



Ashtabula III Wind Energy Center Post-Construction Inspection Report PU-10-147



Prepared for:

NORTH DAKOTA PUBLIC SERVICE COMMISSION

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APPENDICES

Appendix A:	Photographs
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1.0 Executive Summary

The North Dakota Public Service Commission (PSC) retained Wenck Associates, Inc. (Wenck) to complete a construction inspection of the Ashtabula III Wind Energy Center (Project) in Barnes County, North Dakota (ND), owned and operated by Ashtabula Wind III, LLC, an operating division of NextEra Energy Resources, LLC (NextEra). Construction for the Project was completed in December 2010. Wenck reviewed all Project documents to identify those aspects which required compliance and visually inspected the Project area on November 19, 2012.

The Project was well-maintained and appeared to have been constructed as planned with numerous efforts to minimize impacts. However, there were several non-critical issues that may need to be resolved for the Project to be considered complete and in full compliance, including 1) written verification of some items, 2) noxious weed and vegetation control, 3) clarification of reseeding seed mix, 4) verification of certain wildlife protection measures, and 5) tree and shrub replacement. Wenck expects follow-up actions taken by NextEra to address these particular issues can be corroborated in writing or photos and will not require a subsequent site visit. Wenck recommends the PSC take the following steps to resolve these issues.

Recommended Action Steps

→Request Now

- Written verification of “necessary” items (refer to list in Section 4.1).
- Control of noxious weed outbreaks (Section 4.3).
- More frequent control of vegetation and weeds on gravel pads (Section 4.3).
- Confirmation of certain planned wildlife measures or justification of why deemed unnecessary (refer to list in Section 4.5).

→Review Internally, Clarify, Then Request if Needed

- Several “potential” items may need written verification, but the PSC should review first since some of them may not be needed or may be best verified in some other way (refer to list in Section 4.1).
- For reseeding of disturbed areas, determine whether NRCS recommendations should continue to be followed, which may include non-native species, or whether a native seed mix should be required based on requests from other agencies (Section 4.4).

→ Expect Later, Request if Needed

- 2013: Tree and Shrub Survival Report.
- 2014: Tree and Shrub Survival Report.

2.0 Background & Scope

2.1 INTRODUCTION

The Ashtabula III Wind Energy Center (Project) was completed in 2010 in Barnes County, North Dakota, about eight miles northeast of the town of Valley City (**Figure 1**). The Project is operated by Ashtabula Wind III, LLC (Ashtabula Wind), a subsidiary of NextEra Energy Resources, LLC (NextEra). The Project had a proposed capacity of 69-megawatts (MW) comprised of 43 turbines. The Project is under the jurisdiction of the North Dakota Public Service Commission (PSC), which issued its Findings of Fact, Conclusions of Law, and Order in Case No. PU-10-147 on August 4, 2010, granting a Certificate of Site Compatibility for Energy Conversion Facility, Certificate No. 17, for the Project.

2.2 PURPOSE

The North Dakota Energy Conversion and Transmission Facility Act (North Dakota Century Code Chapter 49-22) authorizes the Public Service Commission to determine that the location, construction, and operation of jurisdictional energy conversion and transmission facilities will produce minimal adverse effects on the environment and the welfare of citizens of North Dakota. Post-construction inspections ensure that such projects are constructed in compliance with the siting laws (North Dakota Century Code Chapter 49-22) and rules (North Dakota Administrative Code Article 69-06) and the applicable Commission Findings of Fact, Conclusions of Law, and Order (Order). The North Dakota PSC retained Wenck Associates, Inc. (Wenck) to complete a construction inspection of the Project.

2.3 METHODS AND SCOPE OF INSPECTION

2.3.1 Project Compliance Items Identified

Wenck identified a list of “Project Specifications”, which the company was obligated or responsible to follow and that can be verified either in written documentation or by an on-site inspection. These items were taken from 1) siting laws and rules, 2) Project activities or specifications proposed in the Application, 3) Project plans described in the Findings of Fact, 4) Orders, and 5) recommendations by other agencies. These Project specifications are listed in Table 2.1 within 8 categories: Siting & Location; Project Design & Engineering; Pre-Construction; Cultural Resources; Natural Resources; Sound & Flicker Mitigation; Construction, Reclamation & Soils; and Operation.

2.3.2 Document Review

Wenck staff reviewed publicly-available Project documents in the PSC Online Case Search (ND PSC 2013) to find written verification of compliance for the Project specifications listed in Table 2.1. If written verification was filed, the findings are described in Section 3 and the source and name of the documentation is listed in Table 2.1, Column 3 (Written Verification). Shaded boxes in the table represent Project specifications that are potentially non-compliant because they have no written verification.

2.3.3 On-Site Inspection

Sara Simmers, Wenck botanist and natural resource scientist, visited the Project site on 19 November 2012. Shawn Neustel, NextEra Wind Site Manager, arranged the site visit. Eric Costello, NextEra Wind Technician, accompanied Wenck staff during the site visit and assisted with navigation, pointed out problem areas, and answered questions.

The site was inspected visually using a combination of driving and walking selected portions of the Project area, including the substation, utility line routes, access roads and wind turbines. Digital photographs (Canon Power Shot SD1300 IS, 12 megapixel) were taken showing typical Project infrastructure and documenting problem areas (**Appendix A**). Geographic coordinates were recorded at observation points or potential problem areas using a handheld Global Positioning System (GPS) (Garmin GPSMAP 60CSx; <10m accuracy; NAD83 datum) (**Figure 1; Appendix B**).

If on-site inspection of a Project specification was completed, the findings are described in Section 3 and referenced in Table 2.1, Column 4 (Site Verification). Shaded boxes in the table represent Project specifications that are potentially non-compliant based on site verification.

Table 2-1: Project Specifications with Written or Site Verification Information

Source of Project Specification	Description of Project Specification	Written Verification*	Site Verification*
	SITING & LOCATION		
Findings of Fact 3, 4, 37; Order 2; App. p. 1-5, 4-1, 4-2	Designated location in Barnes County, ND. Associated facilities to include access roads, underground collection/feeder lines, electrical substation, and a temporary staging area. No new transmission lines, overhead collection lines, or operations building would be constructed.	None.	Section 3.1.1
Findings of Fact 5; Order 4	Compliance with county/city land use, zoning, rules, regulations, ordinances.	Docket 42-05, Barnes Co. Building Permit	N/A
ND Admin. Code Article 69-06-08; Findings of Fact 16, 19, 20, 22; App. p. 3-1 – 3-8; NDLD (emails 4/30/2010)	Siting Criteria analysis – exclusion, avoidance, selection, policy. Avoidance areas: historical resources, woodlands, wetlands. No impact on Selection Criteria. Expected to meet Policy Criteria. ND State Land Dept.: gave surface and sub-surface ownership in project area; facilities must not interfere with mineral development on state land.	Docket 4, Application	Section 3.1.3
Findings of Fact 3, 17, 18; App p. 5-19 – 5-20, 5-22, 5-36	Total long-term land disturbance 206 acres maximum. Project will impact approx. 137 acres of cropland and 40 acres pasture/hayland. Disturbance to prime farmland of limited acreage (maximum 96 acres). Temporary impacts additional 742 acres. No impacts to quality of cropland anticipated. Soil compaction addressed as necessary.	None.	Section 3.1.4
Findings of Fact 21; App. p. 5-2 – 5-3, 5-8 – 5-13	No adverse impacts foreseen to surrounding community, public services, safety. Expected economic benefit.	None.	Section 3.1.5
Findings of Fact 34, 35; App. p. 4-1	Turbine setbacks: 1,400ft. from occupied residence; 440ft. from existing transmission lines, roads, railroads, and non-participating property boundaries.	Docket 32, Receptor to Turbine Distance Map; Docket 98, As-built Drawings	Section 3.1.6
	PROJECT DESIGN & ENGINEERING		
Findings of Fact 6; Order 3; App. p. 1-5	Authorized up to 69MW capacity; up to 43 1.6MW turbines.	Docket 93, Plan of Day 12/9/2010, 39 turbines commissioned	Section 3.2.1
Findings of Fact 7, 8, 14; App. p. 4-2	GE 1.6MW turbines, 80m hub height, 82.5m rotor diameter. Turbines with concrete foundation, lighting according to FAA, control panel in turbine base, pad-mounted transformer steps down to collection lines. Turbines to have SCADA and lightning protection.	N/A	Section 3.2.2
Findings of Fact 9; App p. 4-2, 4-3	Collection line system delivers electricity to substation, stepped up to an existing 230kV transmission line.	N/A	Section 3.2.3
ND Century Code Ch. 49-22-24; Findings of Fact 15; Order 9	Compliance with National Electric Safety Code.	None.	N/A

