Applicant has proposed three permanent meteorological (met) towers in the project area in order to monitor wind resources during the operation of the wind farm. These towers would be accessed by a 12-foot wide access road, and would be 80 meters in height.

Access Roads

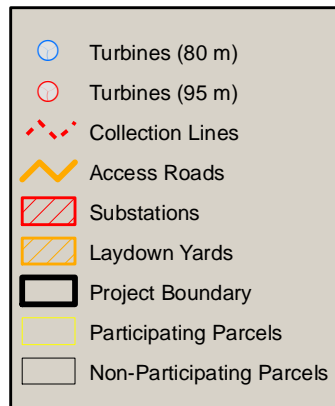
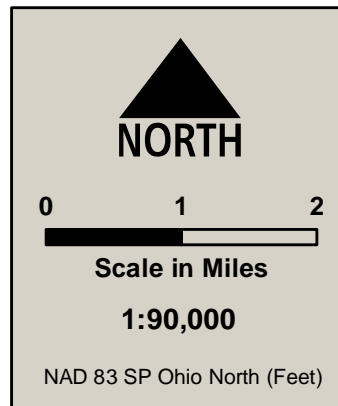
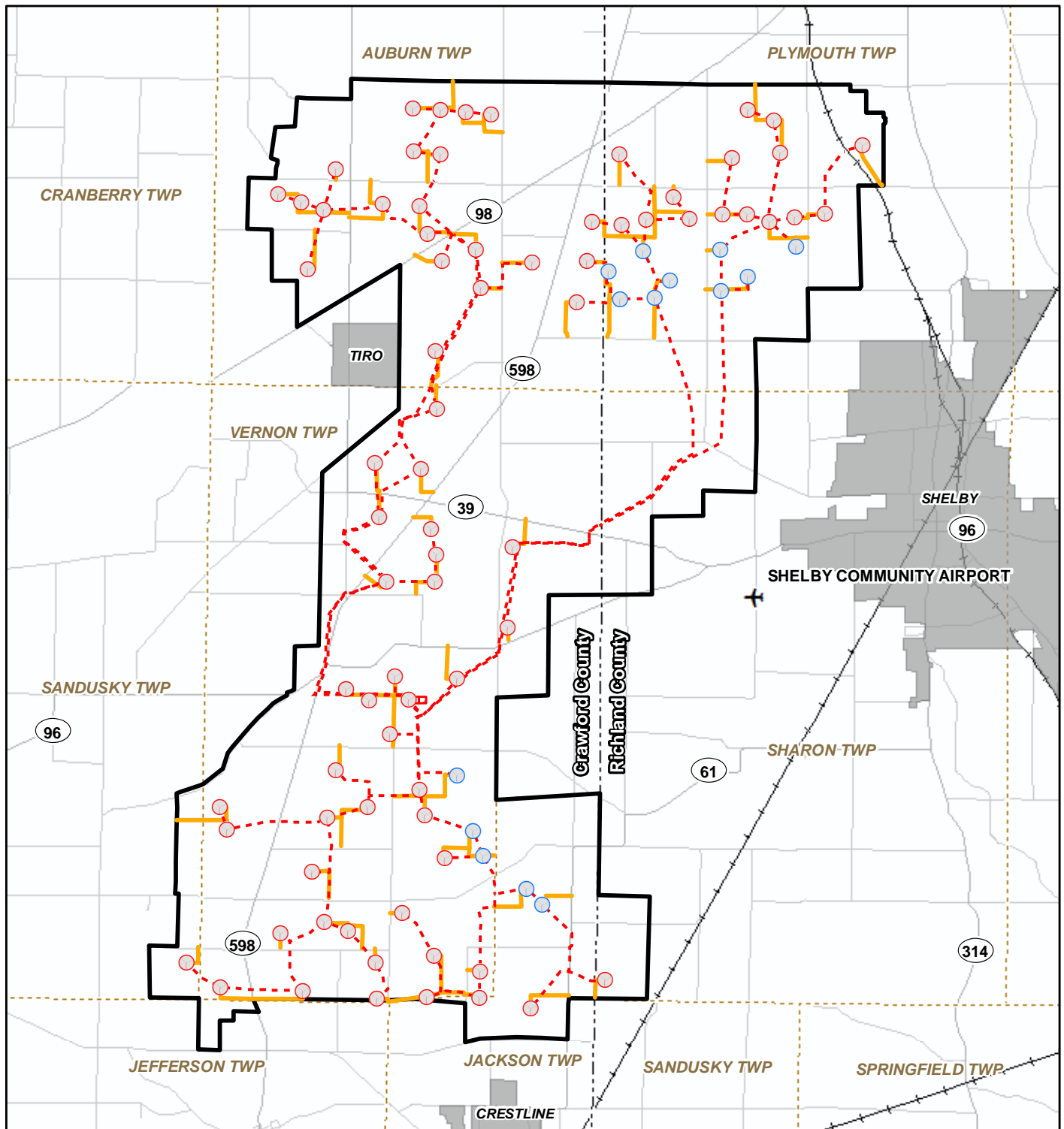
Up to approximately 29.6 miles of new or improved access roads would be needed to support the facility. The access roads would be up to 50 feet wide during construction. After construction, most access roads would be reduced to a width of 16 feet.

Construction Laydown Areas

The Applicant intends to deliver materials directly to each turbine construction site, to the extent practicable. However, the Applicant also plans to use a construction laydown area for construction equipment/material storage, construction trailers, and a temporary portable concrete batch plant. Currently, the Applicant intends to use up to 20 acres adjacent to the substation/O&M site as a construction staging area site.

PROJECT MAPS

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Overview Map

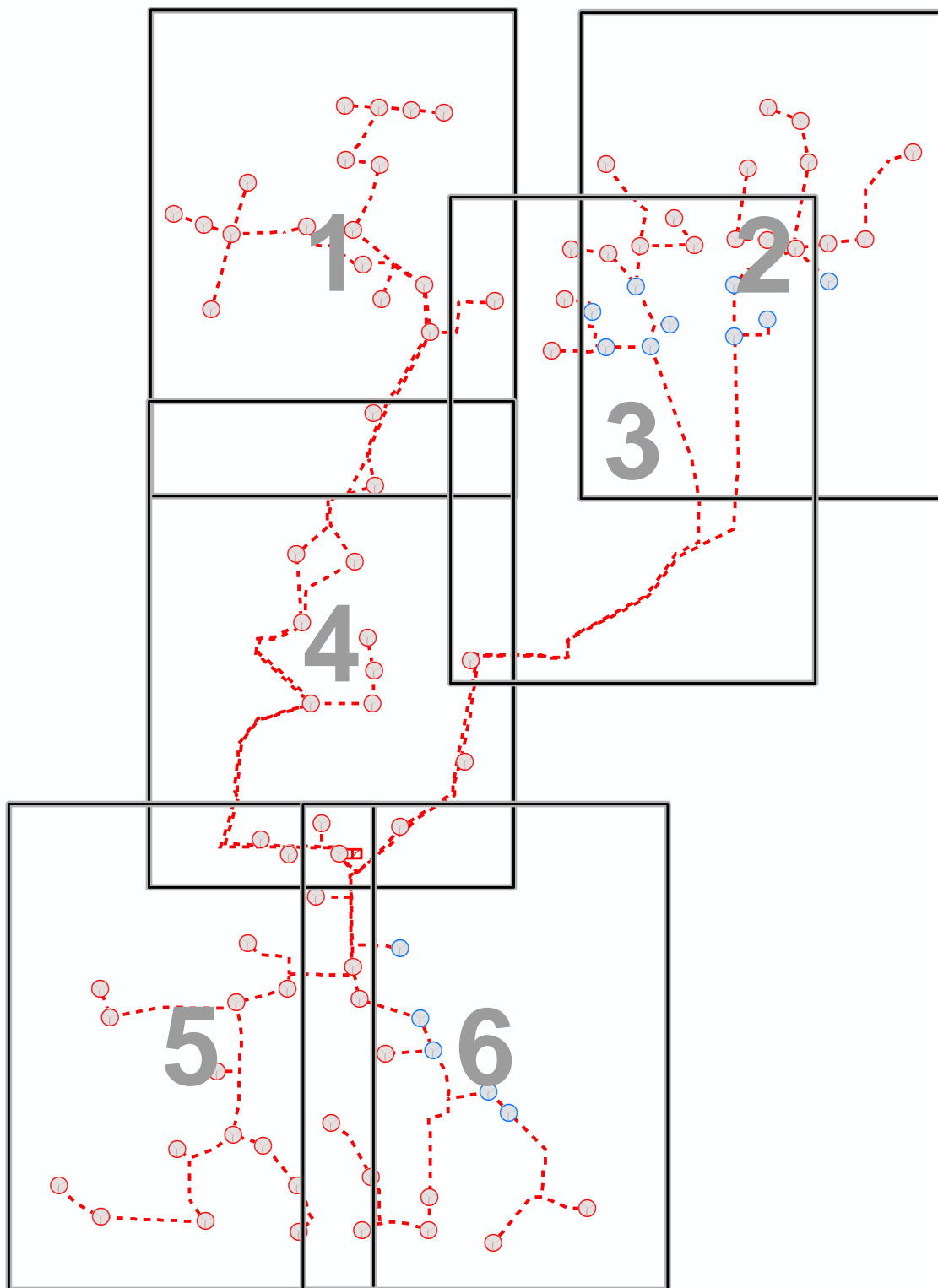
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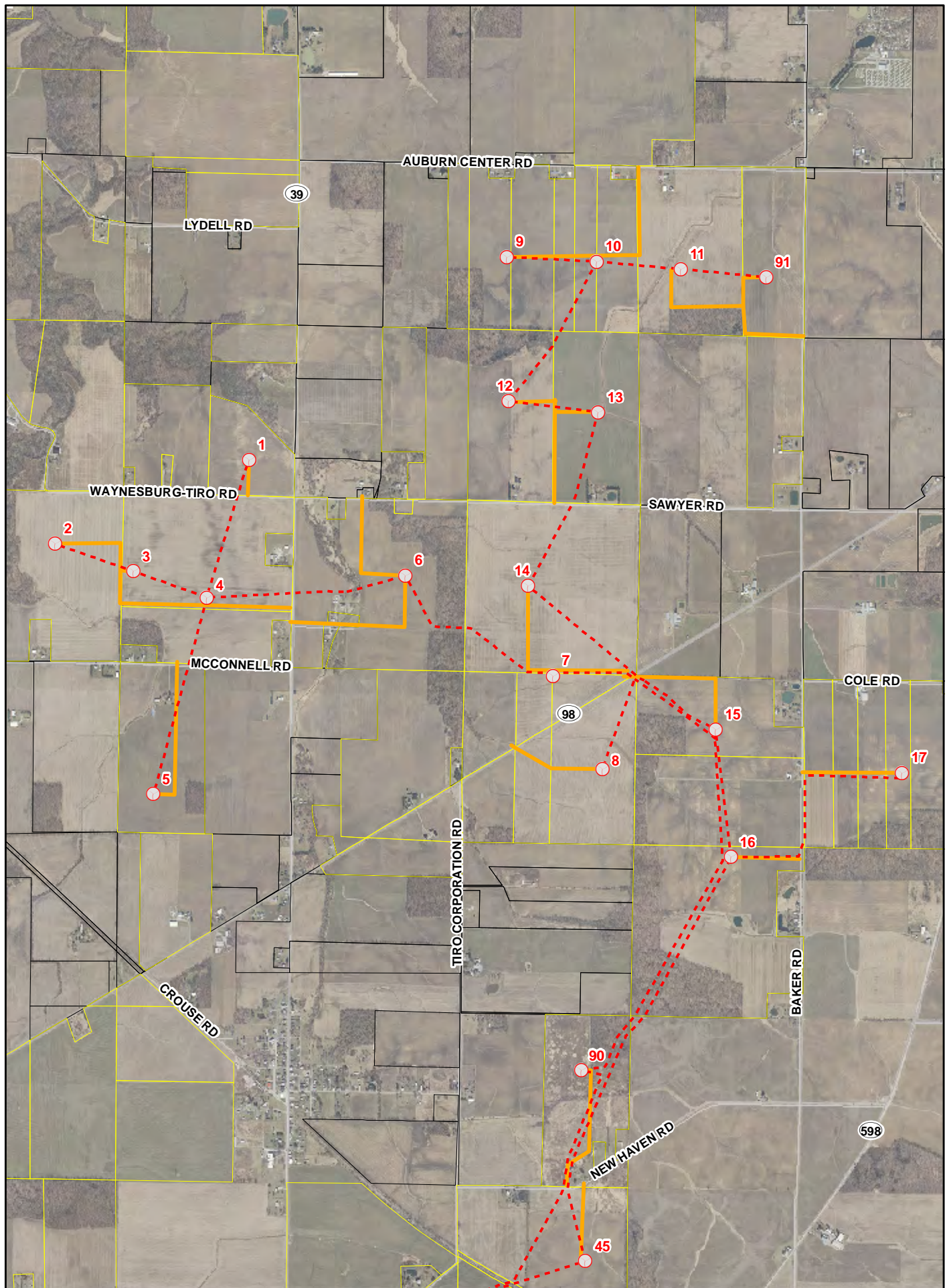
Black Fork Wind Farm

Maps are presented solely for the purpose of providing a visual representation of the project in the staff report, and are not intended to modify the project as presented by the Applicant in its certified application and supplemental materials.



