

APPLICATION FOR A SITE PERMIT

TODD and OTTER TAIL COUNTY, MINNESOTA

**BEAR CREEK WIND PROJECT
PHASE I and PHASE II**

**MPUC DOCKET NUMBER
IP6629/WS-07-297**

5/22/2007

Bear Creek Wind Project

5/22/2007

Subject: PUC Docket Number IP6629/WS-07-297

LWECS Permit Application for Bear Creek Wind Energy Project

I am pleased to submit, for your review this LWECS Permit Application for a Site Permit to construct, operate and maintain a Community Based Energy Development for a wind project located in Todd and Otter Tail County, MN. The project will be built in two phases with the 30 MW first phase to be operating commercially by December 31, 2008. The second phase will have a nameplate capacity of 25 MW and construction is contingent upon federal production tax credit extension or other investment mechanism in place after 2008.

PlainStates Energy, Barnesville, MN is representing the project as project developer and has taken a role in development as pertaining to; meteorology assessment, land leases, financial arrangements, legal, turbine supply, permitting, construction and other aspects essential to development of the project.

Contact information for PlainStates Energy, the developer and the application preparer will follow this page. Upon approval, please make the permit out to: Bear Creek Wind Partners, in care of John Ihle, who is a principle of PlainStates Energy and a partner with Bear Creek Wind Partners LLC.

With this application I have included a check for \$5,000 to the MNDoc, reference 7507 Org, made out in accordance with Chapter 4401.0800, for cost estimates that we received for the project from the Minnesota Department of Commerce.

If you have any questions please email me or call me at the contact information provided.

Thank you.

Sincerely,

John M. Ihle
PlainStates Energy
Bear Creek Wind Project
701-232-4948
ljihle@rrt.net

Applicant: Bear Creek Wind Partners LLC

Address: 27451 S. Hwy 34
Barnesville, MN 56514

Authorized Representative: John M. Ihle

Signature: _____

Telephone: 701-232-4948

Fax: 218-493-4360

E-mail: ljihle@rrt.net

Preparer of Application: John M. Ihle

Signature: _____

Company: PlainStates Energy

Address: 27451 S. Hwy 34
Barnesville, MN 56514

Telephone: 701-232-4948

Fax: 218-493-4360

E-mail: ljihle@rrt.net

Table of Contents	Page
1 Project Summary	7
1.1 Introduction	7
1.2 Interconnect-Tap/Collection System	7
1.2 Project Structure and Financing	12
1.3 Ownership	12
2 Certificate of Need	12
3 State Policy	12
4 Project Description	13
4.1 Site Location	13
4.2 Wind Resource	13
4.3 Wind Logics Study	14
5 Site Control	17
5.1 Wind Rights	17
6 Project Design	18
6.1 Project Layout	18
6.2 Description of Equipment	18
6.3 Interconnection and Transmission	19
6.3.2 Electrical Distribution and Collection	19
6.4 SCADA	19
6.5 Access Roads	20
6.6 BOP Contractor	20
6.7 Maintenance	23
7 Environmental Impacts	23
7.1 Demographics Todd County	24
7.1.2 Demographics Stowe Prairie Township	24
7.1.3 Economic Impact to Area	24
7.2 Noise	24
7.2.1 Noise Mitigation	24
7.3 Visual	25
7.3.1 Visual Impact Mitigation	25
7.4 Public Services and Infrastructure	25
7.4.1 Electric Service	25
7.4.1.1 Todd Wadena REC	26
7.4.1.2 Minnesota Power	26
7.5 Water	26
7.6 Waste	26
7.7 Telephone and Microwave	26

7.8 Television	26
7.9 Traffic	26
7.10 Cultural and Archaeological	27
7.10.1 C and A Impact Mitigation	27
7.11 Recreational Resources	27
7.11.1 Recreational Resource Impact Mitigation	27
8 Public Health and Safety	27
8.1 Air Traffic	27
8.1.1 Air Traffic Impact Mitigation	28
8.2 Electromagnetic Fields	28
8.2.1 EMF Impacts and Mitigation	28
8.3 Security	28
8.3.1 Security Mitigation	28
8.4 Road Traffic	28
9 Identification of Permits	28
9.1 Overhead Distribution Line	29
9.2-9.6 Summary of Permits Needed	30, 31
9.7 Hazardous Materials	31
9.7.1 Hazardous Waste Mitigation	31
10 Description of Area Economics	31
10.1 Forestry	31
10.2 Mining	31
10.4 Compatibility	31
10.5 Tourism and Community Benefits	31
11 Environmental & Topography.....	32
11.1 Description	32
11.2 Mitigation of Impacts to Topography.....	32
11.3 Soils	33
11.4 Mitigation of Impacts to Soils.....	34
11.5 Hydrology and Groundwater Resources	34
11.6 Mitigation of Impacts to Hydrology and Groundwater Resources.....	34
11.5 Wetland and Public Waters	34
11.6 Mitigation of Impacts to Wetlands and Public Waters.....	37
11.8 DNR Recommendations from Area Coordinator.....	38
11.10 Natural Heritage, Rare Plant & Animal, Natural Features	38
11.11 U.S. Fish & Wildlife	38
11.11 Mitigation of Impacts to Plants, Animals.....	41
12 Construction of the Project	41
12.1 Siting Plan	41
12.2 Operations	42
12.3 Costs	42
12.4 Project Schedule and Current Status	42
12.5 Milestone Dates	43

12.6 Energy Projections	44
12.7 Decommissioning	44

TABLES

Table 1-Monthly Wind Speeds	12
Table 2-Summary of All Permits Needed for the Bear Creek Project	30,31
Table 3- National Wetlands Inventory on Project Site	27

FIGURES/MAPS

Figure 1 Site Location Phase I Layout	8
Figure 2 Site Layout Phase II.....	9
Figure 3 Site Location	11
Figure 4 Renalysis of Long-Term Wind Resource	16
Figure 5 Diurnanal Wind Patterns	17
Figure 6 Annual Wind Rose	19
Figure 7 Land Use (Phase I)	21
Figure 8 Land Use (Phase II).....	22
Figure 9 NWI (Phase I)	35
Figure 10 NWI (Phase II)	36
Figure 11 DNR Wetlands (Phase I)	39
Figure 12 DNR Wetlands (Phase II)	40
Figure 13 Location of Homes (Phase I & II)	84-85
Figure 14 Utility Pole Diagram	86

APPENDICES

A.1-Resolution of Support from Todd County.....	45
A.2-Resolution of Support from Otter Tail County.....	46
B.7-National Wetland Inventory	47
C-Turbine Technical Details	48-56
D.1-Electrical One Line	57
E.1-Access Roads	58
F.1-Landform Patterns	59
G.1-County/SHPO Correspondence	60
G.2-SHPO Response	61
G -Pre-Settlement Map of 1895	62
H- EMF Working Group Executive Summary	63-65
J- MNDNR Correspondence.....	66-77
K- U.S. Fish & Wildlife Correspondence	78-81
L- ComSearch Executive Study re Microwave Beampaths.....	82, 83, 84

1. Project Summary

1.1 Introduction.

The Bear Creek Wind Project submits this application for a Site Permit to construct a Community Based Energy Development/Large Wind Energy Conversion System with a total nameplate capacity of 55 MW's. The project will be constructed in two phases. The first phase is expected to be operating prior to December 31, 2008. Phase 2's commercial operation is contingent on the extension of the Federal Production Tax Credit or some other market mechanism which facilitates investment beyond December 31, 2008. The permit is in compliance with Minnesota Rule 4401.0300 and the Wind Siting Act, Minnesota Statutes Chapter 216F.

The 30 MW first phase is organized with ten Minnesota residents and will be structured as 4 – 4.5 MW (each 4.5 MW = 15%) wind projects, 1 – 4 MW (each 4 MW = 13.33%) wind projects and 2 – 2 MW (each 2 MW = 6.66%) projects and 4 – 1 MW (each 1 MW – 3.33%) projects. A limited liability corporation (Bear Creek Wind Partners LLC) will include the equity/debt providers and the local owner group and will be responsible for oversight and management for development, finance arrangements, turbine selection, construction and on-going administration including the operations and maintenance for the project. Phase 1 is located in the NW corner of Todd County, near the junction of State highway 210 and US 71 near Hewitt, MN. Phase 2 is located SE Corner of Otter Tail. As proposed, Phase 1 project will have a capacity of 30 MW which is expected to begin delivery of power no later than December 31, 2008, Phase 2 will have a 25 MW nameplate capacity.

Each turbine will generate power at 660 volts, stepping up the voltage to the collection system at 34.5 kV. A newly built overhead feeder tap will interconnect the project's power to Minnesota Power's (MP) 115 kV transmission system through a dedicated substation. The interconnection point tap is 4.25 miles east of the project site starting in Bartlett Township.

1.2 Interconnect/Tap/Collection System.

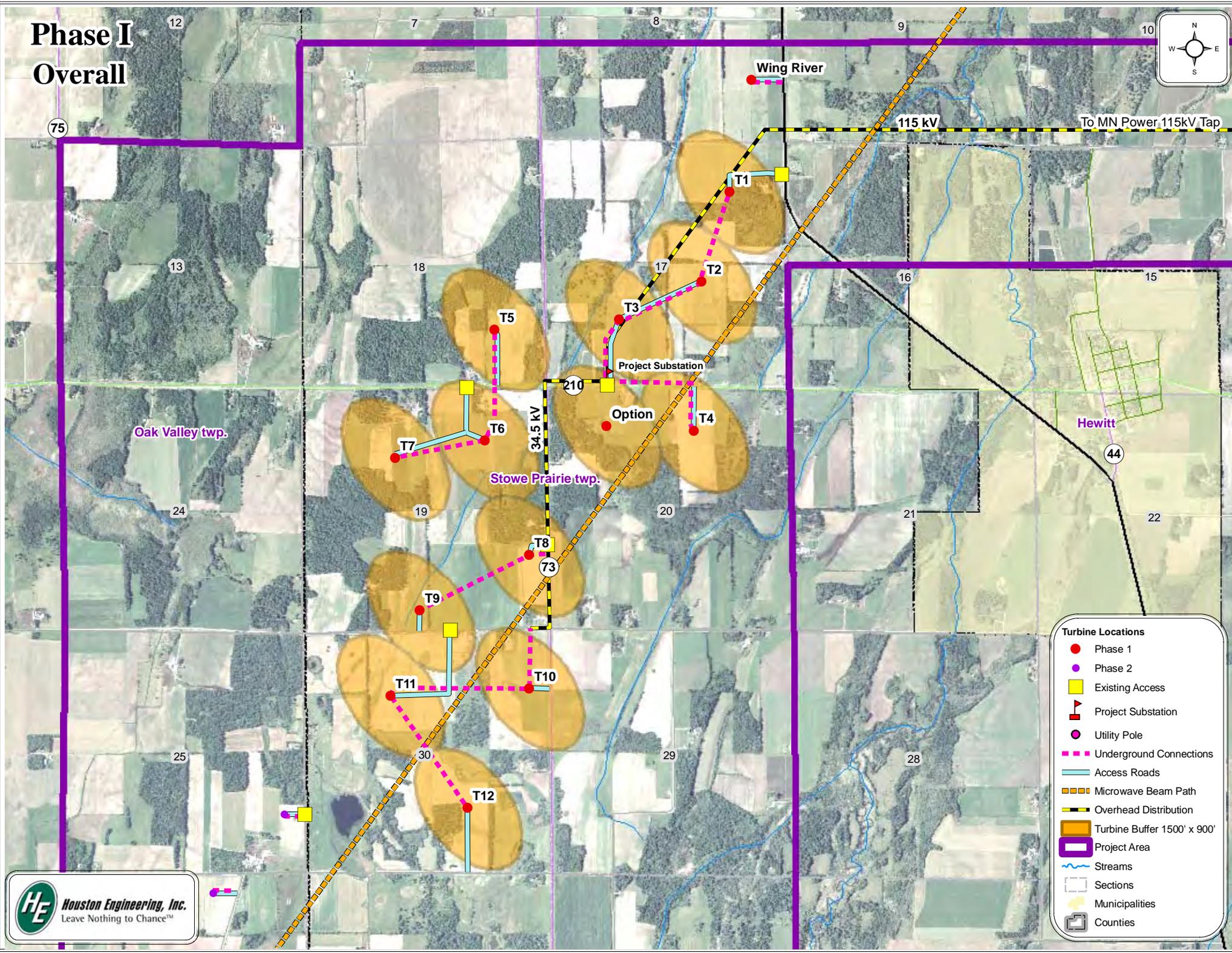
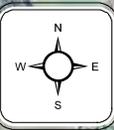
In return for a Right of Way agreement with Stowe Prairie Township the project has offered a set aside of nameplate capacity equal to 6.33 % of the project's power. The overhead feeder will be permitted locally complying with recommendations from the DNR, US Fish & Wildlife and the Soil and Water Conservation Board.

Impacts to the local community and the project will be minimized by tapping the 115 kV line in Bartlett Township and constructing approximately 5.5 miles of 115 kV overhead line along 490th St. to the project site. The 115 kV feeder will feed a dedicated project substation located adjacent to State Highway 210 (see site layout). This option is preferable for four reasons; 1. line loss is mitigated; 2. the project has more options for expanding the project; 3. construction would be less expensive, and; 4. local residents and township representatives would view the single pole construction as less obtrusive.

As mentioned above Right of Way easements have been acquired for the 4 miles in Stowe Prairie Township from the local township supervisors but the understanding was for 34.5 kV overhead conductor. Right of Way easements for the 115 kV line will need to be clarified and acquired from Stowe Prairie Township, the local permitting authority in Todd County for that portion of the electrical collection system located in this Township. Permitting for the project tap that is located in Bartlett Township will have to be acquired from Todd County and possibly from Bartlett Township.

See Project Layout the following map.

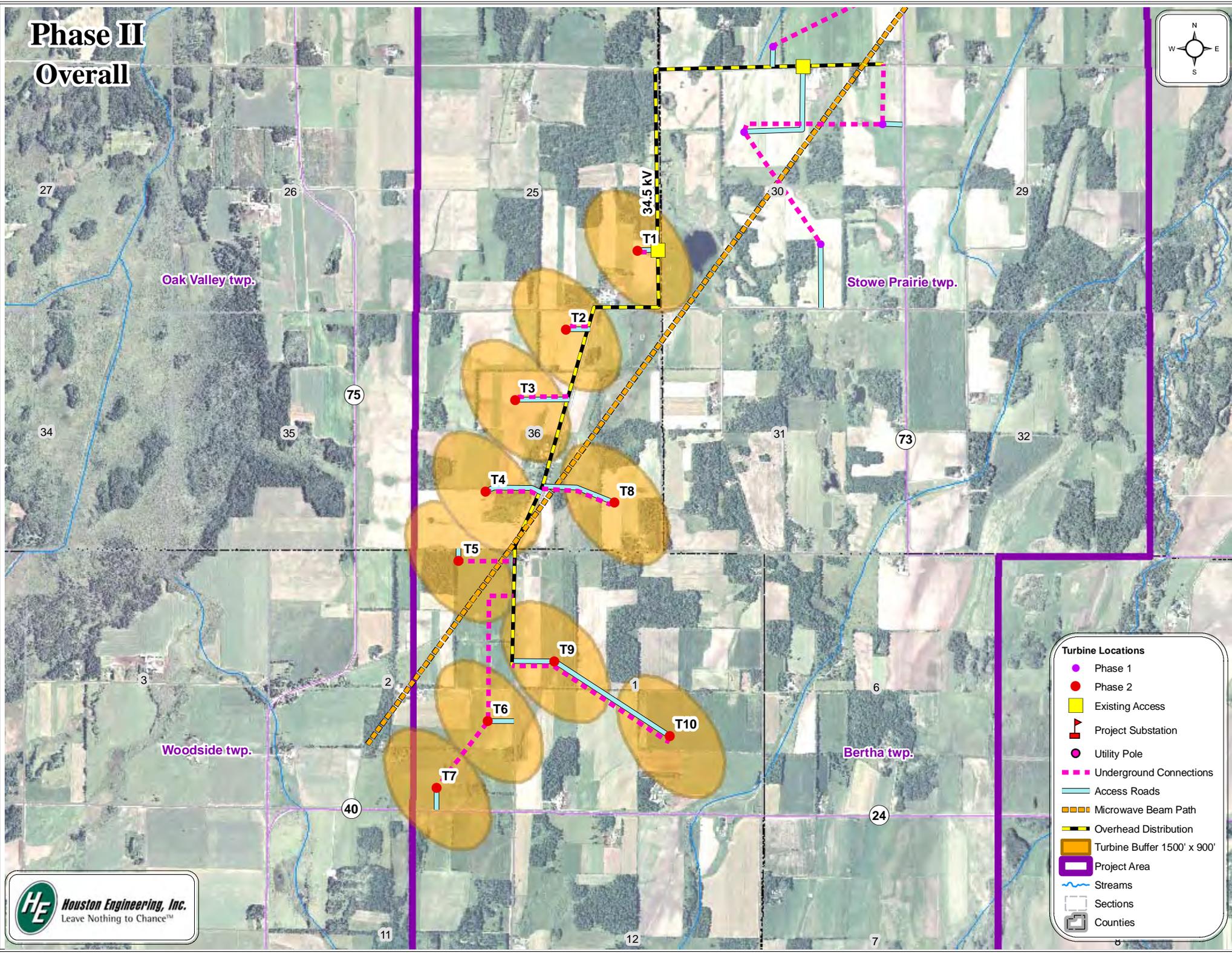
Phase I Overall



Turbine Locations

- Phase 1
- Phase 2
- Existing Access
- ▭ Project Substation
- Utility Pole
- Underground Connections
- Access Roads
- Microwave Beam Path
- Overhead Distribution
- Turbine Buffer 1500' x 900'
- ▭ Project Area
- ~ Streams
- ▭ Sections
- ▭ Municipalities
- ▭ Counties

Phase II Overall



Turbine Locations

- Phase 1
- Phase 2
- Existing Access
- Project Substation
- Utility Pole
- Underground Connections
- Access Roads
- Microwave Beam Path
- Overhead Distribution
- Turbine Buffer 1500' x 900'
- Project Area
- Streams
- Sections
- Counties



Transmission Tap/Collection System.