Source of Project Specification	Description of Project Specification	Written Verification*	Site Verification*
Order 31	As-built engineering design drawings and associated GIS files within 6mo. after construction complete.	Docket 98, As-builts	N/A
	PRE-CONSTRUCTION		
ND Century Code Ch. 49-22-04; ND Admin. Code Article 69-06-02	Ten-year plan (submit before July 1)	None for Ashtabula III.	N/A
ND Century Code Ch. 49-22-07	Certificate of site compatibility or route permit	Docket 36, Certificate 17, 8-4-2010	N/A
ND Century Code Ch. 49-22-07.1; ND Admin. Code Article 69-06-03	Letter of intent	Docket 1, Letter of Intent	N/A
ND Century Code Ch. 49-22-08; ND Admin. Code Article 69-06-04	Application for a certificate of site or corridor compatibility	Docket 4, Application	N/A
Order 5; App. p. 7-1 – 7-2; USFWS (5/25/2010)	Permits and approvals from other agencies. Provide copies. USFWS request: written explanation of compliance with laws and regulations they oversee.	Docket 42-05, Barnes County Building Permit; Docket 28, Wetland Report/USACE Determinations	N/A
Order 6, 7	Conduct pre-construction conference with Ashtabula III representative, construction supervisor, Commission staff. Provide notice of intent to start construction.	Docket 42-03, Pre-construction conference notes and notice of intent to start construction	N/A
Order 34	Obtain approval from PSC prior to any changes in site plan.	None filed to date.	N/A
	CULTURAL RESOURCES		
Findings of Fact 24; Order 5; App. p. 5-37; ND SHPO (4/19/2010)	Obtain SHPO concurrence of archeologist's report. SHPO initially requested Class I Cultural Resource Survey. Class III Inventory to be done in Spring 2010.	Docket 5, Application, Section 5.8, Class I Survey results; Docket 27, Class III Cultural Resource Inventory; Docket 42-02, SHPO concurrence letter.	N/A
Findings of Fact 22, 23, 24; App. p. 5-16 – 5-17	Avoidance of all identified sites potentially eligible for National Register of Historic Places. Avoidance of all cultural resource features during construction.	None.	Section 3.4.2
Order 11	Report discovery of cultural, archeological, historic sites. Construction stopped, SHPO consulted and clearance required, report to Commission filed.	None reported to date.	N/A

Source of Project Specification	Description of Project Specification	Written Verification*	Site Verification*
	NATURAL RESOURCES		
Findings of Fact 27, 28; App. p. 5-35, 5-38; USFWS (5/25/2010); NDPR (5/10/2010)	Minimal impact expected to waterfowl, other avian species, and bats. Low likelihood of use by whooping cranes and other protected/sensitive species. Mitigation measures for wildlife: bury all collection lines, minimize lighting, restrict activities near raptor nests. USFWS requests: cumulative effects analysis, raptor surveys, develop Avian and Bat Protection Plan, minimize and mark overhead electric lines, avoid construction Feb 1-July 15, self-standing MET towers. NDPR recommends avoiding wildlife impacts.	Docket 40, Plan of Day 8/17/2010, start construction; Docket 93, Plan of Day 12/9/2010, end construction. Docket 29, Avian Survey Summary. Docket 42-06 Avian and Bat Protection Plan	Section 3.5.1
App. p. 5-29 – 5-30, 5-37; NDGF (5/12/2010); USFWS (5/25/2010); NDPR (5/10/2010)	Minimal disturbance of native prairie (estimated about 15 acres, 20 turbines within). Native prairie survey to be completed. NDGF, USFWS concern. NDPR recommends avoiding occurrences of listed plant species of concern and critical habitats.	None.	Section 3.5.2
Findings of Fact 22, 25, 26; App. p. 5-28, 5-37; NDGF (5/12/2010); USFWS (5/25/2010); NRCS (5/25/2010)	Wetlands will be avoided with siting and horizontal drilling; no permanent impacts. No permit necessary from USACE. All wetlands within USFWS wetland easements would be avoided. NDGF, USFWS, NRCS concern. USFWS request: avoid/minimize impacts to USFWS easements.	Docket 28, Wetland Delineation Report; Dockets 40, 93, example notes of wetlands fenced, silt fence	Section 3.5.3
App. p. 3-1, 4-1	USFWS Waterfowl Production Areas buffer of 0.25 miles.	None.	Section 3.5.4
Findings of Fact 29; Order 10; App. p. 5-35, 5-38; NDGF (5/12/2010); NDPR (5/10/2010); USFWS (5/25/2010)	Wildlife Response Reporting System implemented during routine maintenance. Report presence of critical habitat of T+E species, or bald or golden eagles. NDPR suggests pre and post construction avian and bat monitoring studies. USFWS requests mortality monitoring plan.	None reported to date.	N/A
Order 14; App. p. 5-30, 5-37; USFWS (5/25/2010); NDPR (5/10/2010)	Reclamation, fertilization, and reseeding according to USFWS and NRCS (or landowner if approved). Reseeding with native species to mitigate native prairie loss. NDPR, USFWS request: reseed with native species.	None.	Section 3.5.6
Order 17; App. p. 5-30	Compliance with Tree and Shrub Mitigation Specifications.	Docket 94, Mitigation Plan; Docket 99, 2011 Planting Report; Docket 100, 2012 Survival Report	Section 3.5.7
	SOUND AND FLICKER MITIGATION		
Findings of Fact 31; App. p. 5-14 – 5-15	Average sound levels at occupied residences near project facilities within EPA guidelines. Waiver agreement with one landowner with potential exceedance during anomalous weather conditions.	Docket 30, Acoustic Assessment Report; Docket 33, Low-Frequency Vibration Study; Docket 34, Waiver	N/A