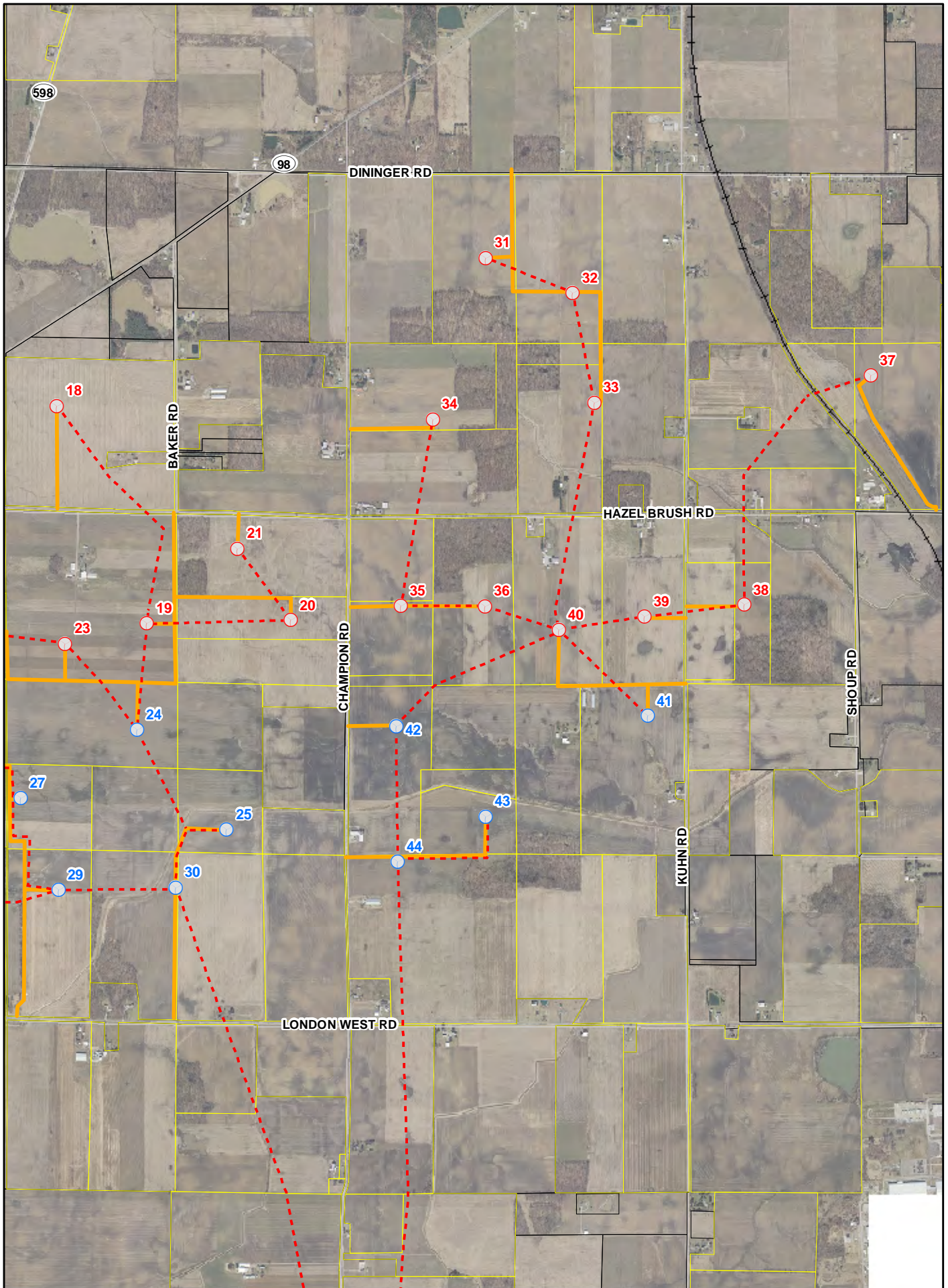
Map Index





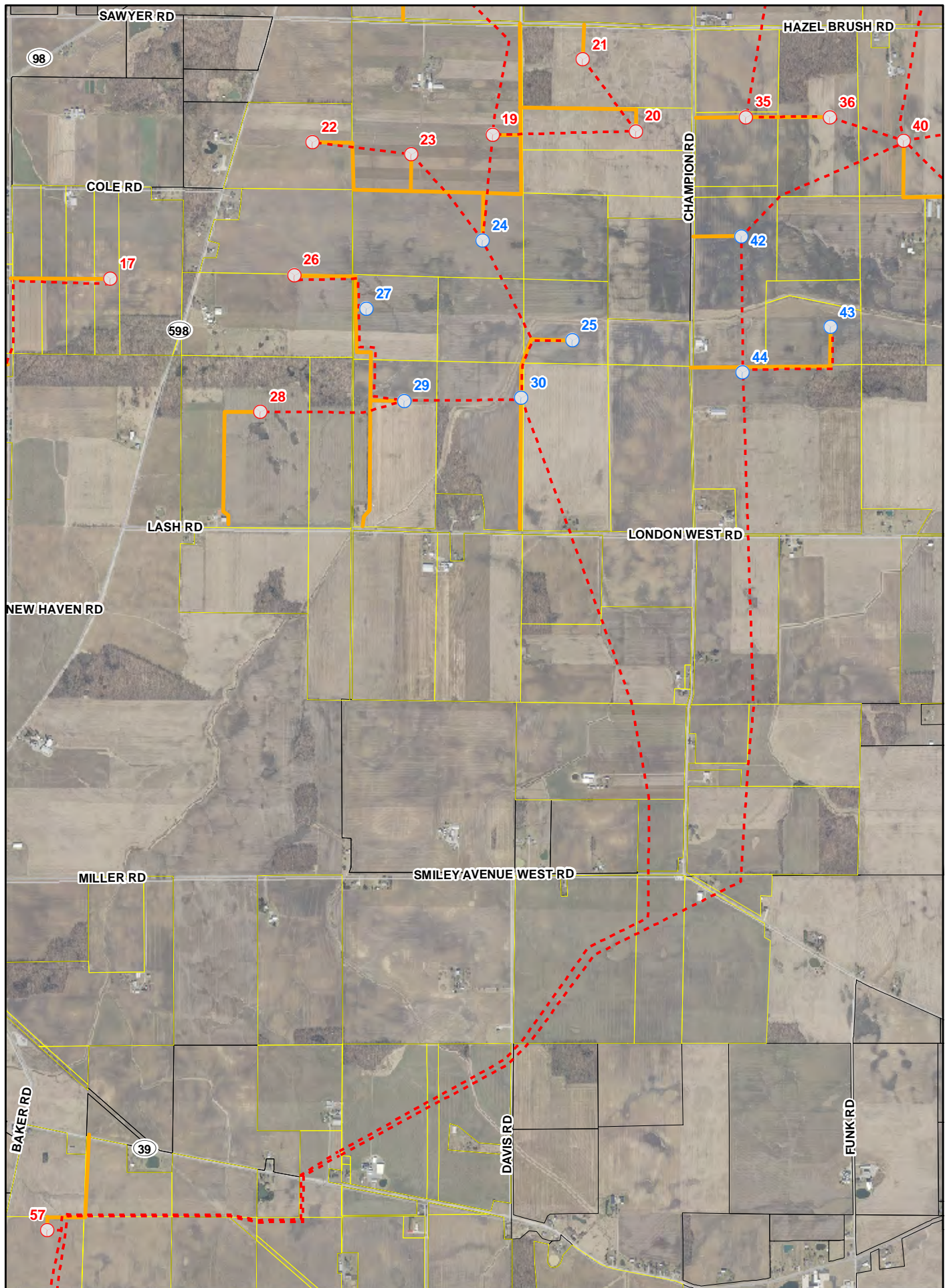
1 inch equals 2,000 feet

Map 1



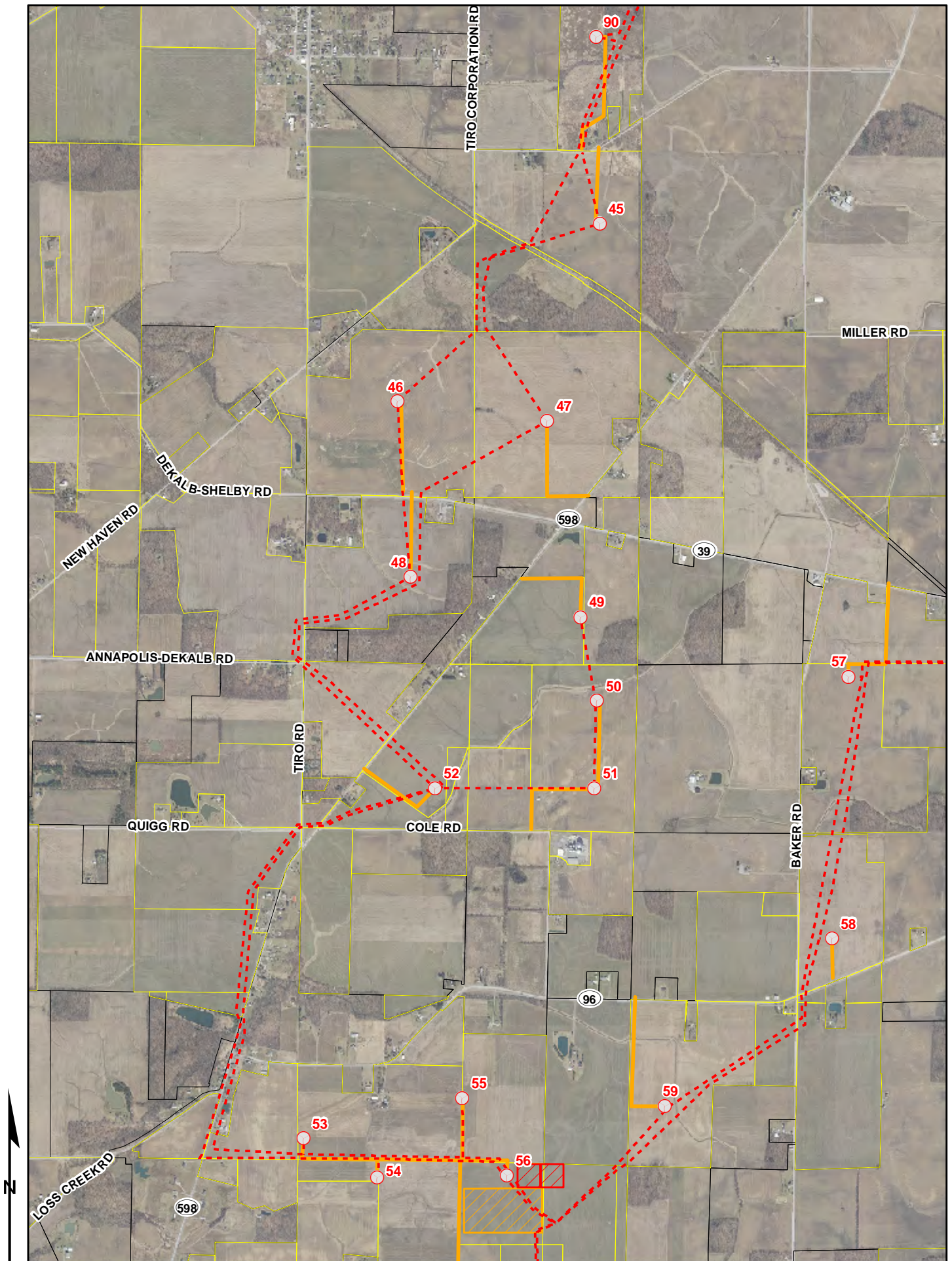
Map 2

1 inch equals 2,000 feet



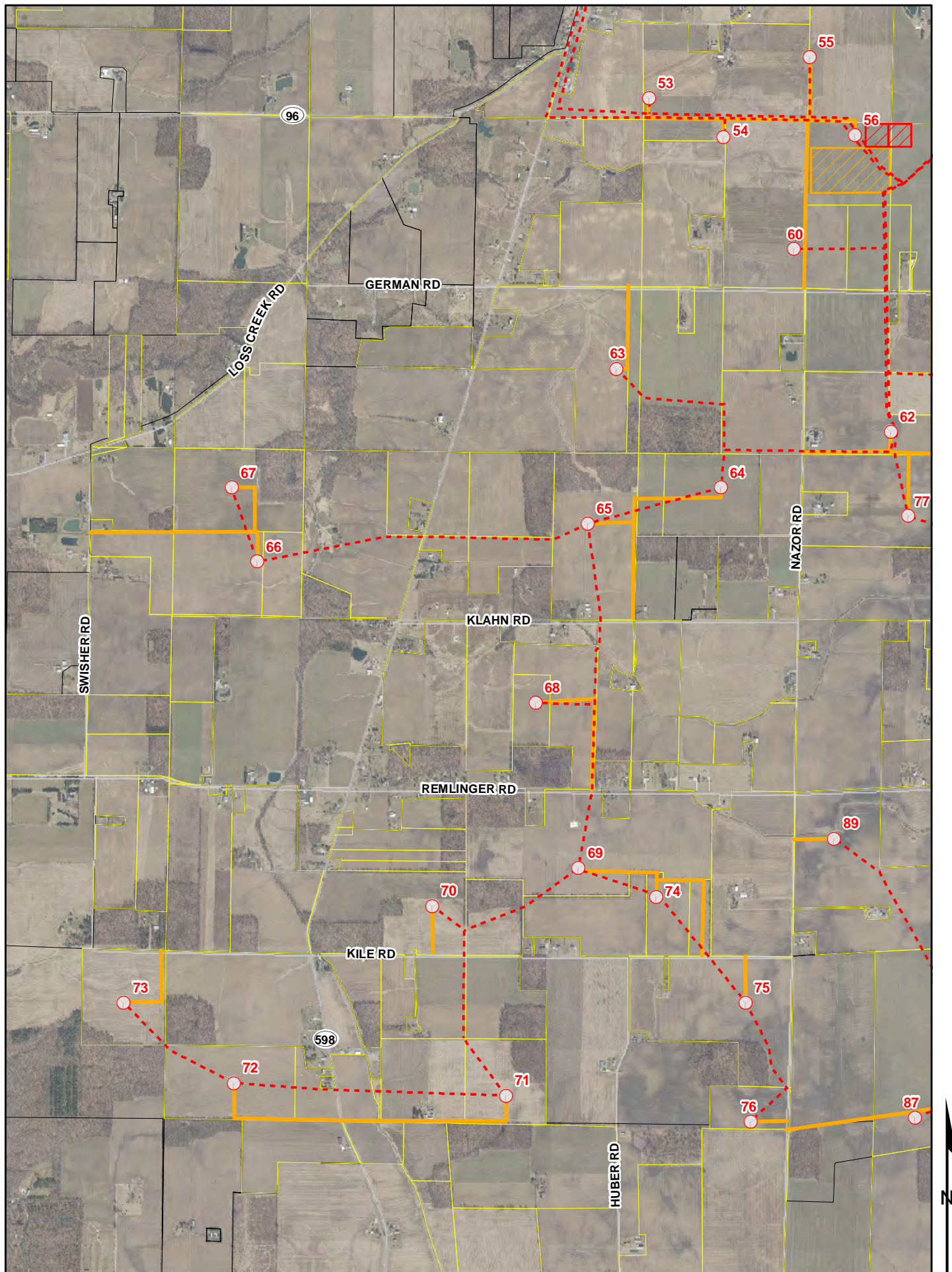
1 inch equals 2,000 feet

Map 3

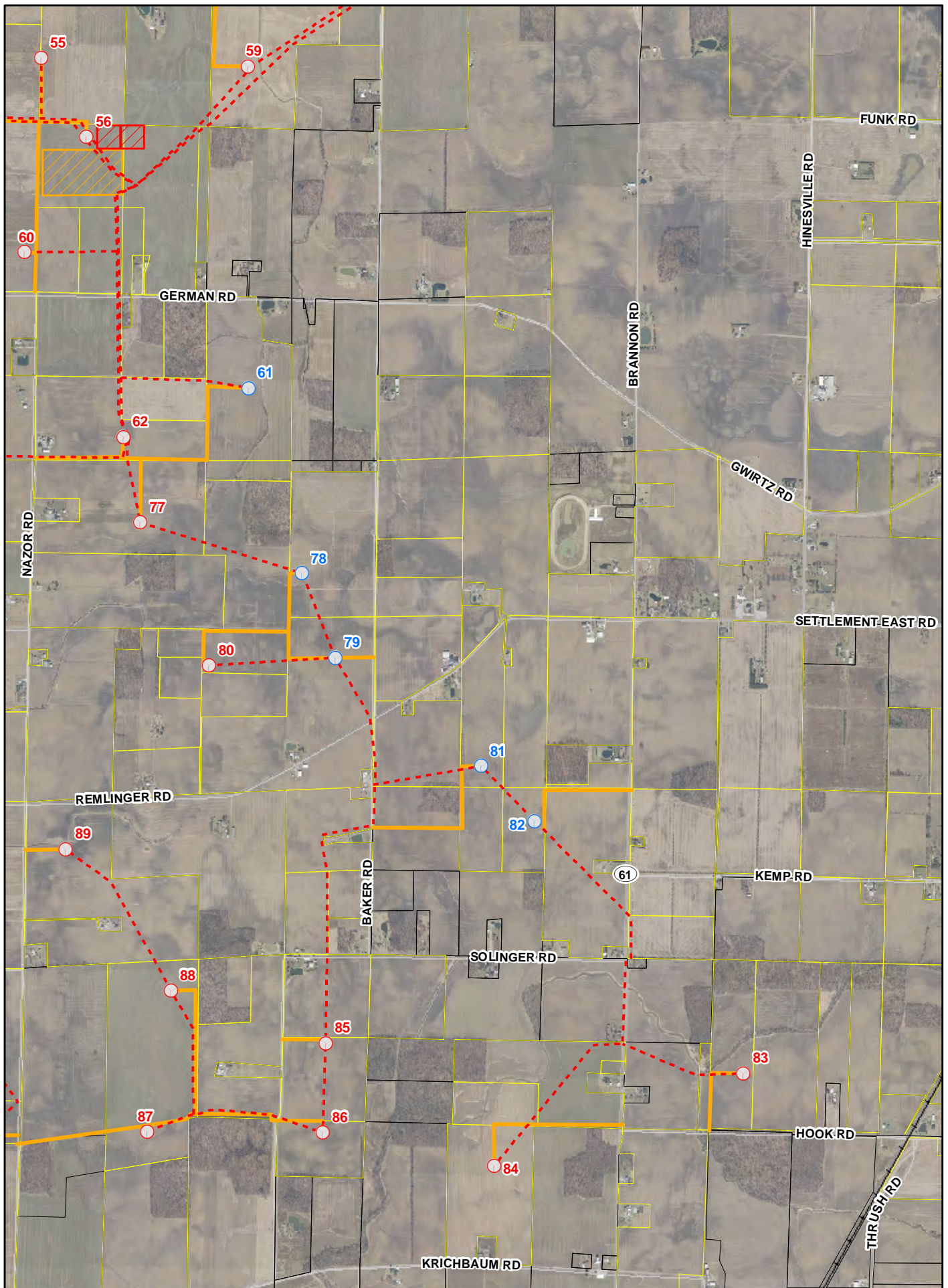


Map 4

1 inch equals 2,000 feet



1 inch equals 2,000 feet



Map 6

1 inch equals 2,000 feet

III. CONSIDERATIONS AND RECOMMENDED FINDINGS

In the matter of the application of Black Fork Wind Energy, LLC, the following considerations and recommended findings are submitted pursuant to ORC Section 4906.07(C) and ORC Section 4906.10(A).

Considerations for ORC Section 4906.10(A)(1)

BASIS OF NEED

The basis of need as specified under ORC Section 4906.10(A)(1) is not applicable to this electric generating facility project.

Recommended Findings

Staff recommends that the Board find that 4906.10(A)(1) is not applicable to this electric generating facility project.

Considerations for ORC Section 4906.10(A)(2)

NATURE OF PROBABLE ENVIRONMENTAL IMPACT

Pursuant to ORC Section 4906.10(A)(2), the Board must determine the nature of the probable environmental impact of the proposed facility. As a result, the Staff has found the following with regard to the nature of the probable environmental impact:

- (1) The proposed project involves the construction and operation of an electric generating facility comprised of up to 91 wind turbines in Crawford and Richland counties. The project would have a nameplate capacity of up to 200 MW. For purposes of clarity, based on specific technical information reviewed by Staff, three turbine models are being evaluated in this *Staff Report of Investigation*: the Vestas V100, the GE 1.6-100, and the Siemens SWT 2.3-101 models.
- (2) The Applicant proposes a 10-month construction timeframe for this project, starting in March 2012 and having the project online by December 2012.
- (3) The demographics of the project area are not expected to change dramatically in the next 20 years. Townships containing the project area have an average population density of 46.8 persons per square mile, compared to 249 persons per square mile in Richland County and 109 persons per square mile in Crawford County.¹³ Population in the Crawford County townships that contain the project area is expected to decline by an average of less than one percent over the next 20 years, compared to a 5.8 percent population decline for the entire county. Conversely, the population in Richland County townships that contain the project area is expected to grow by an average of less than one percent over the next 20 years, compared to 0.9 percent for the entire county.¹⁴ The project is unlikely to limit future population growth or have a significant impact on the demographics of the region.
- (4) A total of 232 residential structures are within 1,000 feet of project facilities. Sixteen residential structures are within 100 feet of project facilities, three of which are within 100 feet of project access roads, and 13 within 100 feet of collection lines.
- (5) Based on the largest turbine model, the statutory minimum setback requirements equate to 543 feet from the non-participating property line and 914 feet from residences on non-participating property. In establishing minimum property line setbacks of 563 feet and residence setbacks of 1,250 feet, the Applicant has designed the wind farm to exceed all statutory requirements.
- (6) Approximately 82 percent (12,136 acres) of the project area consists of agricultural fields. Construction and operation of wind turbines, access roads, the switchyard, and the substation would permanently remove less than one percent (67 acres) of the agricultural land from its current use. Operation of the project facility would not interfere with surrounding agricultural uses. Furthermore, the Applicant indicates that the majority of the

¹³ Ohio Department of Development. (May 2011). *2008 Population Estimates by County, City, Village, and Township*. Retrieved May 16, 2011, from the ODOD web site:
<http://www.development.ohio.gov/research/documents/p103000004.pdf>

¹⁴ Ohio Department of Development. (May 2011). *Ohio County Indicators*. Retrieved May 16, 2011, from the ODOD web site: <http://www.development.ohio.gov/research/files/s101.pdf>

electric collection system would be buried below ground at a depth of four feet so as not to interfere with agricultural activities.

- (7) Residential land use accounts for approximately seven percent of the project area, and 11 percent of project area consists of forests, wetlands, and old fields.
- (8) The Applicant has reviewed both Crawford County's *2000 Comprehensive Plan* and the *2035 Comprehensive Plan for Richland County, Ohio* and has identified no designated future land uses within the project area. Both counties plan to preserve agricultural land by concentrating high-density development in centralized areas with existing water and sewer services. Insofar as the project minimally impacts agricultural activity and inhibits high-density development on agricultural land, it is compatible with area land uses and regional plans.
- (9) There are no state or national parks, forests, wildlife management areas or refuges, or national natural landmarks within a five-mile radius of the proposed facility. There is one Ohio Scenic Byway (Lincoln Highway Historic Byway) located in the southeastern portion of the study area. Original sections of the byway are present in the western and central portions of the study area. However, the majority of this byway has been replaced by a modern four-lane highway. There are 14 recreational areas within five miles of the proposed facility. Two of these recreational areas, the Woody Ridge Golf Course and Lowe-Volk Park, are located within one mile of the facility. The Applicant evaluated the visual, sound level, and shadow flicker impacts for each of the recreational areas identified within one mile of the proposed facility and has determined that impacts would be limited to indirect, visual impacts.
- (10) The Applicant conducted a literature review and cultural records check for the area within a five-mile radius of the project. There is one National Register of Historic Places (NRHP) historic district made up of 47 contributing resources and 15 NRHP-listed sites located within the study area. The historic district is located in the city of Shelby just east of the project. There are 11 individual properties determined eligible for listing in the NRHP. Within the five-mile study area, 326 previously identified historic structures are recorded in the Ohio Historic Inventory (OHI).
- (11) Of the 872 archaeological sites recorded in the Ohio Archaeological Inventory (OAI) within the five-mile study area, only 15 are within or adjacent to the lands leased for the project. There are 88 cemeteries in the Ohio Genealogical Society (OGS) database within five miles of the project area, six of which are located on the lands leased by the Applicant for the project. One unmarked grave was identified but is not located within the project area boundary. No known archaeological sites or cemeteries would be disturbed as a result of the project.
- (12) In addition to the literature and database review, the Applicant is conducting a Phase I archaeological reconnaissance survey and an architectural survey to analyze potential impacts of previously undocumented cultural resources within five miles of the project area.
- (13) The project area is accessible through numerous state, local, and county roads. During construction, some roads would experience an increase in truck traffic due to delivery of turbine components, concrete, gravel, and heavy equipment to each turbine site. The

Applicant does not expect construction and operation of the wind farm to noticeably increase local traffic or impact other local services in the project area.

- (14) Wind farm construction activity would impact local roads and bridges. The pavement condition of the state, county, and township roads along the regional delivery route could be impacted by construction and material delivery equipment. Truck loads heavier than the state legal limit may impact the existing state, county, and township bridges. The Applicant anticipated that a detailed route analysis would be completed by mid-August followed by a pavement analysis.
- (15) The large turning radius required for the transport of wind turbine generator components may cause the truck and/or trailer to travel outside the existing pavement at intersections. The wide turns would impact the features around most intersections where turns are required, including ditches, signs and utility poles. In areas where wide turns are required, temporary alterations to the intersections would be required, including installation of gravel fill outside of the pavement limits as a temporary surface for truck/trailer turns, installation of drainage pipes and temporary culverts as an alternate means of drainage, and relocation of utility poles, signs and other installations.
- (16) The Applicant expects that post-construction and operational impacts to roads and bridges would be limited, as the roads would be sufficient in handling any traffic from operational and maintenance requirements that the Applicant may need to perform on the wind turbine generator components.
- (17) No wetlands, ponds, or lakes would be impacted by this project during construction or operation.
- (18) The Applicant has indicated that 20 waterbodies (streams and ditches) would be crossed by electrical collection lines. The Applicant has committed to utilizing horizontal directional drilling under these waterbodies to install the electrical collection lines, resulting in no disturbance to the bed and banks. Additionally, the Applicant would directly impact one stream through the placement of a culvert to provide access to turbine 37. This impact will require authorization from the U.S. Army Corps of Engineers (USACE) through a nationwide permit.
- (19) The Applicant requested information from the ODNR and the USFWS regarding state and federally listed threatened and endangered plant and animal species on June 23, 2009. Additionally, during field assessments of the survey corridor and areas,¹⁵ Ecology and Environment, Inc. (E&E), a consulting firm retained by the Applicant, identified state and federal listed species, in addition to common wildlife species. The following are the results of the data request and field assessments:
 - (a) Plants: The ODNR has one record in the Ohio Biodiversity Database (OBD) just outside the project area for the thin-leaved sedge (*Carex cephaloidea*), a potentially

¹⁵ *Survey corridor and areas* refers to the physical extent in which E&E conducted ground-level reconnaissance of plants, birds, reptiles, amphibians, mammals, aquatic species, waters of the U.S., and waters of the state. The reconnaissance was conducted to verify the presence and approximate extent of such features within the area that could be directly disturbed for construction, operation, or maintenance of the project. The survey area is 0.25 miles greater than the project area boundary, and larger than the area that would be disturbed by all facets of the facility.

threatened plant species. Due to the project type, location, and lack of suitable habitat within the project area, the ODNR concluded that no impacts to this listed plant species would be expected.