The transmission tap and medium voltage/34.5 kV project built overhead distribution system, will consist of bare conductors sized to minimize power loss from the project for delivery to the 115 kV grid. Supporting structures of wood poles and cross arms, polymer or porcelain insulators, grounding and lightening arresters will be designed in accordance with the National Electric Safety Code (NESC). Safety clearances around conductors are determined by operating voltages, conductor temperatures, short-term abnormal voltages, windblown swinging conductors, contamination of insulators, clearances for workers and clearances for the public safety. We have designed the system taking into account the following considerations;

- Bird Deflectors as per Department of Natural Resources
- Distances between energized conductors;
- Distances between supporting structures;
- Icing;
- Distances between energized conductors and other power or communication wires on adjacent structures or underground systems;
- Distances between energized conductors to the ground and other features such as along or over roadways, railroads and driveways.
- Future expansion of county or state roads.
- Future expansion of the project.

The existing 115 kV MP system is part of a robust Minnesota Power (MP) DC system which has capabilities of adjusting power flow in the area for MP loads, including the injection of power into the transmission system. This can be accomplished in part because of the lack of generation in the area and the presence of growing load and the MP owned DC transmission system within MP's Control Area. The project has signed Out of Queue System Impact Study letters with Midwest Independent System Operator (MISO) to analyze the project's proposed injection of power into the area. We expect positive results from that study to be determined by mid September of 2007 to facilitate an in service date towards the end of 2008. MP has received favorable results from a Transmission Service Request (TSR) submitted for the project's power.

The development team's turbine layout is optimizing wind resources with respect to trees and ridgelines on land leased for the project. The factors for making decisions on turbine layout and spacing will be based primarily on feedback from the DNR and other agencies, prevailing winds, rotor diameters, as well as elevation and distances from nearby trees.

Bear Creek Wind Partners or the project developer, PlainStates Energy, have no operating wind projects. Some of the project partners have been involved with development, construction, operations and maintenance of large scale wind projects over the last 20 years. The ownership structure for capitalizing the development of project included utilizing the local owners to assist with development costs of the project. The project is giving opportunity for ownership, through Community Based Energy Development (C-BED), who would not normally have local economic resources, to partner with equity providers pulling together needed capital which utilizes the production tax credit (PTC). Rising costs associated with turbine cost increases, steel pricing increases, devaluation of the dollar, rising interest rates and even rising costs associated with erection crews (cranes), those partners participating in the construction process, as owners and subsequent operators, will be able to offset these costs to increase profits going back to those partners and back into the Minnesota economy.

The development of this project will further State goals and policy as it relates to building wind projects in an orderly manner, mitigating environmental pollution, developing an orderly energy infrastructure within the state to help meet growing demand, act as a hedge against future carbon taxes and subsequent higher utility rates and contributing to economic growth through local ownership. The project will:

- Investigate local land use practices and engage the community to ensure the project is compatible with long-term interests of the area,
- Work with the DNR and other State agencies to evaluate wildlife, historical, cultural and archaeological records minimizing project impacts,
- Appraise safety issues relative to air traffic, communications systems, public roads and the transmission system,
- Mitigate energy imports from neighboring states and provinces by utilizing local energy resources,

- Demonstrate that economically feasible wind projects can be developed in areas not previously considered for development.

The project has obtained a Resolution of Support from Todd County and Otter Tail County, included in the attachments, for this project. **Figure 3-Site Location.**



Local permitting for Right of Way (ROW) along township roads relative to the construction of overhead lines from the sub station site to the project site has been underway since June of 2006. Local permitting is done through Todd County/Stowe Prairie Township supervisory board and Otter Tail County/Oak Valley and Woodside Township supervisory board. Permitting for the crossing and the paralleling of roadways under the control of the Department of Transportation (DoT) and/or county (Todd) has begun and contact has been made with various officials. Also, a crossing permit will be needed from the DNR, as well. All permits will be in place by March/April of 2008 from these agencies for crossing and paralleling purposes in this regard. See Figure 13 in Appendix, Page 86

1.3 Project Structure and Financing. Organized as a Community Based Energy Development (C-BED) project, the project's 55 MW nameplate capacity wind project will comprise of limited liability companies with 10 individual Minnesota residents, some of which are landowners on the project. One of these projects is a set aside/for-profit community benefits turbine of approximately 2 MW's or 6.66 % of the total capacity of Phase 1. These individually owned projects will fulfill criteria pertaining to C-BED requirements as per Minnesota law. This project's turbine supply is contingent upon the installation of a single Nordex 2.5 MW turbine installed May of 2007 depicted as Wing River Wind on the Site Layout map. There are a total of 21 site locations depicted on site map 12 of which will be used for the first phases 30 MW. These sites will be utilized for Phase 1 and Phase 2 for the future expansion of this project.

Bear Creek Wind Partners LLC is a limited liability company that was formed to oversee development, construction, operations and maintenance of the project. The LLC will be made up and directed by the financiers and subsequent owners of the project LLC's and 1 set aside LLC for the community.

The set aside LLC mentioned above will generate profits whose pro rata share (per MW) will be directed towards various township needs over the course of the next 20 years. It is expected that at least 6.66% of the profits will be directed back into the community at no cost to the community. Profits from this for profit company will be overseen by the LLC board and profits will be directed into the local community for purposes such as; the Bertha School District, gravelling township roads, ambulance service, volunteer fire service, and/or other similar community needs.

The project will be structured to comply with CBED and it is thought that a typical "Minnesota Flip" type structure will be negotiated with the financing entities in an equity and debt type deal. Bear Creek will attempt to acquire debt financing locally.

Other benefits to the Project include the development of reserve accounts and contingency funds for decommissioning and major equipment failures that will be placed in interest bearing escrow accounts.

The project will be in strict compliance with C-BED statutes governing local ownership aspects and cash flow for these types of projects.

1.4 Ownership. The project will be made up of several small, individually owned wind projects and with one for-profit LLC set aside for the community. The intent of the for-profit set-aside will be to use generation profits for township purposes which would flow directly back into the community. These townships will include; Bartlett, Stowe Prairie (Todd County), and; Oak Valley (Otter Tail County). Structuring the project in this way will have a positive economic impact on the community, in addition to property taxes paid by the project, over the expected 20 year life. It is expected that this for-profit project will inject significant economic benefits into the township over the life of the project benefiting everyone in the community, above and beyond the land lease/royalty payments being paid to landowners, property taxes paid, and benefits received by turbines locally owned.

2 Certificate of Need

Under Minn. Stat. 216B.243, Subp. 8 (7) Exemptions, and 216B.1612 (C-BED) a Certificate of Need is not required because the plant will serve Minnesota Power load in Minnesota and will be used to meet the Renewable Energy Objective under 216F and addresses a current resource need as spelled out in 216B.2422.

3 State Policy

The project meets criteria concerning Minnesota's energy resource needs and fulfilling state legislature criteria for renewable energy under the Renewable Energy Objective Minn. Stat. 216B.1691. Also, the project falls under Minn. Stat. 216B.1612 which directs utilities to negotiate for locally owned, C-BED, wind projects. Subsequently,

model contracts for C-BED have been submitted with regard to C-BED projects and specific negotiations with regard to the Bear Creek Wind Project are on-going.

The project is also consistent with 216C.05 which finds that it is in the vital interest of the state to provide for the development of renewable energy. Other findings include; that it is in the state's best interest to encourage the development of energy resources that minimize the consumption of fossil fuels and to provide for an optimum balance between generating resources. C-BED does this through the offsetting of anticipated rising net avoided cost rates and possible carbon taxes by way of utilizing net present value incorporated into front loaded contracts and a stable energy resource.

Finally, the project furthers state policy, which is the purpose of this application, under Minn. Stat. 216F.05 by siting the project in an orderly manner consistent with environmental preservation, sustainable development and the efficient use of resources as indicated in this application.

4 Project Description

4.1 Location. The project site was chosen because it is located within Minnesota Power's (MP) control area and the proximity to MP owned transmission. Discussions with MP did take place in regards to locating the project outside MP's control area, making the interconnection with a utility which is a MISO member. MP indicated their desire to have the project placed on and within their system and control area, and that it may be less complicated to analyze the project's system impact to the transmission system placing the project within their territory.

Additionally, the site was chosen because of the location of a ridgeline which runs in a northeasterly to southwesterly direction. PlainStates felt that with the increase in height relative to the surrounding topography, the project would possibly be an area that may have favorable wind characteristics. The WindLogics study that was performed for the project came back with positive results.

The 30 MW Bear Creek Project will be built in the first phase and is located in the NW corner of Todd County, Stowe Prairie Township/Bartlett Township. Phase 2/25 MW is located in Otter Tail County, Oak Valley and Woodside Townships on land belonging to several landowners which include the following Sections;

Phase I

- Todd County, Bartlett Township, Section 7 (115 kV MP tap).
- Todd County, Stowe Prairie Township, Section 17 (substation).
- Todd County, Stowe Prairie Township, Sections: 8, 17, 18, 19, 30 and 31 (turbine locations).

•

Phase II

- Otter Tail County, Oak Valley Township, Sections: 25 and 36 (turbines).
- Otter Tail County, Woodside Township, Sections: 1 and 2 (turbines).

The project's layout includes 21 sites and includes turbine locations for a possible expansion of the project. A DNR walk through was done to facilitate the determination for final turbine locations, access roads and underground conductors. The site locations depicted on the Site Layout are a result of the walk thru and feedback from the DNR. The locations are approximate. See Site Layout Map.

4.2 Wind Resource A met tower was installed in November of 2006.

A WindLogics point study was done to gather statistics and information for feasibility consisting of a comprehensive analysis reporting for one virtual tower located within the bounds of the site. Using data from the WindLogics weather archive a 12 month modeling process was normalized to reflect long-term values using 40 years of additional WindLogics data. Those results were used to generate conclusions for a report which indicated a viable wind resource.

The data collected and the WindLogics Study performed indicates a somewhat unusual wind resource at hub height of 80 meters. Unusual in the sense that wind speeds are higher than expected during summer months. The project's wind resource indicates a healthy 7.99 m/s wind speed average at hub height. Prevailing winds are from the NW during the cooler months September through April/May, and SE during the summer months. We will evaluate on

site data once we have at least 12 months accumulated and we will be able to correlate that with WindLogics archived data.

Those areas of information that are left blank, below, are areas WindLogics studies do not analyze. An anemometer was placed on site November 2006. We have not had enough data accumulated from the met tower to give analysis for one year.

4.3 WindLogics Study. WindLogics utilizes state of the art methodology in assessing the economic viability of a proposed wind project. Time has proven WindLogics methodology is reasonably accurate by some of the biggest wind energy developers in the world have. So much, in fact, that Florida Power and Light recently bought WindLogics.

Financial viability is determined by the probability that the wind resource (wind speed, production estimates, etc.) will meet or exceed specific values in the future, based on data from the past. In order to predict this properly it is necessary to use Predictive Intervals and not Confidence Intervals (CI).

Confusion arises because interpretations are very similar but the main difference is that a CI is a diagnostic value-where values are likely to fall within a collected data set (for that period collected); while PI is a prognostic value-which is used to predict probabilities of future values based on properties of collected data sets.

Prediction level values (P50, P90, etc.) are probability values in percent indicating the likelihood of an event happening. For the Bear Creek Project prediction level values are upper and lower interval bounds in units of measured value. This is represented in meters/second and/or MW.

It is not our position to infer that the WindLogics study done for the Bear Creek Wind Project is 100% accurate but it is probable that the wind project's annual averages will lie above the PI values predicted for this project. PI values are needed to assess the financial viability of the site's wind resource given a specific turbine's performance characteristics.

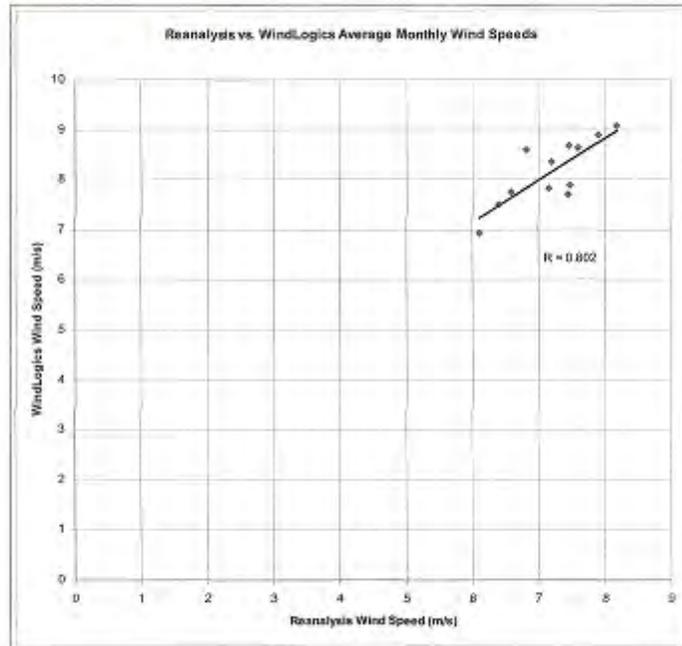
Although the Bear Creek Wind Project relies heavily on the WindLogics study, an anemometer has been installed on site in November of 2006 to further prove out the viability of the project's wind resource. What follows is a short discussion of the wind resource based on the study performed by WindLogics in 2005 (Suzlon) and another WindLogics (Nordex) study done in 2007. Further information will be available as it is collected.

4.3.1 Interannual Variation. See Figure 3 Below. WindLogics has an online archive with more than 50 years of collected data used for normalizing the results of modeling to reflect long-term values and for studying interannual variation of the wind resource. The National Center for Environmental Prediction and the Center for Environmental Research have cooperated in reanalysis to produce retroactive records of atmospheric weather information to support needs for research and climate areas. The data comes from land surface, ship, rawinsonde, aircraft and satellite and other data that has been kept unchanged over the data period. WindLogics has developed specialized software to analyze this data to be used for wind project analysis which has been recognized by some of the largest wind project developers in the industry.

By characterizing the model year wind resource difference with the long-term average (forty year) at reanalysis grid points adjacent to the study location, a ratio is obtained that is applied to the results of the WindLogics modeling process. The correlation of average monthly wind speeds between the non-normalized detailed results is depicted in Figure 3. In this figure the points are plotted for each month of the overlapping time period between the datasets. The level of correlation is depicted by the R correlation value. Values with above .60 are considered to be fair, values .75 are considered good, and values of .85 and above are considered excellent. The implications of Figure 3 depicting an R average of 80 % indicate a good correlation between the site's WindLogics archived data and reanalysis data acquired from the institutions mentioned above.

Figure 4, Reanalysis of long term wind resource.

WindLogics®



Correlation between Reanalysis and WindLogics average monthly wind speeds.

4.3.2 Seasonal Variation at 80 meter hub height-Consistent with the wind resource in Minnesota, generally the winds are strongest during September through April, and lower during the spring/summer months of May through August.

Table 1. Monthly Wind Speeds.

Month	m/sec	Month	m/sec	Month	m/sec
January	8.50	May	7.80	September	8.01
February	8.13	June	7.40	October	8.70
March	8.28	July	6.87	November	8.48
April	8.26	August	7.12	December	8.42

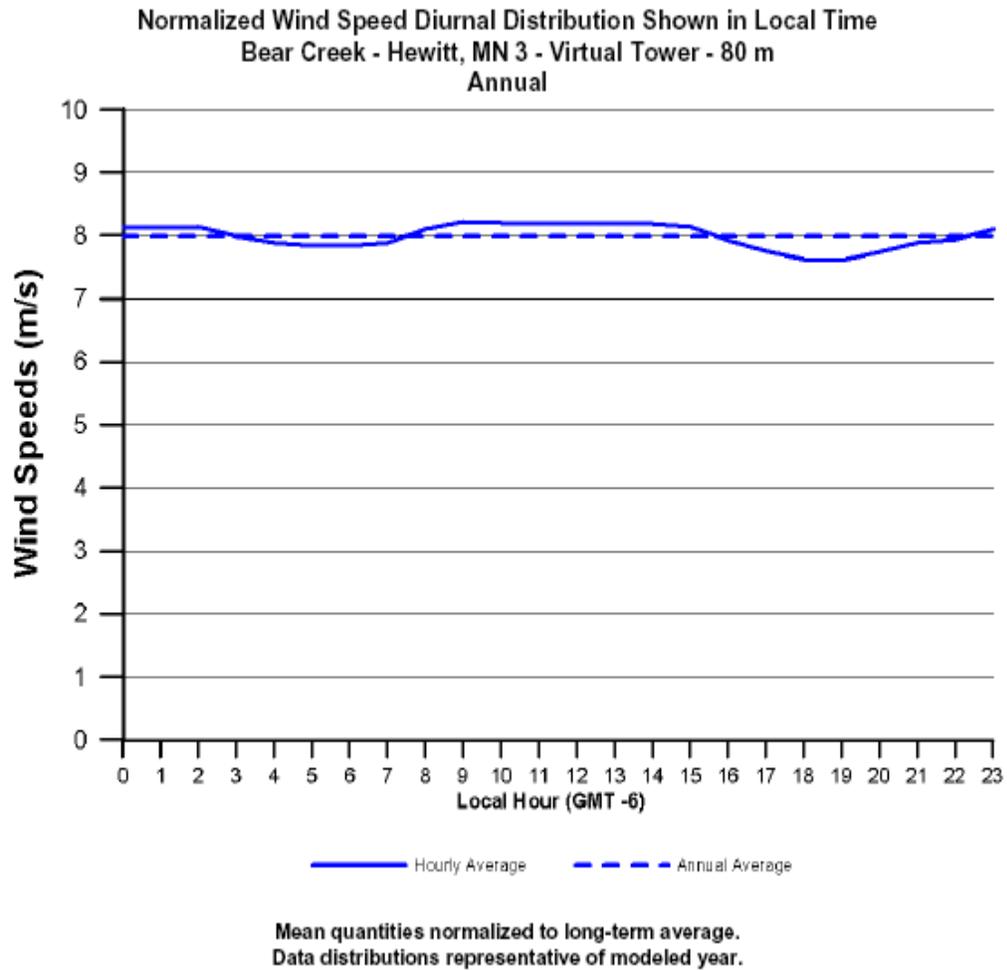
Annual Average 7.99 m/sec

Table 2, Monthly Production Estimates (MWhr/CF),

Month	Prod/CF	Month	Prod/CF	Month	Prod/CF
January	8.86/48%	May	6.87/37%	September	7.16/40%
February	7.19/43%	June	6.32/35%	October	9.00/48%
March	8.08/43%	July	5.39/29%	November	8.82/49%
April	7.71/43%	August	5.58/30%	December	8.01/43%

Gross 106.764 MWhrs/year-CF 41%
Net (12% Loss) 94.082MWhrs/yr-CF 35.8%

4.3.3 Diurnal Conditions. Figure 5.



4.3.6 Extreme Conditions. Extreme weather events in Todd County, as in every other county in the upper Midwest, include; tornadoes, lightning strikes from thunderstorms and possible ice build up.