Source of Project Specification	Description of Project Specification	Written Verification*	Site Verification*
Findings of Fact 33; App p. 5-13 – 5-14	No occupied residences expected to have more than AWEA recommended limit of 30hrs/yr. Complaints of residents mitigated promptly.	Docket 31, Shadow Flicker Impact Analysis	N/A
CONSTRUCTION, RECLAMATION & SOILS			
Findings of Fact 13; App. p. 1-6, 4-3; Order 7, 8, 13	EPC contractor retained for construction management. Construct and operate as described in Application, at hearing, in late-filed exhibits, and in accordance to safety requirements. Construction suspended during adverse weather conditions. Provide weekly construction reports.	Dockets 50, 52, 54, 61, 75, 76, 85, Plans of Day noting no or limited work due to weather conditions. Docket 40-41, 43-93, Plans of Day	N/A
Findings of Fact 36; App. p. 5-22, 5-26, 5-28; NDDH (4/28/2010); NRCS (5/25/2010)	Soil erosion minimized by use of BMPs during and after construction to protect groundwater and soils/topsoils. NDDH concerns: minimize fugitive dust, degradation of waterways, storm water management, noise.	Dockets 40, 50, 52, 54, 93, Plans of Day, examples of notes for SWPPP inspections, silt fence installation	Section 3.7.2
Findings of Fact 36; Order 20, 28; App. p. 5-22, 5-37	Only land needed for facility will be impacted. Staging areas not located on cultivated land unless negotiated with landowners. Topsoil segregated and replaced to minimum 12in.	None.	Section 3.7.3
Order 27, 29	Utility line crossings of graded roads bored unless permitted to open cut. Utility lines buried to minimum 48in.	Dockets 49, 57, 59, Plans of Day noting boring under roads	Section 3.7.4
Findings of Fact 38; App. p. 5-30	Noxious weed management during construction and operation.	None.	Section 3.7.5
Findings of Fact 36; Order 12, 22; App. p 5-37	Temporarily disturbed areas will be restored. Pre-existing roads restored to satisfactory condition to accommodate previous use. Temporary roads restored to original condition. Area around each turbine restored promptly.	Dockets 63, 82, Plans of Day, example notes about backfill at turbines, starting of reclamation	Section 3.7.6
Order 18, 19, 21; NDSWC (5/28/2010)	Repair/replace all damaged fences and gates. Repair/replace damaged drainage tile. Waste removed & disposed regularly. NDSWC request: waste disposed properly.	None.	Section 3.7.7
OPERATION			
Order 8, 25, 33	Construct and operate as described in Application, at hearing, in late-filed exhibits, and in accordance to safety requirements. Extraordinary events (e.g. tower/turbine failure, injuries, fatalities of T & E species, wildlife fatality events) reported within 5 business days. Maintain records of compliance with Order and Certificate of Site Compatibility.	None reported to date.	Section 3.8.1
Order 15, 21; App. p. 4-5 – 4-6	Reclamation and maintenance throughout life of facility. Waste removed & disposed regularly.	None.	Section 3.8.2

Source of Project Specification	Description of Project Specification	Written Verification*	Site Verification*
Order 23, 24, 26, 30; App. p. 5-12 – 5-13	Educational materials, as requested, and notification of possible dangers to landowners. Safety measures for traffic control or to restrict public access. Procedure for handling complaints. Cooperation with landowners/residents to mitigate television and radio interference.	None.	Section 3.8.3

***Note: Shaded boxes represent non-compliance or potential non-compliance issues.**

3.0 Findings

3.1 SITING & LOCATION OF FACILITY

3.1.1 Designated Location and Facilities

The Project was built as proposed in the designated project area described in the Application and Order in Barnes County, North Dakota (**Figure 1**). Wenck observed 39 wind turbines; 24 turbines were in the north portion of the Project area and 15 turbines were in the south portion. Associated facilities observed during the site visit included an electrical substation, the staging/laydown grounds, access roads, and markers indicating the location of underground electrical and feeder lines (**Appendix A; Appendix B**).

Several differences in the latest proposed project layout on file (dated 3/25/2010) compared to the built facility were noted. These include the following:

- Adjustments made to avoid wetlands: access road for Turbine 247, entrance to access road for Turbines 254-256.
- Access road between Turbines 270 and 271 was not built.
- Access road by Turbine 276 was adjusted south.
- Access road to Turbines 263-264 was adjusted north to run between two fields.
- Access road between Turbines 248 and 249 was adjusted west to avoid cultural site.
- None of the Turbine Alternates 1-4 were built.

These changes were due to final decisions of planned/alternate turbines and adjustments in access roads and were allowed within the issued Certificate of Site Compatibility. No turbine locations were adjusted.

3.1.2 County/City Regulations

A Building Permit from Barnes County was on file (Docket #42-05). However, a Conditional Use Permit (CUP) and variance for wind turbine heights was not on file.

3.1.3 Siting Issues

Siting criteria were analyzed in detail in the Application for the Project (Docket #4). Wenck confirmed during the site inspection that exclusion and avoidance areas were avoided as described in the Application, to the extent possible. Historical/cultural resources were avoided (see Section 3.4.2). No natural woodlands were impacted. Trees were removed from shelterbelts; mitigation for this loss is in progress (see Section 3.5.7). Wetlands were avoided to the extent possible (see Section 3.5.3); several adjustments were made to access roads to avoid wetland disturbances. Wenck also confirmed that impacts to selection and policy criteria were considered and kept at a minimum.

Correspondence from the ND State Land Dept. noted that facilities must not interfere with mineral development on state land. According to the list provided of state surface and sub-surface ownership in the project area (Docket #04-07, Application, Appendix D, Agency Correspondence), there are portions of two sections that coincide with built facilities of the wind farm. These include the SE $\frac{1}{4}$ of Section 17, T143N, R57W and the NE $\frac{1}{4}$ of Section 26, T142N, R58W. It is not clear whether state ownership

encompasses the whole quarter-section listed. It is also unclear whether the wind facilities would prevent access to subsurface minerals since they occupy such a small area of the land. Though Wenck does not consider this an issue of non-compliance, the PSC may want to clarify the State Land Dept. regulations.

3.1.4 Land & Agricultural Impacts

The Project was built as proposed, except for relatively minor siting adjustments (see Section 3.1.1). It appeared that the extent of construction and disturbance were within the estimated right-of-ways from the latest filed proposal maps and were within the maximum acreages estimated in the Application. Minor changes from the proposed facility would not have greatly altered the extent of disturbance, and in many instances, such as where portions of access roads were not built, the amount of area disturbed was actually reduced. Crop production did not appear to be reduced surrounding the turbines and access roads or along collection line routes which went through fields (**Appendix A, Photos 5, 7, 9, 16, 19, 22**), indicating that topsoil replacement and soil compaction were satisfactory. The NextEra staff noted that any issues or landowner concerns related to agriculture or cropland are addressed promptly to maintain a good relationship with the community.

3.1.5 Surrounding Community, Public Services, Safety

There were no indications during the site inspection that the surrounding community or public were being impacted negatively due to the operation and infrastructure of the wind facility. All turbines were placed along access roads which spurred from main public roads; roads were safe and had appropriate signage. The wind facility provides jobs for several people who reside in nearby towns.

3.1.6 Turbine Setbacks

Wenck verified during the inspection that turbines were built at least 1,400 feet from occupied residences, as identified in the map "Receptor to Turbine Distance", (Docket #32, dated July 2010). NextEra proposed a setback of 440ft from existing transmission lines, public roads, railroads, and non-participating property boundaries. These setback distances were verified and followed.

3.2 PROJECT DESIGN & ENGINEERING

3.2.1 Capacity

The Project was authorized to build up to 43 1.6MW turbines for a total capacity of 69MW. The Plan of the Day for 12/9/2010, the final construction account, documented that 39 turbines were commissioned (Docket #93), at a maximum 62.4 MW capacity. The 39 turbines were inspected during the site visit (**Appendix A; Appendix B**).

3.2.2 Turbine Specifications

All turbines were constructed as specified, 1.6 MW, 80 m hub height, 82.5 m rotor diameter. Each turbine had a concrete foundation, a control panel in the tower base, a pad-mounted transformer, and lightning protection (**Appendix A, Photos 5, 7, 22**). Turbines were connected to a SCADA system, observed in the O & M Building control area. Lighting was not confirmed since the inspection took place during daylight hours but is assumed to be in compliance with the FAA.

3.2.3 Collection Line & Substation

Several points along the collection line system were observed and it appeared to be constructed where proposed (**Appendix B**). There were several locations where the collection line route had been adjusted compared to the latest proposed route on file. These changes did not appear to increase impacts; they

were within the construction easement and the scope of the Project as understood by review of the Application and Order. Points where the collection line was bored under major roads were observed and no concerns were noted. Markers were in place. The collection line tied into a 230kV transmission line at the new substation, as proposed (**Appendix A, Photo 2**).

3.2.4 National Electric Safety Code

There was no written verification or certification of compliance with the National Electric Safety Code.