(b) Birds:

- (i) Eagles: This project lies within the known range of the bald eagle (*Haliaeetus leucocephalus*), a state threatened and federal species of concern. The bald eagle is also protected by the Bald and Golden Eagle Protection Act (BGEPA) and Migratory Bird Treaty Act (MBTA). The ODNR-Division of Wildlife (DOW) and the USFWS have determined that two active bald eagle nests have been constructed within three miles of the project boundary. They are located on the Black Fork Mohican River, approximately two and three miles northeast of the project boundary. The USFWS also confirmed the presence of five known bald eagle nests within 10 miles of the project boundary. E&E observed a single, juvenile bald eagle flying through the project area within the rotor swept area (heights of 40 to 180 meters) during the Fall 2008 diurnal raptor migration survey. It was undetermined if the eagle was a resident bird foraging from a nearby nest or a migrant passing through the project area. The DOW recommends the monitoring of one bald eagle nest found within two miles of the project boundary following the raptor nest monitoring protocol in ODNR's *On-shore Bird and Bat Pre- and Post-Construction Monitoring Protocol for Commercial Wind Energy Facilities in Ohio*. The USFWS supports this recommendation and also recommended raptor nest searches and nest monitoring for bald eagles that may nest or migrate within or near the project area. Because the Applicant amended the project boundary in May 2011 so as to be outside of a two-mile radius from any bald eagle nest, the DOW has eliminated the prescribed nest monitoring recommendations.
- (ii) Other Raptors: To assess the potential for the project to impact avian species, the Applicant consulted with the DOW and the USFWS to develop a pre-construction avian survey plan. E&E identified, through sightings, the presence of the state endangered Northern harrier (*Circus cyaneus*), the sharp-shinned hawk (*Accipiter striatus*), a state species of concern, and the state threatened osprey (*Pandion haliaetus*). E&E observed nine Northern harriers with four flying through the project area within the rotor swept area. Two sharp-shinned hawks and two ospreys were also observed flying through the project area but not within the rotor swept area. Additionally, E&E observed many turkey vultures (*Cathartes aura*) and red-tailed hawks (*Buteo jamaicensis*), which are not state or federal listed species, flying through the project within the rotor swept area.

E&E also conducted raptor nest surveys. These surveys indicate the presence of seven possible raptor nests within the project area and one-mile buffer. However, E&E staff did not identify the presence of raptors at any of the nests. Based on the size of the nests, E&E concluded that the nests were created either by red-tailed hawks, red-shouldered hawks, or sharp-shinned hawks. During a review of the *Avian Survey Report for Black Fork Wind Project Crawford and Richland Counties, Ohio*, dated April 2010, the DOW determined that E&E did not follow the protocol, as outlined in the *On-Shore Bird and Bat Pre- and Post- Construction Monitoring Protocol for Commercial Wind Energy Facilities in Ohio*, issued by

the ODNR. It was further stated by the DOW that alternative monitoring strategies that assess the degree to which nesting raptors use the proposed project area would be used by the Applicant to determine whether particular turbines may pose a more substantial risk to raptors. In order to develop the alternative strategies, the DOW requested that the Applicant contact the DOW for this information. To date, OPSB Staff is not aware of any correspondence between the DOW and the Applicant concerning this matter. Additionally, the USFWS recommends nest searches and nest monitoring for raptors that may nest or migrate within or near the project area. Finally, OPSB Staff recommends that the Applicant contact the DOW, the USFWS, and OPSB Staff, well in advance of the pre-construction conference, to discuss the development of a plan to fully assess the potential ecological impacts to raptors.

- (iii) Owls: The DOW required the Applicant to conduct owl surveys that targeted the great horned owl (*Bubo virginianus*), the barred owl (*Strix varia*), and the Eastern screech owl (*Megascops asio*) during respective breeding seasons. The surveys conducted by E&E indicate the presence of five barred owls and four screech owls. Great horned owls were not detected. Because these species are predominately forest-dwelling, the DOW recommends siting turbines away from forest stands and in agricultural fields to reduce impacts to habitat used by these species.
- (iv) Other birds: E&E identified, through sightings during passerine migration surveys, the presence of three state threatened species that include the dark-eyed junco (*Junco hyemalis*), the least flycatcher (*Empidonax minimus*), and the hermit thrush (*Catharus guttatus*). Specifically, E&E observed eight dark-eyed juncos, one least flycatcher, and a hermit thrush at or near woodlots within the project area. The least flycatcher was also observed in an agricultural area with a nearby drainage canal. The Applicant indicated that breeding bird surveys were not conducted because agricultural land is not considered to be suitable nesting habitat for most species of birds. The decision not to conduct a breeding bird survey was discussed and confirmed by the Applicant and E&E in consultation with the DOW through phone conversations. Based on the phone conversations, the results found in the survey report titled, *Avian Survey Report for Black Fork Wind Project Crawford and Richland Counties, Ohio*, dated April 2010, and the Applicant's plan to locate the turbines within agricultural areas, the DOW has determined that significant impacts to these bird species are not expected if turbines are placed a sufficient distance from woodlots. The DOW recommends that the Applicant conduct post-construction monitoring in accordance with ODNR-approved, standardized protocols, as outlined in ODNR's *On-shore Bird and Bat Pre- and Post-Construction Monitoring Protocol for Commercial Wind Energy Facilities in Ohio*.
- (c) Reptiles and Amphibians: This project lies within the known range of the eastern massasauga rattlesnake (*Sistrurus catenatus*), a state endangered and federal candidate species. Additionally, the ODNR and the USFWS have determined that this project lies within the range of the Eastern hellbender (*Cryptobranchus alleganiensis*), a state endangered and federal species of concern. The ODNR has recommended examining the project area for suitable hellbender habitat (multiple large flat rocks generally of 42

inches along the longest axis) if in-stream work is proposed in the Clear Fork Mohican River or the Black Fork Mohican River. The Applicant has concluded that the Clear Fork Mohican River and the Black Fork Mohican River are not located within the project area. Furthermore, the Applicant has indicated that horizontal directional drilling (HDD) would be utilized at all but one stream that would require the placement of a permanent culvert for access to turbine 37. Due to the project type, location, and lack of suitable habitat for the Eastern hellbender within the project area, the ODNR and the USFWS have concluded that no impacts to this species would be expected. The USFWS recommends that the Applicant contact Doug Wynn at (614) 306-0313 prior to any construction in Auburn Township (Crawford Co.) and Plymouth Township (Richland Co.) to assess potential habitat for the Eastern massasauga rattlesnake. If it is determined that potential habitat exists, OPSB Staff, the DOW, and the USFWS recommend that the Applicant contact them to discuss avoidance and minimization measures.

(d) Mammals:

- (i) Indiana bats: This project lies within the known range of the state and federally endangered Indiana bat (*Myotis sodalis*). There are no known or suspected hibernacula located within 10 miles of this project. There are positive capture records for Indiana bats within Richland and Crawford counties. However, these capture records do not occur within five miles of the project boundary. The Applicant determined that approximately four acres of forested areas would be removed as a result of construction of the proposed project, with the majority of the tree clearing occurring as a result of electric collection line installation. Based on the negative capture results from bat mist-netting surveys conducted by E&E, the USFWS has determined that “take”¹⁶ is not expected while Indiana bats would be utilizing their summer roosting and maternity roost tree habitat pursuant to the Endangered Species Act (ESA) section 9 provisions. However, the USFWS does believe that there is a potential risk for take of Indiana bats during the spring and fall migratory periods based on recent mortalities at wind facilities, and recommends that the Applicant evaluate their exposure to the prohibitions of the ESA. The USFWS and the DOW also recommend that the Applicant adhere to seasonal cutting dates (September 30th to April 1st) for the clearing of trees that exhibit suitable Indiana bat summer habitat, such as roosting and maternity roost trees. Additionally, OPSB Staff, the USFWS, and the DOW recommend that the Applicant conduct post-construction monitoring in accordance with ODNR-approved, standardized protocols.
- (ii) Other bats: E&E captured 293 bats, including five species, at 23 sites during mist net surveys conducted in the summer of 2009. The five species include the Eastern red bat (*Lasiurus borealis*), the hoary bat (*Lasiurus cinereus*), and three state species of concern: the big brown bat (*Eptesicus fuscus*), little brown bat (*Myotis*

¹⁶ *Take* is to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in any such conduct [ESA §3(19)]. *Harm* is further defined by the USFWS to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, or sheltering. *Harass* is defined by the USFWS as actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns that include, but are not limited to, breeding, feeding, or sheltering [50 CFR §17.3] (USFWS, 1998).

lucifugus), and Northern long-eared bat (*Myotis septentrionalis*). E&E also indicated that the big brown bats and Northern long-eared bats were the most common captured, that there were lactating females captured for all five species, and juvenile bats were captured for all species, except for the Eastern red bat. Based on this information, OPSB Staff and the ODNR believe take of these species is likely to occur and recommend that the Applicant conduct post-construction monitoring in accordance with ODNR-approved, standardized protocols. If it is determined that significant mortality, as defined in ODNR's approved, standardized protocol, has occurred, then a mitigation plan will be required to reduce the risk of mortality to bats.

(iii) Other Mammals: This project lies within the known range of the black bear (*Ursus americanus*) a state endangered species, and the bobcat (*Lynx rufus*), a state endangered species. Due to the mobility of these species, the project is not likely to have an impact on these species.

(e) Aquatic Species: This project lies within the known range of the state endangered and federal candidate rayed bean mussel (*Villosa fabalis*). Due to the project type, location, construction methods, and lack of suitable habitat for this species within the project area, the ODNR and the USFWS have concluded that no impacts to this species would be expected.

- (20) The Applicant has performed a preliminary review of the geology of both Crawford and Richland counties. At this time, there does not appear to be any geological conditions present that would restrict or constrain the construction of the facility in the designated project area. However, glacial tills that are more readily compacted are common throughout the project area and should be taken into account during the final design phase to incorporate soil characteristics and engineering qualities of site-specific soils.
- (21) Elevated water tables may also pose a hazard to the excavation and construction of the foundation and may require implementing methods for groundwater extraction. However, the project would not alter any groundwater patterns or cause any significant or lasting impacts to the groundwater resources. Groundwater wells used for domestic water supplies should not be affected in any way during and after the construction of the wind turbines in the project area.
- (22) No significant adverse impacts to public or private water supplies are anticipated due to construction or operation of the Black Fork Wind Farm.
- (23) The Applicant has stated that turbines 25, 30, 42, 43, and 83 would be located within Zone A of the Federal Emergency Management Authority's 100-year floodplain, and would not increase the base flood elevation.
- (24) All of the turbines under consideration cut-out¹⁷ at wind speeds of at least 25 meters per second (m/s), or 56 miles per hour (mph). All proposed turbines are certified by the International Electrotechnical Commission that they are designed to withstand high wind speeds of at least 37.5 m/s or 84 mph.

¹⁷ Cut-out wind speed refers to the wind speed at which a wind turbine ceases to produce energy.

- (25) The Applicant plans to install Vestas V100, GE 1.6-100, or Siemens SWT 2.3-101 wind turbines. The Applicant has addressed safety with respect to individual wind turbines and the project as a whole. The turbines selected by the Applicant would have a supervisory control and data acquisition (SCADA) system, gates along access roads to turbines, and locked tower doors. The project would include a substation with a locked security fence, transformer fire suppression system, a lightning protection system, and would comply with NFPA 70E standards and OSHA requirements. The Applicant has provided a copy of the manufacturers' safety manuals for Staff review.
- (26) Noise impacts from construction activities would include the operation of various trucks and heavy equipment. Impacts from construction noise would be temporary and would be primarily restricted to daylight hours.
- (27) The Applicant conducted baseline sound measurements at eight points within the Black Fork project area in order to estimate the actual ambient noise levels. Recorded ambient noise levels (L_{EQ})¹⁸ across these eight points ranged from 49 to 58 decibels (dBA) during the day and from 38 to 52 dBA at night. The data provided equates to an average project area daytime L_{EQ} of 53 dBA and an average project area nighttime L_{EQ} of 43 dBA.
- (28) In order to limit potentially high levels of sound to residents and other individuals, a 1,250-foot minimum separation distance was utilized by the Applicant when siting wind turbines.
- (29) The Applicant states that the Vestas V100 turbine would not generate operational noise in excess of the ambient L_{EQ} plus five dBA at any non-participating receptor. The Siemens SWT 2.3-101 and the GE 1.6-100 turbines result in 20 and 52, respectively, non-participating receptors that would experience sound levels in excess of the ambient L_{EQ} plus five dBA. Certain environmental and atmospheric conditions can further propagate or amplify noise levels.
- (30) The Applicant's "realistic"¹⁹ shadow flicker simulations identified 17 non-participating receptors modeled to receive 30 hours or greater per year of shadow flicker. The receptors exposed to greater than 30 hours per year are not identical across turbine technologies/layouts. The maximum predicted shadow flicker impact at any receptor is approximately 66 hours, 55 minutes per year. The maximum at any non-participating receptor is 55 hours, 16 minutes per year.
- (31) Television stations most likely to produce off-air coverage to Crawford and Richland counties are those at a distance of 40 miles or less. Specific impacts to TV reception could include noise generation at low channels in the very-high frequency (VHF) range within one-half mile of turbines, and reduced picture quality. Signal loss could occur after construction and the Applicant proposes to mitigate accordingly. However, the transition to digital signal has reduced the likelihood of these effects occurring.

¹⁸ LEQ refers to the equivalent continuous sound level, or average sound level, over a specific period of time.

¹⁹ "Realistic" simulations take into account turbine operational time and local sunshine probabilities. They do not take into account any blocking or shading effects attributable to structures or trees, which would likely lessen the exposure amounts.

- (32) The Applicant states that the facility will not impact radio, television, and other communication services in the project area, and that the facility has been sited to avoid known tower structures in the project area.
- (33) The Applicant identified 10 microwave paths intersecting the project area. Based upon the calculated worst-case scenario and subsequent internal analysis, no proposed turbine locations are expected to obstruct the identified microwave paths.
- (34) Wireless telephone network communications should be unaffected by wind turbine presence and operation.
- (35) On February 28, 2011, the Applicant submitted the turbine coordinates to the National Telecommunications and Information Administration (NTIA) for review. No potential for radar interference was identified through this government agency review.
- (36) The proposed facility would be decommissioned once it is no longer operational. Decommissioning is reversal of previous construction actions and includes the dismantling and removal of all towers, turbine generators, transformers, and overhead cables; removal of underground electric cables; removal of foundations, buildings, and ancillary equipment; removal of surface road material; and restoration of the roads and turbine sites to the same physical condition that existed immediately prior to erection of the commercial wind-powered electric generating facility.
- (37) The Applicant has not proposed the posting of a bond or equivalent financial security in an amount to ensure that funds are available to complete decommissioning. They have proposed posting a “financial instrument” within 180 days after the twentieth anniversary of the Operations Date, per landowner lease agreements. Staff believes this schedule is inadequate.

Recommended Findings

The Staff recommends that the Board find that the nature of the probable environmental impact has been determined for the proposed facility, and therefore complies with the requirements specified in ORC Section 4906.10(A)(2), provided that any certificate issued by the Board for the proposed facility include the conditions specified in the section of this report entitled Recommended Conditions of Certificate.

Considerations for ORC Section 4906.10(A)(3)

MINIMUM ADVERSE ENVIRONMENTAL IMPACT

Pursuant to ORC Section 4906.10(A)(3), the proposed facility must represent the minimum adverse environmental impact, considering the state of available technology and the nature and economics of the various alternatives, along with other pertinent considerations.

Site Selection

The Applicant received a waiver from providing a comprehensive site selection study due to specific requirements of a wind-powered electric generation facility. As an alternative, the Applicant provided a general discussion that addressed the factors deemed necessary for a viable wind project and illustrated the process by which the project was micro-sited within the project area. The Applicant began researching the desirability of installing a wind project in the state, evaluating prospective development sites against the following criteria: renewable energy demand, wind resource quality, transmission availability, land availability, land use compatibility, environmental constraints, interest from land owners, and community acceptance. Statewide wind resource data was evaluated to identify areas with sufficient wind resources to launch a commercially viable generation project. Abundant wind resources, agricultural land, and available transmission interconnections were discovered in Richland and Crawford counties. Additionally, Colorado-based energy developer, Gary Energetics, had already initiated preliminary technical and environmental studies and secured lease agreements from land owners for the construction of a wind farm in the area. Having identified this project site as promising for wind generation, the Applicant acquired the Black Fork Wind Farm from Gary Energetics. The project area had thus already been established prior to acquisition of the project and no other regional sites were considered.

Additional factors were considered in the siting of individual wind turbines, collection lines, and access roads within the project area. The Applicant installed three additional meteorological towers in March, April, and May 2009 to measure wind resources in the project area. The wind data from these towers was used to predict electric production from potential turbine locations, using various turbine models. The Applicant identified and implemented setback requirements for residences, property lines, public rights-of-way, and other features. Additionally, the Applicant evaluated visual effects, ice throw, blade shear, shadow flicker, impacts to local fauna, flora, and wetlands, as well as effects on local roads, cultural resources, and agricultural lands. Collection lines were sited using the following criteria: circuit length, property right availability, and the absence of environmental constraints. Access roads were sited to avoid or minimize crossing wetlands, streams, and forested areas, as well as to minimize loss of agricultural land.

Collection Line System

The Applicant is proposing to place all collection lines underground, minimizing impacts to waterways and aesthetic impacts. However, Staff does not find the collection system between turbines 30 and 44 running to turbine 57 to represent minimal adverse impacts. This portion of line runs nearly four miles between the nearest turbines, across agricultural fields. Staff recommends that the Applicant design a system to incorporate these lines into the western portion of the project, bundled with other proposed collection corridors.

Transmission Line

The Applicant is proposing to utilize an existing 138 kV transmission line corridor (the Howard-Fostoria Central 138 kV line), for the primary transmission of electricity for this project. This line has existing tower structures with an open arm that could be utilized for this project. The Applicant has entered into a Memorandum of Understanding with the owner and operator of the towers (AEP) in this regard. Utilizing an existing corridor, with existing infrastructure requiring minimal upgrades, represents minimal impact.

Socioeconomic Impacts

Land Use

The project is not expected to have any significant impact on existing land use within the project area. The facility would be located in an agricultural area and all agricultural activities could continue upon completion of facility construction. Impacts to farmland would be minimized by locating and designing facilities close to field borders and property lines. To the extent practicable, access roads and collection lines will follow field boundaries or other features that are barriers to farm implements in order maintain machine operation efficiency. Additionally, the Applicant states that farmers will be compensated for lost income due to conversion of farmland to project facilities.

ORC Section 4906.20(B)(2) delineates how minimum setbacks for “economically significant wind farms” are to be determined. The Board incorporated these minimum setback requirements in rule (OAC Section 4906-17-08(C)(1)(c)), and indicated that such minimum setbacks would be applied to all wind projects under its jurisdiction.

The minimum distance from a turbine’s base to the property line of the wind farm facility must be at least 1.1 times the total height of the turbine as measured from its base to the tip of the blade at its highest point. Assuming a maximum turbine height of 494 feet as proposed in the application, this property line setback equates to a distance of 543 feet. The Applicant has designed the turbine layout using parcel setbacks of 563 feet, which exceeds the statutory requirement.

The minimum distance from a wind turbine to the exterior of the nearest habitable residential structure located on an adjacent property at the time of the certification application must be no less than 750 feet in horizontal distance from the tip of the turbine’s blade at 90 degrees to the structure. Using maximum blade lengths of 164 feet as presented in the application, this maximum setback calculates to 914 feet. The Applicant designed the turbine layout using a 1,250-foot setback from all residences, which exceeds the statutory requirement.

The Applicant designed the wind farm layout using greater setbacks than the minimum required by rule. The Applicant’s setbacks, along with other avoidance and mitigation measures, help to minimize project impacts.

Recreational Areas

Two recreational use areas are within one mile of the project area: Woody Ridge Golf Course and Lowe-Volk Park. Woody Ridge Golf course is a public, 18-hole golf course that is located approximately 0.5 miles south of the northern project boundary. The nearest turbine to the course is 0.5 miles. At this distance, visual and noise impacts and shadow flicker are expected to be minimal. Lowe-Volk Park, located 0.7 miles south of the southwestern project boundary, is a 38-acre park with hiking trails, a picnic area, fishing, and a nature center. The closest wind turbines

would be 1.5 miles from the park. While visible from some areas of the park, forested zones would act as natural screening, reducing the visual impact of the wind project. Noise impacts and shadow flicker are not expected to impact park visitors.

Cultural and Archaeological Resources

The Applicant has identified 27 historic structures, six archaeological sites, and six OGS-listed cemeteries within the project area for the facility. The Applicant asserts that each of the identified sites was considered and all facility components have been sited to avoid them. Additionally, the Applicant determined that the indirect visual impact from the project would not alter or affect the qualities or attributes that contribute to the historical or architectural significance of each identified landmark or NRHP-listed and NRHP-eligible structure. The Applicant has noted that although mitigation options are limited due to the nature of the project, they have considered and incorporated mitigation options to reduce the visual impacts. Examples of such mitigation include screening, uniform turbine design, and turbine color to blend with the sky at the horizon. Additionally, the Applicant continues to work independently with the Ohio Historic Preservation Office to ensure that no additional impacts to archaeological resources would occur.

Aesthetics

The Applicant conducted a view-shed analysis, considering topography and project structure heights, to determine the visibility of the turbines within a five-mile radius of the project area. No vegetative or structural screening was accounted for in the study. Based on this analysis, the Applicant estimates that one or more wind turbines would be visible from most vantage points within the study area. The Applicant provided photomontages representing three prominent views of the project from major road intersections. As depicted in these images, several project turbines would be completely or partially visible from these locations.

Wind turbines would be visible from recreational use areas, cultural landmarks, and area residences. The project area is predominantly open land used for agriculture, making vegetative screening impractical. Furthermore, due to the height of the wind turbines, the Applicant is required to implement a Federal Aviation Administration (FAA) lighting plan, in which red flashing lights are placed atop the nacelle of several turbines to assure safe flight navigation through the area. When complying with FAA lighting requirements, the Applicant will install the minimum number of lights at the minimum intensity required by the FAA to diminish potential visual impacts.