We know of no tornado activity that has had devastating impacts on wind projects. Industrial grade turbines shut themselves down when winds exceed 55 mph hour and these turbines have survival wind speeds in excess of 100 mph. A direct strike to a windfarm by a tornado is unlikely. Straight lline winds are more plausible and the turbine, as mentioned, shuts itself down in winds exceeding 55 mph.

Lightening may be a more serious matter. Nordex has engineered their turbine to protect against lightening from the tip of the blades through the foundation. The blades are equipped with lightening receptors wired through the hub via the rotor shaft where the voltage is discharged to the main frame, tower, foundation and ground ring by carbon brushes appropriate for the protection voltage. All components are connected to this ground bus. The generator is equipped with lightening arresters and the converter is equipped with varistors on the line side of the connections. Nordex has taken a serious approach to lightening protection and has designed their turbine to comply with international and wind energy standards.

Icing and cold weather events may be an issue the project has to contend with from time to time. To protect against start up during icing a icing sensor is installed on the top of the nacelle to shut the turbine down when this occurs. Operations below -10 degrees F are shut down.

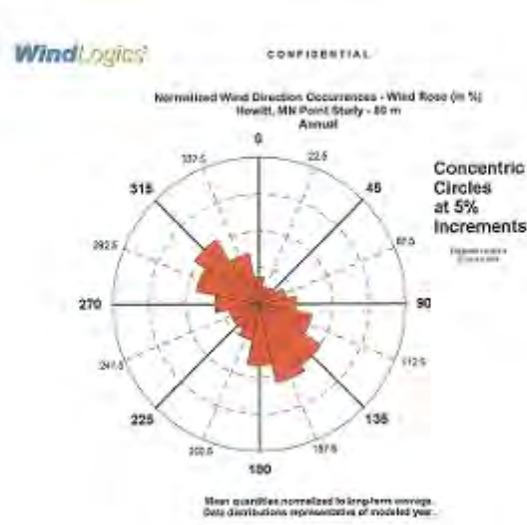
We have included approximately 3% of production loss in our pro forma due to extreme weather events, 5% production loss due to trees and wake, and 4 % production loss from electrical infrastructure.

4.3.7 Speed Frequency Distribution. See Table 2.

4.3.8 Variation with Height. Will be available as on site met data is analyzed. Wind shear from this site is expected to be significant because of trees located within ½ mile of turbine locations. Most of the trees are 40 – 50 feet in height. On site monitoring is being conducted at the 195 foot level, 165 foot and 135 foot levels.

4.3.9 Spatial Variations. The project expects minor power variations due to elevation changes. Located on top of a prominent ridgeline in Todd and Otter Tail Counties, the site is exposed to woodlands and open areas where we expect to see losses mentioned above due to turbulence generated by trees. The project will site turbines in open areas, relative to prevailing winter northwesterly and summer southeasterly winds to maximize wind energy production from the site. Please see figure 4 for annual Wind Rose.

Figure 6. Annual Wind Rose.



5 Site Control

5.1 Wind Rights Bear Creek is obtaining from landowners easements and leases which include wind rights sufficient for the Bear Creek wind project to mitigate against any problems or issues that may arise from the placement of turbines and interference by other project developers. In some respects the project will exceed State, NREL and AWEA guidelines for siting turbines. Our intent has been to site turbines approximately 10 rotor diameters apart in a north/south and east/west layout and not to interfere with future developments with a 6 rotor diameter in the east to west directions and to obtain easements from property owners when necessary.

For this project Bear Creek is acquiring easements and/or agreements that keep turbines spaced from potentially affected landowner property lines of approximately 5 rotor diameters in a NW to SE direction and 3 rotor diameters in the NE to SW wind directions.

Bear Creek Wind Partners has leased optioned approximately 1795 acres of land which is enough property to construct and operate 22-2.5 MW wind turbines, access, access roads, wind rights and other ancillary needs including a substation to be used for interconnecting with Minnesota Power. These signed options lay out the premise in which the actual leases will be predicated on and include; wind rights, payment, site access, met tower installation, construction, operations and maintenance, taxes, and decommissioning.

The lease option terms are for 25 years and include options for extensions. The land lease may be extended when the lease expires. See Figure 1 & 2, pp 9&10.

6 Design of the Project

6.1 Project Layout. Four basic components to wind farm construction include; access roads/crane pads; turbine/transformer foundations; turbine equipment including, towers, nacelle and rotor; and the electrical infrastructure including substation and collection system.

Our project is laid out to minimize acoustic and environmental impact while gaining the best use of the wind resource given the land available, the location of trees or other obstructions in the area, and the least infringement upon landowners and citizens who reside in the area. Turbine selection was predicated by the wind resource, based on available turbines as of November 2006. The turbine was selected for our project based on estimated power production and preliminary a turbine layout has been established for the Nordex N90-2.5 MW turbine. Nordex will optimize the layout through WindPro in respect to sound levels projected at occupied residences to comply with Turbine Supply and Warranty Agreements. In all respects, the project will comply with state law to minimize aggravation to those living in the vicinity of the proposed project.

The layout has been established to take advantage of NW prevailing winter winds and SE prevailing summer winds. According to the WindLogics study, an insignificant amount of winds come out of the NE. Subsequently the project has been laid out in a NE to SW to follow natural the ridge line, to the extent possible. Distances between turbines will be approximately 10 rotor diameters as suggested by guidelines established by AWEA taking into account many factors. We estimate turbine layout loss of production due to wake from turbines is less than 2% per year for the entire project. Overall, a 12% production loss has been projected for the project, taking into account; wake, trees, variations in topography and electrical line losses, giving the project an overall mean capacity factor of approximately 35.8%.

Currently, zoning rules and regulations do not exist for siting and constructing wind turbines in Todd County or Stowe Prairie Township, or Otter Tail County and Oak Valley Township. There have been several meetings with Stowe Prairie Township to discuss Right of Way (ROW) needed to construct an overhead line 4.25 miles west of the MP 115 transmission line. The 4.25 miles of line will be a 115 kV feeder line with a 34.5 kV overhead distribution feeder. (Figure 14, Page 86).

Currently the project is laying out the project relative to siting and set back principles set up in other counties and under state guidelines. Set backs established by the project are greater than 1000 feet from state, county and township roads (and occupied residential homes). This criteria was established to further mitigate noise impact to occupied residences and will either meet or exceed set back guidelines used by other counties in Minnesota established for roads.

The specific collection system and layout has not yet been determined. Issues relative to wetlands and the exact location of roads and underground facilities will be predicated on discussions with NRCS, DNR and U.S. Corps of Engineers. There are wetlands located in the area and we will be sensitive to constructing the project in or on these areas and the proper permits will be obtained from the permitting authority.

Other than turbine/transformer foundations, electrical/communication infrastructure, substation and roads there will be no permanent building built on site for the construction, operation or maintenance of the project. Subsequently no need for wells for water supply, plumbing or other infrastructure will be needed.

6.2 Description of Turbine Equipment to be used in the Project. See Appendix C for Technical Information.

1. The project's first phase will be built using 12-Nordex N90-2.5 MW wind turbines. The turbines will be built on 80 meter towers and have a 90 meter rotor diameter. Cut in and cut out wind speeds are; 3.5 m/s (6.7 mph) and 25 m/s (55 mph) respectively. This turbine can withstand windspeeds in excess of 100 mph. The second phase of the project will utilize 8 Nordex N90 – 2.5 MW turbines.

The turbine has active yaw and pitch systems and asynchronous generators. The planetary gearbox, double-fed generator and associated equipment is mounted on a heavy duty bedplate to lessen torsional twist and other

detrimental flexing due to gyroscopic and thrust loading from the huge rotor. This provides for longer life spans due to proper alignment of the major equipment.

There is a SCADA system (supervisory control and data acquisition) communications system to continually monitor the project's performance and availability 24/7. The system allows either on site or remote monitoring of the park.

Operations and maintenance of the project will be handled jointly through Nordex and Bear Creek Wind Partners. We will structure the operations to provide for oversight and timely operations eliminating unnecessary downtime.

Manufactured from specially manufactured steel, the tubular tower is approximately 80 meters and consists of three sections with heavy duty flanges at connection points section to section and section to foundation. The manufacturing process is tightly monitored for quality control per ANSI and IEC specifications. Access to the inside of the tower will be made through a secure steel door. Entry to the nacelle will be made from the inside of the tower by way of a ladder with safety ascent and descent devices for workers. Resting platforms will be installed at three or four levels. See Appendix C.

6.3 Interconnection and Transmission. The Bear Creek Wind Partners have filed a Large Generator Interconnect application for Phase I and is currently scheduled to be studied out of queue. Out of Queue Letters have been signed and scoping meetings have been completed with MISO to connect Phase 1's 30 MW wind project to the grid. A separate 25 MW MISO application will be applied for if an extension is given for Production Tax Credits. Movement on the MISO Out of Queue Study have been slow because of Nordex' reentry into the U.S. market.

Phase II Interconnect application will be filed once we have a confirmation from an off taker for that project's power. Currently we are discussing Phase II's PPA with MP.

Thermal, short circuit and other relative MISO analysis is expected to start in June of 2007. A substation is planned and engineering has been completed by Consulting Engineers Group to connect the project to a Minnesota Power 115 kV transmission line through a tap located in Bartlett Township which is approximately 5 miles from the project site. See Appendix D.1-Electrical One Line.

6.3.2. Electrical Distribution/Collection. A common overhead feeder collector is planned, rated at 34.5 kV, connecting turbines and groups of turbines by way of group operated switches. Power collected through these switches will mitigate downtime through the ability to isolate turbine strings if underground faults occur. The line will be permitted through the county and townships, there is no certificate of need required for this relatively low voltage line. Easements and permits needed should be granted to cross and/or parallel township, county, state and federal roads. Also, a public water crossing permit has been applied for (See Appendix C) by the DNR to cross the Wing River and the Bear Creek on 490th St. near SH 71, and an unnamed creek(underground crossing) in Section 17. The project will register with Gopher 1 to ensure communication regarding utility locates are contacting representatives of Bear Creek to relay information to interested parties.

A qualified constructor of overhead distribution systems will construct the overhead system and may also be contracted to maintain the system in times when problems may arise. A yearly maintenance program will be put in place to ensure obstructions such as trees are trimmed back to mitigate problems affecting lines, insulators and poles. See Figure 14, Page 86 for Utility Pole Diagram.

6.4 SCADA. Supervisory Control and Acquisition System. There will be two SCADA systems in place for this project. The utility SCADA which monitors those aspects relative to the regional MP and MISO system and a SCADA that will be in place for monitoring various aspects concerning the operation of the wind turbines. The project will construct a substation to interconnect the project to the utility grid with a state of the art SCADA system for monitoring several aspects relative to turbine operations, metering and the utility interconnect.

A project SCADA will be installed and will be an essential and very important part of the wind plant, i.e., turbines, performing the following;

- Remote or local monitoring of the site for availability.

- Alerts personnel due to faults from down turbines or utility shut down of the site.
- Allows operators to reset turbines under certain conditions.
- Indicates to operators each turbine's performance and collects historical data to aid in maintenance and operations of the wind plant.
- Provides inventory information
- Generates reports concerning operations, condition monitoring, overseeing short term and long term maintenance aspects

The SCADA system will be overseen and or monitored by a Nordex operations and maintenance team, the financial entity representative, and the representative for the local owner group.

6.5 Access Roads. Access roads and pads adjacent to each turbine will be built to accommodate construction and future operations and maintenance traffic to and from turbines. We have designed the roads to be 12 feet wide and where road fabric is used approximately 12 inches deep. There is no advantage to the project to construct roads any wider than 12 feet since track cranes have an approximate 22 – 28 foot wide footprint. Six inches of topsoil will be scraped off and 8 inches of class 5 gravel when road fabric is not used. Culverts will be placed appropriately as per State, County or Township requirement to assist in diverting excess water runoff.

6.6 BoP Contractor. The Balance of Plant (BoP) contractor will be responsible for construction management of the project. A BoP contractor has not been selected, yet. Local labor will be utilized to the extent we can. If possible, all of the labor used for this project will be from construction firms located within the State of Minnesota. Engineering and BoP activities for this project include;

- Engineering the electrical system including overhead and underground collection system and substation.
- Obtaining soil samples.
- Engineering roads, turbine and transformer foundations.
- Securing the necessary permits.
- Select construction firms and schedule construction activities relative to turbine delivery schedules.

The construction management team will be on site at all times to manage all aspects of the construction process. The BoP contractor will be responsible for selecting contractors for the project, but will be encouraged to use local labor if possible. Various aspects of the construction process include;

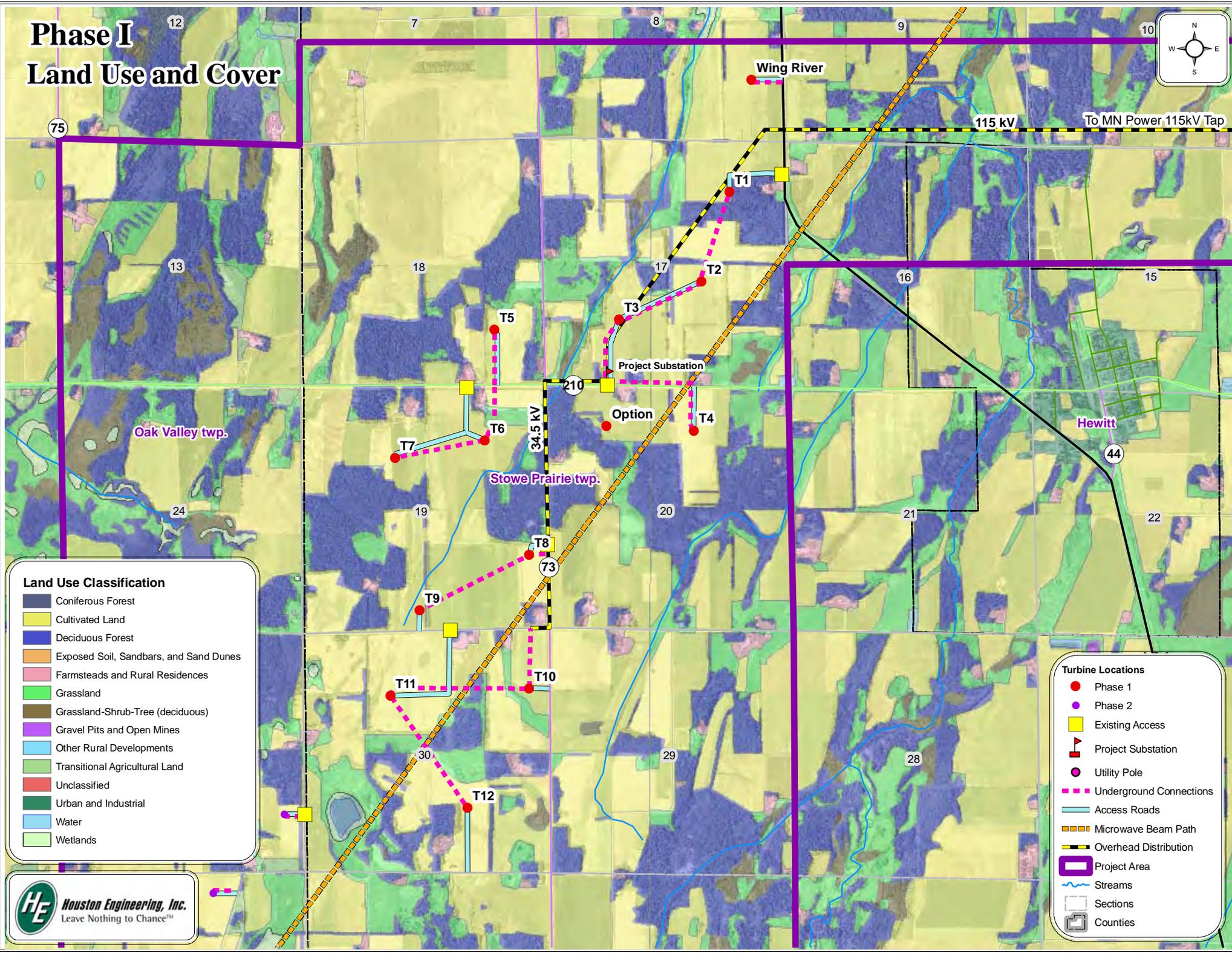
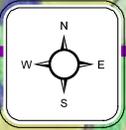
- Improving access and constructing long term roads for maintenance.
- Clearing and grading of site related activities, including those for roads, turbines, and substation.
- Excavation and construction of turbine and transformer foundations and crane pads.
- Build and erect turbines.
- Trenching underground power and communication conductors.
- Construct an overhead feeder circuit from the substation to and through the site.
- Assemble a project owned substation.
- Install security gates and substation fencing.