3.2.5 As-built Drawings & GIS Files

As-built engineering design drawings were submitted on June 6, 2011 (Docket #98), at approximately 6 months post-construction. The as-builts were not signed or dated by a Registered Land Surveyor. No associated GIS files were submitted. The as-built drawings were inspected in relation to the on-the-ground infrastructure of the facility and appeared to coincide.

3.3 PRE-CONSTRUCTION

3.3.1 PSC-Required Documents

A letter of intent was received May 5, 2010 (Docket #1). An Application for a Certificate of Site Compatibility was submitted May 18, 2010 (Docket #4). Certificate of Site Compatibility 17 was issued on August 4, 2010 (Docket #36). There was not a ten-year plan on file in the Project docket. A PSC case search showed a 10-year plan submitted by Ashtabula (PU-11-637, 9/12/2011) and Ashtabula II (PU-11-616, 9/30/2011), but nothing was filed for Ashtabula III.

3.3.2 Permits and Approvals from Other Agencies

Several permits and approvals were identified in the Application as potentially required for the Project (Application p. 7-1 – 7-2). Federal approvals needed were a USACE Section 404 Permit for impacts to jurisdictional wetlands, a USEPA SPCC Plan, an FAA Form 7460-1 Notice, and a FERC Section 205 rate approval. The final wetland delineation report included justification for no impacts to USACE jurisdictional wetlands (Docket #28). No other federal permits were submitted. The USFWS also requested in their correspondence that NextEra provide a written explanation of compliance with laws and regulations the USFWS oversees; nothing was on file which addressed this matter.

Several State permits which were going to be applied for once the Certificate was received were not filed once obtained, nor was there explanation for which potential permits were determined necessary based on final Project layout. These include the ND Department of Health (NDDH) ND PES Permit, the NDDH Section 401 Water Quality Certification, the ND Highway Patrol Overheight/Overweight Permit, the ND Highway Patrol Trip/Fuel Permit, the ND Department of Transportation (NDDOT) Driveway Permit, and the NDDOT Utility Permit.

County/local permits on file included a Barnes County Building Permit (Docket #42-05). Copies of the Barnes County Conditional Use Permit (CUP), Height Variance for turbines, Road Agreement, and Road Haul Permit were not on file.

3.3.3 Pre-Construction Conference/Notice of Intent to Start Construction

Record of the pre-construction meeting was documented, with all required representatives in attendance (Docket #42-03). Notice of intent to start construction was provided (Docket #42-03).

3.3.4 PSC Approval of Modifications

There were no notifications to modify the facility filed to date. None of the minor changes made to the facility after the Project was approved were beyond the scope of the issued Certificate of Site Compatibility (refer to Section 3.1.1).

3.4 CULTURAL RESOURCES

3.4.1 SHPO Concurrence

Class I Cultural Resource Survey results (Docket #4, Application, Section 5.8) and a Class III Cultural Resource Inventory Report for the Project (Docket 27, late-filed exhibit) were on file. SHPO concurrence of the Class III report was provided (Dockets #42-02).

3.4.2 Cultural Site Avoidance

Four prehistoric stone feature sites were documented from the archeology surveys in April and June 2010 for the Project area (Docket #27, Class III Cultural Resources Report). These sites were deemed potentially eligible for listing and required avoidance. One historic site was also identified and avoidance was recommended. These features were located on several different turbine strings and access road throughout the Project area. The Application described measures that would be taken to avoid the features. Access roads had been adjusted to avoid sites (**Appendix A, Photos 18, 21**). Wenck also verified during the site inspection that the potentially eligible cultural sites were avoided by Project facilities (**Appendix A, Photos 11, 12, 18, 21**). No impacts were anticipated to previously recorded cultural site leads.

3.4.3 Reporting

No new discoveries of cultural, archeological, or historic sites have been reported to the PSC to date. Presumably no new sites were encountered during construction of the Project.

3.5 NATURAL RESOURCES

3.5.1 Wildlife

Measures were proposed to minimize impacts to wildlife in the Project area and Wenck verified several of these measures. Collection lines were buried to avoid bird collisions, and overhead electric transmission lines were limited to the tie-in of the Project substation to the existing transmission line. On this line, the poles appeared to be perch-resistant, but no bird diverters were visible on the wires (**Appendix A, Photos 1-3**). Lighting could not be confirmed but is assumed to be limited to that required by the FAA. The Application discussed the possibility of restricting activities near raptor nests. The latest proposed project layout on file (dated 3/25/2010) showed locations of raptor nests within the south portion of the Project area. Project infrastructure was near several of the nests, but did not directly impact the nest locations. A raptor survey was also done for the north portion of the Project area (summarized in Docket #29, Avian Survey Summary), though no maps or specific locations of these results were provided. Overall, wetland and woodland habitat impacts were avoided by siting, adjusting routes, and by boring under wetlands (**Appendix A, Photos 20, 23**) (also refer to Sections 3.1.1 and 3.5.3). The Plans of the Day accounts of construction confirmed that the spring nesting season (Feb 1- July 15) was avoided since construction began August 17, 2010 (Docket #40) and ended December 9, 2010 (Docket #93). Turbines were monopole towers (**Appendix A, Photo 7**). An Avian and Bat Protection Plan had been developed and filed (Docket #42-06).

Some measures recommended by the USFWS were not implemented. The MET tower associated with the Project was not self-standing, though it had bird deterrents on the guy wires to help prevent bird collisions. A cumulative effects analysis had not been completed.

Avian surveys had been completed for the south portion of the Project area in conjunction with Ashtabula I in fall 2007 and spring 2008. A summary of an additional pre-construction avian survey for the north portion of the Project area in spring 2010 was on file (Docket #29, Avian Survey Summary, late-filed exhibit), but a final report with detailed results had not been filed.

3.5.2 Native Prairie

Most of the turbines were placed in cultivated lands. However, in the final Project configuration, native prairie was disturbed at 11 turbines (Turbines 246, 248, 250, 251, 262, 276, 277, 279, 280, 282, 283), along with associated access roads (**Appendix A, Photos 6, 10, 12, 17, 21**) (also refer to the latest proposed project layout on file, dated 3/25/2010, which outlines native prairie in northern portion). NextEra had considered avoidance of native prairie during the siting process (Docket #4, Application) and it appeared during the site inspection that the impact was minimized as feasible, through minimizing the width of roads and the area disturbed around each turbine. Project facilities did not impact any known occurrences of animal or plant species of concern or “Significant Ecological Communities” as identified by the North Dakota Natural Heritage Inventory which had recommended avoidance of such occurrences (Docket #16-03, Agency Comments on Project). However, it was noted that seeding after disturbance was primarily done with non-native species, including intermediate wheatgrass (*Agropyron intermedium*), smooth brome (*Bromus inermis*), and crested wheatgrass (*Agropyron cristatum*), rather than with native species as proposed (**Appendix A, Photos 6, 12**). Also, the Application stated that a report would be provided of a native prairie survey of the northern portion of the Project area in fall 2009 and a survey of the southern portion of the Project area planned for June 2010. No reports were on file.

3.5.3 Wetlands

During the construction inspection, Wenck confirmed that wetlands were avoided in the overall Project design (**Appendix A, Photos 20, 23**). Adjustments had been made to access roads to avoid wetlands (Section 3.1.1). The final Wetland Report stated that as designed the Project would have no impacts to jurisdictional waters and no notification to the USACE was required (Docket #28, Wetland Delineation Report, late-filed exhibit). Impacts were also avoided to wetlands under USFWS easement. A list of wetlands to be completely avoided or bored underneath were listed in the wetland report and appeared to have been followed according to the as-built drawings and when checked during the site visit. There were also remarks in the Plans of the Day relating to wetlands, including notes about fencing off wetlands and installing silt fences (example Docket #40, Plan of Day 8/17/2010). Several of the pad-mounted transformers had extra gravel containment underneath to help prevent spills or impacts to adjacent waterways (**Appendix A, Photos 22, 23**).