The project is expected to have a long-term aesthetic impact on residences near the facility. The facility would be visible from many of the residences in the project area. Screening the turbines from view is not a practical mitigation measure as the project area is predominantly open land used for agriculture, and visual impacts would be unavoidable.

Economics

Construction of the project would result in \$290 to \$400 million in spending. Between \$51 and \$69 million of total construction costs would be spent within the region on equipment, materials, labor, site preparation, and associated development costs.

The facility would have a direct and indirect economic benefit to the region during construction and operation of the project. Construction employment would vary each month. Total construction employment is estimated to be between 70 and 95 on-site workers, with an

estimated construction payroll of \$5.7 to \$7.2 million during the one-year construction phase. Operations and maintenance activities would require eight to 10 full-time employees with a total annual payroll between \$443,000 and \$575,000.

Once fully constructed, this project could indirectly create between 37 and 51 jobs locally for operational and maintenance support. The local economy would benefit from direct and indirect purchases for locally-supplied goods and services.

Any project delay could incur unnecessary costs to the wind farm project. There are delay costs due to the high carrying cost of the turbines, lost construction delays, and costs associated with idle contractors and equipment. Additionally, there could be penalties incurred for failing to meet production deadlines under a potential Power Purchase Agreement. The Applicant submitted all costs associated with this project under seal.

Ecological Impacts

Surface Waters

The project area is located on the Lake Erie-Ohio River Basin Divide with 64 percent of the project area falling into the Lake Erie Watershed and 36 percent in the Ohio River Watershed. No major rivers are present in the project area. However, there are several perennial and intermediate streams draining to three watersheds: the Sandusky River, Huron-Vermillion River, and the Mohican River Basins. The project is not expected to impact any high-quality surface waters because the area is predominately being used to produce cultivated crops (e.g., corn, soybeans, and wheat). However, the project could pose some impacts to surface waters, primarily associated with erosion and sedimentation that can impact downstream surface waters. The use of best management practices (BMPs) will minimize impacts associated with turbidity and downstream sedimentation.

Impacts to waterbodies (streams and ditches) would be minimized by utilizing HDD for installing the underground electric collection system. Potential waterbody impacts associated with HDD would include disturbances around the bore pits and impacts from potential frac-outs.²⁰ In order to minimize impacts during HDD, the drilling equipment would be set up away from riparian corridors and the drilling activity would be closely monitored for signs of frac-outs. Staff recommends that the Applicant submit a detailed frac-out contingency plan for Staff review and approval.

Vegetation

The Applicant determined that approximately four acres of forested areas would be removed as a result of construction of the proposed project, with the majority of the tree clearing occurring as a result of electric collection line installation. To avoid the cutting of trees within a high-quality woodlot, OPSB Staff would require the Applicant to reroute the underground electric collection lines proposed between turbine sites 16 and 90, as to avoid the woodlot between these two turbine sites, or utilize HDD or another avoidance measure acceptable to OPSB Staff.

Installing culverts or other crossing methods can damage stream banks, which can lead to more erosion. The Applicant would utilize BMPs to minimize erosion during the placement of a

²⁰ *Frac-outs* occur when drilling mud or other lubricants used during the drilling process escape through fractures in the underlying material. The HDD procedure typically uses bentonite slurry, a non-toxic, fine clay material, as a drilling lubricant. Benthic invertebrates, aquatic plants, and fish and their eggs can be smothered by the fine particles if bentonite were discharged to waterways.

permanent culvert to access turbine 37. After construction, the Applicant would immediately reseed the bank to minimize erosion. Additionally, the DOW, the USFWS, and OPSB Staff recommend that the Applicant adhere to seasonal cutting dates (September 30th to April 1st) for the clearing of trees that exhibit suitable Indiana bat summer habitat, such as roosting and maternity roost trees.

Wildlife

Segments of this project contain habitats likely to support common reptilian, amphibian, avian, mammalian, and aquatic species. These species would likely be impacted, both directly and indirectly, during the construction, operation, and maintenance of the proposed facility. Faunal impacts would include the loss of habitat; increased habitat fragmentation; increased disturbance such as noise, lighting, and human activity; and temporary and permanent displacement. In addition, operational impacts are expected to include bird and bat mortalities through direct strikes. Furthermore, mortality to bats is likely to occur from barotraumas²¹.

The findings from the mist-netting survey report conducted by E&E suggested that there are breeding populations of five bat species within the project boundaries. The five species include big brown bat (*Eptesicus fuscus*), little brown bat (*Myotis lucifugus*), Northern long-eared bat (*Myotis septentrionalis*), Eastern red bat (*Lasiurus borealis*), and the hoary bat (*Lasiurus cinereus*). E&E also suggested that little brown bat bachelor colonies may be present within the project boundaries. The Applicant used a minimum turbine setback of at least 100 meters (328 feet) from turbine centers, and approximately 50 meters (164 feet) from the blade tip, to forest edges to eliminate the potential for turbine blades to spin over forested areas where bat activity is most concentrated. The Applicant further states that it does not anticipate that operation of the project would have a significant impact on bat populations in the project area.

Based on the bat mist-netting surveys and acoustic monitoring results, OPSB Staff and the DOW believe take of these species is still likely to occur and recommend that the Applicant conduct post-construction monitoring in accordance with ODNR-approved, standardized protocols, as outlined in ODNR's *On-shore Bird and Bat Pre- and Post-Construction Monitoring Protocol for Commercial Wind Energy Facilities in Ohio*. If it is determined that significant mortality, as defined in ODNR's approved, standardized protocol, has occurred, then a mitigation plan will be required to reduce the risk of mortality to birds and bats.

Public and Private Water Supplies

The Applicant has stated that no significant adverse impacts to public or private water supplies are anticipated due to construction of the Black Fork Wind Farm. The Applicant should conduct spill response training to construction and O&M staff as needed to limit potential for impact. The Applicant should also use prudent design including, but not limited to, the use of containment structures for oil and chemicals used during construction, operation, and/or maintenance. Staff also recommends compliance with any drinking water source protection plans developed by cities and villages within the project boundaries. Compliance with these control mechanisms minimizes the potential impact to public and private water supplies.

²¹ Barotraumas are any of several injuries arising from changes in pressure upon the body.

Geology and Seismology

Geology

The Applicant has provided maps that describe the bedrock geology and surficial geology of the project area. The Applicant has identified in general the geologic units within the project area for Richland and Crawford counties. Glacial drift covers the entire project area (although this material thins to the south) and overlies bedrock material consisting of shale and sandstone. The geotechnical exploration report shall include an evaluation of site specific conditions at each wind turbine location. This evaluation will include soil characteristics, static water level, rock quality description (RQD) percent recovery, depth and description of the bedrock contact, and recommendations needed for the final design and construction of each wind turbine foundation, as well as the final location of the transformer substation and interconnection substation. The Applicant will be required to fill all boreholes, and borehole abandonment must be in accordance to state and local regulations. The Applicant shall provide copies of all geotechnical boring logs to OPSB Staff and to the ODNR, Division of Geological Survey prior to construction.

The Applicant shall complete a full and detailed geotechnical report for each wind turbine location to confirm that there are no issues that would restrict or constrain the construction of the facility. The Applicant has requested and received a waiver to allow for an extension in submitting site-specific information regarding wind turbine locations.

Although the Applicant does not anticipate the need to blast at this project, should site-specific conditions warrant blasting, the Applicant shall submit a blasting plan to OPSB Staff for review and acceptance at least 60 days in advance of any blasting.

Soil Suitability

The Applicant has identified 81 different soil types within the facility area. The site-specific engineering qualities and characteristics of the soils have yet to be determined. CTL Thompson, Inc., has provided a preliminary summary of the soil suitability within the project area. The Applicant does not anticipate any restrictions or hazards that would prevent construction of this project.

Public Safety

Public Services and Facilities

The project is not expected to cause any significant impacts on local services or facilities. During facility construction, local, state, and county roads might experience increased traffic. However, sufficient road capacity exists to absorb these increases. Demand for certain public services like permit issuance and/or traffic guidance might also increase temporarily. Project-related increases in local school enrollment are expected to be negligible, as the wind farm would employ only 8-10 permanent operators. Finally, required adherence to strict hazard and safety standards will mitigate the potential for fire or medical accidents during facility construction.

The Applicant states that existing roads are adequate to handle increases in traffic during construction. Some traffic management may be necessary during construction, and some modifications to existing roads may be needed to facilitate the delivery of turbine components. The Applicant claims that road modifications will be authorized by the Richland County Engineer and Crawford County Engineer prior to construction. In addition, the Applicant would obtain all necessary traffic permits from ODOT, the Richland County Engineer, and the Crawford County Engineer.

Because local emergency responders would likely be unfamiliar with addressing emergencies related to wind turbines, the Applicant would meet with local emergency personnel to provide training and review site-specific risks prior to construction.

The electric collection system for the wind farm would be buried four feet underground. By law, anyone with underground facilities must be a member of a one-call system such as the Ohio Utilities Protection Service (OUPS). The OUPS establishes a communication link between the wind farm owner and individuals planning any digging activity. The owner of the buried facilities is required to mark underground lines before any digging or excavation work begins.

Roads and Bridges

The Staff is waiting to review the final route study to determine the roads used for delivery, road conditions, and obstructions.

Wind farm construction equipment is expected to impact local roads. The pavement condition of state, local, and county thoroughfares along regional delivery routes could be damaged by construction and material delivery equipment, particularly dump truck and concrete truck traffic. Some modifications to local roads would be needed, including the expansion of intersection turns to accommodate specialized turbine component delivery vehicles and conventional construction trucks.

All intersections in the area would need improvements to accommodate the oversized/overweight vehicles for turbine delivery from the manufacturer. These trucks require minimum clearances due to their size and turning radii. There does not appear to be any significant construction challenges such as steep grades, existing structures, or significant clearing with the proposed improvements. Improvements and associated impacts would need to be reevaluated during the final engineering process to determine the best solution for each intersection. Clearing of vegetation, relocating traffic signs, grading of the terrain, extension and/or reinforcement of existing drainage pipes and/or culverts, re-establishment of a ditch line if necessary, and construction of a suitable roadway surface to carry construction traffic must be addressed for each public roadway.

Construction Noise

Noise impacts from construction activities would include the operation of various trucks and heavy equipment. The Applicant provided estimates of sound levels associated with operation of this construction equipment. Although the Applicant intends to use BMPs for noise abatement during construction, many of the construction activities would generate significant noise levels. However, Staff believes that the adverse impact of construction noise would be minimal because it is temporary and intermittent, it would occur away from most residential structures, and most construction activities would be limited to normal daytime working hours.

Operational Noise

The Applicant retained Resource Systems Group, Inc. (RSG) to conduct noise studies of potential impacts from operation of the facility. RSG utilized DataKustic GmbH's Cadna/A[®] computer noise modeling software to perform acoustic modeling. Cadna/A[®] computes calculations using international standard ISO 9613-2 for industrial sources. RSG analyzed the 1/1 and 1/3 octave bands to develop the wind turbine sound estimates. The Applicant provided data that equates to average nighttime L_{EQ} of 43 dBA.

Some atmospheric conditions can also further propagate or amplify sound. Two examples are wind shear and temperature inversions. Wind shear occurs when the winds aloft near the top of the wind turbine are moving faster or in a different direction than the wind near the ground. Wind turbulence, or wakes from adjacent turbines, can also create wind shear. This shear can result in aerodynamic modulation, a rhythmic noise pattern, or pulsing, which occurs as each blade passes through areas of different wind speed/direction.

A temperature inversion occurs most often when the ground cools off quickly, while the air above the ground remains warm. As the temperature increases with height, the speed of sound also increases with height. This means that for a sound wave traveling close to the ground, the part of the wave closest to the ground is traveling the slowest, and the part of the wave farthest above the ground is traveling the fastest. As a result, the wave changes direction and bends downwards. This downward refraction of sound helps to further propagate otherwise attenuated sound.

The noise impact of the wind farm also depends on the existing ambient noise level of the project area. An acoustic survey of the project area was conducted between June 3 and 11, 2009. Eight survey locations were acoustically sampled. Recorded ambient noise levels (L_{EQ}) across the three points within the Black Fork project area ranged from 49 to 58 dBA during the day and from 38 to 52 dBA at night. The data provided equates to an average project area daytime L_{EQ} of 53.8 dBA and an average project area nighttime L_{EQ} of 43 dBA.

In order to limit sound levels to residents and other individuals, 1,250-foot buffer areas were utilized by the Applicant when siting wind turbine generators.

The Applicant utilized an operational sound output of 48 dBA at all non-participating receptors as a design goal. The Vestas V100 turbine meets this goal. The Vestas turbine would not result in operational increases to the ambient L_{EQ} by greater than five dBA at any non-participating receptor. However, the Siemens SWT 2.3-101 and the GE 1.6-100 turbines do not meet this goal. They result in 20 and 52 non-participating receptors that would experience exceedances of this level, respectively.

A 2001 New York State Department of Environmental Conservation (NYSDEC) document²² states that “in non-industrial settings the noise level should probably not exceed ambient noise by more than 6 dBA at the receptor. An increase of 6 dBA may cause complaints. There may be occasions where an increase in noise levels of greater than 6 dBA might be acceptable.” The NYSDEC recommends that, while it may be acceptable in some non-industrial settings, an increase in ambient noise levels of greater than 6 dBA warrants further study of potential impacts.

The Vestas V100 layout presents the minimum adverse acoustical impact to non-participating residents within one-mile of the project area.

Shadow Flicker

The Applicant used WindPRO to calculate how often and in which intervals a specific receptor could be affected by shadows generated by one or more wind turbines. The calculation of the potential shadow impact at a given shadow receptor, defined as a one-meter square area located

²² NYSDEC. (February 2, 2001). *Assessing and Mitigating Noise Impacts* (p. 14). Albany, New York. Retrieved from the NYSDEC Web site: http://www.dec.ny.gov/docs/permits_ej_operations_pdf/noise2000.pdf

one meter above ground level, is carried out by simulating the environment near the wind turbines and shadow receptors.

The position of the sun relative to the turbine rotor disk and the resulting shadow is calculated in time steps of one minute throughout a complete year. If the shadow of the rotor disk, which in the calculation is assumed solid, at any time casts a shadow on a receptor, then this step is registered as one minute of potential shadow impact. These calculations took into account the wind turbine location, elevation, and dimensions, and the receptor location and elevation.

A wind turbine's total height and rotor diameter were included in the WindPRO shadow flicker models. The taller the turbine, the more likely shadow flicker could have an effect on the local receptors, as the longer shadow has greater potential to reach beyond obstacles such as trees or hills. The larger the rotor diameter, the more area on the ground could be affected by shadow flicker. Dimensions for the wind turbine models proposed for the Black Fork Wind Farm, as used for this study, are shown below.

<u>Turbine Model</u>	<u>Rated Capacity (MW)</u>	<u>Hub Height (M)</u>	<u>Rotor Diameter (M)</u>	<u>Blade Tip Height (M)</u>
Siemens SWT 2.3-101	2.3 MW	80/99.5	101	131/150.6
Vestas V100	1.8 MW	95	100	145
GE 1.6-100	1.6 MW	100	100	150

The Vestas V100 turbine creates the most shadow flicker impact to receptors. The Vestas turbine would expose 17 non-participating receptors to greater than 30 hours per year. The GE 1.6-100 turbine creates the least shadow flicker impact to receptors. The GE turbine would expose 13 non-participating receptors to greater than 30 hours per year.

“Realistic” conditions based on the turbines’ operational time, operational direction, and sunshine probabilities were used to calculate a realistic amount of shadow flicker to be expected at each shadow receptor. The Applicant simulated shadow flicker from the proposed turbines out to one kilometer (3,280 feet). Shadow flicker beyond one kilometer from a turbine in northern latitudes such as Ohio can occur seasonally at sunrise and sunset when lower sun elevation angles occur. No state or national standards exist for frequency or duration of shadow flicker from wind turbine projects. However, international studies and guidelines from Germany and Australia have suggested 30 hours of shadow flicker per year as the threshold of significant impact, or the point at which shadow flicker is commonly perceived as an annoyance. This 30-hour standard is used in at least four other states, including Michigan, New York, Minnesota, and New Hampshire. Accordingly, the Applicant and Staff utilized a threshold of 30 hours of shadow flicker per year for their analyses.

Additional screening factors such as trees and adjacent buildings were not considered within the “realistic” analysis. The same is true for receptors expected to receive greater than 30 hours of shadow flicker exposure. If additional screening were modeled, this could result in lower shadow flicker exposure amounts and possibly reduce receptors above 30 hours per year to below that threshold.

Shadow flicker frequency is related to the wind turbine’s rotor blade speed and the number of blades on the rotor. Shadow flicker at certain frequencies may potentially affect persons with

epilepsy. For about three percent of epileptics, exposure to flashing lights at certain intensities or to certain visual patterns may trigger seizures. This condition is known as photosensitive epilepsy. The frequency or speed of flashing light that is most likely to cause seizures varies from person to person. Flashing lights most likely to trigger seizures are between the frequency of 5 to 30 flashes per second or hertz (Hz).²³ This project's maximum wind turbine rotor speed translates to a blade pass frequency of approximately 0.8 Hz²⁴ and therefore would not be likely to trigger seizures.

As modeled, the GE 1.6-100 turbine presents the minimum adverse shadow flicker impact to non-participating residents within one-mile of the project area.

Communication Interference

Off-air television stations transmit broadcast signals from terrestrial facilities. The signals can be received directly by a television receiver or house-mounted antenna. Television stations most likely to produce off-air coverage to Crawford and Richland counties are those at a distance of 40 miles or less. Specific impacts to TV reception could include noise generation at low channels in the very-high frequency (VHF) range within one-half mile of turbines, and reduced picture quality. Signal loss could occur after facility construction and the Applicant proposes to mitigate accordingly. However, the transition to digital signal has reduced the likelihood of these effects occurring.

The Applicant states that the facility will not impact radio, television, and other communication services in the project area, and that the facility has been sited to avoid known tower structures in the project area. The Applicant does not offer mitigation for these towers should an impact occur. However, the Applicant proposes coordination and mitigation if any unanticipated impacts to television or AM/FM radio reception were to occur. Mitigation could include offering television hookups, where a cable system is available, or direct broadcast satellite TV reception systems to those affected.

Microwave telecommunication systems are wireless point-to-point links that communicate between two antennas and require clear line-of-sight conditions between each antenna. The Applicant identified 10 microwave paths intersecting the project area. Based upon the calculated worst-case scenario, no proposed turbine locations are expected to obstruct the identified microwave paths. The Applicant concluded that no potential for microwave interference exists for the turbine locations considered within the application.

Signal blockage caused by the wind turbines would not degrade the wireless telephone network because of the way these systems are designed to operate. If the signal cannot reach one cell, the network design allows it to be able to reach one or more other cells in the system. As such, local obstacles are not normally an issue for wireless telephone systems.

Local and Long Range Radar Interference

Wind turbines can interfere with civilian and military radar in some scenarios. The potential interference occurs when wind turbines reflect radar waves and cause ghosting (false returns) or shadowing (dead zones) on receiving monitors. Radar interference thus raises national security

²³ Epilepsy Foundation of America. Retrieved Dec. 21, 2009, from Epilepsy Foundation Web site: <http://www.epilepsyfoundation.org/about/photosensitivity/>

²⁴ Vestas V100 1.8 MW turbine (16.6 RPM = 0.27 Hz x 3 blades = 0.8 Hz)

and safety concerns. In the majority of cases, the U.S. Department of Defense finds that the interference is either not present, is not deemed significant, or can be readily mitigated. Potential interference is highly site-specific and depends on local features, the type of radar, and wind farm characteristics. In some cases, radar interference can be corrected with software that deletes radar signals from stationary targets. On February 28, 2011, the Applicant submitted the turbine coordinates to the National Telecommunications and Information Administration (NTIA) for review. No potential for radar interference was identified through this government agency review.

In summary, a potential exists for a reduction of television reception and in return, the Applicant has proposed mitigative measures. Staff believes a third party should complete a baseline television reception study prior to facility construction and that any subsequent losses to reception during facility operation should be mitigated.

Blade Shear

Blade shear is the phenomenon where a rotating wind turbine blade, or segment, separates from the nacelle and is thrown a distance from the tower. The Applicant asserts that past incidences of blade shear have generally been the results of human error. Staff has also found that past incidences can be attributed to design defects during manufacturing, poor maintenance, control system malfunction, or lightning strikes. The GE 1.6-100, Siemens SWT 2.3-101, and Vestas V100 are certified to international engineering standards. The turbines have the following safety features to address blade shear: two independent braking systems, a pitch control system, a lightning protection system, and turbine shut down at excessive wind speeds and at excess blade vibration or stress, and the use of setbacks. The Applicant has incorporated a wind turbine layout with a minimum residential setback distance of 1,250 feet, and a property setback of 563 feet. Installing and utilizing these safety control mechanisms minimizes the potential for blade shear and associated impacts.