Strict compliance relative to the U.S. Fish & Wildlife and the DNR permitting concerning the construction of the project over or near wetlands, waterways, and near any sensitive or endangered species or plants will be observed. A considerable amount of coordination between the BoP, the project developer, the manufacturer and transportation contractors will take place regarding the timeframe in which the delivery schedule will take place. Coordination concerning interconnect agreements and the timing of utility work will need to be communicated early and coordinated to ensure timely commercial operation of the wind plant, including;

- Utility construction of a 115 kV feeder to the substation, including substation hook-up.
- Delivery of utility metering, utility SCADA-including coordination of securing T1 or other communication line(s) from the project substation to the MP, and other utility related work for this project.

Prior to the commercial operation of the wind plant the manufacturer will be fully engaged to facilitate timely commissioning and start-up of the project and to ensure installations are being done as per the manufacturer's specifications. Minnesota Power, the developer, the BoP contractor and the manufacturer will work together to ensure a smooth as possible a commercial operation date (COD) taking into account all aspects of coordination necessary for this project to be completed on time.

Phase I Land Use and Cover

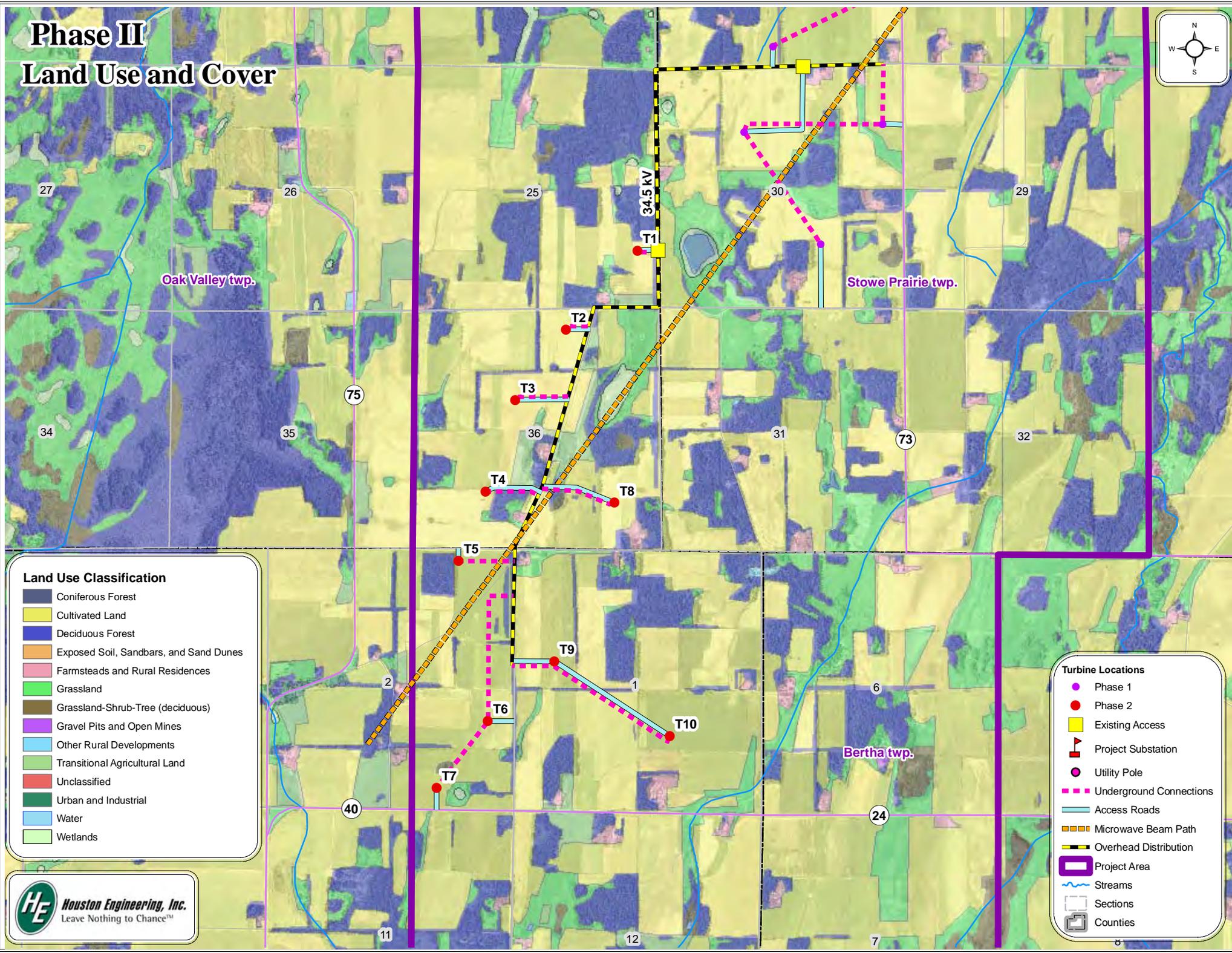


- Land Use Classification**
- Coniferous Forest
 - Cultivated Land
 - Deciduous Forest
 - Exposed Soil, Sandbars, and Sand Dunes
 - Farmsteads and Rural Residences
 - Grassland
 - Grassland-Shrub-Tree (deciduous)
 - Gravel Pits and Open Mines
 - Other Rural Developments
 - Transitional Agricultural Land
 - Unclassified
 - Urban and Industrial
 - Water
 - Wetlands

- Turbine Locations**
- Phase 1
 - Phase 2
 - Existing Access
 - Project Substation
 - Utility Pole
 - Underground Connections
 - Access Roads
 - Microwave Beam Path
 - Overhead Distribution
 - Project Area
 - Streams
 - Sections
 - Counties



Phase II Land Use and Cover



Land Use Classification

- Coniferous Forest
- Cultivated Land
- Deciduous Forest
- Exposed Soil, Sandbars, and Sand Dunes
- Farmsteads and Rural Residences
- Grassland
- Grassland-Shrub-Tree (deciduous)
- Gravel Pits and Open Mines
- Other Rural Developments
- Transitional Agricultural Land
- Unclassified
- Urban and Industrial
- Water
- Wetlands

Turbine Locations

- Phase 1
- Phase 2
- Existing Access
- Project Substation
- Utility Pole
- Underground Connections
- Access Roads
- Microwave Beam Path
- Overhead Distribution
- Project Area
- Streams
- Sections
- Counties



The project is working very closely with all the landowners to mitigate impact to agricultural operations and the DNR/USF&W, SWCD to lessen impact during the development, construction and the operational phases of the wind project.

6.7 Maintenance. Maintenance of the project is the most important part of the project ensuring long term mechanical and electrical viability of the project and will be overseen primarily by Nordex. Early on the project will work closely with the equipment manufacturer overseeing and sharing operations of the site. There are several scheduled maintenance and inspection process that need to be done to ensure the sustainability and the long-term life of the project. Depending upon which maintenance cycle you are in, i.e., semi-annual, or annual, two year inspection or five year inspection different maintenance functions will apply. Very important to the maintenance of the turbines will be checking bolt tensions, ensuring that the equipment is being adequately lubricated, and paying attention to and keeping a very close look in regards to possible contaminants in the lubricating systems. This will require extensive oils analysis and will be an integral part of the maintenance of the turbines.

A state of the art Condition Monitoring/Predictive Maintenance System (CM/PM) will be installed to facilitate the identification of potential technical problems due to lubrication contaminants and vibration. Installing this system will benefit the project by scheduling down time during low wind seasons, scheduling crane service for more than one turbine (if needed), and catching problems early.

CM/PM incorporates a diagnostic system with the capability to accurately interpret typical fault patterns and symptoms. The analysis system has a comprehensive understanding of the machine design and operating dynamics to ensure repeatable quality data collection by a real time diagnostics system operating 24/7. This is a powerful maintenance tool that will mitigate maintenance costs over the life of the project.

The general maintenance duties will be contracted to the manufacturer and will be outlined and performed by manufacturer's service and/or operations representatives, but will include the above preventative maintenance scheme. Correct parts inventories will be overseen and maintained by those representatives as well as the provision of trained personnel provided jointly by Nordex and Bear Creek Wind Partners. Upgrades will be incorporated into the project as appropriate, and will be incorporated into the turbines, SCADA and operational software when and if needed.

7 Environmental Impacts

The proposed wind farm site stretches approximately 5.5 miles on top of the Wadena Drumlin, a ridgeline running in a northeasterly to southwesterly direction. The project has lease options for about 1,800 acres. The nearest main roads or highways are SH 210, running east to west, and U.S. 71 which runs north to south. Both roads are considered to be main arteries in the state and should provide very good exposure to passersby in Todd County. The wind plant will be visually apparent from these roads near the town of Hewitt and other township and county roads near the proposed site. See Appendix F.1

Agricultural fields, farmsteads, scattered woodlands dominate the landscape in all directions around the proposed wind project. The combination of cropland and dairy cattle, along with small mixed woodland plots surround the site. The cropland in the area is a mix of small grains and forage crops creating low, uniform cover. The municipality of Hewitt is located about 1 ½ miles east, with most of the proposed project located at an approximate elevation of 1450 to 1500 feet above sea level. As mentioned above, the site is located on top of a prominent ridge running in a southwesterly to northeasterly direction and provides good exposure to the local wind resource.

Vehicle traffic will be kept to a minimum and access to the site will be controlled. It is not known at this time how many vehicles will be on site due to construction and delivery activities. Temporary disturbances to the land due to traffic and crane set up, off loading turbines, towers and rotors and building of the rotor will be restored upon the completion of the construction process. Accommodations from crop damage during the construction, operations and maintenance phases of the project will be paid for by the project.

Maps are included in the appendix to give good indications relative to the various aspects needed for this section of the permit. These include; State Wildlife Management Areas (WMA), State Scientific Natural Areas (SNA),

Hydrogeology, Soils, County/State/Federal Parks, Wetlands and Public Waterways (named and unnamed), Residential Dwellings, and a Site Layout.

7.1 Demographics Todd County Long Prairie is the county seat. Todd County's median family income for 2003 was \$33,659 dollars per median family household ranking it eightieth among the eighty-seven Minnesota counties. The land area of this county is 942 square miles out of which 3.81% is water.

As of 2003 there were 520 private non farm establishments with 4,748 paid employees and 1,390 private non farm establishments without employees. Manufacturing shipments in 2000 totaled \$372,172,000 with retail sales of \$138,159,000. Private non-farm employment declined .1% from 2000 to 2003 and there were only 218 building permits issued by the county in 2003.

7.1.2 Demographics Stowe Prairie Township, The project is located primarily in Stowe Prairie Township where agriculture plays a significant role in employment. As of the census of 2000, there were 529 people, 178 households, and 139 families residing in the township. The population density was 15.6/mi².

7.1.3 Economic Impact to the Area. An average of ½ acre per turbine will be taken out of agricultural production due to the construction of access roads, wind turbines and pads for transformers. Land rents from cropland are approximately \$35-50.00 per year per acre, or a total of (at 50.00 per acre) \$275.00 per year.

For the first phase during the first 10-12 years of the project land rents paid for all turbines will be \$66,000.00 per year (12 turbines). In addition to land rents paid by the project royalty payments will double the amount received by landowners starting in year 11 or 12 (to approximately \$144,000.00 annually from turbine rents and royalties).

Property taxes generated from the project will be approximately \$112,000.00 per year. A set aside turbine for the community is expected to inject an additional \$20,000.00-25,000.00 into various entities such as, the school district, volunteer fire department, emergency services, and etc.

To the extent possible the project will use local contractors for; roads and local contract labor. Foundations, the electrical and erection of turbines will be done by specialty contractors not located in the area.

Finally, several of the landowners make up the Local Owner aspect of the project. A discussion in Sections 1.2 and 1.3 describe the economics in regards to ownership.

Generally, the project will further diversify economic activity directly and indirectly through spin off dollars that will be spent during the construction phase and, especially over the life of the project. These dollars will come through land rents/royalties, local turbine ownership, taxes and the set aside turbine for the area. Studies done concerning the economic benefits from wind projects are well documented from real life activity generated in other counties in Minnesota and elsewhere. This county is one of the most economically challenged counties in the state and will have a significant impact on the townships this project is located in.

7.2 Noise. Noise standards specify that noise levels typically will be not higher than 50 dba at occupied residences. Noise is a concern that has been addressed by wind turbine manufacturers and there is much information regarding expected noise output from these turbines. Turbines emit the most noise during windy conditions and it has been found, that during these conditions, the sound of the wind drowns out noise emitted by the turbine equipment.

The standard siting criteria and noise level created by the Minn State Legislature of maximum dba levels of 50 within the radius of the wind turbine to the nearest occupied residence will be met, as per Minn Rules (7030.0040-.0050) will be met. A WindPro noise analysis will be done by Nordex to ensure compliance with the Turbine Supply and Warranty Agreements, especially as it relates to state law.

The intention for the layout for our project layout is to exceed state criteria by not constructing any wind turbines closer than 1000 feet of any inhabited residence. The project will ensure compliance with the MNPCA noise standards.

7.2.1 Mitigative measures will include turbine modeling by the manufacturer to determine how many feet away from the turbine noise criteria will be met. Calculations for projects indicate siting turbines 1000 feet from residences will exceed noise criteria spelled out in the above legislation by as much as 300 feet. The 1000 foot set

back Bear Creek proposes for this project will be more than adequate to meet state criteria ensuring compliance with Minnesota Pollution Control rules.

7.3 Visual Impacts. The proposed wind farm site is located near the town of Hewitt and State Highway 210 and U.S. 71. State Highway 71 runs (running north/south) in Todd County and State Highway runs east and west. At this intersection both roads run adjacent or through the proposed site. The wind plant would be visually apparent from these roads and other township roads near the proposed site. These 2-two lane, main arterial roads carry relatively small amounts of traffic, which is mostly local in nature.

Agricultural fields, farmsteads, and woodlands make up the landscape in all directions around the proposed wind project. The combination of cropland and small mixed woodland plots surround the site. The cropland in the area is a mix of small grains and forage crops creating low, uniform cover. The municipality of Hewitt is located at the juncture of SH 210 and U.S. 71, with most of the proposed project located at an approximate mean elevation of 1450-1480 feet above sea level. Primarily, the site is located on top of a prominent ridgeline which runs in a northeasterly to southwesterly direction, which provide very good exposure to the wind resource

Wind turbines aesthetic qualities effect are subjective depending upon who is viewing them and what their relationship to the project, community or the environment is. We have attempted to be sensitive to those concerned with their visual perspective of placing the fourteen turbines within eyesight of existing or future residences. Generally, feedback we have received from the community has been very positive for this project and most are looking forward to the completion of the project.

The turbines appear to be high tech equipment but the consensus is that there is a rural “feel” and is very compatible with traditional heritage. The project will produce no emissions or use any industrial resources to power the equipment.

During the nighttime hours the FAA requires structures over 200 feet to install aircraft warning/obstruction lights. The project will use FAA guidance and guidelines to permit the site with 2 or 3 lights, versus having a light on every structure.

7.3.1 Mitigative Measures will include the following;

- Turbines and/or roads will not be placed in environmentally sensitive areas and agencies with authority over wetlands, SNA’s, WMA’s, etc. will be contacted to ensure compliance and mitigate impact.
- We will strictly adhere to FAA lighting regulations issued for the project.
- Overhead lines will include diverters to minimize bird collisions, as per suggestions by the MNDNR.
- When possible we will underbuild existing REC and MP lower voltage lines on newly constructed 115 kV and 34.kV project transmission and distribution/collection.
- Existing roads will be used for access roads when possible.
- New access roads are needed and we will strictly follow permitting rules issued by the governing authority.
- Access to the site will be controlled and kept in an orderly manner with staging areas to consolidate short term and/or long-term construction and/operations activities.
- Disturbed areas will be restored and reseeded as soon as practicable after the construction process is complete and throughout the life of the project.

7.4 Public Services and Infrastructure. As mentioned above, the site is located within two miles of Hewitt, MN. and can be described as being a very rural agricultural setting. SH 210 running north to south and U.S. Hwy 71 located adjacent to the project site serves mostly local needs. Other than township roads which serve limited amounts of traffic, there is no other transportation available in the area. There should be no need for city services for water, sewer, electrical or other city services for the project.

The project does not intend on constructing any office or building for maintenance or operations for the project, but in the event Bear Creek or Nordex does, it would probably do so in an existing structure located in the town of Hewitt or Wadena. Impacts to public services would be minimal due to the relatively small amount of employees to operate and maintain this site, part time personnel of only 2 or 3 individuals will be needed for project oversight.

7.4.1 Electric Service. There are two utilities that may be relative to Electric Service for this project described below;

7.4.1.1 Todd-Wadena REC owns and operates electrical service/distribution in the area, as well as Minnesota Power serving rural customers electrical power. The project's needs for station power exist only at the substation which will be fed by Minnesota Power, who owns and operates 34.5 kV between Hewitt and Verndale, MN.