3.5.4 USFWS Waterfowl Production Areas

A buffer of 0.25 miles was proposed from a USFWS Waterfowl Production Area (WPA) in the north portion of the Project area. Wenck verified this setback had been followed.

3.5.5 Reporting

NextEra on-site staff verbally confirmed that the Wildlife Response Reporting System (WRRS) is in place; any wildlife fatalities observed are recorded and monitored regularly and reports can be obtained if requested. There were no reports filed to date of the presence of threatened or endangered species or

bald or golden eagles during construction or operation to date. Pre-construction avian studies had been conducted (Docket #29, Avian Survey Summary, late-filed exhibit), though a final report with detailed results had not been filed. There were no reports filed to date of pre-construction bat studies, post-construction avian or bat studies, or a mortality monitoring plan, as requested by the USFWS and NDPR.

3.5.6 Reclamation & Reseeding

Wenck verified that disturbed areas in non-cropped lands were reclaimed and reseeded after construction. In most pastures, the margins of the access roads and the area around the turbine base, non-native grasses such as intermediate wheatgrass (*Agropyron intermedium*), smooth brome (*Bromus inermis*), or crested wheatgrass (*Agropyron cristatum*) were growing in dense stands (**Appendix A, Photos 6, 12**). Erosion and vegetation cover were not a concern, and no extensive annual weed outbreaks were noted. However, these grasses are non-native species that are commonly planted for revegetation. It is possible that these species were suggested by the NRCS and NextEra followed that recommendation. The use of these species does not follow the recommendations of the USFWS or NDPR, which requested reseeding with native species. In some pastures, non-native grasses were not present in areas that would have been disturbed (**Appendix A, Photos 17, 21**). Drill rows in the soil were visible, so attempts to reseed had been made. Possible explanations include: 1) non-native grasses were not used in select pastures (possibly due to landowner's requests), 2) the seeds did not germinate, 3) the grass was grazed more heavily in some pastures and could not be distinguished. Whatever the reason, these pastures did not have erosion or weed problems, despite not being reclaimed/seeded in the same way.

3.5.7 Tree & Shrub Mitigation

There were no natural woodlands within the Project area that were impacted by construction of the project. There were several locations where trees or shrubs were removed from planted tree rows in fields. Wenck verified that in these locations the width of tree/shrub removal was minimized (**Appendix A, Photo 4**). NextEra has submitted a Tree & Shrub Mitigation Plan (Docket #94), a 2011 Tree & Shrub Planting Report (Docket #99), and a 2012 Tree & Shrub Survival Report (Docket #100). Wenck verified that trees and shrubs were planted. The mitigation specifications appear to be followed up to this point. The latest report states the survival rate stands at 74%, though some of the plantings were unaccounted for. The plantings were installed in 2011 and the PSC requires three years of survival monitoring, until 2014, for the mitigation to be considered satisfactory.

3.6 SOUND & FLICKER MITIGATION

3.6.1 Sound Mitigation

There was no explicit requirement for NextEra to submit post-construction sound level information, and none has been filed. No formal complaints have been filed with the PSC. Wenck received verbal confirmation from NextEra staff that landowner and resident concerns are addressed promptly and that NextEra makes every reasonable attempt to alleviate problems caused by the facility. The pre-construction Acoustic Assessment Report (Docket #30) and Low-Frequency Vibration Study (Docket #33) were on file. A waiver agreement was on file for one landowner within the range of potential noise exceedance of EPA guidelines (Docket #34, Waiver).

3.6.2 Flicker Mitigation

Preliminary studies by NextEra found that no occupied residences within the Project area had the potential to receive more than 30hr/yr of shadow flicker impacts (Docket #31, Shadow Flicker Impact Analysis). No formal complaints have been filed with the PSC to date. Wenck received verbal

confirmation from NextEra staff that landowner and resident concerns are addressed promptly and that NextEra makes every reasonable attempt to alleviate problems caused by the facility.

3.7 CONSTRUCTION, RECLAMATION & SOILS

3.7.1 Construction Management & Safety

Plans of the Day were submitted daily in fulfillment of the Order to provide weekly construction reports (Docket #40-41, 43-93). These submissions indicated that construction of the Project proceeded in accordance to the Application and safety requirements and that an Engineering, Procurement, and Construction (EPC) contractor managed the construction of the Project. There several occasions where the Plans of the Day indicated that construction was suspended or limited during adverse weather conditions (rain and high winds), as ordered by the PSC (Docket #50, 52, 54, 61, 75, 76, 85).

3.7.2 Erosion & Sedimentation

Best Management Practices (BMPs) were used as part of the construction and maintenance of the Project to minimize erosion and control sediment. Plans of the Day remarks indicated when SWPPP inspections were taking place (example Docket #50, Plan of Day 9/7/2010) and indicated the progress of installing over 19,850ft of silt fence during construction (example Docket #40, Plan of Day 8/17/2010 and #93, Plan of Day 12/9/2010). Culverts and drainage structures were installed where necessary to allow for the natural flow of water (**Appendix A, Photos 9, 14, 19**). No erosion problems were observed around the utility junction boxes; cement bollards and gravel were in place around each (**Appendix A, Photo 8**). In general, erosion problems were minor and infrastructure of the Project area was well-maintained. Wenck observed that access roads had been recently graded and erosional cuts had been repaired which was evidence of regular maintenance (**Appendix A, Photo 14**).

3.7.3 Minimization of Impacts

In general it appeared during the site visit that measures were taken to minimize the overall impact of the Project and the extent of land and soil disturbance. Several of the final adjustments and micro-siting of the Project actually reduced the amount of area originally planned to be disturbed. Areas that would have been disturbed during construction were agricultural fields and pasturelands. Crops were harvested at the time of the survey but showed no indication of poor development or production in areas where the soils would have been disturbed compared to areas not disturbed (**Appendix A, Photos 1, 5, 7, 9, 16, 19**). Pastures had been reclaimed and reseeded and there were no areas where bare soils or erosion were problems, which would have been an indication of topsoil/subsoil mixing. The staging/laydown area for the Project was located on less than 10 acres to the south and east of the substation on cultivated land, but agreement from the landowner had been secured (**Appendix A, Photo 1**). The area had been satisfactorily reclaimed.

3.7.4 Utility Lines

Wenck verified that all county road and highway crossings had been directionally bored, with the route of the underground utility line indicated by red markers. NextEra reported that the bore for each of these crossings began and ended further out in adjacent agricultural fields, not in the road ditches. The vegetation in the ditches did not appear to have been disturbed. The crossings included 120th Ave SE, 122nd Ave SE, 123rd Ave SE, 14th St SE, 17th St SE, County Road 6/18th St SE, 19th St SE, 20th St SE, 21st St SE, 23rd St SE, County Road 27, State Highway 26, and under all access roads to Ashtabula I turbine strings. There were remarks in the Plans of the Day reports when and where borings took place (example Dockets #49, 51, 57, 59, 66, 67). All utility lines appeared to be buried at the properly required depth.

3.7.5 Noxious Weeds

NextEra indicated annual and noxious weeds are controlled with herbicide around turbines once a year or once every two years. Wenck observed that the substation and most of the gravel pads around the base of each turbine appeared to be well-maintained and controlled for annual weeds and vegetation growth (**Appendix A, Photos 2, 3, 5, 22**). However several turbine gravel pads, less than 25%, had vegetation and annual weed growth from the past growing season (**Appendix A, Photo 7**). Additionally, a noxious weed called musk thistle (*Carduus nutans*) was noted near Turbine 283 (**Figure 1; Appendix A, Photo 13**). Wenck recommends that spraying be more regular to control general vegetation growth and that particular focus be given to noxious weeds.