Ice Throw

Ice throw is the phenomenon where accumulated ice on the wind turbine blades separates from the blade and falls or is thrown from the tower. The Applicant indicates that all turbines would have the following safety features to address ice throw: two independent braking systems, ice detection software, automatic turbine shut down at excessive vibration, and automatic turbine shut down at excessive wind speeds. The Applicant has incorporated a wind turbine layout with a minimum residential setback distance of 1,250 feet.

GE Energy is the manufacturer of one of the turbine models under consideration by the Applicant. This manufacturer has developed specific safety standards for ice throw and blade shear for all of their turbine models and has recommended the use of an ice detector and other measures if people or objects (e.g., occupied structures, roads) are within a distance of 150 percent of the sum of the hub height and rotor diameter. This recommendation is derived from an independent study performed by Seifert et al²⁵ and supported by the German Wind Energy Institute. Based on inputs into a formula used in this study, it has been determined that turbines of the similar dimensions as the GE models would need to be located a distance of approximately 301.5 meters (989 feet) from any structure or roads. Staff's evaluation of the turbine locations, utilizing this study, determined that turbines 44 and 51 would need to be relocated or resized to meet this minimum setback distance. Staff recommends that public access be restricted with

²⁵ Seifert, Westerhellweg, and Kroning. (2003). *Risk analysis of ice throw from wind turbines*. DEWI.

appropriately placed warning signs, that the Applicant would instruct workers of potential hazards of ice conditions, and that the Applicant would install ice detection software for the site and an ice detector/sensor alarm that triggers an automatic shutdown. Staff also recommends that the Applicant relocate and/or resize proposed turbines 44 and 51 to conform to a setback distance of 150 percent of the sum of the hub height and rotor diameter from roads and structures. Adhering to these safety measures would sufficiently address the issue of ice throw.

High Winds

The turbines are designed to withstand high wind speeds. The GE 1.6-100 and Siemens SWT 2.3-101 wind turbines will automatically shut down and stop producing energy at their cut-out speed of 25 meters per second (m/s), or 56 miles per hour (mph). The Vestas V100 turbine has a cut-out speed of 20 m/s, or 45 mph. The cut-out wind speed refers to the wind speed at which a wind turbine ceases to produce energy. The GE 1.6-100 and Siemens SWT 2.3-101 turbines are certified by the International Electrotechnical Commission (IEC) as Class II wind turbines, and have been designed to withstand wind speeds of 42.5 m/s or 95 mph. The Vestas V100 wind turbine has been certified by the IEC as a Class S wind turbine, and has been designed to withstand 42.5 m/s or 95 mph wind speeds. The Applicant states that the turbines have the following safety features in case of high winds: two independent braking systems and automatic turbine shut down at excessive wind speeds. The Applicant has incorporated a wind turbine layout with a minimum residential setback distance of 1,250 feet, and a property setback of 563 feet. Installing and utilizing these safety control mechanisms minimizes the potential impacts from high winds.

Pipeline Protection

Staff has found that there are at least five natural gas pipelines within the project area. In order to avoid a serious safety risk and significant environmental impact, Staff recommends that all turbines be located a minimum setback distance from natural gas pipelines of at least 1.1 times the total height of the turbine structure as measured from its tower's base (excluding the subsurface foundation) to the tip of its highest blade. This setback would ensure that if a turbine were to fall with a blade fully extended, the tower and/or blade would not land on the pipeline right-of-way and affect the operation of the pipeline.

Based on the tallest turbine model proposed for this project, with a tip height of 150.6 meters, the recommended pipeline setback would equate to 166 meters (544 feet). The Applicant has indicated that proposed turbines 8, 15, 18, 33, and 37 are located approximately 166 meters or less from the pipelines. Staff recommends that these turbines be resized and/or relocated in order to meet the recommended setback from the pipelines.

Decommissioning

Megawatt-scale wind turbine generators typically have a life expectancy of 20-25 years. The current trend has been to upgrade older turbines with more efficient ones while retaining existing tower structures. If not upgraded, turbines may go into a period of non-operation, where no expectation of re-operation exists, and are generally decommissioned at such time.

Upon decommissioning, the site must be restored and reclaimed to the same general topography that existed prior to the beginning of the construction of the commercial facility, with topsoil re-spread over the disturbed areas at a depth similar to that in existence prior to the disturbance. Areas disturbed by the construction of the facility and decommissioning activities must be

graded, top soiled, and re-seeded according to Natural Resource Conservation Service technical guide recommendations and other agency recommendations.

The Applicant has not proposed the posting of a bond or equivalent financial security in an amount to ensure that funds are available to complete decommissioning. They have proposed posting a “financial instrument” within 180 days after the twentieth anniversary of the Operations Date, per landowner lease agreements. Staff believes this schedule is inadequate due to the time that would elapse before assurance funds would be posted. The application also lacks specificity in a schedule and method by which requisite decommissioning funds are to be posted.

Staff believes that a project-specific decommissioning plan, which provides a proposed timetable and methodology for posting adequate decommissioning funds, should be required at least 30 days prior to a pre-construction conference for Staff review and acceptance.

Conclusion

Staff concludes that the project, as proposed, would result in both temporary and permanent impacts to the project area and surrounding areas. Staff has recommended several conditions in order to address and minimize these impacts. With the recommended conditions, Staff concludes that minimum adverse environmental impacts would be realized.

Recommended Findings

The Staff recommends that the Board find that the proposed facility represents the minimum adverse environmental impact, and therefore complies with the requirements specified in ORC Section 4906.10(A)(3), provided that any certificate issued by the Board for the proposed facility include the conditions specified in the section of this report entitled Recommended Conditions of Certificate.

Considerations for ORC Section 4906.10(A)(4)

ELECTRIC GRID

Pursuant to ORC Section 4906.10(A)(4), the Board must determine that the proposed electric generation facility is consistent with regional plans for expansion of the electric power grid of the electric systems serving this state and interconnected utility systems, and that the facility will serve the interests of electric system economy and reliability.

The purpose of this section is to evaluate the impact of interconnecting the proposed 200 MW Black Fork Wind Farm into the existing regional electric transmission system. The proposed wind farm would be located in the AEP zone of the PJM Interconnection (PJM) control area.

The Applicant plans to use a 34.5 kV collection system to gather the energy into a single project substation owned by the Applicant. The energy from the Applicant's substation and AEP's operated switchyard would step up the voltage to 138 kV. The power would be delivered to the AEP Howard Substation via a 138 kV AEP transmission line for distribution to the local and regional electric grid.

PJM Interconnection Analysis

PJM is a Regional Transmission Organization that coordinates the movement of wholesale electric in all or parts of 13 states including Ohio and the District of Columbia. In addition, PJM administers the interconnection process of new generation to the system. Generators wanting to interconnect to the bulk electric transmission system located in the PJM control area are required to submit an interconnection application for review of potential impacts to the system and system upgrades necessary to maintain system reliability. The Applicant, Black Fork Wind Farm, submitted its application for the proposed project to PJM on November 3, 2008. PJM assigned the application a queue number of U4-001.

PJM has completed the Feasibility Study and System Impact Study for the proposed wind farm project. These studies include local and regional transmission system impacts and stability and short circuit analysis. The studies summarized the impacts of adding 200 MW from the proposed facility to the regional bulk power system and identified any transmission system upgrades caused by the project that would be required to maintain the reliability of the regional transmission system. The Applicant has not yet signed a Construction Service Agreement for the upgrades identified in the studies or an Interconnection Service Agreement with PJM for the proposed facility. These agreements will need to be completed before the Applicant will be allowed to interconnect the proposed facility to the bulk electric transmission system.

Staff reviewed the System Impact Study report prepared by PJM. The study was evaluated for compliance with reliability criteria for PJM summer peak load conditions for 2013. The 200 MW project was analyzed as an energy resource. An energy resource means deliverability analysis is not required, the energy resource is only permitted to participate in the energy market, and it may not be used by a load-serving entity to meet capacity obligations. Twenty-six MW was studied as a capacity resource. For capacity resource analysis, PJM assumes that 13 percent of a wind farm output would be available during peak conditions. However, larger requests may be accepted. A capacity resource may be utilized by PJM Load Serving Entities to meet capacity obligations.

North American Electric Reliability Corporation Standard Requirements

The North American Electric Reliability Corporation (NERC) is responsible for the development and enforcement of the federal government's approved reliability standards, which are applicable to all owners, operators, and users of the bulk power system. NERC requires planners of the bulk electric transmission system to meet Reliability Standards²⁶ TPL-001-0.1 through TPL-004-0 under transmission outage conditions for categories A, B, C, and D contingencies. According to NERC, a contingency is an unexpected failure or outage of a system component, such as a generator, transmission line, circuit breaker, switch, or other electrical element.

Under category A (no contingencies, normal system conditions) and category B (single contingency outage), the planning authority and transmission planner shall demonstrate that the interconnected transmission system can operate to supply projected customer demands and firm transmission service at all demand levels over the range of forecast system demand. Under category C (multiple contingency outages), the planning authority shall demonstrate that the interconnected transmission system can operate to supply projected customer demands and firm transmission service at all demand levels over the range of forecast system demand and may rely upon the controlled interruption of customers or curtailment of firm transmission service. Finally, under category D (extreme events resulting in multiple contingencies), the planning authority shall demonstrate that its portion of the interconnected transmission system is evaluated for the risks and consequences of a number of each of the extreme contingencies that are listed in the standard. PJM analyzed the bulk electric system for all of the above categories with the proposed new facility interconnected to the bulk power system.

A 2013 summer peak power flow model was used to evaluate the regional reliability impacts and regional stability and reactive power requirements. The local AEP reliability impacts were modeled using a 2012 summer peak model. The local and regional studies did not reveal any reliability or stability problems. The results of the PJM System Impact Study for the local AEP system and the regional PJM footprint are as follows:

Generator Deliverability

Category A & Category B: No Contingencies and Single Contingencies

- Studied for the capacity portion (26 MW)
- PJM Region: No problems identified
- AEP System: No problems identified

Multiple Contingencies

Category C and Category D

- Studied for the full energy output (200 MW)
- PJM Region: No problems identified
- AEP System: No problems identified

²⁶ North American Electric Reliability Corporation, Reliability Standards, Transmission Planning (TPL-001-0.1-TPL-004-0). Retrieved August 3, 2011, from <http://www.nerc.com/page.php?cid=2|20>

Short Circuit Analysis

The short circuit analysis study evaluates the interrupting capabilities of circuit breakers located at the proposed plant site and other circuit breakers impacted by the proposed generation addition. No problems were identified on the AEP system or in the PJM region.

Stability and Reactive Power Requirement

The stability analysis evaluates the ability of the power system to withstand disturbances or contingencies and maintain stable operation of the bulk electric grid.

- PJM Region: No stability problems were identified
- AEP System: No stability problems were identified

Previously Identified Overloads

The PJM study for this project was evaluated for its contribution to other previously identified overloads (i.e., “Network Impacts”) recognized for earlier generation and transmission interconnection projects in the PJM Queue.

- During a failed breaker contingency outage on the Sammis-Wylie Ridge 345 kV. The proposed project contributes approximately 22.9 MW to the Sammis-Wylie Ridge 345 kV line overload of its emergency rating.

Previously Identified System Reinforcements

PJM studied overloads initially caused by prior Queue positions with additional contribution to overloading by this project. Proposed projects could be allocated a portion of the cost to alleviate overloading found in the “Previously Identified Overloads” section. There are two upgrades that will be preformed to correct the overloaded facility. Black Fork will be responsible for a portion of the constructions cost to alleviate the overload. The two upgrades are estimated to cost \$7.5 million. Black Fork’s cost responsibility will be approximately \$200,000.

- APS Upgrades - Reconductor 9.84 miles of the Sammis-Wylie Ridge 345 kV line. Replace two wavetraps.
- FE Upgrades - Reconductor 4.39 miles of the Sammis-Wylie Ridge 345 kV line. Replace backup line relaying and metering. Replace one wavetrapp.

New System Reinforcements

PJM did not find any upgrades required to mitigate criteria violations, such as network impacts, initially caused by the addition of this project’s generation.

Upgrade Costs

The Applicant would be responsible for the direct connection costs and the local upgrade cost to alleviate the overload on the Sammis-Wylie Ridge 345 kV line. The preliminary direct connection cost is \$1.574 million for the construction of new 138 kV circuit breakers, disconnect switches, protective relaying, 138 kV revenue metering and associated equipment, and underground cable. The preliminary network upgrade costs are approximately \$200,000 to alleviate overloads on the Sammis-Wylie Ridge 345 kV line. The Applicant will be responsible for a total of approximately \$1.7 million in direct connection and network upgrade costs.

Conclusion

The Applicant provided PJM's generation interconnection analysis to Staff for review of the impacts of connecting the Black Fork Wind Farm to the regional transmission grid. These studies were performed by PJM and comply with NERC standards for adding new facilities. The studies indicated the project would cause no new problems on the local AEP system or the PJM regional system. There is one Previously Identified Overload on the Sammis-Wylie Ridge 345 kV line. Since the Applicant's proposed generating facility contributes to the overloading of Sammis-Wylie Ridge, they are responsible for a small portion of the total upgrade costs. In addition to the Previously Identified Overload costs, the Applicant is also responsible for the connection costs at AEP's Howard Substation. The proposed facility is consistent with plans for expansion of the regional power system, and serves the interests of electric system economy and reliability.

Recommended Findings

The Staff recommends that the Board find that the proposed facility is consistent with regional plans for expansion of the electric power grid of the electric systems serving this state and interconnected utility systems, and that the facility would serve the interests of electric system economy and reliability. Therefore, the facility complies with the requirements specified in ORC Section 4906.10(A)(4), provided that any certificate issued by the Board for the proposed facility include the conditions specified in the section of this report entitled Recommended Conditions of Certificate.

Considerations for ORC Section 4906.10(A)(5)

AIR, WATER, SOLID WASTE, AND AVIATION

Pursuant to ORC Section 4906.10(A)(5), the facility must comply with specific sections of the ORC regarding air and water pollution control, withdrawal of waters of the state, solid and hazardous wastes, and air navigation.

Air

The Applicant has provided ambient air quality data for the proposed project area. There are no air monitoring stations in Richland and Crawford counties. Air monitoring stations in nearby counties in Ohio monitor for the following pollutants: ozone in Knox County; sulfur dioxide, carbon monoxide, and particulate matter 10 micron fraction (PM10) in Franklin County; particulate matter 2.5 micron fraction (PM2.5) in Lorain County; and nitrogen dioxide in Cuyahoga County. The Ohio EPA lists Richland and Crawford counties as in attainment with the National Ambient Air Quality Standards (NAAQS).

The operation of the wind farm would not produce air pollution, therefore there are no applicable air quality limitations, NAAQS, prevention of significant deterioration increments, or the need for permits to install and operate an air pollution source. A Permit-to-Install (PTI) or Permit-to-Install and Operate (PTIO) may be required for access roads. The Applicant plans on using an existing concrete batch plant which already has an approved permit and would not require a new permit for a concrete batch plant. The Applicant may also need to obtain the Ohio EPA *General Permit for Unpaved Roadways and Parking Areas, with a maximum of 120,000 Vehicle Miles Traveled per Year* (General Permit 5.1).

The Applicant plans to minimize emissions during site clearing and construction by using BMPs such as using water to wet down open soil surfaces to prevent dust emission.

Staff believes that construction and operation of the facility, as described by the Applicant and in accordance with the conditions included in this staff report, would be in compliance with air emission regulations in ORC Chapter 3704, and the rules and laws adopted under this chapter.

Water

Neither construction nor operation of the proposed facility would require the use of significant amounts of water, so requirements under ORC 1501.33 and 1501.34 are not applicable to this project.²⁷ The Applicant has indicated that it will apply for the following permits:

- Nationwide Permit #12 under section 404 of the Clean Water Act as determined by the USACE
- Ohio EPA Water Quality Certification for Nationwide Permit 12 under section 401 of the Clean Water Act if needed
- The Ohio National Pollutant Discharge Elimination System (NPDES) Construction Water General Permit, Ohio EPA no. OHC000003
- Ohio EPA Isolated Wetland Permit if needed

²⁷ Preparation of concrete for the wind turbine foundations would consume up to approximately 20,000 gallons of water per foundation. Although this is a large amount of water, it is not significant in the context of ORC 1501.33, which involves the use of more than two million gallons per day over a 30-day period.

In order to obtain the NPDES, an Ohio EPA Notice of Intent (NOI) application will be submitted 21 days before construction. Included with the NOI is the Storm Water Pollution Prevention Plan (SWPPP).

Approximately 13 acres of impervious surface would be generated as a result of the facility, including turbine foundations and the substation. The facility would not significantly alter flow patterns or erosion and, given the small increase in impervious surface within the facility, no modifications in the direction, quality, or flow patterns of storm water run-off are anticipated.

The Applicant would mitigate effects to changes in the quality and quantity of aquatic discharges by the following means:

- Obtain a NPDES Construction Water General Permit from the Ohio EPA;
- Prepare a SWPPP that identifies potential sources of pollution and describes and ensures the implementation of BMPs;
- Prepare a Spill Prevention, Containment, and Countermeasure plan (SPCC) that will outline procedures to be implemented to prevent the release of hazardous substances into the environment.

Staff believes that construction and operation of this facility would comply with requirements of ORC Chapter 6111, and the rules and laws adopted under this chapter.

Solid Waste

The Applicant has indicated that it is not aware of pre-construction solid waste except for limited amounts of woody vegetation debris in the project area. Waste generated during construction would be approximately 3,500 pounds per turbine and would consist of packing materials (plastic, wood, cardboard, and metal packing), construction scrap, and general refuse. Solid waste generated during operation would not be a significant amount. The solid waste would be disposed of through the local solid waste disposal services. Staff believes that the Applicant's solid waste disposal plans would comply with solid waste disposal requirements in ORC Chapter 3734, and the rules and laws adopted under this chapter.

Pursuant to ORC Section 4906.10(A)(5), the facility must comply with specific sections of the ORC regarding air and water pollution control, withdrawal of waters of the state, solid and hazardous wastes, and air navigation.

Aviation

Three general aviation airports exist within 10 miles of the proposed facility:

- Shelby Community Airport (FAA Identifier 12G) is a public use airport located two miles east of the proposed facility. This airport is a privately-owned, public use airport that maintains two active runways. Runway 03/21 has a turf or grass surface and is 1,850 feet in length by 125 feet wide. Runway 18/36 has an asphalt surface and is 3,394 feet in length by 50 feet wide.
- Galion Municipal Airport (FAA Identifier KGQQ) is a public use airport located 3.6 miles south-southeast of the proposed facility. This airport is a publicly-owned, public use airport that maintains one active runway. Runway 05/23 has an asphalt surface and is 1,222 feet in length by 75 feet wide.

- Port Bucyrus-Crawford County Airport (FAA Identifier 17G) is a public use airport located 8.6 miles south of the project boundary. This airport is a publicly-owned, public use airport that maintains two active runways. Runway 04/22 has an asphalt surface and is 3,895 in length by 75 feet wide. Runway 09/27 has a turf or grass surface and is 2,900 feet in length by 75 feet wide.

In accordance with FAA Advisory Circular 70/7460.2k, “Proposed Construction or Alteration of Objects That May Affect the Navigable Airspace,” the Applicant is required to file FAA Form 7460-1, “Notice of Proposed Construction or Alteration,” for all turbine locations. Any structure that the FAA deems to be an impact to air travel and/or would have an adverse physical or electromagnetic interference effect upon navigable airspace or air navigation facilities will receive a *presumed hazard* designation. As of the date of preparation of this report, all turbine locations have been submitted for FAA review, and have received determinations of *no hazard* to aviation. The Applicant also filed with the ODOT Office of Aviation for review, and received notices of clearance for this case.

In accordance with ORC Section 4561.32, Staff contacted the ODOT Office of Aviation during review of this application in order to coordinate review of potential impacts the facility might have on local airports. When creating the recommended conditions for the certificate, Staff implemented FAA and/or ODOT Office of Aviation recommendations where deemed justified through conversation and exchange with subject matter experts.

Recommended Findings

The Staff finds that the proposed facility complies with the requirements specified in ORC Section 4906.10(A)(5), provided that any certificate issued by the Board for the certification of the proposed facility include the conditions specified in the section of this report entitled Recommended Conditions of Certificate.

Considerations for ORC Section 4906.10(A)(6)

PUBLIC INTEREST, CONVENIENCE, AND NECESSITY

Pursuant to ORC Section 4906.10(A)(6), the Board must determine that the facility will serve the public interest, convenience, and necessity.

Public Notice

Pursuant to the procedure set forth in the Ohio Administrative Code, an application for a certificate of environmental compatibility and public need must be served upon the local government officials and planning commissions and must be sent to the local public libraries of communities affected by the proposed project.²⁸ A copy of the accepted, complete application in this proceeding was duly served upon the Richland and Crawford county commissioners, the Crawford County Economic Development Partnership, the Richland County Regional Planning Commission, and the Auburn, Jackson, Jefferson, Sandusky, Vernon, Richland, Plymouth, Sandusky, and Sharon township trustees on June 17, 2011. A copy of the application was sent to the Bucyrus, Galion, Mansfield-Richland County (Main and Ontario branches), and Marvin Memorial (Shelby, OH) libraries on June 17, 2011 as well.