7.4.1.2 Minnesota Power. The transmission line is located 4.25 miles east of the project site. An overhead feeder/collection distribution line will be built from a 115 kV tap located in Bartlett Township, Todd County to and through the project site. The overhead tap feeder voltage will be rated at 115 kV and sized to minimize electrical loss. Easements and permits for the distribution feeder/collector circuit include those obtained for crossing and/or paralleling township, state and federal roads. A stream crossing permit is needed from the DNR for crossing the Wing River north of the community of Hewitt. Please See Figure 2.

7.5 Water. Construction, operation and maintenance of the wind project have minimal water needs. Most of the needs for the project will come during the construction process and will be for applying water to newly built roads to serve two purposes; to facilitate the compaction of the gravel, and; to keep dust controlled. There is no need for the installation of a well for water on site. Rural water service serves the rural community in this area.

7.5.1 Pollution Control/Run-off. A NDPEs permit will be obtained and procedures followed to ensure the best possible practices guarding against erodible soils during the construction process as it relates to storm water runoff.

7.6 Waste. Discharge and waste discharge are on septic systems. A portable toilet will be installed on site for construction personnel during the construction phase. We do not think that there should be any long-term problems or issues that will have a negative impact on the site concerning water service or waste.

7.7 Telephone and Microwave. We have been in contact with Arvig Communications for telephone service for the project. Arvig does not expect the project to have any negative impact on telephone service in the community.

An overhead collection system described above will be constructed along county and township ROW. The project has obtained a system map from Arvig depicting the location of existing Arvig lines along the collection system route. EMF has been a problem in some areas relative to telephone and placement of overhead lines rated at 34.5 kV and above, we will work closely with Arvig to minimize problems. We will also contact Gopher 1 prior to digging and/or the placement of poles as per State of Minnesota rules relative to excavation.

The project has done a preliminary scan through respective of micro wave beam paths with maps provided by MNDoT and a firm specializing in identifying hazards relative to microwave beam path disturbances. We have included the results of that study as Appendix L, done by ComSearch, which indicated the proposed turbine locations are not placed in micro wave beam paths and the project poses no issues relative to microwave signals. We will review those findings and make final turbine siting decisions based on information provided by ComSearch with the intent on eliminating problems relative to communications. See Appendix L for beam path study results and methodology.

7.8 Television. It is not expected that the project will have an impact on television signals in the area. Most families have satellite dishes installed and the project will site turbines well away from these dishes and communication paths. Sometimes local service is disrupted on televisions service other than satellite, in those instances prior to construction the project will establish baselines for radio and television signals. If it is found that construction of the project has adverse effects on signals the project will come to an amicable resolution to rectify a problem caused by the location of the wind project. Please see Appendix L for beam path study results and methodology.

7.9 Traffic. Traffic in this area of Todd County and Otter Tail County is minimal. Short-term issues relating to traffic bottlenecks may occur, but it is not anticipated, while bringing trucks with large loads in to the site. The project will be working with the MNDoT and County to ensure ease of access by widening out entry points on

state, county and township roads making in bound and out bound traffic congestion no more or less safe than agricultural traffic issues impacting similar access roads for fields. Escort vehicles and signage will be utilized on roadways to ensure traffic safety during the delivery of turbine components and during the construction process. The project will ensure that all permits and safety procedures are followed to mitigate traffic impact.

7.10 Cultural and Archaeological Impacts. A letter was sent to Tom Cinadr of the State Historic Preservation Office (SHPO) (see attached) requesting a scan or review of the Sections the turbines, roads, overhead collector system and substation will be constructed on. His scan revealed no cultural archaeological or historical leads or concerns relative to the project. SHPO's archives include archaeological site files and cultural resource studies important to this area.

We also queried the National Registry and received no results for our scan of the project townships concerning registered historic leads located in or near the Sections queried.

Bear Creek obtained Public Survey Maps depicting a presettlement (see appendix) in Stowe Prairie Township landscape of conifer bogs and swamps were prevalent in this area of the township. During the time of European settlement the region was full of woodlands, creeks and riverways feeding into the Mississippi River Basin. Bogs and swamps were not primary habitation areas and we think this area is an unlikely settlement area. Habitation areas are primarily found along rivers and streams and in or near woodland areas.

Mitigation. Farming operations have been ongoing since the late 19th century, and historical artifacts have not been recorded from these Sections. Resource procurement may be found in the site area and the intent of the project is to have BoP managers and contractors pay close attention during the excavation for turbines, pads for transformers and other construction aspects for artifacts of historical value. If the project unearths historical artifacts the project will contact SHPO or an archaeological consultant and ask for recommendations concerning avoidance and mitigating impacts what they would like to have done relative to registering the artifacts with either SHPO or the National Registry.

7.11 Recreational Resources. There are no State Natural Areas, Wildlife Management Areas, National or State Parks or other similar recreational resources or recreational activities in the immediate vicinity of phase 1. For phase 2 the nearest recreational activity that may be impacted is the Wrightstown WMA located about 7.5 miles to the west of turbines sited in Oak Valley and Woodside townships.

Activities such as snowmobiling in this part of Todd and Otter Tail County is popular and concerns regarding unmarked guy wires could be a problem. Our met tower guy wires will have orange colored shields for assistance in identifying guy wires.

Hunting and fishing activities are also popular in the area with the presence of at least one pheasant farm located along 490th St. We do not anticipate any problems with regard to any recreational activities in the area.

7.11.1 Impacts. Because the presence of state managed recreational resources is non-existent in the area the project will not have any impacts other than those that are related to traffic traveling to or from managed areas which are located several miles away from the project site.

8 Public Health and Safety, Including Air Traffic, Electromagnetic fields, Security and Traffic

8.1 Air Traffic. The nearest airport is located in Wadena which is approximately 9 miles north of the project site. Local airport traffic is usually served by regional airports located in Fargo, ND and Grand Forks, ND. Also, airports located as far away as Minneapolis-St. Paul serve airport needs for families and visitors to the area.

Crop sprayers occasionally spray fields in the area but this activity is usually carried out during the day time hours by local pilots. The 400 foot tall wind turbines will be marked as per FAA guidelines and will be highly visible from several miles away. During the night time hours, FAA approved lighting will warn pilots and will also be visible from long distances.

8.1.1 Impacts and Mitigation. The construction of this project should pose no hazard for air traffic because the wind turbines are highly visible during the day and night and turbine locations will be well lit up as per FAA rules. Permits have been applied for and the project will comply with FAA rules regarding structures of this type.

8.2 Electromagnetic Fields. Low EMF Fields already exist in the area due to the existing low level 34.5 kV distribution lines which are located in the area and feed substations for local load. The project will construct a substation to transform 115 kV MP transmission voltage to a collection voltage of 34.5 kV. This level of voltage is not fundamentally different than other distribution feeders which serve many urban and rural areas which currently exist in Todd County near the project site.

A working group on EMF made up from the Minnesota Department of Health, Department of Commerce, Public Utilities Commission, Pollution Control Agency, and the Environmental Quality Board issued a report entitled “A White Paper on EMF and Magnetic Field Policy and Mitigation Options” concluded; Research on EMF and relationship to health issues have mixed results – and some have shown no statistically significant association relationship to health effects including cancer. The Minnesota Department of Health concludes that the current body of evidence is insufficient to establish a link between EMF and health issues, but that the possibility of health issues stemming from EMF cannot be dismissed.

8.2.1 Impacts and Mitigation concerning EMF, various state and federal entities have indicated that EMF does not pose significant health hazards. Because of relatively low voltage levels and low populations in this area the project would pose even less problems as there will be no new high voltage transmission lines being constructed.

Although the project’s 115 kV/34.5 kV distribution/collector system poses possible impacts on the local communications system where communication providers are not using fiber. The project will be working closely with the provider and identify locations of underground facilities. We will place distribution/collection systems as far away from underground facilities as possible. This should mitigate issues relative to EMF and communications systems. See Appendix H.

8.3 Security. Project access will be barricaded and posted to the general during construction. Once the project becomes commercial the project will construct a permanent no trespassing sign. Roads will be posted with no trespassing signs.

Mitigation and Site Control Turbines will be sited well off of local roads and towers are fabricated of tubular steel construction and come equipped with lockable steel doors. Padmount transformers are lockable, with warning signs. A 7 foot security fence will be built around the substation, with signage warning people of high voltage. Access roads will be gated to control access to the turbine sites.

8.4 Road Traffic. No significant long-term change in roads or traffic patterns other than the possible widening of existing access roads. There will be two new access roads built and temporary expansions of existing access roads described below, but we do not think there will be problems associated with project road construction either in the long-term or short-term.

The bulk of use for U.S. 71, SH 104, CR23 and CR 73 and other township roads will come during the construction period which is expected to last about 4 months.

Mitigation of Traffic Impacts. After the construction period the use of these roads by operations and maintenance personnel will be minimal. The project will obtain any necessary permits and strictly observe appropriate safety measures when bringing large loads off these roads. Road guards will be deployed when bringing blade, tower and nacelle trucks into the site. Also, a good neighbor policy to mitigate dust during construction will include the use of a tanker truck to spray roads to keep dust levels down. The project will comply will all state DoT, county and township regulations for safety during the construction and operations of the wind project.

9 Identification of Permits. Bear Creek Wind Partners and its contractors will apply for all permits and licenses necessary not covered by this application. County, State and Federal permits identified for the construction of the overhead collection system include working with several agencies, such as; MNDNR, NRCS, U.S. Corps of Engineers and the County Soil and Water District, to ensure encroachment and impact is mitigated.

9.1 Overhead Lines and Permits Needed. A transmission tap line will be built from the Minnesota Power owned 115 kV line located in Bartlett Township (reference project map, page 9). From the tap the overhead line crosses CR 23 (county crossing permit)/(county paralleling permit) and travels west for 4 miles (township easement or permit) and a (DNR river crossing permit) . The transmission tap line then crosses U.S. 71 (MN DoT crossing permit for U.S. 71) entering Section 17, Stowe Prairie Township. At this point the tap line enters the project site and travels, overhead, in a south westerly to southwesterly direction, through the project for 1.25 miles to SH 210 where a project substation will be built. From the project substation a 34.5 kV line is constructed and crosses SH 210 (MNDoT crossing permit) and proceeds south along CR 73 (county paralleling permit) for 1 mile. The overhead line turns west and parallels 470th St. (township easement or permit) for 1 mile, turning south and traveling the last mile, on the east side, of Otter Tail County Road (township easement or permit needed).

- 9.1.1.** Township Road ROW Easements or Permits
 - A.490th St. (4 miles)
 - B.470th St. (1 mile)
 - C.Otter Tail County Road (1 mile)
- 9.1.2.** County Road Crossing Permits-
 - D.CR 23
- 9.1.3.** County Road Paralleling Permits
 - E. CR 23 (1/4 mile)
 - F. CR 73 (1 mile)
- 9.1.4.** MNDoT Crossing Permits, either underground or overhead.
 - G.U.S. 71
 - H.SH 210
- 9.1.5.** DNR
 - I.Public Water Crossing Permit-Wing River-Stowe Prairie Township (overhead)
 - J.Public Water Crossing Permit-Bear Creek-Stowe Prairie Township (overhead)
 - K.Public Water Crossing Permit-Unnamed-Stowe Prairie Township (underground)

Temporary or permanent access road expansion permits needed for the delivery of towers, blades and associated equipment will be needed, including:

- 9.1.6** County or Township
 - K. Section 17 or 8 (along U.S. 71-Don McIntire-SW ¼)-MNDoT
 - L. Section 17 (along SH 210-Charles Anderson-NW ¼)-MNDoT
 - M.Section 18 (along CR 73-Richard Kalk-SE ¼)-Todd County
 - N.Section 19 (along CR 73-Ruth Kalk-NE ¼)-Todd County
 - O. Section 30 (along 470th St.-Joe Richter)-Stowe Prairie Township, Todd County
 - P. Section 31 (along 460th St.-Karen Treangen)-Stowe Prairie Township, Todd County
 - Q. Section 25 (Karen Treangen) and Section 36 (Arvid Fischer)-Oak Valley Township, Otter Tail County (along 230th St.).

9.2 An FAA Permit will be needed for structures over 200 feet tall. Permits applications have been submitted.

Form 7460-1; filed on line.

State rules will require that during the construction of the project a;

9.3 National Pollutant Discharge Elimination System permit will have to be acquired by either the project or the BoP contractor to mitigate erosion impacts during the construction process.

9.4 Electrical permit for the substation, overhead lines and the construction of underground and associated terminations within the transformers and towers.

9.5 Temporary access road expansions needed for the delivery of towers, blades and associated equipment will be needed, including:

Section 17 or 8 (along U.S. 71-Don McIntire-SW ¼)-MNDoT

Section 17 (along SH 210-Charles Anderson-NW ¼)-MNDoT
 Section 18 (along CR 73-Richard Kalk-SE ¼)-Todd County
 Section 19 (along CR 73-Ruth Kalk-NE ¼)-Todd County
 Section 30 (along 470th St.-Joe Richter)-Stowe Prairie Township, Todd County
 Section 31 (along 460th St.-Karen Treangen)-Stowe Prairie Township, Todd County
 Section 25 (Karen Treangen) and Section 36 (Arvid Fischer)-Oak Valley Township, Otter Tail County (along 230th St.).

Other permits may be needed to construct roadways for maintenance purposes, the placement of towers and transformers, and the installation of underground cabling for power and communications. The agencies mentioned above will be contacted to ensure no problems arise from construction, operations and maintenance of the project. See Table 2 for permitting summary.

Summary of All Permits Needed for Bear Creek Project.
Table 2

Federal Agency	Type of Permit	Needed (Y-N)
FAA	7460-1	Y
U.S. Army Corps of Engineers	Section 404	N

State of Minnesota		
MNPUC	State Site Permit (LWECS)	Y
MNDNR	Public Waters Permit	N
	License to Cross	Y
MNPCA	NPDES	Y
	License for Haz. Waste	Probably Not
MN Bd of Water and Soil Resources	Wetland Conservation Act	Possibly
National Conservation Resources (NRCS)	Form 1026 AD	Y
MN Dept of Health	Well Water	N
	Plumbing Review	N
MNDoT	Crossing Permit for Distribution/Collector Sys	Y
	Access Widening Permit	Y
MNBoard of Electricity	Electrical Permits	Y

Local Permits		
Todd/Otter Tail County	Permit For Crossing/Paralelling County Roads (Distr/Coll) Todd/Otter Tail Co. Hwy Dept	Y
	Access Permit	Y
	Permit to Move Loads on Restricted Highways	Possibly

Stowe Prairie Township Todd County	Permit or Easement for Crossing/Paralleling Township Rds.	Y
Stowe Prairie/Bartlett Township Todd County	ROW for 115 kV	Y
Otter Tail County		
Oak Valley Township Otter Tail County	Permit or Easement for Crossing/Paralleling and Access Widening off of Township Rds.	Y

9.7 Hazardous Materials. The project will activate a Material Safety Disposal System program to ensure the proper treatment of hazardous materials used in the construction and maintenance of the wind plant. No fuel tanks or barrels of hydraulic fluids or gear oils will be permanently stored on site and it is not anticipated that a hazardous waste transportation license will be necessary. However, if a decision at a later date is made to build a storage facility for operations it will be necessary that a Hazardous Waste Permit is applied for the storage of lubricants.

Project subcontractors will comply with all laws and/or engage licensed operator(s) affecting these areas.

There are three main types of lubricants that will be used on the project; synthetic gear oil, hydraulic oil and bearing greases. Bear Creek is not aware of problems associated or permits needed for the utilization of these types of materials if they are not stored on site.

9.7.1 Mitigative measures will include the proper storage of these lubricants and will monitor the storage at all times during the operational life of the project. If, during the maintenance of the project, lubricants need to be replaced, the project’s site manager will ensure that wastage items such as fluids and/or rags for cleaning up spillage are disposed of properly, as per Minnesota rules, in either hazardous waste dumps or taken away by approved contractors. As mentioned above, if any lubricants are stored on site, a Hazardous Waste Permits will be applied for through the MNPCA.

10 Description of Area including Agriculture, Forestry and Mining. Farmland, dairy operations and commercial trees for paper products are the primary land use in this area. Agriculture plays a significant role with small grains, dairy operations are the dominating forms of agriculture for this section of NW Todd County. See Figures 7 & 8 for an overview of Land Use in the project area.

10.1. Forestry-This part of MN is in an area that is on the edge of glacial deposits that were formed millions of years ago. There is a mix of hardwood stands but the area has not been a heavily forested area for decades. There are several project landowners that have lease agreements with SPC and are growing trees used for paper products. The project will have a minimal impact on areas taken out of production, but land lease payments coupled with royalty payments are generous and make up losses due to this land taken.

10.3. Mining-Glaciers deposited large amounts of surface deposits made up from unconsolidated rocks and binder in pits do not make for ideal road grade construction material. There are some gravel pits located in the area but we do not expect mining to be impacted.

10.4. Impacts and Compatibility The wind project is very compatible with existing land uses. Agricultural activity will continue between turbines. During the construction process normal activity will be disrupted for approximately 4 months. Once construction is finished and heavy equipment moved off the site things will be restored and reseeded; excluding new access roads and other infrastructure for the project.

Landowners will be working with the project to make use of existing access roads and to locate new roads and equipment and electrical lines. Drain tiles will be located and will be avoided if possible. In the event the project destroys or disrupts the farming operation by loss of crop, the project will pay for crop loss as per lease agreement.

There will be some agricultural land that will be taken out of production but land and royalty payments made to the local landowners will have an overall positive impact when considering comparable payments from agricultural land payments.

10.5 Tourism and Community Benefits. It has been reported over the last couple decades about how the rural community has and continues to lose jobs to urban areas. Although this project does not employ a high number of people to operate and maintain, land leases, local ownership, a non-profit turbine and the tax base will undoubtedly benefit the community.

The areas recreational benefits, as mentioned above, primarily involve deer hunting activities. This project should have no positive or negative impacts relative to hunting activities.