3.7.6 Reclamation & Roads

Areas of the Project which had been disturbed during construction appeared to be properly restored with no long-term concerns. Notes on Plans of the Day reports indicated reclamation began in portions of the facility while construction was still in progress (Docket #63, 9/24/2010, backfill at turbines; Docket #82, 11/10/2010, reclaim at turbine string 245-247). There were notes on Plans of the Day that construction was complete (Docket #93), but no remarks indicated reclamation was complete, indicating that reclamation of the site was possibly completed in spring 2011. NextEra reported that there were no temporary roads constructed for the project, though one intersection was temporarily widened and some county roads within the Project area had been improved by adding gravel. The widened intersection was restored to original width (**Appendix A, Photo 15**). All county roads and highways within the Project area appeared to be in good condition and properly maintained. The staging area and approach had been satisfactorily reclaimed (**Appendix A, Photo 1**). The gravel pads surrounding the tower structures appeared to have been constructed properly and were well-maintained (**Appendix A, Photos 5, 7, 12, 22**). There was no soil slumping or settling, no open trenches, and no areas of erosion concerns within the Project area. Crops were planted as close as possible to the tower bases. None of the crops showed visible signs of poorer production or vigor, which would indicate improper topsoil replacement. Also refer to Section 3.5.6 Reclamation and Reseeding, 3.7.2 Erosion & Sedimentation, and 3.7.3 Minimization of Impacts.

3.7.7 Repairs & Waste

All fences and gates were in place and fully operable. Numerous new gates had been installed for the Project where access roads crossed fencelines (**Appendix B, Photo 4**). NextEra reported there had not been any agricultural fields with drainage tile impacted by construction of the Project. There was no waste, debris, or abandoned equipment observed during the inspection. The site appeared to be regularly maintained and no remnants of the construction phase were noted.

3.8 OPERATION

3.8.1 Safety & Record-keeping

No concerns were identified during the site review that would indicate that Project operation was out of compliance with the Application or safety regulations, other than the minor concerns noted in this report. Examples of operational safety measures observed at the site include: use of personal protective equipment, signs marking safety hazards for employees at the O & M building and at towers (**Appendix A, Photos 22**), and vehicle safety measures. No reports of extraordinary events were filed to date with the PSC.

3.8.2 Maintenance

Wenck observed that NextEra has in place an on-going maintenance schedule. The primary maintenance issues were upkeep of tower access roads, minor erosion control, and more frequent spraying of vegetation, discussed in Sections 3.7.2 and 3.7.5. Wenck did not observe any areas of exposed soil remaining from construction activity or the on-going operation of the Project that were in need of reclamation. There was no waste, debris, or abandoned equipment observed during the inspection. The site appeared to be regularly maintained.

3.8.3 Public Contact & Safety

No examples of educational materials for landowners or the public were noted at the Project site or on file with the PSC. However, Wenck noted that danger/safety warnings were in place on junction boxes, tower doors and electric boxes, surrounding the substation, and on markers indicating buried utility lines (**Appendix A, Photos 8, 22**). NextEra reported that there are no security systems in place on the doors to the towers. However the doors are locked and regularly monitored. There was a security fence in place surrounding the substation (**Appendix A, Photos 1-3**). NextEra staff accounted that shooting at the tower bases has been a problem with the local public. Wenck did not identify any areas where traffic control signs were necessary within the Project area. There were public access “No Trespassing” signs at entrances to tower access roads at each intersection with a county road or highway. These signs also denoted the tower identification numbers for the towers in each string. No formal complaints have been filed with the PSC to date. Wenck received verbal confirmation from NextEra staff that landowner and resident concerns are addressed promptly and that NextEra makes every reasonable attempt to alleviate problems caused by the facility. However there were no formal procedures on file for how NextEra handles complaints or explanation of the process for mitigating landowner/resident concerns.

4.0 Issues to Resolve and Recommendations

4.1 PROJECT SPECIFICATIONS NEEDING WRITTEN VERIFICATION

Several components of the Project were asserted in the Application or proposed construction and have the potential to be verified in writing, but have not been filed with the PSC. Table 2-1 summarizes these items, which are indicated as those shaded in the “Written Verification” column, indicating no written verification was provided where applicable and necessary. Wenck does not consider any of these items to be critical for Project compliance. However some were more important than others and Wenck suggests they be on file with the PSC to confirm compliance. Wenck recommends the PSC request from Next Era the following list of “Necessary” items, and if the PSC deems appropriate, the list of “Potential” items could also be requested.

Necessary Items

- A sealed copy of the as-built drawings, signed and dated by a Registered Land Surveyor. (Current copy is not sealed.) Associated GIS files for as-built drawings or GIS shapefiles of final Project layout.
- Ten-year plan for Ashtabula III.
- Federal permit copies (or explanation they were determined unnecessary): USEPA SPCC Plan, FAA Form 7460-1 Notice, FERC Section 205 Rate Approval, written explanation of compliance to USFWS.
- State permit copies (or explanation they were determined unnecessary): NDDH NDPES Permit, NDDH Section 401 Water Quality Certification, ND Highway Patrol Overheight/Overweight Permit, ND Highway Patrol Trip/Fuel Permit, NDDOT Driveway Permit, NDDOT Utility Permit.
- Local permit copies (or explanation they were determined unnecessary): Barnes County Conditional Use Permit (CUP), Height Variance for turbines, Road Agreement, Road Haul Permit.
- Spring 2010 pre-construction avian survey report.
- Native prairie survey reports.

Potential Items

- Written verification of compliance with National Electric Safety Code.
- Verification that no new discoveries of cultural, archeological, or historic sites were found during construction.
- Verification that no threatened or endangered species or bald or golden eagles were observed within the Project area during construction or during operation to date. Example of notice that would be provided to USFWS if such a species was observed.
- Summary or example of WRRS reports so PSC can confirm they are available, if needed.
- Summary or example of landowner complaints to date regarding sound, flicker, safety, or other concerns and descriptions of how the issues were handled. Or procedures for how NextEra handles complaints and mitigation of landowner/resident concerns.
- Examples of educational materials to be provided to landowners or the public if requested.

4.2 NOXIOUS WEED & VEGETATION CONTROL

One plant of musk thistle (*Carduus nutans*), a noxious weed that spreads readily, was observed near Turbine 283 within the area that had been reclaimed. Also, outbreaks of absinthe wormwood (*Artemisia absinthium*), a perennial noxious weed, were seen in the adjacent project area of Ashtabula I. Wenck recommends a concerted effort to control these plants by spraying. Wenck also observed several gravel pads around turbine bases with vegetation and annual weed growth from the past growing season. Though the vegetation was not particularly dense or out of control, Wenck would suggest more frequent spraying to maintain the pads for improved access and safety.

4.3 RESEEDING METHODS

Wenck noted that in the majority of disturbed areas that had to be reseeded as part of reclamation, such as native pastures, it appeared that non-native species had been used, including intermediate wheatgrass, crested wheatgrass, and smooth brome grass, of which the latter two can spread vigorously into native areas. These species have been commonly used for reseeded projects in the past or planted in haylands or CRP lands. It is possible these species were suggested by the NRCS and NextEra followed that recommendation. However, the use of these species does not follow the recommendations of the USFWS or the NDPR, which requested disturbed areas be reseeded with native species. In the Application and throughout the course of Project planning, it appeared the intention of NextEra was to use only native species for reseeded. While Wenck does not consider NextEra out of compliance regarding this issue, we recommend the PSC review this issue and determine whether NRCS recommendations should continue to be followed or whether a native seed mix should be required based on requests from other agencies.

4.4 WILDLIFE PROTECTION MEASURES

Several measures to protect wildlife were described as part of the Project in the Application or were requested by agencies in response to the Project, but Wenck did not find evidence that they were being implemented or justification for not being implemented. These measures should be addressed or explained to ensure compliance. These measures include the following:

- Description of birdsafe design used on the overhead tie-in from the substation to the existing transmission line. Wenck did not observe bird diverters on the line.
- Description of birdsafe design or bird deterrents used on MET towers.
- Cumulative effects analysis requested by the USFWS.