Upon acceptance of a complete application, the Board or an Administrative Law Judge will schedule one or more public hearings.²⁹ The Administrative Law Judge in this case scheduled a local public hearing for Thursday, September 15, 2011 at 6:00 PM at the Shelby Senior High School in Shelby, Ohio, and an adjudicatory hearing for Monday, September 19, 2011 at 10:00 AM at the offices of the Public Utilities Commission in Columbus, Ohio. By entry dated June 22, 2011, the Administrative Law Judge directed the Applicant to issue public notice of these hearings in newspapers of general circulation in the project area.³⁰ The public notice for these hearings appeared in the *Mansfield News Journal* and the *Bucyrus Telegraph Forum* on June 30, 2011. The Applicant submitted proof of publication on July 19, 2011.

Public Interaction

An application for a certificate of environmental compatibility and public need must include a description of the Applicant's public interaction programs.³¹ According to the Applicant, company representatives have been meeting with local government officials as well as participating landowners since 2010. The Applicant has maintained an official community presence since that time and plans to open a local office near the project area to help further communications with project stakeholders during facility construction.

The Applicant hosted a public informational meeting on December 16, 2010, to provide project information to the general public and to answer any questions about the project.³² Notice of the meeting appeared in the *Mansfield News Journal* and the *Bucyrus Telegraph Forum* on December 7, 2010.³³ According to the Applicant, almost 200 people attended the public meeting and many of the questions at the public meeting covered topics discussed in the certificate

²⁸ OAC 4906-5-06

²⁹ OAC 4906-7-07(C)

³⁰ OAC 4906-5-08(C)

³¹ OAC 4906-17-08(E)(1)

³² OAC 4906-5-08(B)

³³ OAC 4906-5-08(B)

application, including construction impact on traffic, groundwater, birds and bats, as well as, public services, tax subsidies, and renewable energy resources.

Public Comment

To date, 20 parties have requested leave for intervention in this proceeding. Many have expressed opposition to the project as proposed by the Applicant. The most common complaint is the proximity of turbines and associated facilities to residential structures. Other complaints include risks to health and safety, noise, damage to the environment, and the use of public funds. Blade shear, ice throw, shadow flicker, and interference with communication equipment are also mentioned. At the time this report was published, there was one letter of support filed in this proceeding.

Liability Insurance

A certificate application must also include a description of any insurance programs for providing liability compensation for damages to the public during construction or operation of the proposed facility.³⁴ According to the Applicant, liability insurance will be maintained at all times during the development, construction, and operation of the proposed project. The company will maintain in force a general liability policy with \$1 million per occurrence and \$2 million in the aggregate during the construction phase. Excess liability coverage will insure against claims of \$4 million per occurrence and in the aggregate. Following construction, the Applicant will maintain in force general and excess liability coverage with a combined limit of no less than \$10 million per occurrence and in the aggregate. Participating landowners are listed as additional insured on the policies and can obtain a copy of the certificate by submitting a written request to the Applicant.

Landowner Lease Agreements

As indicated above, the Applicant began meeting with participating landowners in 2010. Since then, the Applicant has entered into voluntary lease agreements with about 150 landowners for the use of more than 14,800 acres of land in Richland and Crawford counties. As discussed above, the predominant use of land in the proposed project area is cultivated row agriculture. According to the Applicant, approximately 99 percent of the land leased for this project would be returned to its current use once construction is complete. In addition, all participating landowners, at the election of the Applicant, would receive annual payments during facility operations. According to the Applicant, total lease payments are expected to fall between about \$120,000 to \$250,000 annually. The lease agreements are valid for 30 years from the date of commercial operation with an option to extend for two additional 10-year terms. According to the Applicant, a memorandum of each executed lease agreement has been filed with the County Recorder's Offices of Richland and Crawford counties.

Alternative Energy Portfolio Standard

Amended Substitute Senate Bill Number 221 (SB 221) of the 127th General Assembly requires that, beginning in 2009, a portion of the electricity sold to retail customers in Ohio come from renewable energy resources. Renewable energy resources include wind generation technologies. At least 50 percent of the renewable energy requirement must be satisfied with resources located within the state of Ohio. Electric distribution utilities or electric services companies may at their discretion comply with all or part of the renewable energy requirements through an electricity

³⁴ OAC 4906-17-08(E)(2)

supply contract or through the use of renewable energy credits, or RECs. To be eligible for use towards a benchmark, RECs must originate from a renewable energy resource facility certified by the PUCO, though facility certification does not guarantee compliance with annual benchmark requirements or recovery of costs. Further, the electric distribution utility or services company must be a registered member of PJM's generation attribute tracking system, MISO's renewable energy tracking system, or another credible tracking system approved by the PUCO.³⁵

According to the Applicant, the proposed facility would provide up to 200 MW of renewable energy to the bulk transmission system operated by PJM. It's intended to fill the need for a more diverse national energy portfolio and to enable Ohio electric utilities and services companies to meet the renewable energy requirements of SB 221. Staff believes the proposed facility would likely qualify as an in-state renewable energy resource under SB 221 and could play an important role in helping Ohio electric utilities meet their requirements under the law. However, to date the Applicant has not signed a power purchase agreement for the electricity or any renewable energy credits that may be generated by the proposed facility.

Economics

An application for an environmental certificate must also describe the economic impact of the proposed facility.³⁶ Economic impacts from this type of project are usually divided into three categories: direct, indirect, and induced. Direct impacts are the result of spending that otherwise would not have occurred in the area and typically include spending on construction materials, supplies, and labor. Indirect impacts refer to the economic output of businesses that provide goods and services essential to the project. These are sometimes called supplier impacts. Induced impacts are those that result from increased household spending on such items as food and housing.

Staff used the Jobs and Economic Development Impact (JEDI) Wind Model (version 1.10.3) to verify the economic impacts of the proposed project. JEDI is an input-output model created by the U.S. Department of Energy National Renewable Energy Laboratory (NREL) to demonstrate the benefits of developing wind generating power plants in the U.S. Staff used data and assumptions provided by the Applicant and default project cost data provided by the JEDI model to estimate the economic impact of the proposed project for each of the three turbines discussed in the application.

Staff estimates for the total economic impact of construction activities range from \$85.39 million to \$116.68 million, depending on the type and size of the turbine selected by the Applicant. Construction activities could add anywhere between 660 and 896 new direct, indirect, and induced jobs with estimated earnings between \$31.64 million and \$42.95 million. Estimates for total economic activity during facility operations range from \$10.23 million to \$13.98 million. Operation-type activities could add anywhere between 56 and 77 additional direct, indirect, and induced jobs with estimated earnings between \$2.60 million and \$3.53 million each year.

By way of comparison, the Applicant expects to create 70 to 95 direct, 448 to 618 indirect, and 136 to 187 induced jobs during facility construction and an additional 8 to 10 direct, 11 to 15 indirect, and 26 to 29 induced jobs during the operations phase. The Applicant pegs total economic output somewhere between \$87 and \$119 million during the construction phase and \$8 to \$10 million annually during the 20 year operations phase.

³⁵ ORC 4928.64, Et Seq.

³⁶ OAC 4906-17-08(C)(2)

State and Local Tax

On June 4, 2010, the Ohio General Assembly passed Senate Bill 232, which adjusted the tax structure for advanced energy projects in Ohio. Subject to certain requirements, qualifying wind energy projects under construction before January 1, 2012 and placed into service before January 1, 2013 are exempt from real and personal property taxation. Owners and lessees of such projects are instead required to make annual payments in lieu of taxes (PILOT) of up to \$9,000 per MW of installed capacity. This provision was later extended to qualifying wind energy projects under construction before January 1, 2015 and placed into service before January 1, 2016.³⁷ The Applicant anticipates paying the maximum annual PILOT of \$9,000 per installed MW, about \$1.8 million per year for the proposed project.

Federal Tax

The American Recovery and Reinvestment Act of 2009 (ARRA) directed about \$16.8 billion towards the United States energy industry with the intent of increasing investment in energy efficiency, renewable energy technology, and grid modernization.³⁸ Among other things, ARRA provided until January 1, 2013, for wind facilities, and until January 1, 2014, for other qualified renewable facilities, a renewable energy production credit (i.e., Section 45 credit). It also provided until January 1, 2012 a renewable energy investment credit (i.e., Section 48 credit) and established a cash grant (i.e., Section 1603 grant) for any person who placed a qualified energy facility into service before the end of 2010. Qualified energy facilities include wind electric generation facilities. Subject to certain limitations, any taxpayer may take advantage of any one of these incentives.³⁹ In December of 2010, the Tax Relief, Unemployment Insurance Reauthorization, and Job Creation Act extended the availability of Section 1603 cash grants by extending the in-service requirement to December 31, 2011.⁴⁰ Now any qualifying wind facility placed into service during 2011—or after 2011 if construction of the facility began during 2009, 2010, or 2011 and the facility is placed into service before January 1, 2013—is eligible for the Section 1603 cash grant. According to the project schedule submitted by the Applicant, construction is intended to begin in 2012. The Applicant is therefore not eligible for the 1603 cash grant, but is eligible for renewable energy production credits. However, according to the Applicant, this project could be constructed with or without ARRA grants.

Recommended Findings

Staff recommends that the Board find that the proposed facility would serve the public interest, convenience, and necessity, and therefore complies with the requirements specified in ORC Section 4906.10(A)(6), provided that any certificate issued by the Board for the proposed facility include the conditions specified in the section of this report entitled Recommended Conditions of Certificate.

³⁷ Biennium Operating Appropriations Bill. 129th General Assembly. House Bill 153. Enacted on June 29, 2011.

³⁸ American Recovery and Reinvestment Act of 2009. Division A, Title IV of P.L. 111-5. Enacted on February 17, 2009.

³⁹ American Recovery and Reinvestment Act of 2009. Division B, Title I, Subtitle B, Part I and Division B, Title I, Subtitle G, Section 1603 of P.L. 111-5. Enacted on February 17, 2009. See also, Internal Revenue Service Bulletin: 2009-25. (June 22, 2009). Election of Investment Tax Credit In Lieu of Production Tax Credit; Coordination with Department of Treasury Grants for Specified Energy Property in Lieu of Tax Credits.

⁴⁰ Tax Relief, Unemployment Insurance Reauthorization, and Job Creation Act of 2010. Title VII, Subtitle A, Section 707 of P.L. 11-312. Enacted on December 17, 2010. See also, Treasury Department Program Guidance: Payments for Specified Energy Property in Lieu of Tax Credits under the American Recovery and Reinvestment Act of 2009. Revised April 2011.

Considerations for ORC Section 4906.10(A)(7)

AGRICULTURAL DISTRICTS

Pursuant to ORC Section 4906.10(A)(7), the Board must determine the facility's impact on the viability as agricultural land of any land in an existing agricultural district within the site of the proposed utility facility.

The agricultural district program was established under ORC Chapter 929. Agricultural land is classified as an agricultural district through an application and approval process that is administered through local county auditors' offices. Within the project area, a total of 196 acres of temporary impacts and 60.9 acres of permanent impacts would occur to agricultural land. The impacts to the agricultural district land would not affect the agricultural district designation of any of the properties within the project area.

Construction-related activities such as vehicle traffic and materials storage could lead to temporary reductions in farm productivity caused by direct crop damage, soil compaction, broken drainage tiles, and reduction of space available for planting. However, the Applicant has discussed and approved the siting of facility components with landowners in order to minimize impacts, and also intends to take steps in order to address such potential impacts to farmland, including: repairing all drainage tiles damaged during construction, removing construction debris, compensating farmers for lost crops, and restoring temporarily impacted land to its original use. After construction, only the agricultural land associated with turbines and access roads would be removed from farm production.

Recommended Findings

The Staff recommends that the Board find that the impact of the proposed facility on the viability of existing agricultural land in an agricultural district has been determined, and therefore complies with the requirements specified in ORC Section 4906.10(A)(7), provided that any certificate issued by the Board for the proposed facility include the conditions specified in the section of this report entitled Recommended Conditions of Certificate.

Considerations for ORC Section 4906.10(A)(8)

WATER CONSERVATION PRACTICE

Pursuant to ORC Section 4906.10(A)(8), the proposed facility must incorporate maximum feasible water conservation practices, considering available technology and the nature and economics of the various alternatives.

The Staff has reviewed the information pertaining to the consumptive use of water for the construction and operation of the proposed facility. Wind-powered electric generating facilities do not utilize water in the process of electricity production. Therefore, water consumption associated with the proposed electric generation equipment does not warrant specific conservation efforts. A potable water supply would be provided to the O&M building for project and personal needs of the several employees using the facility, but the amount of water consumed for these purposes would be minimal.

Recommended Findings

The Staff recommends that the Board find that the proposed facility would incorporate maximum feasible water conservation practices, and therefore complies with the requirements specified in ORC Section 4906.10(A)(8).

IV. RECOMMENDED CONDITIONS OF CERTIFICATE

Following a review of the application filed by Black Fork Wind Energy, LLC, and the record compiled to date in this proceeding, the Staff recommends that a number of conditions become part of any certificate issued for the proposed facility. These recommended conditions may be modified as a result of public or other input received subsequent to issuance of this report. At this time the Staff recommends the following conditions:

- (1) That the facility be installed at the Applicant's proposed site as presented in the application filed on March 10, 2011, and as modified and/or clarified by the Applicant's supplemental filings and further clarified by recommendations in this *Staff Report of Investigation*. Acceptable turbine types shall be limited to the Vestas V100, the General Electric 1.6-100, or the Siemens SWT 2.3-101 models.
- (2) That the Applicant shall utilize the equipment and construction practices as described in the application and as modified and/or clarified in supplemental filings, replies to data requests, and recommendations in this *Staff Report of Investigation*.
- (3) That the Applicant shall implement the mitigation measures as described in the application and as modified and/or clarified in supplemental filings, replies to data requests, and recommendations in this *Staff Report of Investigation*.
- (4) That any new transmission line constructed in order to deliver electricity from the wind farm will become part of a filing with the Board, and must be approved prior to construction of the wind farm.
- (5) That any wind turbine site proposed by the Applicant but not built as part of this project shall be available for OPSB Staff review in a future case.
- (6) That if construction has commenced at a turbine location and it is determined that the location is not a viable turbine site, that site shall be restored to its original condition within thirty (30) days.
- (7) That prior to the commencement of construction, the Applicant shall obtain and comply with all applicable permits and authorizations as required by federal and state laws and regulations for any activities where such permit or authorization is required. Copies of permits and authorizations, including all supporting documentation, shall be provided to OPSB Staff within seven (7) days of issuance or receipt by the Applicant.
- (8) That the Applicant shall conduct a pre-construction conference prior to the start of any construction activities. The pre-construction conference shall be attended by OPSB Staff, the Applicant, and representatives from the prime contractor and all sub-contractors for the project. The conference shall include a presentation of the measures to be taken by the Applicant and contractors to ensure compliance with all conditions of the certificate, and discussion of the procedures for on-site investigations by OPSB Staff during construction. Prior to the conference, the Applicant shall provide a proposed conference agenda for OPSB Staff review.
- (9) That at least sixty (60) days before the pre-construction conference, the Applicant shall file a letter with the Board that identifies which of the three turbine models listed in Condition 1 has been selected.

- (10) That at least thirty (30) days before the pre-construction conference, the Applicant shall submit to OPSB Staff, for review and approval, the final turbine engineering drawings for each turbine location.
- (11) That the Applicant shall not commence construction of the facility until it has a signed Interconnection Service Agreement with PJM, which includes construction, operation, and maintenance of system upgrades necessary to reliably and safely integrate the proposed generating facility into the regional transmission system. The Applicant shall provide a letter stating that the Agreement has been signed or a copy of the signed Interconnection Service Agreement to OPSB Staff.
- (12) That the Applicant redesign the collection line system between turbines 30 and 44 to turbine 57, to better utilize disturbed areas of this project, as approved by OPSB Staff, prior to commencement of construction.
- (13) That at least thirty (30) days prior to the pre-construction conference and subject to OPSB Staff review and approval, the Applicant shall have in place a complaint resolution procedure in order to address potential operational concerns experienced by the public. The Applicant shall work to resolve any issues with those who file a complaint. Any complaint submitted must be immediately forwarded to OPSB Staff.
- (14) That the Applicant develop a screening plan for the site containing the substation, laydown yard, O&M building, and temporary concrete batch plant to reduce visual and noise effects to surrounding residences, for review and approval by OPSB Staff.
- (15) That prior to construction, the Applicant shall prepare a Phase I cultural resources survey program for archaeological work at turbine locations, access roads, construction staging areas, and collection lines acceptable to OPSB Staff. If the resulting survey work discloses a find of cultural or archaeological significance, or a site that could be eligible for inclusion on the National Register of Historic Places, then the Applicant shall submit an amendment, modification, or mitigation plan for OPSB Staff's acceptance. Any such mitigation effort shall be developed in coordination with the Ohio Historic Preservation Office and submitted to OPSB Staff for review and acceptance.
- (16) That prior to the commencement of construction, the Applicant shall conduct an architectural survey of the project area. The Applicant shall submit to Staff a work program that outlines areas to be studied. If the architectural survey discloses a find of cultural or architectural significance, or a structure that could be eligible for inclusion on the National Register of Historic Places, then the Applicant shall submit an amendment, modification, or mitigation plan for OPSB Staff's acceptance. Any such mitigation effort shall be developed in coordination with the Ohio Historic Preservation Office and submitted to OPSB Staff for review and acceptance.
- (17) That no commercial signage or advertisements shall be located on any turbine, tower, or related infrastructure. If vandalism should occur, the Applicant shall remove or abate the damage within thirty (30) days of discovery or as extended by OPSB Staff for good cause shown, to preserve the aesthetics of the project. Any abatement other than the restoration to pre-vandalism condition is subject to approval by OPSB Staff.

- (18) That the Applicant shall avoid, where possible, or minimize to the maximum extent practicable, any damage to field tile drainage systems and soils resulting from construction, operation, and/or maintenance of the facility in agricultural areas. Damaged field tile systems shall be promptly repaired to at least original conditions at the Applicant's expense. Excavated topsoil, with the exception of soil excavated during the laying of cables for the collection system, shall be segregated and restored in accordance with the Applicant's lease agreement with the landowner. Severely compacted soils shall be plowed or otherwise de-compacted, if necessary, to restore them to original conditions unless otherwise agreed to by the landowner.
- (19) That the Applicant shall provide a copy of the Floodplain Development Permit to OPSB Staff within seven (7) days of issuance or receipt by the Applicant, for turbines 25, 30, 42, 43, and 83.
- (20) That at least seven (7) days before the pre-construction conference, the Applicant shall submit to OPSB Staff a copy of all NPDES permits including its approved SWPPP, approved SPCC procedures, and its erosion and sediment control plan for review and acceptance. Any soil issues must be addressed through proper design and adherence to the Ohio EPA BMPs related to erosion and sedimentation control.
- (21) That the Applicant shall employ the following erosion and sedimentation control measures, construction methods, and BMPs when working near environmentally-sensitive areas and/or when in close proximity to any watercourses, in accordance with the Ohio NPDES permit(s) and SWPPP obtained for the project:
- (a) During construction of the facility, seed all disturbed soil, except within actively cultivated agricultural fields, within seven (7) days of final grading with a seed mixture acceptable to the appropriate County Cooperative Extension Service. Denuded areas, including spoils piles, shall be seeded and stabilized within seven (7) days, if they will be undisturbed for more than twenty-one (21) days. Re-seeding shall be done within seven (7) days of emergence of seedlings as necessary until sufficient vegetation in all areas has been established.
 - (b) Inspect and repair all erosion control measures after each rainfall event of one-half of an inch or greater over a twenty-four (24) hour period, and maintain controls until permanent vegetative cover has been established on disturbed areas.
 - (c) Delineate all watercourses, including wetlands, by fencing, flagging, or other prominent means.
 - (d) Avoid entry of construction equipment into watercourses, including wetlands, except at specific locations where construction has been approved.
 - (e) Prohibit storage, stockpiling, and/or disposal of equipment and materials in these sensitive areas.
 - (f) Locate structures outside of identified watercourses, including wetlands, except at specific locations where construction has been approved.
 - (g) Divert all storm water runoff away from fill slopes and other exposed surfaces to the greatest extent possible, and direct instead to appropriate catchment structures,

sediment ponds, etc., using diversion berms, temporary ditches, check dams, or similar measures.