11 Environmental & Topography.

11.1 Description. Glacial ice covered most of Minnesota many times and periods of glaciation were separated by warm interglacial episodes. All of the surface sediment in Todd and Otter Tail County is of the Quaternary in age (2,000,000 to 10,000 years ago) deposited mainly during the Wisconsin glaciation of approximately 60,000 years ago, with the last advance coming as recently as 9,500 years ago. The county's landscapes take the form of rolling drumlin rolling hills, steep terminal moraines, ground moraines and level outwash plains. The Bear Creek project lies in watershed of the Crow Wing River Group and has a site has a mean elevation of approximately 1470' AGL. The Bear Creek footprint topography is characterized by being level to slightly sloped with grades not exceeding 2%. Drainage patterns are formed by the topographic features in the footprint.

Stratigraphic nomenclature is used to identify differing soil/till formations. The bedrock in northwestern Todd County and northeastern Otter Tail County is covered by 200 to more than 400 feet of the Wisconsin Glacial deposits, called; pleistocene glacial drift which is; unlithified glacial till and glacial outwash. Outcrops, drill cuttings, auger samples, water logs and cores are used to interpret soil conditions and the stratigraphy in Minnesota. Sediments of the Wadena-Lobe, one of the four glaciers that made up the Wisconsin Glaciers, deposited varying thicknesses of bedded sediments and stony, sandy, carbonate-bearing till were deposited as glacial ice advanced south and then receded north. The sediment is derived from eastern Manitoba and western Ontario and deposited in outwash plains as the glacier(s) melted. (Source: Minnesota Geological Survey Map, University MN. Regional Hydrologic Assessment RHA-5, Part A, Plate 2 and Plate 2, Quaternary Stratigraphy, 1999. These plates are included in this as separate Appendix J and K pdf).

The Wadena drumlin field fans out across Wadena, Todd, Cass, Hubbard, Becker, and Otter Tail Counties of Minnesota. This geomorphic area represents the oldest landscape in this area and covers approximately 40% of the county and is one of the only drumlin fields in Minnesota. Radiocarbon dating of organic silts and lake sediments suggests that the drumlins are about 30,000 to 60,000 years old. See Appendix F.1.

11.2 Mitigation of Impacts- Because the project will stay well back of sloped areas the project does not anticipate any abnormal impacts other than those expected during the construction of a project such as this. Constructing the project will take place primarily on flat, level ground. The construction process will take some of the soils out of production that had been used for grazing, small grains and new growth forest for paper products.

The project will communicate with contractors the importance and need for respect when driving vehicles and operating equipment in areas outside construction zones. Destroyed areas will be restored and damaged crops will be paid for by the project. Erection of the turbines, construction of infrastructure including roads and turbine foundations will only moderately affect the potential for erosion during the short construction period for this project, and we will take a minimum of farmland out of production.

We will acquire National Pollutant Discharge Elimination System (NPDES) permit which will be required from the Minnesota Pollution Control Agency. Industry standard best practices will be utilized by the project to protect the top soil through the construction, operations and maintenance phases of the project. Some of these practices will include; the installation of silt fences, stockpiling topsoil for later use, containing excavated material, protecting exposed topsoil, and stabilizing restored areas.

Some definitions:

Glacial till- variable mixture of clay, silt, sand, and boulders. Often described in drillers' logs as clay, boulder clay, or sandy clay, typically red, brown, yellow, gray, or blue. Low water-bearing potential if clay-rich, moderate if sandy.

Glacial outwash- sand and gravel with lesser amounts of silt or clay. Primary sources of water throughout central Minnesota.

Drumlin-is an elongated whale shaped hill formed by glacial action. Its long axis is parallel with the movement of the ice, with the blunter end facing into the glacial movement. Drumlins may be more than 150 ft high and more than a ½ mile long, and are often in drumlin fields of similarly shaped, sized and oriented hills. Drumlins usually have layers indicating that the material was repeatedly added to a core, which may be of rock or glacial till. It is poorly understood why drumlins formed in some glaciated areas and not in others. The Hewitt area where the bear creek wind project is located has many drumlins that were formed by glaciation. Drumlins are common in Minnesota, typically aligned parallel to each other and numbered in the hundreds even thousands and are often associated with ribbed moraines.

Moraine-is rock debris, fallen or plucked from a mountain and transported by glaciers or ice sheets. The moraine may be lying on the glacier's surface or have been deposited as piles or sheets of debris, where the glacier has melted. Till is another word used to describe the sediments left by melted glaciers but is not used to describe debris lying on a glacier's surface

11.3 Soils. Soils have significant interaction with and on water resources. For example highly erodible soils can contribute to sedimentation in rivers and streams. On the other hand, sandy soils with high infiltration and surface permeability characteristics significantly contribute to aquifer recharge. Soil associations and parent material is explained below and depicted on the soils map Appendix L. These maps are helpful in identifying areas where runoff or erosion may be expected. The USDA's General Soil Map for Todd County depicts three different soil types on the ridge where the project is located. These types of maps are used to describe distinctive soil patterns and are useful in determining, in general, the types of soil in a large area and will give an indication on the degree of erosion that may be expected from this project. These types of soils are described below:

Rockwood. The Rockwood Series consists of very deep, well drained soils that formed in loamy glacial till on drumlins and moraines. These soils are deep to dense till-densic contact. These soils have moderate permeability in upper part and slow or very slow permeability in dense underlying till. Slopes range from 2 to 35 percent. Mean annual precipitation is about 27 inches. Mean annual temperature is about 42 degrees f.

Geographic Setting: these soils have convex slopes on shoulders and summits of drumlins and moraines. Slopes range from 2 to 35 percent. They formed in dense coarse-loamy glacial till of the Wadena Lobe of the late Wisconsinan Glaciation. The upper part appears to have been modified and stone lines have been identified in the field. Mean annual air temperature ranges from 38 to 45 degrees f. Mean annual precipitation ranges from 20 to 26 inches. Frost-free days range from 90 to 170. Elevation above sea level ranges from 700 to 1700 feet.

Blowers. The Blowers Series consists of very deep, moderately well drained soils that formed in loamy glacial till on drumlins and moraines. It is deep to dense till-densic contact. These soils have moderate permeability in the upper part and slow or very slow permeability in the dense underlying till. Their slopes range from 1 to 5 percent. Mean annual precipitation is about 25 inches. Mean annual air temperature is about 42 degrees f.

Geographic setting: These soils have plane to slightly convex slopes with gradient of 1 to 5 percent primarily on drumlins and moraines. They formed in calcareous coarse-loamy glacial till of the Wadena Lobe of the late Wisconsinan Glaciation. The upper part appears to have been modified and stone lines have been identified in the field. Mean annual temperature ranges from 37 to 45 degrees f. Mean annual precipitation ranges from 22 to 30 inches. The frost-free days range from 90 to 145 days. The elevation above sea level ranges from 1000 to 1700 feet.

Paddock. The paddock series consists of somewhat poorly drained, poorly drained and very poorly drained soils that formed in loamy glacial till on drumlins. They are deep to a paralithic contact over dense till. These soils have moderate permeability in the upper part and very slow permeability in underlying dense till. Their slopes range from 0 to 2 percent. Mean annual precipitation is about 23 inches. Mean annual temperature is about 42 degrees f.

These soils have plane or slightly concave slopes with gradients of less than 2 percent at the base of slopes and at the heads of shallow drainage ways on drumlins and ground moraines. They formed in calcareous coarse-

loamy glacial till of the Wadena Lobe of the late Wisconsinan Glaciation. The upper part appears to have been modified and stone lines have been identified in the field. Mean annual temperature ranges from 37 to 45 degrees f. Mean annual precipitation ranges from 24 to 33 inches. The frost-free days are about 90 to 172 days. The elevation is about 670 to 1450 feet above sea level.

11.4 Mitigation of Impacts-Construction of the project's foundations and access roads may affect erosion slightly during the construction process. There will be very little farmland taken out of production and as little disturbance to adjacent areas when constructing foundations and roads. If necessary a National Pollutant Discharge Elimination System permit will be acquired by the project. The project will incorporate Industry standard best management practices during the construction and operation processes to minimize erosion. We will set aside top soil from excavated areas to be reused for seeding around disturbed areas such as foundations and next to roads. Although we do not think it will be necessary because of the nearly level turbine sites, silt fences and other stabilization practices will be employed if necessary.

11.5 Hydrology and Groundwater Resources-Information on area geology and hydrology is derived from MNDNR Division of Waters Regional Hydrogeologic Assessment Series (RHA, Part B, Plates 1 & 3) done in 2002. Appendix K and Appendix M.

Watersheds are lands that drain to a river or other body of water that contribute to the recharge of an aquifer. The Bear Creek project is located within one major watershed body; the Crow Wing Watershed. Within this unit we can further define the watershed as the Redeye Watershed. Drainage patterns are formed by topographic features of the area. Approximately 65% of the county have an elevation above 1300 feet. The outwash plains and the ground moraines tend to be lower than 1,300 feet.

The Otter Tail Geologic Regional Hydrological Assessment is derived from surficial geology and near surface stratigraphy and were assessed by sampling 82 shallow and deep wells ranging from 40 to 537 feet. The nearest sample taken from the Bear Creek Wind Project was approximately 7 miles north of the site. Another sample was taken approximately 10 miles west of the site.

The aquifers in western Todd County and eastern Otter Tail County consist of a complex network of surficial and deep buried deposits of sand and gravel. These deposits were laid down by a series of glacial advances and retreats that sculpted much of Minnesota. Depth to water is most variable in the ground moraine and outwash settings. In these areas water is obtained from buried aquifers created by the glacial meltwater channels and buried sand and gravel deposits of limited extent. The median depth of these wells/water tables is less than 30 feet and is subject to seasonal climatic variations. Many residences in the county derive their water from shallow buried sand and gravel aquifers. These aquifers do appear to be vulnerable to pollution but less vulnerable than in aquifers located further to the west in lake country.

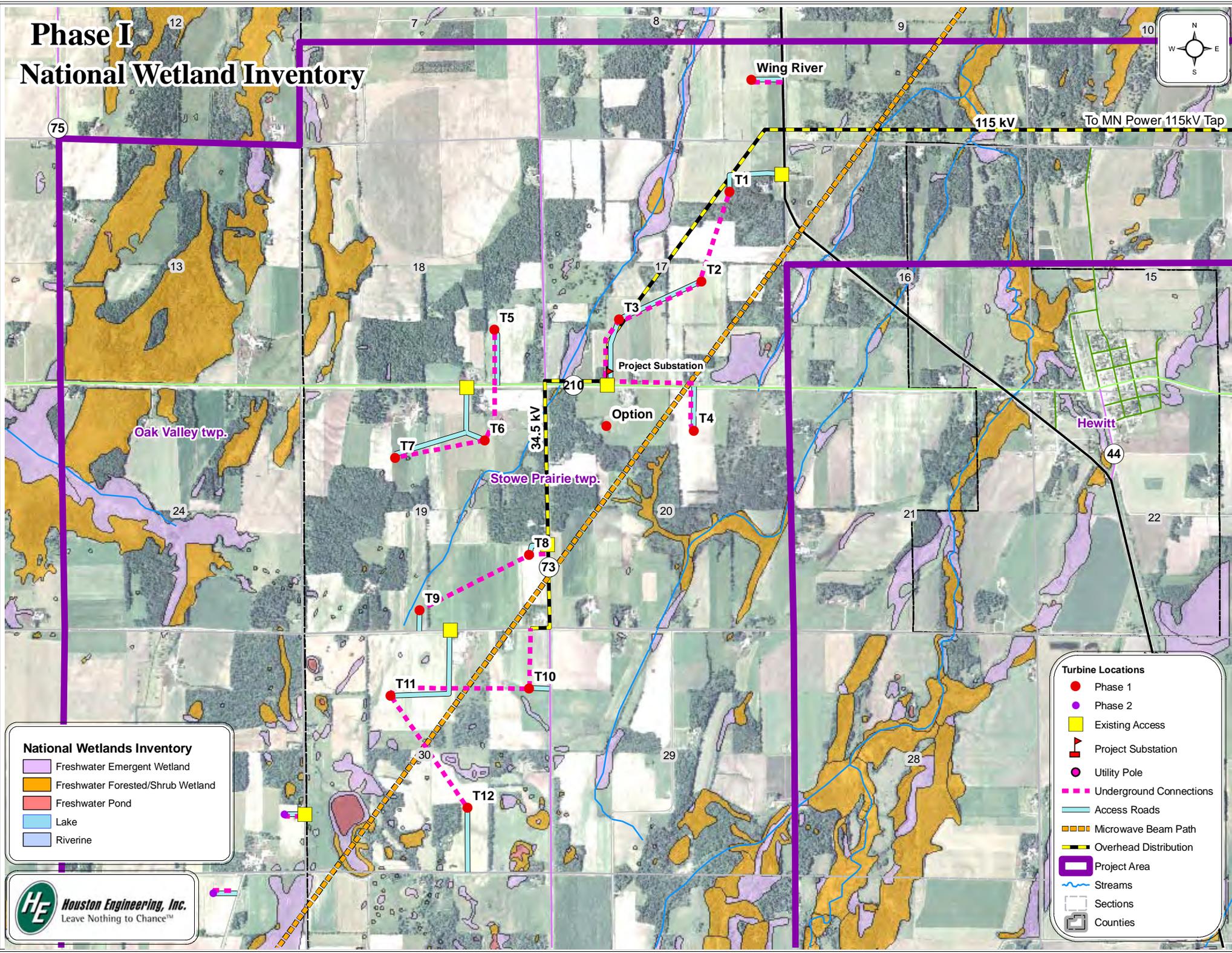
11.6 Mitigation of Impacts. We expect no impacts to water resources due to the construction, operation and maintenance of the project.

11.7 Wetlands/Public Waters-Wetlands are overseen by state and federal jurisdiction under the Wetland Conservation Act (state) and the Clean Water Act (federal). The wetlands and public waters in the site area were identified by reviewing maps from the National Wetland Inventory (Federal) and the Public Waters Inventory (Minnesota DNR). Wetland maps may or may not be accurate because they are based on aerial photography and may not show all wetlands associated with a particular piece of property.

Some wetlands have visible surface water only a few weeks a year. Some are farmed or mowed for hay or maintained as lawn. All wetlands share characteristics which include; soils that have been developed in wet conditions, they are wet either above the ground or below (12 inches) of the surface of the ground, and they have vegetation that has adapted to wet soil conditions.

Sometimes it is difficult to define jurisdiction over wetlands as there are at least four county, state and federal entities that oversee various aspects of Minnesota waters. These four entities are; county Soil and Water District (Todd, Otter Tail County), NRCS who oversees mainly farmland, the MN DNR and the U.S. Corps of Engineers.

Phase I National Wetland Inventory



National Wetlands Inventory

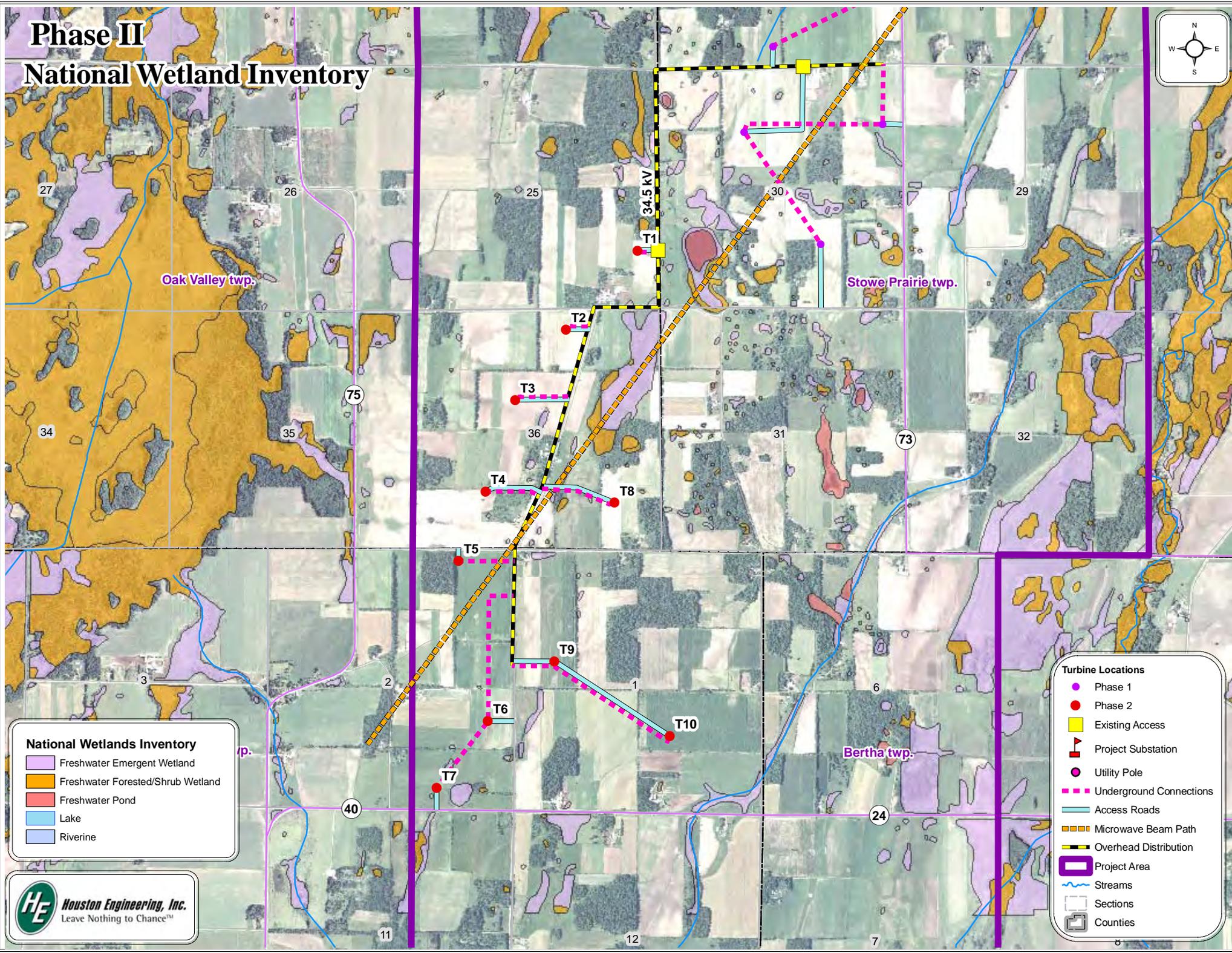
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Riverine



Turbine Locations

- Phase 1
- Phase 2
- Existing Access
- Project Substation
- Utility Pole
- Underground Connections
- Access Roads
- Microwave Beam Path
- Overhead Distribution
- Project Area
- Streams
- Sections
- Counties

Phase II National Wetland Inventory



National Wetlands Inventory

- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Riverine

Turbine Locations

- Phase 1
- Phase 2
- Existing Access
- Project Substation
- Utility Pole
- Underground Connections
- Access Roads
- Microwave Beam Path
- Overhead Distribution
- Project Area
- Streams
- Sections
- Counties



The National Wetland Inventory Map depicts wetland classifications by the Circular 39 method and divides wetlands in 8 different categories. The overhead line depicted in this appendix indicates that the line proposed would be built over wetlands depicted as Type 3. Type 3 wetlands are described as shallow marshes. The soil is usually waterlogged early in the spring and covered with six or more inches of water. Vegetation includes grasses, bulrushes, spikerushes, cattails, arrowheads, pickerelweed and smartweeds. This type of wetland protects water quality, shoreland, retains floodwater, provides habitat for waterfowl, amphibians and fish and offers different recreational activities including canoeing, hunting and fishing.