Note also that several items related to wildlife protection are listed in Section 4.1 above as items that possibly require written verification.

4.5 TREE & SHRUB REPLACEMENT

The replacement of trees and shrubs to mitigate those removed during construction of the Project had been delayed until spring 2011. Wenck verified that the replacement plantings were installed; and the latest report states the survival rate stands at 74%. Survival monitoring is required for the following three years until 2014. Wenck recommends that the PSC proceed with its requirement for the full three years of survival monitoring to ensure acceptable survival of the replacement planting.

5.0 Conclusions

Overall, the Project appeared to have been constructed as designed with minimal impacts to the surrounding natural or human environment. The Project site was well-maintained and in good condition. However, Wenck observed several issues that may need to be resolved before the Project is considered complete and in full compliance. This includes provision of written documentation of particular aspects of project implementation, noxious weed and vegetation control, reviewing reseeding requirements pertaining to the use of native or non-native species, confirmation of certain wildlife protection measures and monitoring procedures, and continued tree and shrub survival monitoring. None of these are critical issues, but the PSC should determine which are necessary for the company to comply with and then notify the company what actions are required on their part.

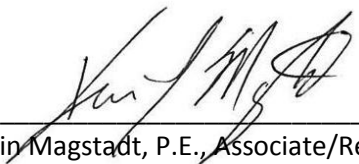
6.0 References

North Dakota Public Service Commission (ND PSC). 2013. Online Case Search. Available from:
http://www.psc.nd.gov/database/company_case_list.php. Accessed January 2013.

7.0 Signatures

The services performed by Wenck scientists for this project have been conducted in a manner consistent with the degree of care and technical skill appropriately exercised by professionals currently practicing in this area under similar time and budget constraints. Recommendations and findings contained in this report represent our professional judgment and are based upon available information and technically accepted practices at the present time and location. Other than this, no warranty is implied or expressed.

Lead Project Manager, Kevin Magstadt and Secondary Project Manager, Sara Simmers, prepared the report.



Kevin Magstadt, P.E., Associate/Regional Manager

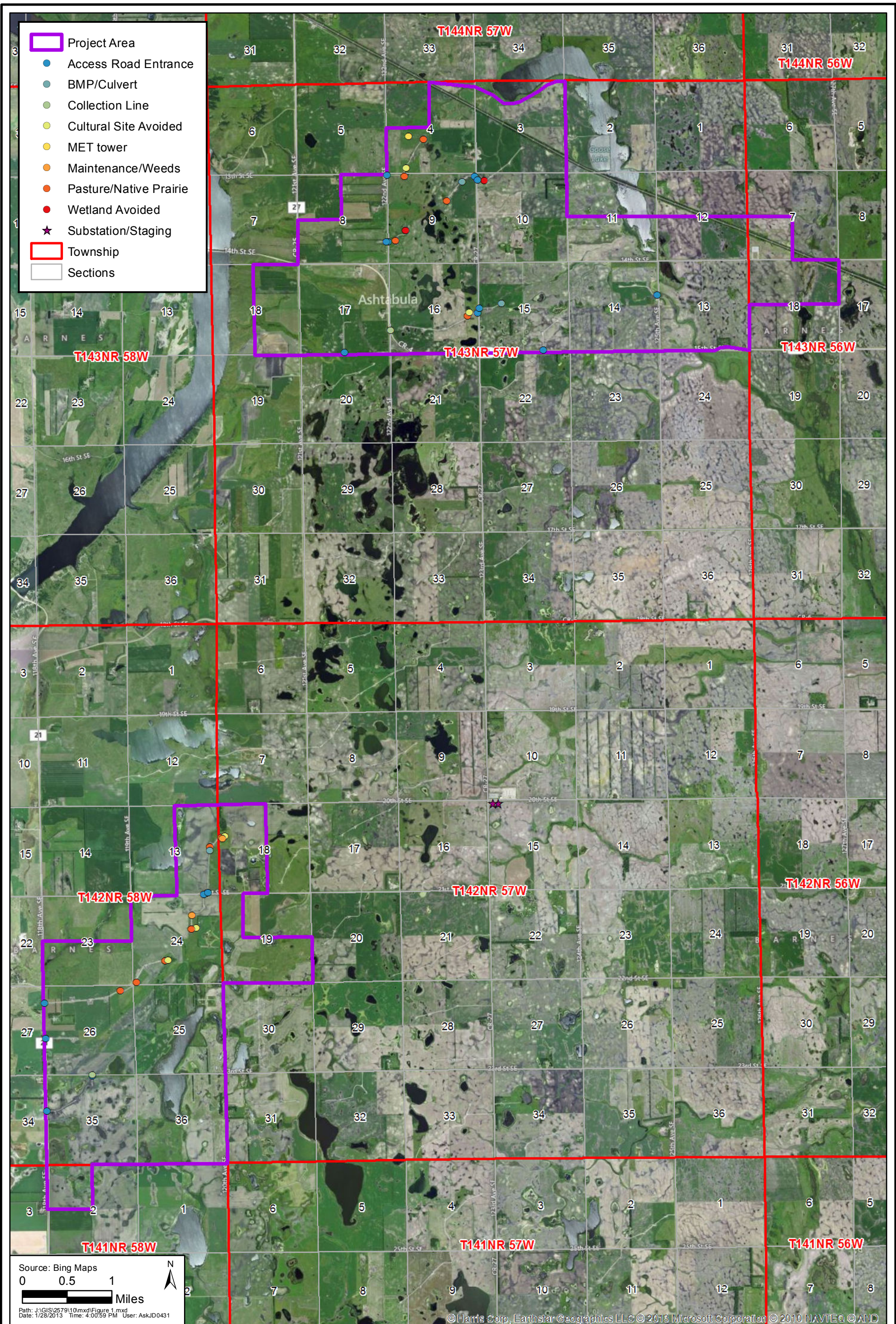
1/29/2013
Date



Sara Simmers, Botanist/Natural Resource Scientist

1/29/2013
Date

Figures



Appendix A

Photographs



Photo 1. Direction: South. View of reclaimed staging/laydown area to the east of the new substation for Ashtabula III. This area is across the road from the existing O&M building and Ashtabula I substation, located in the southwest corner of Section 10, T142N, R57W. The cropland appeared to be in good condition with no concerns.



Photo 2. Direction: South/Southeast. New substation built for Ashtabula III.



Photo 3. Direction: East. View of the area to the north of the new substation, showing the established vegetation.



Photo 4. Direction: East. Gate at entrance to access road for Turbines 273-279. Note that trees were removed from the tree row in the distance for construction of the access road.



Photo 5. Direction: North/Northeast. Close-up of base of Turbine 273, showing pad-mounted transformer to the left and gravel pad surrounding tower. The crop remnants did not indicate any problematic areas or reclamation issues.



Photo 6. Direction: Northeast. Access road leading to Turbines 277-279. The road and turbines were within a grazed pasture of low quality native prairie. Disturbed areas had been reseeded with intermediate wheatgrass and crested wheatgrass, two non-native grasses. The vegetation was established with no erosion concerns.



Photo 7. Direction: Northeast. View of the access road from the base of Turbine 278 to Turbine 279 in the distance. Cropland adjacent to the road and turbines was in good condition and had been satisfactorily reclaimed. There were small patches of annual weeds on the gravel pads at the turbine bases.



Photo 8. Direction: East. Junction box JB102 along 21st St SE showing typical conditions. Cement bollards and gravel were in place around the box with no indication of erosion or weeds. Safety warning signs were in place.



Photo 9. Direction: Northeast. The access road between Turbines 280 and 281, showing culverts installed to allow natural drainage within the cropland. There were no erosion or sedimentation concerns.