- (22) That the Applicant shall remove all temporary gravel and other construction staging area and access road materials after completion of construction activities, as weather permits, unless otherwise directed by the landowner. Impacted areas shall be restored to pre-construction conditions in compliance with the Ohio NPDES permit(s) obtained for the project and the approved SWPPP created for this project.
- (23) That the Applicant shall not dispose of gravel or any other construction material during or following construction of the facility by spreading such material on agricultural land. All construction debris and all contaminated soil shall be promptly removed and properly disposed of in accordance with Ohio EPA regulations.
- (24) That the Applicant shall assure compliance with fugitive dust rules by the use of water spray or other appropriate dust suppressant measures whenever necessary.
- (25) That the Applicant shall have an environmental specialist on site during construction activities that may affect sensitive areas as mutually-agreed upon between the Applicant and OPSB Staff, and as shown on the Applicant's final approved construction plan, including vegetation clearing, areas such as a designated wetland or stream, and threatened or endangered species or their identified habitat. The environmental specialist shall be familiar with water quality protection issues and potential threatened or endangered species of plants and animals that may be encountered during project construction.
- (26) That the Applicant shall not work in the types of streams listed below during fish spawning restricted periods (April 15 to June 30), unless a waiver is sought from and issued by the ODNR and approved by OPSB Staff releasing the Applicant from a portion of, or the entire restriction period.
 - (a) Class 3 primary headwater streams (watershed < one mi²)
 - (b) Exceptional Warmwater Habitat
 - (c) Coldwater Habitat
 - (d) Warmwater Habitat
 - (e) Streams supporting threatened or endangered species
- (27) That sixty (60) days prior to the first turbine becoming commercially operational, the Applicant shall submit a post-construction avian and bat monitoring plan for DOW and OPSB Staff review and approval. This plan will be based on the turbine layout in conjunction with Condition 1 of this report. The Applicant's plan shall be consistent with ODNR-approved, standardized protocol, as outlined in ODNR's *On-Shore Bird and Bat Pre- and Post-Construction Monitoring Protocol for Commercial Wind Energy Facilities in Ohio*. The post-construction monitoring shall begin within two weeks of operation and be conducted for a minimum of two seasons (April 1 to November 15), which may be split between calendar years. If monitoring is initiated after April 1 and before November 15, then portions of the first season of monitoring shall extend into the second calendar year (e.g., start monitoring on July 1, 2011 and continue to November 15, 2011; resume monitoring April 1, 2012 and continue to June 30, 2012). The second monitoring season

may be waived at the discretion of ODNR and OPSB Staff. The monitoring start date and reporting deadlines will be provided in the DOW approval letter and the OPSB concurrence letter. If it is determined that significant mortality, as defined in ODNR's approved, standardized protocols, has occurred to birds and/or bats, then the DOW and OPSB Staff will require the Applicant to develop a mitigation plan. If required, the Applicant shall submit a mitigation plan to the DOW and OPSB Staff for review and approval within thirty (30) days from the date reflected on ODNR letterhead, in coordination with OPSB Staff, in which the DOW is requiring the Applicant to mitigate for significant mortality to birds and/or bats. Mitigation initiation timeframes shall be outlined in the DOW approval letter and the OPSB concurrence letter.

- (28) That the Applicant shall contact Doug Wynn at (614) 306-0313 prior to any construction in Auburn Township (Crawford Co.) and Plymouth Township (Richland Co.) to assess potential habitat for the Eastern massasauga rattlesnake. If it is determined that potential habitat exists, OPSB Staff, the DOW, and the USFWS shall be contacted to discuss avoidance and minimization measures.
- (29) That the Applicant shall adhere to seasonal cutting dates of September 30 through April 1 for removal of suitable Indiana bat habitat trees, if avoidance measures cannot be achieved.
- (30) That the Applicant shall reroute the underground electric collection lines proposed between turbine sites 16 and 90, as to avoid the woodlot located between these turbine sites or utilize HDD or another avoidance measure acceptable to OPSB Staff.
- (31) That OPSB Staff, the DOW, and the USFWS shall be immediately contacted if state or federal threatened or endangered species are encountered during construction activities. Construction activities that could adversely impact the identified plants or animals shall be halted until an appropriate course of action has been agreed upon by the Applicant, OPSB Staff, and the DOW in coordination with the USFWS. If threatened or endangered species are encountered during operation activities, then the above referenced notification is required within twenty-four (24) hours. Nothing in this provision shall preclude agencies having jurisdiction over the facility with respect to threatened or endangered species from exercising their legal authority over the facility consistent with law.
- (32) That the Applicant shall conform to any drinking water source protection plan, if it exists, for any part of the facility that is located within drinking water source protection areas of the local villages and cities.
- (33) That the Applicant shall complete a full detailed geotechnical exploration and evaluation at each turbine site to confirm that there are no issues to preclude development of the wind farm. The geotechnical exploration and evaluation shall include borings at each turbine location to provide subsurface soil properties, static water level, rock quality description (RQD), percent recovery, and depth and description of the bedrock contact and recommendations needed for the final design and construction of each wind turbine foundation, as well as the final location of the transformer substation and interconnection substation. The Applicant must fill all boreholes, and borehole abandonment must comply with state and local regulations. The Applicant shall provide copies of all geotechnical boring logs to OPSB Staff and to the ODNR Division of Geological Survey prior to construction.

- (34) That, should site-specific conditions warrant blasting, the Applicant shall submit a blasting plan, at least sixty (60) days prior to blasting, to OPSB Staff for review and acceptance. The Applicant shall submit the following information as part of its blasting plan:
- (a) The name, address, and telephone number of the drilling and blasting company.
 - (b) A detailed blasting plan for dry and/or wet holes for a typical shot. The blasting plan shall address blasting times, blasting signs, warnings, access control, control of adverse effects, and blast records.
 - (c) A plan for liability protection and complaint resolution.
- (35) That prior to the use of explosives, the Applicant or explosive contractor shall obtain any required license or temporary permit from the local county authority or county sheriff. The Applicant shall submit a copy of the license or permit to OPSB Staff within seven days of obtaining it from the local authority.
- (36) That the blasting contractor shall utilize two blasting seismographs that measure ground vibration and air blast for each blast. One seismograph should be placed at the nearest dwelling and the other placed at the discretion of the blasting contractor.
- (37) That at least thirty (30) days prior to the initiation of blasting operations, the Applicant must notify, in writing, all residents or owners of dwellings or other structures within 1,000 feet of the blasting site. The Applicant or explosive contractor shall offer and conduct a pre-blast survey of each dwelling or structure within 1,000 feet of each blasting site, unless waived by the resident or property owner. The survey must be completed and submitted to OPSB Staff at least ten (10) days before blasting begins.
- (38) That the Applicant shall comply with the turbine manufacturer's most current safety manual and shall maintain a copy of that safety manual in the O&M building of the facility.
- (39) That the Applicant shall become a member of the Ohio Utilities Protection Service prior to commencement of operation of the facility. Notification of membership shall be provided to OPSB Staff.
- (40) That the Applicant shall adhere to a setback distance of at least one and one-tenth (1.1) times the total height of the turbine structure, as measured from its tower's base (excluding the subsurface foundation) to the tip of its highest blade, from any natural gas pipeline right-of-way. Specifically to conform to this setback distance, the Applicant shall resize and/or relocate turbines 8, 15, 18, 33, and 37 elsewhere on the same parcels as proposed in the Application or Application Supplement. At least thirty (30) days before the pre-construction conference, the Applicant shall submit to OPSB Staff, for review and acceptance, any required studies that changed due to resized and/or relocated turbines.
- (41) That at least thirty (30) days before the pre-construction conference, the Applicant shall submit to OPSB Staff, for review, a proposed emergency and safety plan to be used during construction, to be developed in consultation with the fire department(s) having jurisdiction over the area. Before the first turbine is operational, the Applicant shall submit to OPSB Staff, for review, a fire protection and medical emergency plan to be used during operation of the facility, which shall be developed in consultation with the first responders having jurisdiction over the area.

- (42) That the Applicant shall restrict public access to the site with appropriately placed warning signs or other necessary measures.
- (43) That the Applicant shall instruct workers on the potential hazards of ice conditions on wind turbines.
- (44) The Applicant shall install and utilize an ice warning system that may include an ice detector installed on the roof of the nacelle, ice detection software for the wind turbine controller, or an ice sensor alarm that triggers an automatic shutdown.
- (45) That the Applicant shall relocate and/or resize turbines 44 and 51 to conform to a setback distance that equals 150 percent of the sum of the hub height and rotor diameter from occupied structures, including businesses. At least thirty (30) days before the pre-construction conference, the Applicant shall submit to OPSB Staff, for review and acceptance, any required studies that changed due to resized turbines and/or relocated turbines.
- (46) That the Applicant shall provide the final delivery route plan and the results of any traffic studies to OPSB Staff, the Crawford County Engineer, and the Richland County Engineer thirty (30) days prior to the pre-construction conference. The Applicant shall complete a study on the final equipment delivery route to determine what improvements will be needed in order to transport equipment to the wind turbine construction sites. The Applicant shall make all improvements outlined in the final delivery route plan prior to equipment and wind turbine delivery. The Applicant's delivery route plan and subsequent road modifications shall include, but not be limited to, the following:
 - (a) Perform a survey of the final delivery routes to determine the exact locations of vertical constraints where the roadway profile will exceed the allowable bump and dip specifications and outline steps to remedy vertical constraints.
 - (b) Identify locations along the final delivery routes where overhead utility lines may not be high enough for over-height permit loads and coordinate with the appropriate utility company if lines must be raised.
 - (c) Identify roads and bridges that are not able to support the projected loads from delivery of the wind turbines and other facility components and make all necessary upgrades.
 - (d) Identify locations where wide turns would require modifications to the roadway and/or surrounding areas and make all necessary alterations. Any alterations for wide turns shall be removed and the area restored to its pre-construction condition unless otherwise specified by the County Engineer(s).
- (47) That the Applicant repair damage to government-maintained (public) roads and bridges caused by construction activity. Any damaged public roads and bridges shall be repaired promptly to their pre-construction state by the Applicant under the guidance of the appropriate regulatory agency. Any temporary improvements shall be removed unless the County Engineer(s) request that they remain. The Applicant shall provide financial assurance to the counties that it will restore the public roads it uses to their pre-construction condition. The Applicant shall also enter into a Road Use Agreement with the County Engineer(s) prior to construction and subject to OPSB Staff review. The Road Use Agreement shall contain provisions for the following:

- (a) A pre-construction survey of the conditions of the roads.
 - (b) A post-construction survey of the condition of the roads.
 - (c) An objective standard of repair that obligates the Applicant to restore the roads to the same or better condition as they were prior to construction.
 - (d) A timetable for posting of the construction road and bridge bond prior to the use or transport of heavy equipment on public roads or bridges.
- (48) That the facility owner and/or operator repair damage to government-maintained (public) roads and bridges caused by decommissioning activity. Any damaged public roads and bridges shall be repaired promptly to their pre-decommissioning state by the facility owner and/or operator under the guidance of the appropriate regulatory agency. The Applicant shall provide financial assurance to the counties that it will restore the public roads and bridges it uses to their pre-decommissioning condition. These terms shall be defined in a Road Use Agreement between the Applicant and the County Engineer(s) prior to construction. The Road Use Agreement shall be subject to OPSB Staff review and shall contain provisions for the following:
- (a) A pre-decommissioning survey of the condition of public roads and bridges conducted within a reasonable time prior to decommissioning activities.
 - (b) A post-decommissioning survey of the condition of public roads and bridges conducted within a reasonable time after decommissioning activities.
 - (c) An objective standard of repair that obligates the facility owner and/or operator to restore the public roads and bridges to the same or better condition as they were prior to decommissioning.
 - (d) A timetable for posting of the decommissioning road and bridge bond prior to the use or transport of heavy equipment on public roads or bridges.
- (49) That the Applicant shall obtain all required county and township transportation permits and all necessary permits from ODOT. Any temporary or permanent road closures necessary for construction and operation of the proposed facility shall be coordinated with the appropriate entities including, but not limited to, the Crawford County Engineer, the Richland County Engineer, ODOT, local law enforcement, and health and safety officials.
- (50) That at least thirty (30) days prior to the pre-construction conference and upon selection of the turbine model to be developed, the Applicant shall provide the following to OPSB Staff for review and acceptance:
- (a) The low frequency sound values (SPL, dB, Hz) expected to be produced.
 - (b) The A-weighted and C-weighted sound pressure levels, as well as one-third octave band measurements for the 20 and 25 Hz bands, and a separate evaluation of the data for low frequency and impulsivity in accordance with the methodologies set forth within IEC 61400-11, Annex A, A.3, *Low Frequency Noise*, and A.4, *Impulsivity*.
 - (c) The tonal audibility.

- (51) That if pre-construction acoustic modeling indicates a facility contribution that exceeds the ambient L_{EQ} by greater than five dBA at the exterior of any non-participating residences within one mile of the facility boundary, the facility shall be subject to further study of the potential impact and possible mitigation prior to construction. Mitigation, if required, shall consist of either reducing the impact so that the facility contribution does not exceed the ambient L_{EQ} by greater than five dBA, or other means of mitigation approved by OPSB Staff in conjunction with the affected receptor(s).
- (52) That after commencement of commercial operation, the Applicant shall conduct further review of the impact and possible mitigation of all project noise complaints. Mitigation shall be required if the project contribution at the exterior of any non-participating residence within one mile of the project boundary exceeds the validly measured ambient L_{EQ} plus five dBA at the location of the complaint and during the same time of day or night as that identified in the complaint. Mitigation, if required, shall consist of either reducing the impact so that the project contribution does not exceed the validly measured ambient L_{EQ} plus five dBA, or other means of mitigation approved by OPSB Staff in coordination with the affected receptor(s).
- (53) That general construction activities shall be limited to the hours of 7:00 a.m. to 7:00 p.m., or until dusk when sunset occurs after 7:00 pm. This limitation shall not apply to nacelle, tower, and rotor erection activities which may need to be carried out during low wind, nighttime hours for safety reasons. Impact pile driving and blasting operations, if required, shall be limited to the hours between 7:00 a.m. to 7:00 p.m., Monday through Friday. Construction activities that do not involve noise increases above ambient levels at sensitive receptors are permitted outside of daylight hours when necessary. The Applicant shall notify property owners or affected tenants within the meaning of Rule 4906-5-08(C)(3), OAC, of upcoming construction activities including potential for nighttime construction activities.
- (54) That at least thirty (30) days prior to the pre-construction conference, the Applicant shall complete a “realistic” shadow flicker analysis for all inhabited non-participating receptors already modeled to be in excess of 30 hours per year of shadow flicker and provide the results to OPSB Staff for review and acceptance. This analysis shall incorporate reductions for trees, vegetation, buildings, obstructions, turbine line of sight, operational hours, wind direction, and sunshine probabilities.
- (55) That any turbine forecasted prior to construction to create in excess of 30 hours per year of shadow flicker at a non-participating receptor within 1,000 meters shall be subject to further review and possible mitigation. Mitigation shall be completed before commercial operation commences and consist of either reducing the turbine’s forecasted impact to 30 hours per year, or other measures approved by OPSB Staff in consultation with the affected receptor(s).
- (56) That prior to construction, the Applicant shall submit the final layout and turbine locations to the National Telecommunications and Information Administration for review and approval. Any concerns identified regarding obstruction to microwave or other communication systems shall be forwarded to OPSB Staff for review and acceptance prior to construction.

- (57) That the Applicant must meet all Federal Communications Commission and other federal agency requirements to construct an object that may affect communications and, subject to OPSB Staff approval, mitigate any effects or degradation caused by wind turbine operation. For any residence that is shown to experience a degradation of TV reception due to the facility operation, the Applicant shall provide, at its own expense, cable or direct broadcast satellite TV service.
- (58) That at least thirty (30) days prior to the pre-construction conference, the Applicant shall complete a baseline television reception and signal strength study and provide the results to OPSB Staff for review and acceptance.
- (59) That all licensed microwave paths and communication systems, as identified within the application and all other communications studies performed for this project, shall be subject to avoidance or mitigation. The Applicant shall complete avoidance or mitigation measures prior to construction for impacts that can be predicted in sufficient detail to implement appropriate and reasonable avoidance and mitigation measures. After construction, the Applicant shall mitigate all observed impacts of the project to microwave paths and systems within seven (7) days or within a longer time period approved by OPSB Staff. Avoidance and mitigation measures for any known point-to-point microwave paths shall consist of either shifting the location of the turbine(s) so as to not affect any known microwave paths, or other measures approved by OPSB Staff, the Applicant, and the affected path owner, operator, or licensee(s). If interference with an omni-directional or multi-point system is observed after construction, mitigation would be required only for the affected receptor(s).
- (60) That the Applicant must meet all FAA and federal agency requirements to construct an object that may affect existing local and/or long-range radar, and mitigate any effects or degradation caused by wind turbine operation as required by the FAA or any federal agency.
- (61) That if any turbine is determined to cause NEXRAD interference, the Applicant shall propose a technical or administrative work plan, protecting proprietary interests in wind speed data, which provides for the release of real-time meteorological data to the National Weather Service office in Wilmington, Ohio. If an uncontrollable event should render this data temporarily unavailable, the Applicant shall exert reasonable effort to restore connectivity in a timely manner.
- (62) That the Applicant must meet all recommended and prescribed FAA and ODOT Office of Aviation requirements to construct an object that may affect navigable airspace. This includes submitting all final turbine locations for ODOT Office of Aviation and FAA review prior to construction, and the non-penetration of any FAA *Part 77* surfaces.
- (63) That thirty (30) days prior to any construction, the Applicant notify, in writing, any owner of an airport located within two miles of the project boundary, whether public or private, whose operations, operating thresholds/minimums, landing/approach procedures and/or vectors are expected to be altered by the siting, operation, maintenance, or decommissioning of the facility.
- (64) That during construction and after operation, all applicable structures be lit in accordance with FAA circular 70/7460-1 K Change 2, *Obstruction Marking and Lighting*; Chapters 4, 12, and 13 (Turbines); or as otherwise prescribed by the FAA.

- (65) That the Applicant shall file all 7460-2 forms with the FAA at least forty-two (42) days prior to construction and to OPSB Staff for review and acceptance.
- (66) That the Applicant, facility owner, and/or facility operator shall comply with the following conditions regarding decommissioning:
- (a) That the Applicant, facility owner, and/or facility operator shall provide the final decommissioning plan to OPSB Staff and the County Engineer(s) for review, and for OPSB Staff approval, at least thirty days prior to the pre-construction conference. The plan shall:
 - (i) Indicate the intended future use of the land following reclamation.
 - (ii) Describe the following: engineering techniques and major equipment to be used in decommissioning and reclamation; a surface water drainage plan and any proposed impacts that would occur to surface and ground water resources and wetlands; and a plan for backfilling, soil stabilization, compacting, and grading.
 - (iii) Provide a detailed timetable for the accomplishment of each major step in the decommissioning plan, including the steps to be taken to comply with applicable air, water, and solid waste laws and regulations and any applicable health and safety standards in effect as of the date of submittal.
 - (b) That the facility owner and/or facility operator shall file a revised decommissioning plan to the OPSB Staff and the County Engineer(s) every five (5) years from the commencement of construction. The revised plan shall reflect advancements in engineering techniques and reclamation equipment and standards. The revised plan shall be applied to each five-year decommissioning cost estimate. The decommissioning plan and any revisions shall be reviewed and approved by the OPSB Staff prior to implementation.
 - (c) That the facility owner and/or facility operator shall, at its expense, complete decommissioning of the facility, or individual wind turbines, within twelve months after the end of the useful life of the facility or individual wind turbines. If no electricity is generated for a continuous period of twelve (12) months, or if the Board deems the facility or turbine to be in a state of disrepair warranting decommissioning, the wind energy facility or individual wind turbines will be presumed to have reached the end of its useful life. The Board may extend the useful life period for the wind energy facility or individual turbines for good cause as shown by the facility owner and/or facility operator. The Board may also require decommissioning of individual wind turbines due to health, safety, wildlife impact, or other concerns that prevent the turbine from operating within the terms of the Certificate.
 - (d) That decommissioning shall include the removal and transportation of the wind turbines off site. Decommissioning shall also include the removal of buildings, cabling, electrical components, access roads, and any other associated facilities, unless otherwise mutually agreed upon by the facility owner and/or facility operator and the landowner. All physical material pertaining to the facility and associated equipment shall be removed to a depth of at least thirty-six inches beneath the soil surface and transported off site. The disturbed area shall be restored to the same physical condition

that existed before erection of the facility. Damaged field tile systems shall be repaired to the satisfaction of the property owner.