We will be filing a joint application for a General or Letter-of-Permission Permit from the corresponding agencies concerning wetland encroachment. Concerning public water crossings we will be filing a Utility Crossing Permit to Cross Public Waters, with the MNDNR, to construct the overhead collection system along 490th St. and Sections in Stowe Prairie Township. We will be working closely with the DNR, the NRCS to mitigate project impact to areas that may have wetlands or public waters located on or near the project.

The wetland types and public waters are identified by Township, Range and Section below. Table

National Wetland Inventory (Federal)

County	Township	Section	Wetland Type (Circular 39)
Todd	Bartlett (Sub)	7	3
Todd	Stowe Prairie (Overhead)	9,10,11,12	3
Todd	StowePrairie (Turbines)	8,17,19,30,31	3
Otter Tail	Oak Valley (Turbines)	25,36	3

**Public Waters Inventory-Rivers (State DNR)
River Crossing Permits**

County	Township	Section	River
Todd	Stowe Prairie	9, 17	(Unnamed)Wing River
Todd	Stowe Prairie	12/13	Bear Creek (Little)

Public Water Inventory-Wetlands (State DNR)

County	Township	Section	Number
Todd	Stowe Prairie	30	77-213

11.8 Mitigation of Impacts-Wind turbines and access roads will be built on a ridgeline that runs from a northeasterly to southwesterly direction, we will avoid constructing our access roads in wetland areas. By building on high ground we will further avoid wetlands located on lower areas of the project site. We will be working closely with the DNR, the SWCD and the USF&W to establish locations for turbines, roads and electrical infrastructure. A walk through was done with the agencies listed to ensure impacts to the area are mitigated as much as possible.

The distribution line from Bartlett Township to Stowe Prairie (along 490th St) will cross over National Wetland Inventory wetlands and Public Waters administered by the MNDNR, NRCS or the Todd County . We will design the placement of the poles to avoid placing these in wetland areas. We will work closely with NRCS, MNDNR and submit permit applications to avoid negative impact in regards to siting turbines and the distribution/collector system. We will also file a form 1026 AD to establish a paper trail in regards farm programs and wetlands the NRCS has jurisdiction over.

11.9 MNDNR Area Coordinator. Correspondence between the Bear Creek Partners and the DNR's project coordinator for the area, Paul Stolen, includes comments and recommendations. We have indicated a preference early on to work closely in supplying them with maps and a project summary to receive feedback from them. A walk through the site was done with the DNR's Area Coordinator as well as with the USF&W to discuss turbine layouts, locations of roads and infrastructure. Our discussion included our willingness to relocate turbines, equipment and roads to new locations if it were recommended by the DNR. We have changed locations of turbines subsequent to those discussions with the DNR. As well as changing turbine locations some of the other mitigation efforts the project will employ include;

1. Not building wind turbines next to bird concentration areas or moving them an adequate distance away.
2. Clustering towers as much as possible so that there are gaps between them to allow for migrating birds to more easily navigate through danger areas.
3. Using proper lighting on top of turbines designed to reduce bird strikes. (to this end the USF&W has found that flashing red lights are more effective than steady red lights). The DNR has indicated that more information from the FCC will be coming out and that they (the DNR) will keep us informed.
4. Bird diverters will be placed on transmission/distribution lines, to this end the DNR feels that large swan diverters are preferable.
5. Undergrounding utility lines, to the extent possible, is preferable to overhead construction.

Mitigation Efforts has been based on a site visit with the area DNR coordinator, and the Wildlife Coordinator for Todd County once a layout with longitudinal and latitudinal coordinates are obtained. The site visit was coordinated prior to the project filing FAA 7460 permits for structures over 200 feet. That field visit took place June of 2007.

The project has already met with the Soil and Water Conservation District representative, Ed Uhlenkamp and we will inform him, as per his request, of "Start of Construction" in regards to final siting and transmission.

Please review correspondence between the Area Coordinator (MNDNR, and the SWCD representative) in Appendix J for all correspondence between the MNDNR, the SWCD and Bear Creek Wind Partners.

11.10 MNDNR_Natural Heritage Database_Rare Plant & Animal Species and Natural

Features-A letter was sent to MNDNR Natural Heritage and Non-game Research Division, outlining the project and requesting information concerning impacts to rare plant or animal species and other significant natural features relative to constructing, operating and maintaining the project. The review was done within a one-mile radius of the project footprint and there was found 1 known occurrence of a geological feature, the Todd-Wadena Drumlins. According to the Divisions representative, Sarah Wren, it is not believed that the project will have any significant impact on this feature.

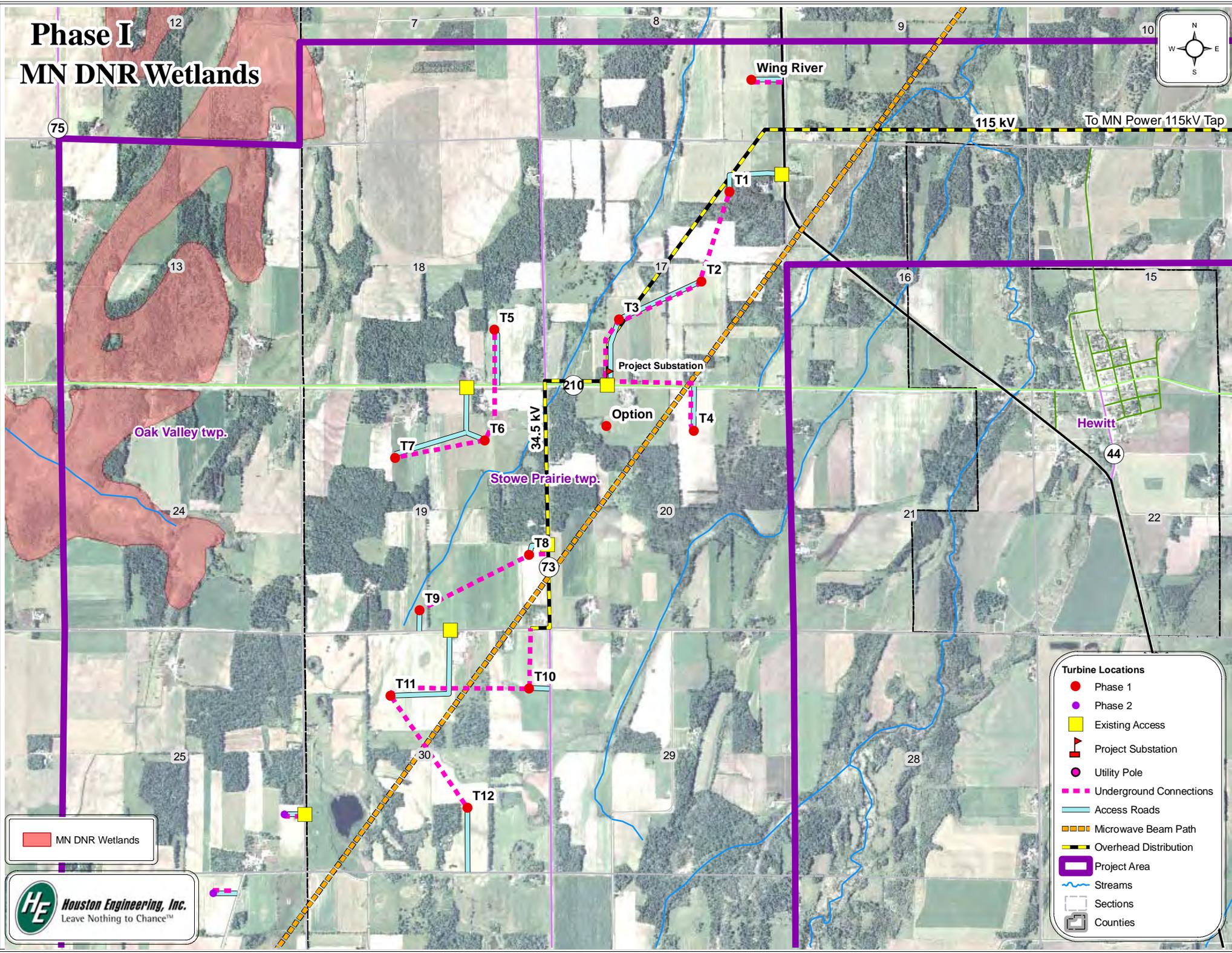
Also, there was found several mussel species, including the Creek Heelsplitters, a special concern species, that have been documented in an area upstream of the Wing River. Freshwater mussels have been described as North America's most imperiled groups of animals. In Minnesota, 25 of 48 native mussel species are listed as either endangered, threatened, or of special concern. The primary reason behind the decline of mussels is the degradation of lakes and rivers as a result of runoff and physical changes such as damming, channelization and dredging.

There were found no instances of rare plants in this review. See Appendix J for Correspondence with the MNDNR.

11.11 U.S Fish & Wildlife A letter was also sent to the U.S. Fish and Wildlife, Ms. Laurie Fairchild, asking for a review to be done concerning threatened and endangered species and migratory birds in the project area. There were found no instances of known threatened or endangered species, critical habitat or candidate species as listed under the Endangered Species Act (ESA) of 1973. Specific guidelines were outlined in their response to our request regarding siting and construction of wind turbines to aid our project with the intent of minimizing impact on migratory birds and habitat as per the Migratory Bird Treaty Act (MBTA).

Mr. Kevin Brennan, Project Leader at the Fergus Falls Wetland Management District (WMD) surveyed the project area and provided a map showing locations of sandhill cranes observed June 27, 2006 exhibiting behavior consistent with nesting. Nesting of sandhill cranes in this area of Minnesota is infrequently recorded. This species is considered a migratory bird but for the purposes of MBTA enforcement is not listed under the ESA. See Appendix K for Correspondence with the U.S. Fish & Wildlife.

Phase I MN DNR Wetlands



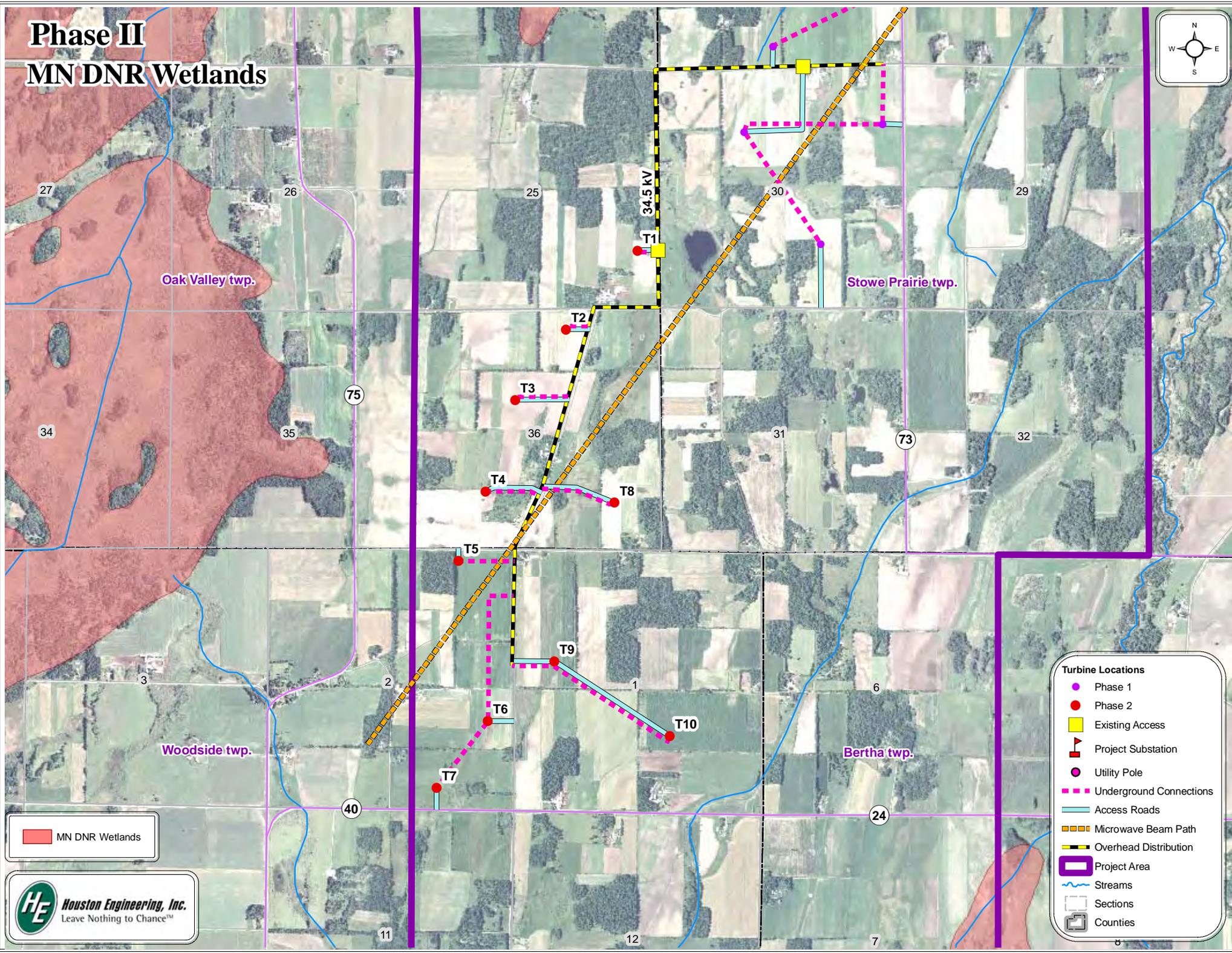
MN DNR Wetlands



Turbine Locations

- Phase 1
- Phase 2
- Existing Access
- Project Substation
- Utility Pole
- Underground Connections
- Access Roads
- Microwave Beam Path
- Overhead Distribution
- Project Area
- Streams
- Sections
- Counties

Phase II MN DNR Wetlands



 MN DNR Wetlands



Turbine Locations

-  Phase 1
-  Phase 2
-  Existing Access
-  Project Substation
-  Utility Pole
-  Underground Connections
-  Access Roads
-  Microwave Beam Path
-  Overhead Distribution
-  Project Area
-  Streams
-  Sections
-  Counties

11.11 Mitigation of Impacts-The project will review the guidelines available on the U.S. government's website and survey the project area prior to beginning construction work on roads, foundations and electrical infrastructure for wildlife. We will follow these recommendations stringently. The project will not encroach upon wildlife nesting areas and minimize construction impacts by constructing infrastructure away from wetlands.

The project will use existing access roads and construct turbines on the tops of the drumlins, avoiding construction of any type on grades greater than 5%. There are no grades where turbine foundations or roads are proposed. Construction of turbine foundations will be in areas where existing farming operations have or are presently occurring.

Construction of the overhead line is occurring in areas where there are existing overhead lines. The project has contacted the owners of these existing overhead lines with the intent on mitigating project impacts as much as possible by placing existing distribution lines under project built systems. There are two utilities that own land which we have contacted, Minnesota Power and Todd Wadena REC. Of these two, only Minnesota Power has agreed to allow us to utilize the right of way with them and construct our overhead line and underbuild their existing lower voltage level line on our proposed distribution poles.

There will be no damming, channelization or dredging activities of any kind for any part of the project. The project will observe proper set backs from wetland and public waters when constructing turbine foundations, the project substation, and any overhead line, as per the DNR permitting requirements. We are working very closely with the DNR, U.S. Fish & Wildlife and the NRCS to avoid impact as much as possible.

We have met with or sent letters to the DNR, Todd and Otter Tail County Soil and Water Districts and the U.S. Fish & Wildlife who have indicated that they did not believe there were any major issues concerning the construction of the project's foundations, roads, overhead lines or other infrastructure needed for the project. The project will contact the SWCD two weeks prior to the start of project construction to inform them that construction of the project will begin. The SWCD has indicated that they would like to review our turbine and road layouts prior to construction to ensure we are not encroaching on wetlands or other environmentally sensitive areas. (See SWCD/Uhlenkamp correspondence Appendix J).