Photo 10. Direction: North. Access road to Turbines 282 and 283 on ridge in distance. Left side of road was cropland and right side of road was hayland. Turbines were within an area of native prairie.



Photo 11. Direction: Northeast. Archeological site 32BA196, a rock cairn, near Turbine 283. The site had been avoided by turbine placement and had not been disturbed during construction activities.



Photo 12. Direction: Southwest. View of hilltop with scattered rocks and native prairie, taken from archeological site 32BA196 toward Turbine 283. The area surrounding the turbine had been reclaimed with the non-native grasses smooth brome and crested wheatgrass. The growth was dense and there were no erosion concerns.

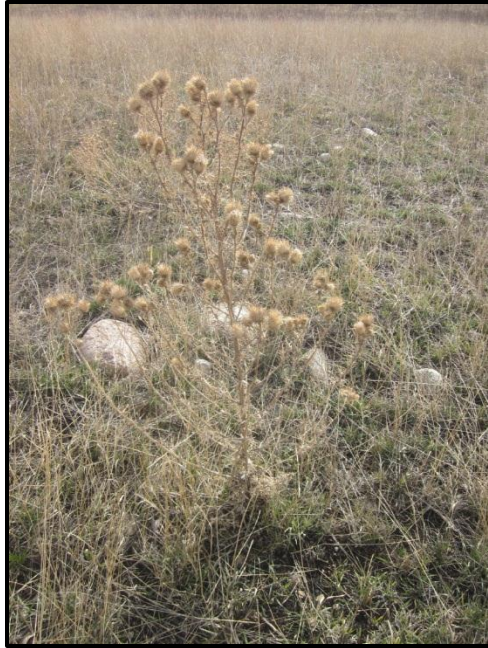


Photo 13. Close-up of what appeared to be musk thistle, a noxious weed, near the base of Turbine 283.



Photo 14. Direction: Southwest. Access road near Turbine 282 where an erosional cut had been filled in with rocks to prevent further erosion, while allowing continued natural drainage flow.



Photo 15. Direction: South/Southwest. Intersection of 122nd Ave SE with State Highway 26. This approach had been widened during the construction phase to accommodate the hauling of turbine sections. It had since been reclaimed back to its original width and was in good condition.



Photo 16. Direction: Northeast. Access road entrance to Turbines 246-247. Proper signs were in place. Cropland, roads, and towers were in good condition. The road near Turbine 247 in the distance had been adjusted to avoid a wetland basin.



Photo 17. Direction: East. Access road entrance to Turbines 248-250. The edges of the road had been reclaimed but the dense growth of seeded grasses typical of other areas was not present here. This could have been due to the heavy grazing in this pasture.



Photo 18. Direction: North. Access road near Turbine 249 (on right). The road and adjacent collection line was routed to the west around an archeological site (32BA197) on the hilltop shown in the center.



Photo 19. Direction: Southeast. Access road between Turbines 253 and 252, showing culvert in place (red markers) and adjacent cropland.



Photo 20. Direction: East/Northeast. Wetland basin in right foreground and associated drainage to the north were avoided by siting of the access road (not visible) and turbine placement of Turbines 254-256. The road was adjusted to the south of the wetland shown.



Photo 21. Direction: West. Access road entrance to Turbines 262-259. The road to the first turbine on the string (Turbine 262, shown) went through pasture and avoided a cultural site to the north.



Photo 22. Direction: East. Base of Turbine 264, showing extra gravel containment underneath the pad-mounted transformer to help prevent spills or impacts to the adjacent waterway.



Photo 23. Direction: Southeast. Waterway/wetland adjacent to Turbine 264.

Appendix B

Field Observation Points

Appendix B. Field Observation Points (GPS Coordinates)

Point	Feature Label	Northing (m)*	Easting (m)*	Observation Notes
1	Access Road Entrance	5213967.59	575746.59	access road entrance to Turbines 269-270
2	Access Road Entrance	5214602.57	576556.18	access road entrance to Turbine 271
3	Collection Line	5214618.44	576561.47	collection line crossing 23rd St SE
4	Access Road Entrance	5215271.93	575720.14	access road entrance to Turbine 272
5	Access Road Entrance	5215909.55	575706.91	access road entrance to Turbines 273-279
6	Pasture/Native Prairie	5216134.44	577069.45	Turbine 276 in native prairie
7	Pasture/Native Prairie	5216287.89	577360.48	Turbine 277 in native prairie
8	Pasture/Native Prairie	5216668.87	577868.46	Turbine 279 on edge of native prairie
9	Cultural Site Avoided	5216676.81	577918.73	historical site urn burial
10	Cultural Site Avoided	5217261.51	578424.06	archeological site stone feature
11	Pasture/Native Prairie	5217242.99	578344.69	Turbine 280 in native prairie
12	Collection Line	5217877.96	578611.91	collection line crossing 21st St SE
13	Access Road Entrance	5217856.80	578564.28	access road entrance to Turbines 281-280
14	Access Road Entrance	5217891.19	578646.30	access road entrance to Turbines 282-283
15	Maintenance/Weeds	5217489.04	578355.27	some vegetation growth at gravel pad Turbine 278
16	Pasture/Native Prairie	5218719.30	578675.40	Turbine 282 on edge of native prairie
17	Pasture/Native Prairie	5218888.63	578876.48	Turbine 283 in native prairie
18	Cultural Site Avoided	5218915.08	578942.62	archeological site stone feature
19	BMP/Culvert	5218653.16	578675.40	erosional channel repaired
20	Maintenance/Weeds	5218864.82	578897.64	musk thistle noxious weed
21	Substation/Staging	5219499.08	583871.69	reclaimed staging laydown area
22	Substation/Staging	5219503.30	583774.55	Ashtabula III substation
23	Collection Line	5228011.56	581922.05	collection line crossing Hwy 26
24	Pasture/Native Prairie	5228275.32	583310.76	Turbine 262 in native prairie
25	Cultural Site Avoided	5228332.52	583345.72	archeological site stone feature
26	Pasture/Native Prairie	5229625.90	582014.21	Turbine 246 on edge of native prairie remnant
27	Cultural Site Avoided	5230935.16	582204.88	archeological site stone feature
28	Pasture/Native Prairie	5230344.09	582932.60	Turbine 251 in native prairie remnant
29	Pasture/Native Prairie	5230782.63	582169.92	Turbine 248 in native prairie
30	Pasture/Native Prairie	5231453.15	582513.13	Turbine 250 in native prairie
31	Wetland Avoided	5230712.72	583612.66	access road adjusted south to avoid wetland
32	Collection Line	5230754.03	583469.65	collection line crossing of 123rd Ave SE
33	Wetland Avoided	5229800.68	582192.17	road adjusted to avoid wetland
34	BMP/Culvert	5230690.47	583215.43	culvert in field
35	BMP/Culvert	5228491.41	583920.91	transformer with extra gravel containment
36	MET tower	5231497.64	582249.37	MET tower
37	Access Road Entrance	5227620.69	581095.82	access road entrance to Turbines 257-258
38	Access Road Entrance	5228319.81	583488.72	access road entrance to Turbines 262-259
39	Access Road Entrance	5228411.97	583523.68	access road entrance to Turbines 263-264
40	Access Road Entrance	5227658.82	584677.23	access road entrance to Turbines 265-266
41	Access Road Entrance	5228650.30	586720.57	access road entrance to Turbines 268-267
42	Access Road Entrance	5230785.81	583441.05	access road entrance to Turbines 253-251
43	Access Road Entrance	5230715.89	583488.72	access road entrance to Turbines 254-256
44	Access Road Entrance	5230804.87	581861.67	access road entrance to Turbines 248-250
45	Access Road Entrance	5229606.83	581883.92	access road entrance to Turbines 246-247
46	Access Road Entrance	5229603.65	581848.96	access road entrance to Turbine 245