- (e) That during decommissioning, all recyclable materials, salvaged and non-salvaged, shall be recycled to the furthest extent practicable. All other non-recyclable waste materials shall be disposed of in accordance with state and federal law.
- (f) That the facility owner and/or facility operator shall not remove any improvements made to the electrical infrastructure if doing so would disrupt the electric grid, unless otherwise approved by the applicable regional transmission organization and interconnection utility.
- (g) That subject to approval by OPSB Staff, and seven days prior to the pre-construction conference, an independent, registered Professional Engineer, licensed to practice engineering in the state of Ohio, shall be retained by the Applicant, facility owner, and/or facility operator to estimate the total cost of decommissioning in current dollars, without regard to salvage value of the equipment. Said estimate shall include: (1) an identification and analysis of the activities necessary to implement the most recent approved decommissioning plan including, but not limited to, physical construction and demolition costs assuming good industry practice and based on ODOT's *Procedure for Budget Estimating and RS Means* material and labor cost indices or any other publication or guidelines approved by OPSB Staff; (2) the cost to perform each of the activities; (3) an amount to cover contingency costs, not to exceed 10 percent of the above calculated reclamation cost. Said estimate will be converted to a per-turbine basis (the "Decommissioning Costs"), calculated as the total cost of decommissioning of all facilities as estimated by the Professional Engineer divided by the number of turbines in the most recent facility engineering drawings. This estimate shall be conducted every five years by the facility owner and/or facility operator.
- (h) That the Applicant, facility owner and/or facility operator shall post and maintain for decommissioning, at its election, funds, a surety bond, or similar financial assurance in an amount equal to the per-turbine Decommissioning Costs multiplied by the sum of the number of turbines constructed and under construction. The funds, surety bond, or financial assurance need not be posted separately for each turbine so long as the total amount reflects the aggregate of the Decommissioning Costs for all turbines constructed or under construction. For purposes of this condition, a turbine is considered to be under construction at the commencement of excavation for the turbine foundation. The form of financial assurance or surety bond shall be a financial instrument mutually agreed upon by OPSB Staff and the Applicant, the facility owner, and/or the facility operator. The financial assurance shall ensure the faithful performance of all requirements and reclamation conditions of the most recently filed and approved decommissioning and reclamation plan. At least thirty (30) days prior to the pre-construction conference, the Applicant, the facility owner, and/or the facility operator shall provide an estimated timeline for the posting of decommissioning funds based on the construction schedule for each turbine. Prior to commencement of construction, the Applicant, the facility owner, and/or the facility operator shall provide a statement from the holder of the financial assurance demonstrating that adequate funds have been posted for the scheduled construction. Once the financial assurance is provided, the Applicant, facility owner and/or facility operator shall maintain such

funds or assurance throughout the remainder of the applicable term and shall adjust the amount of the assurance, if necessary, to offset any increase or decrease in the Decommissioning Costs.

- (i) That the decommissioning funds, surety bond, or financial assurance shall be released by the holder of the funds, bond, or financial assurance when the facility owner and/or facility operator has demonstrated, and the OPSB Staff concurs, that decommissioning has been satisfactorily completed, or upon written approval of the Board, in order to implement the decommissioning plan.
- (67) That at least thirty (30) days before the pre-construction conference, the Applicant shall submit to OPSB Staff, for review and acceptance, the following documents:
- (a) One set of detailed engineering drawings of the final project design, including all turbine locations, collection lines, access roads, the crane route, permanent meteorological towers, substations, construction staging areas, and any other associated facilities and access points, so that OPSB Staff can determine that the final project design is in compliance with the terms of the certificate. The final project layout shall be provided in hard copy and as geographically-referenced electronic data. The final plan shall include both temporary and permanent access routes, as well as the measures to be used for restoring the area around all temporary sections, and a description of any long-term stabilization required along permanent access routes. The plan shall consider the location of streams, wetlands, wooded areas, and sensitive plant species as identified by the ODNR Division of Natural Areas and Preserves, and explain how impacts to all sensitive resources will be avoided or minimized during construction, operation, and maintenance.
 - (b) A stream and/or wetland crossing plan including details on specific streams and/or ditches to be crossed, either by construction vehicles and/or facility components (e.g., access roads, electric collection lines), as well as specific discussion of proposed crossing methodology for each stream crossing and post-construction site restoration. The stream crossing plan shall be based on final plans for the access roads and electric collection system.
 - (c) A detailed frac-out contingency plan for stream and wetland crossings that are expected to be completed via HDD. Such contingency plan may be incorporated within the required stream and/or wetland crossing plan.
 - (d) A tree clearing plan describing how trees and shrubs around turbines, along access routes, in electric collection line corridors, at construction staging areas, and in proximity to any other project facilities will be protected from damage during construction, and, where clearing cannot be avoided, how such clearing work will be done so as to minimize removal of woody vegetation. Priority should be given to protecting mature trees throughout the project area, and all woody vegetation in wetlands and riparian areas, both during construction and during subsequent operation and maintenance of all facilities.
- (68) That if any changes are made to the project layout after the submission of final engineering drawings, all changes shall be provided to OPSB Staff in hard copy and as geographically-referenced electronic data. All changes outside the environmental survey areas and any

changes within environmentally-sensitive areas will be subject to OPSB Staff review and approval prior to construction.

- (69) That within sixty (60) days after the commencement of commercial operation, the Applicant shall submit to OPSB Staff a copy of the as-built specifications for the entire facility. If the Applicant demonstrates that good cause prevents it from submitting a copy of the as-built specifications for the entire facility within 60 days after commencement of commercial operation, it may request an extension of time for the filing of such as-built specifications. The Applicant shall use reasonable efforts to provide as-built drawings in both hard copy and as geographically-referenced electronic data.
- (70) That the certificate shall become invalid if the Applicant has not commenced a continuous course of construction of the proposed facility within five (5) years of the date of journalization of the certificate.
- (71) That the Applicant shall provide to OPSB Staff the following information as it becomes known:
 - (a) The date on which construction will begin;
 - (b) The date on which construction was completed;
 - (c) The date on which the facility began commercial operation.

APPENDIX

1. DOCKETING RECORD

CASE NUMBER: 10-2865-EL-BGN

DESCRIPTION: Black Fork Wind Energy, LLC

FILINGS AS OF: 8/31/2011

08/30/2011	Entry ordering that in accordance with the findings, the following persons or entities are each respectively granted intervention in this matter; the Board of Crawford county Commissioners; the Board of Richland County Commissioners; the Richland County Engineer; the Plymouth Township Trustees; the Sharon Township Trustees; the Sandusky Township Trustees; John Warrington; Loren Gledhill; Carol Gledhill; Mary Struder; Alan Price; Catherine Price; Thomas Karbula; Nick Rietschlin; Margaret Rietschlin; Bradley Bauer; Debra Bauer; Grover Reynolds; Brett A. Heffner; Gary Biglin; and Karel Davis; the motion to intervene filed by William Alt is denied; prehearing teleconference should be held at 1:00 p.m., on September 9, 2011 and the applicant and interveners shall file by Sept. 7, 2011, their list of issues. (DEF)
08/30/2011	Exhibits - Attachment A is a copy of the sample letter which was mailed out via US first class mail on August 13, 2011 and Attachment B is the mailing list showing the address of all addressees filed on behalf of Black Fork Wind Energy, LLC by M. Settineri.
08/30/2011	Testimony in opposition to the proposed Black Fork Wind Energy Project filed on behalf of concerned resident, John Warrington.
08/23/2011	Notice of filing applicants August 15, 2011 supplemental responses to Staff's June 22, 2011 data requests filed on behalf of Black Fork Wind Energy, LLC by M. Settineri.
08/22/2011	Discovery questions served upon Black Fork Wind Energy, LLC, Element Power, LLC, Scott Hawken, and attorneys for the same, Michael J. Settineri and Howard M. Petricoff filed on behalf of intervener, John Warrington.
08/12/2011	Memorandum contra to the requests to Intervene by William Alt, Brett Heffner, Gary Biglin, and Karel Davis, filed by M. Settineri on behalf of Black Fork Wind Energy, LLC.
08/12/2011	Notice of filing applicant's August 5, 2011 and August 11, 2011 responses to staff's data requests filed by M. Petricoff on behalf of Black Fork Wind Energy, LLC.
08/08/2011	Memorandum in response to motion to extend filed by M. Petricoff on behalf of Black Fork Wind Energy, LLC.
08/02/2011	Notice of filing applicant's July 22, 2011, July 25, 2011 and August 1, 2011 responses to Staff's data requests filed by M. Settineri on behalf of Black Fork wind Energy, LLC.
08/01/2011	Request to intervene filed by W.P. Alt
08/01/2011	Letter asking to be added as an intervenor filed by K.A. Davis.
08/01/2011	Letter requesting to be added as an intervenor in this case filed by G.L. Biglin.
08/01/2011	Letter asking to be added as an intervenor in this hearing filed by G. Reynolds.
07/27/2011	Letter to the Commission petitioning for leave to intervene filed by Brett A. Heffner
07/27/2011	Response by the applicant to the Ohio Power Siting Board filed by M.J. Settineri on behalf of Black Fork Wind Energy, LLC.
07/27/2011	Response by the applicant to the Ohio Power Siting Board staff's June 29, 2011 miscellaneous clarifications data requests filed by M.J. Settineri on behalf of Black Fork Wind Energy, LLC.
07/27/2011	Letter of concern regarding the proximity of the wind turbines to her home and request to become an intervenor filed by Debra Bauer.
07/27/2011	Letter in opposition to the proximity of the wind turbines to his home and request to be an intervenor filed by Bradley Bauer.
07/26/2011	Letter in opposition to the proposed Black Fork Wind Energy project and request for intervention filed by consumers Margaret and Nick Rietschlin.
07/26/2011	Thomas Karbula would like to be registered as an intervenor in this case filed by T.A. Karbula on behalf of Black Wind Energy, LLC.

07/26/2011	Letter from consumers Alan and Catherine Price requesting intervention in this case.
07/22/2011	Motion to extend date for filing of the issues list filed on behalf of Richland and Crawford County Commissioners, the Richland County Engineer and the Township Trustees of Sandusky, Sharon and Plymouth Townships filed by O. Collier.
07/21/2011	Request to intervene in this case filed by consumer, Mary Studer.
07/21/2011	Request to intervene in this case on behalf of consumer, Carol Gledhill.
07/21/2011	Request to intervene in this case filed on behalf of consumer, Loren Gledhill.
07/21/2011	Request to Intervene concerning the placement of the wind turbines in Vernon Township, Crawford County, Ohio filed by L. Gledhill
07/19/2011	Proof of publishing for an affidavit as circulated in Mansfield News Journal and in the Bucyrus Telegraph Forum in Richland and Crawford counties of Ohio.
07/14/2011	Notice of intervention by the Board of Township Trustees of Sandusky Township filed by O. Collier.
07/08/2011	Notice of intervention by the Board of Township Trustees of Sharon Township submitted by O. Collier III.
07/08/2011	Notice of intervention by the Board of Township Trustees of Plymouth Township submitted by O. Collier III.
06/27/2011	Notice of intervention filed by O. Collier III on behalf of County Commissioners of Crawford County, Ohio.
06/24/2011	Notice of intervention by the Board of County Commissioner of Richland County, Ohio filed by Orla Collier III.
06/24/2011	Notice of intervention by the Richland County Engineer filed by Orla Collier III.
06/22/2011	Service Notice
06/22/2011	Notice of filing application's May 2, 2011 and June 3, 2011 responses to Staff's data requests filed by M. Settineri on behalf of Black Fork Energy, LLC.
06/22/2011	Entry ordering that a local public hearing in this matter will be held on Thursday, September 15, 2011, at 6:00 p.m., at the Shelby Senior High School, 109 West Smiley Avenue, Shelby, Ohio 44875, the adjudicatory hearing will commence on Monday, September 19, 2011, at 10:00 a.m., 11th floor, Hearing Room 11-D, at the offices of the Public Utilities Commission of Ohio, 180 East Broad Street, Columbus, Ohio 43215-3793, in accordance with Finding (6); that notices of the application and hearings be published by Black Fork in accordance with findings (7) and (8); that Staff file its staff report pursuant to finding (9); that the applicant and interveners identify issues pertaining to the staff report in accordance with finding (9); that all parties file their expert and factual testimony in accordance with finding (9). (SF)
06/17/2011	Certificate of service filed on behalf of Black Fork Wind Energy, LLC containing submittal letters of the application filed by M. Settineri.
06/10/2011	OPSB public response letter sent to M. Howard Petricoff filed by Chairman T. Snitchler.
06/08/2011	Response to June 1, 2011 and June 6, 2011 filings on public comment docket by Mr. John Warrington filed by M. Settineri.
05/24/2011	Notice of project boundary revision filed by M. H. Petricoff on behalf of Black Fork Wind Energy, LLC.
05/19/2011	Request to file as an intervener in the Blackfork Wind Energy Project filed on behalf of resident, John Warrington.
05/04/2011	Service Notice
05/03/2011	Entry ordering that in accordance with the above findings, the Farm Federation's motion to intervene is granted; in accordance with the above findings, the applicant's requests for waiver of Section 4906.06(A)(6), Revised Code, and for waiver of Rules 4906-17- 05(A)(4), 4906-17-05(B)(2)(h), and 4906-17-08(C)(2)(c), O.A.C., are granted and the applicant's request for a waiver of Rule 4906-17-04, O.A.C, is denied; the motion for protective order pertaining to pages 50 and 51 of the application, filed under seal on March 10,2011, be granted. (DEF)
04/29/2011	Notice of NTIA Letter Submittal filed on behalf of Black Fork Wind, LLC by M. Settineri.
04/28/2011	Notice of information submittal regarding location of proposed meteorological towers and population estimates through 2021 filed on behalf of Black Fork Wind Energy, LLC by H. Petricoff.

04/28/2011	Joint motion for an extension of time of the completeness review period and request for expedited ruling pursuant to Ohio Administrative Code Rule 4906-7-12 and memorandum in support filed on behalf of the OPSB by J. Jones and Black Fork Wind Energy LLC by H. Petricoff.
04/21/2011	Reply to Staff memorandum of March 25, 2011 filed by M.H. Petricoff on behalf of Black Fork Wind Energy, LLC.
03/25/2011	Memorandum from Staff, regarding the motion for waivers filed by Black Fork Wind Energy, LLC on March 9, 2011. Staff does not object to certain of these waivers, however, Staff reserves the right to require information from the applicant in areas covered by the waiver requests if Staff determines it to be necessary during the course of the investigation
03/22/2011	Motion to intervene of the Ohio Farm Bureau Federation filed by C. Endsley.
03/10/2011	Motion for protective order and memorandum in support filed by M.H. Petricoff on behalf of Black Fork Wind Energy, LLC.
03/10/2011	Confidential document target- financial information filed by M. Setterini on behalf of Black Fork Wind Energy, LLC.
03/10/2011	Application continued. (Part 8)
03/10/2011	Application continued. (Part 7)
03/10/2011	Application continued. (Part 6)
03/10/2011	Application continued. (Part 5)
03/10/2011	Application continued. (Part 4)
03/10/2011	Application continued. (Part 3)
03/10/2011	Application continued. (Part 2)
03/10/2011	Application of Black Fork Wind Energy LLC filed by M.H. Petricoff. (Part 1)
03/09/2011	Motion for waivers and memorandum in support filed by M. Settineri on behalf of Black Fork Wind Energy, LLC.
01/11/2011	Proof of Publication. (Richland County)
12/01/2010	In the matter of the pre-application notification letter of Black Fork Wind Energy, LLC regarding its proposed wind farm, filed by H. Petricoff.

2. DOCKETING INDEX OF PUBLIC COMMENTS

CASE NUMBER: 10-2865-EL-BGN

DESCRIPTION: Black Fork Wind Energy, LLC

FILINGS AS OF: 8/31/2011

08/24/2011	Response letter from Karel Davis in regards to Black Fork Wind Energy's request to deny intervenor status. (FAX)
08/19/2011	Public comments sent to Ohio Power Siting Board in regards to Notice of filing applicant's August 5, 2011 and August 11, 2011 responses to staff's data requests filed by concerned consumer M. Rietschlin.
08/08/2011	Response letter sent to: William P. Alt filed by K. Wissman on behalf of OPSB.
08/08/2011	Response letter sent to: Grover Reynolds filed by K. Wissman on behalf of OPSB.
08/08/2011	Response letter sent to: Phyllis Rank filed by K. Wissman on behalf of OPSB.
08/08/2011	Response letter sent to: Gary J. Biglin filed by K. Wissman on behalf of OPSB.
08/08/2011	Response letter sent to: Karel Davis filed by K. Wissman on behalf of OPSB.
07/27/2011	Response letter to Alan and Catherine Price regarding the public hearings schedule in this case filed by K. Wissman, OPSB.
07/27/2011	Response letter to Thomas Karbula regarding the public hearings schedule in this case filed by K. Wissman, OPSB.
07/27/2011	Response letter to Nick and Margaret Rietschlin regarding the public hearings schedule in this case filed by K. Wissman, OPSB.
07/27/2011	Response letter to Bradley and Debra Bauer regarding the public hearings schedule in this case filed by K. Wissman, OPSB.
07/21/2011	OPSB public response letter sent to Loren Gledhill regarding public hearings in this matter filed by R. Strom on behalf of K. Wissman.
07/21/2011	OPSB public response letter sent to Carol Glendhill regarding public hearings in this matter filed by R. Strom on behalf of K. Wissman.
07/21/2011	OPSB public response letter sent to Mary Studer regarding public hearings in this matter filed by K. Wissman.
06/24/2011	Correspondence in opposition to turbine in their area filed by T. & J. Clabaugh.
06/10/2011	OPSB public response letter sent to M. Howard Petricoff filed by Chairman T. Snitchler.
06/06/2011	Objection to the application submitted by Element Power, LLC filed on behalf of J. Warrington. (FAX)
06/01/2011	Objection to Application of Black Fork Wind Farm, LLC. as submitted by Element Power, LLC. filed by J. Warrington.(FAX)
04/20/2011	Public comment response letter sent to:Tom and Janet Clabaugh filed by K. Wissman on behalf of OPSB.
04/20/2011	Public comment response letter sent to: John Warrington filed by K. Wissman on behalf of Ohio Power Siting Board.
04/01/2011	Response letter to consumer, K. Davis regarding the Black Fork Wind Facility from T. Snitchler, OPSB.
03/25/2011	Letter in opposition to granting Black Fork Wind Energy a waiver on the one year requirement between application and construction filed by consumer, B. Heffner.
03/25/2011	Letter in support of the wind energy projects filed by B. Heffner.
03/23/2011	Response letter to C. Price from the Ohio Siting Board regarding Black Fork Wind LLC's application filed by Staff.
01/21/2011	Public comment response to consumer P. Rank regarding the Black Fork Wind LLC' 's proposed installation of a wind turbine electric generating facility in Crawford and Richland Counties, Ohio filed by K. Wissman, OPSB.
01/20/2011	Letter expressing concern over the wind generation facility filed by B. Heffner.
01/12/2011	Letter expressing concern over the wind generation facility filed by B. Heffner.

01/11/2011	Letter expressing concern over the renewable energy cost filed by B. Heffner.
01/11/2011	Letter asking the Commission to carefully consider that this project is not wanted in the area, and an antical from the Wall St. Journal titled "The Midwest Wind Surtax", filed by Mr. & Mrs. Tom Clabaugh.
01/11/2011	Letter expressing concern over the waiver being sought by Black Fork Wind Energy, LLC filed by B. Heffner.
01/06/2011	Response letter to Robert Scherer from the Ohio Power Siting Board regarding Black Fork Wind LLC's application filed by Staff.
01/04/2011	Response letter to P. Bunker from the Ohio Siting Board regarding Black Fork Wind LLC's application filed by Staff.
01/04/2011	Response letter to C. Gledhill from the Ohio Power Siting Board regarding Black Fork Wind LLC's application filed by Staff.
01/04/2011	Response letter to M. Grady from the Ohio Siting Board regarding Black Fork Wind LLC's application filed by Staff.
01/04/2011	Response letter to M. Cochran from the Ohio Siting Board regarding Black Fork Wind LLC's application filed by Staff.
01/04/2011	Response letter to B. Heffner from the Ohio Siting Board regarding Black Fork Wind LLC's application filed by Staff.
01/04/2011	Response letter to E. Hinkle from the Ohio Siting Board regarding Black Fork Wind LLC's application filed by Staff.
01/04/2011	Response letter to J. Davis from the Ohio Siting Board regarding Black Fork Wind LLC's application filed by Staff.
01/04/2011	Response letter to T and J Clabaugh from the Ohio Siting Board regarding Black Fork Wind LLC's application filed by Staff.
01/04/2011	Response letter to P. Skurkiss from the Ohio Siting Board regarding Black Fork Wind LLC's application filed by Staff.
01/04/2011	Response letter to G. Reynolds from the Ohio Siting Board regarding Black Fork Wind LLC's application filed by Staff.
01/04/2011	Response letter to W. Alt from the Ohio Siting Board regarding Black Fork Wind LLC's application filed by Staff.
01/04/2011	Response letter to M. Studer from the Ohio Siting Board regarding Black Fork Wind LLC's application filed by Staff.
01/03/2011	Letter stating the displeasure over the non presence of OPSB officials not showing up for a meeting on December 16, 2010 filed by B. Heffner.
12/30/2010	Letter stating the concern over the Wind turbine project and a willness not to sign consent filed by E. Hinkle.
12/16/2010	Correspondence strongly opposing wind turbines filed by concerned consumer, R. Scherer.

This foregoing document was electronically filed with the Public Utilities

Commission of Ohio Docketing Information System on

9/8/2011 10:45:05 AM

in

Case No(s). 10-2865-EL-BGN

Summary: Staff Report Filed Refiled from 8/31/2011 due to system issues electronically filed by Ms. Donielle M Hunter on behalf of PUCO