Concerning the construction of the overhead line; the SWCD has indicated they will give the project a blanket permit allowing the project to build along the roadways depicted on information supplied by the project. We will work closely with these agencies to ensure there are no problems regarding filling in or encroaching on wetland areas.

See Appendix N.

12 Construction of Project

12.1. Siting Plan

The project optimizes turbine layout while minimizing agricultural impacts (see Site Plan Map). Each turbine's rotor is 90 meters tip to tip and each turbine will be laid out, from north to south, approximately 3000 feet between each turbine. The spacing observed in east to west directions is at least 1900 feet.

With respect to the prevailing winds the layout does not interfere with the NW to SE prevailing winds and loss of power production is minimized. A final layout/as built depicting turbines, substation, access roads and electrical infrastructure will be submitted to the MNPUC with global positioning coordinates once the project is constructed and has reached commercial operation.

Minnesota Power, the turbine supplier (Nordex) and the Balance of Plant (BoP) contractor will perform or manage all development and installation activities. For aspects that do not fall under the auspices of the off-taker or the interconnecting utility Bear Creek Wind Partners will perform the following;

- Site Resource Analysis and Turbine Micro Siting
- Site Permitting/Apply for and Obtain Project Specific Permits and Licenses
- Facilitate the Preparation of Construction Contracts.
- Facilitate Contractor and Subcontractor Selection
- Assist in the Project Management during the Construction Process.

The erector will;

- Assemble and Install the Turbines

The BoP contractor will:

- Perform Civil Engineering Work needed for:
- The Construction of Foundations and Roads
- Install Communications Systems for Operations and Maintenance, as well as Utility Monitoring

Quality control and quality assurance methods will be employed to ensure a safe working environment and high construction standards. These are discussed further in Section 7.

12.2. Operation of Project

Phase 1 of the project expects to be fully operational by December 31, 2008. Phase 2 is contingent on the extension of the Federal Production Tax Credit. The operations and maintenance is expected to be performed by manufacturer's representatives trained on this specific equipment for at least the warranty period. The Group expects to be integrally involved with ongoing operations and maintenance and expects to assume responsibilities within the first 11 years of the project's life. This project is part of a number of wind developments being undertaken by principles of the Group. A modest O & M facility is expected to be built at a site centrally located to those developments, possibly in Fergus Fall, MN.

12.3. Costs (Design, Construction and Operations)

Development, turbine supply, construction, interconnect and other ancillary costs for the project are not projected to exceed approximately \$1,750 per kw including the overhead transmission/distribution line.

12.4 Project Schedule and Current Status

- | | |
|--|--------------------|
| • Site identification | Complete |
| • Development team identified | Complete |
| • Identify the project parameters including the need for a feeder circuit from the 115 kV line to the turbine site | Complete |
| • Obtain Right of Way Easement from Stowe Prairie Township For 4.25 miles of overhead line (1155 kV) | Complete |
| • The project will ask for a variance concerning the existing ROW to upgrade to a 115 kV ROW. | Incomplete |
| • Obtain Right of Way Easement for .25 miles of overhead Line for MP tap (115kV) in Bartlett Township | Incomplete |
| • Obtain Right of Way Easements for the construction of 34.5 kV distribution/collection lines from the County and Townships. | |
| • Wind resource assessment (WindLogics) | Complete |
| • We have installed an on site met tower for verification | Nov 2006 |
| • Local ownership/structure ownership | Complete |
| • Land leases or options secured | Complete |
| • County Resolutions of Support | Complete |
| • Finance Structure Determined | By June 2007 |
| • Identification of equity provider | By October of 2007 |
| • Permitting requirements identified | Complete |
| • Pro forma developed for the project | Complete |
| • Construction partners identified | |
| • Substation is nearly 100% designed | Complete |
| • Collection system nearly 100% designed | |
| • Secure Necessary Easements/Permits for ROW OVHD | Complete |
| • Roads designed | Complete |
| • Turbine identified | Nordex N90-2.5 MW |

We think this project is well positioned for successful implementation and we are confident that all permitting and design activities can be completed by first or second quarter 2007. The Milestone Dates outlined below are important to meet expectations to give the project a realistic chance of meeting fatal flaw on critical aspects of project development and securing favorable terms from an equity provider.

12.5 Milestone Dates

1. Letter of Intent or Similar	Complete
For Interconnect X1/X2 and Permit Process to Move Forward	Complete
2. MISO Application (X1)	Complete
3. MISO Feasibility Study (X3 estimated to begin "Out of Queue")	June/July 2007
4. Power Purchase Agreement (by Minnesota Power)	May 2007
5. State Permitting Application/County/CBED Res of Support	Complete
Local ROW/Easements	October/November 2007
6. Letter of Commitment by Finance	September/October 2007
7. Interconnection Study Completed	December 2007
8. Site Plan Complete	Complete/Subject to Approval by PUC
9. Financing Secured and Project Structured	To Be Determined
8. Interconnection Agreement Executed	January 2008
9. Turbine Purchase Date (Construction Financing)	October 2007
A. Turbine Ship Date	To Be Determined
B. Towers Ordered	To Be Determined
C. Transformers Ordered	To Be Determined
10. Lease Options converted to Lease Agreements by	August 15, 2007
11 Right of Way Easements for Feeder Circuit (Stowe Prairie)	August. 15, 2006
Right of Way Easements for Feeder Circuit (Bartlett)	October 2007
12. Exercise Purchase Option for Substation Land (if Needed)	Dec. 2007
13 .Substation Design Complete	June 2007
A. Collection System and Feeder Design Complete	June 2007
B. Substation Equipment Ordered	To Be Determined
C. Conductor Ordered	To Be Determined
14. Begin FAA Permitting Process	December 2007
A. Order FAA Lights	To Be Determined
15. Permitting Complete (excluding FAA)	November 2007
16. Foundations Designed	August 2007
A. Roads Designed	Complete
16. Prepare Construction Documents	November 2007
A. Select Builders	February 2008
B. Begin Construction (all Phases) NLT	June/July/August 2008
17. Coordinate Telco Services (Begin)	May 2008
18. Order CT's and PT's (Utility)	May June 2008
19. Coordinate Construction/Utility Metering	May June 2008
20. Tower Delivery to Site NLT	Aug Sept 2008
21. Turbine Delivery to Site NLT	Aug Sept 2008
22. Build Rotors (Begin) NLT	Aug Sept 2008
23. Erect Turbines (Begin) NLT	Sept Oct 2008
24. Station Power (Sub/Collection System) NLT	Oct Nov 10, 2008
A. SCADA (by Utility) NLT	Nov 9, 2008
B. Utility Metering NLT	Nov 9, 2008
25. Commission Turbines (Begin) NLT	Nov 15, 2008
25. Commercial Operation	Dec 31, 2008

12.6 Energy Projections

The project will have a capacity factor of 35.8 % net and Phase I's 30 MW nameplate capacity should produce approximately 95,000,000 kWhrs per year. Phase II's 25 MW nameplate capacity should produce approximately 78,402,000 kWhrs annually.

12.7 Decommissioning and Restoration

Project lease options are for a 25 year period. Upon expiration of the 20 year PPA the project anticipates either a restructuring of the PPA with MP or exercising an option to sell project power directly into the MISO grid. Consequent to options relative to the end of the PPA and the expiration of any permit given to the project by the State, we would like to have an option to extend the project for an additional 5-10 years. Since the project infrastructure would be in place, such as the substation, collection system, foundations and access roads, we feel we may be able to repower the site at minimal cost. This will add further value to the project and to the local community after the end of the current PPA to the local owners involved.

A decommissioning plan will include per turbine payments in years 11-20 of the PPA which will be placed in an interest bearing escrow account. Current decommissioning costs are placed at approximately \$10,000-4,000 dollars per turbine, in 2006 dollars. Scrap value of turbine steel in today's dollar amounts of over \$200.00 per ton. Approximately 150 tons of scrap value in the turbine and tower alone, coupled with monies placed in the escrow account should be more than enough to pay for all decommissioning and restoration activities from this site. A decommissioning fund of \$600,000.00 in 2007 dollars will be fully funded by year 20 and placed in an interest bearing escrow account.

- A. **Anticipated Life**
The anticipated life for the project is expected to be 20-30 years.
- B. **Estimated Decommissioning Costs in Current Dollars**
The project estimates the cost of decommissioning will be approximately \$600,000.00 in 2006 dollars.
- C. **Method and Schedule for Updating Decommissioning and Restoration**
Set aside funds in an interest bearing account and utilizing the scrap value of the turbine should be adequate for the removal of the equipment and the restoration of the site.
- D. **Method for Ensuring Available Funds for Decommissioning and Restoration**
Operating reserves will be included with the contingency fund/set asides at a rate of approximately \$5,000 per year per turbine (for years 11-20 of the PPA period) in 2007 dollars placed in an interest bearing account accessible only for decommissioning. The account will be fully funded by year 20 year of the PPA.
- E. **Manner in which the Project will be Decommissioned and the Site Restored.**
Lease extensions for additional years to the lease agreement are included in the leasing arrangements. It is anticipated there will be extensions to the PPA after the 20 year expiration of that contract. At the end of the commercial life of the project, the project will be decommissioned within 18 months of the end of the commercial operations. As per lease option; each turbine will be taken down, foundations removed to a depth of 4 feet, as well as the substation and any buildings and roads built on site, unless other arrangements over the next 20-30 years are made with the landowner. Depending upon agreements with the local landowners at the time of decommissioning, reseeded of disturbed areas is included in the restoration plan.

APPENDIX A.1

Todd County Resolution of Support

TODD COUNTY
RESOLUTION 2006-3/21- 34

SUPPORT FOR A WIND PROJECT TODD COUNTY, MINNESOTA

WHEREAS, agriculture and energy are a major and an integral part of Todd County's and the State of Minnesota's economic security, and

WHEREAS, the Minnesota State Legislature has directed- electric utility's providing service in Minnesota to facilitate locally owned wind energy projects, and

WHEREAS, Todd County recognizes that wind energy projects can and should play a larger role in providing energy through locally generated wind projects, and

WHEREAS, Todd County wind projects will contribute economically to Todd County by way of property tax payments, land lease payments, local ownership and ancillary benefits, and

WHEREAS, localized wind energy projects support economic development, and

WHEREAS, wind energy development within the State lessens the State of Minnesota's dependence on the importation of electricity from North Dakota and Manitoba, and

WHEREAS, wind energy projects mitigate pollution generated by fossil fuel, and

WHEREAS, the mitigation of pollution supports recreational activities such as fishing, hunting and other outdoor activities, and

WHEREAS, PlainStates Energy has proposed a project consisting of 30 MW of wind generated electricity, and

WHEREAS, the wind project will sell the wind generated electricity to Minnesota Power, and

WHEREAS, the wind project is currently known as the Bear Creek Wind Energy Project.

WHEREAS, the project is located primarily in Stowe ^{Frame} Township, Todd County.

BE IT RESOLVED, that Todd County Board of Commissioners go publicly on record supporting the wind project in Todd County, being developed by Plain States Energy.

Adopted this 21st day of March, 2006.

Seal

Attest:

Karen Busch
Karen Busch, Clerk to the Board

Janet Goligowski
Janet Goligowski, Chairperson

Motion: Nelson

Second: Blessing

Adopted ✓

APPENDIX A.2

Otter Tail County Resolution of Support

OTC Board of Commissioners' Minutes
June 27, 2006
Page 7

Support for a Wind Project
Otter Tail County Resolution No. 2006 - 52

Commissioner Nelson offered the following and moved its adoption:

WHEREAS, agriculture and energy are a major and integral part of Otter Tail County's and State of Minnesota's economic security, and

WHEREAS, the Minnesota State Legislature has directed electric utility's providing service in Minnesota to facilitate locally owned wind energy projects, and

WHEREAS, Otter Tail County recognizes that wind energy projects can and should play a larger role in providing energy through locally generated wind projects, and

WHEREAS, Otter Tail County wind projects will contribute economically to Otter Tail County by way of property tax payments, land lease payments, local ownership and ancillary benefits, and

WHEREAS, localized wind energy projects support economic development, and

WHEREAS, wind energy development within the State lessens the State of Minnesota's dependence on the importation of electricity from North Dakota and Manitoba, and

WHEREAS, wind energy projects mitigate pollution generated by fossil fuel, and

WHEREAS, the mitigation of pollution supports recreational activities such as fishing, hunting, and other outdoor activities, and

WHEREAS, PlainStates Energy has proposed a project consisting of 30 MW of wind generated electricity, and

WHEREAS, the wind project will sell the wind generated electricity to Minnesota Power, and

WHEREAS, the wind project is currently known as the Bear Creek Wind Energy Project, and

WHEREAS, the project is located primarily in Woodside and Oak Valley Townships in Otter Tail County.

BE IT RESOLVED, that Otter Tail County Board of Commissioners go publicly on record supporting the wind project in Otter Tail County, being developed by Plain States Energy.

Commissioner Lee seconded the motion, and upon being put to vote, the above resolution was adopted on a unanimous vote.

Dated: 7/5/2006

OTTER TAIL COUNTY BOARD OF COMMISSIONERS

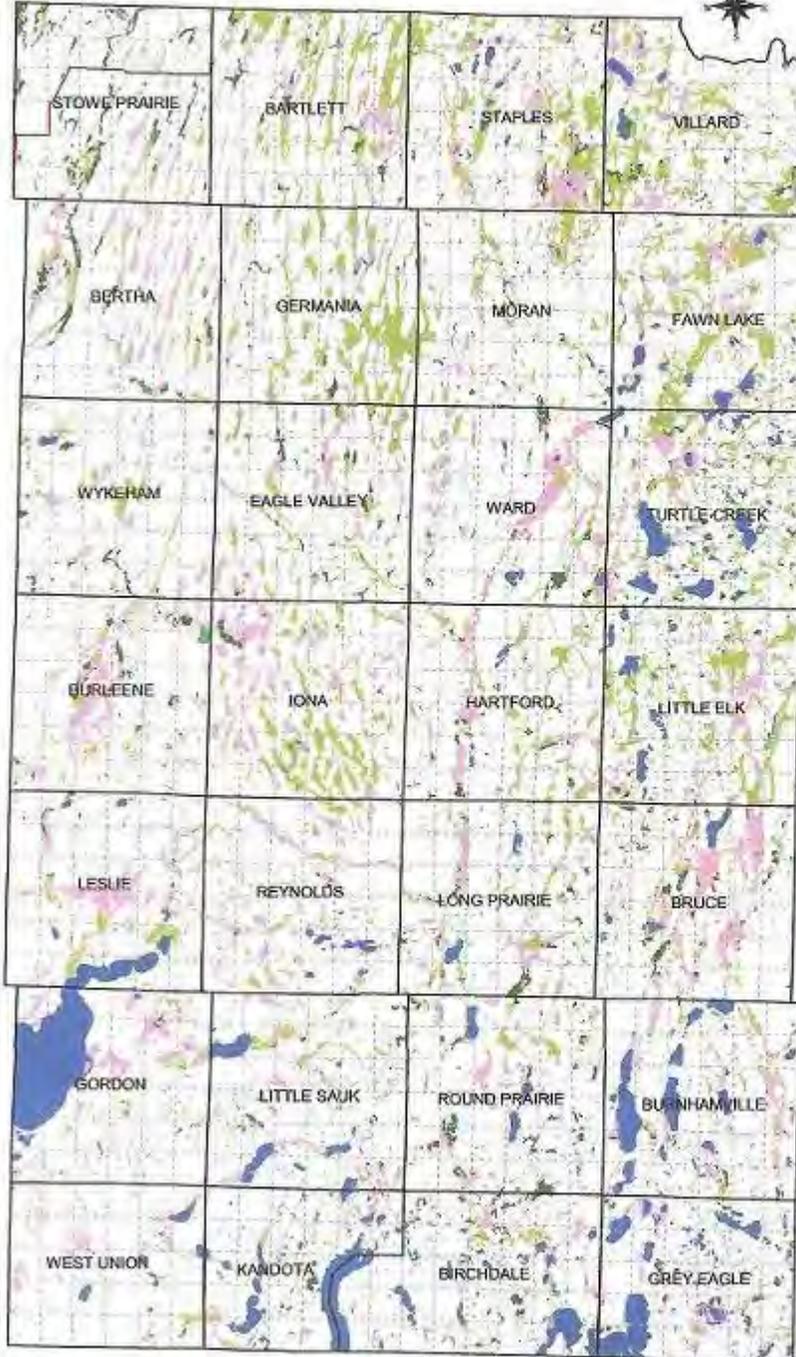
By: Roger Froemming
Roger Froemming, Board of Commissioners Chair

Attest: Larry Krohn
Larry Krohn, Clerk

Appendix B.7

Depicts Overhead Route

National Wetland Inventory



Circular 39 Wetland Classification by Type

	1	Seasonally flooded basins or flats
	2	Inland fresh meadows
	3	Inland shallow fresh marshes
	4	Inland deep fresh marshes
	5	Inland open fresh water
	6	Shrub swamps
	7	Wooded swamps
	8	Bogs
	96	Upland

Map Resources:
 National Wetlands Inventory Data - Developed using b&w and color photos from the years 1974 to 1994 at scales from 1:58000 to 1:80000. Provided by Minnesota DNR.
 Township and Section Lines - MnDOT, Minnesota Basemap

Todd County GIS Department
 Long Prairie, MN 56347
 320-732-4248

Todd County
 Planning & Zoning Department
 (320) 732-4420

Ekola & Associates
 Duluth, Minnesota
 (218) 733-9769

June 9, 2000

Todd County GIS Dept. has made every effort to provide the most accurate data information available in the production and issuance of this report. We do not warrant that it is accurate for any particular use.





NORDEX N90/2500 LS
NORDEX N90/2500 HS
Technical Description

© NORDEX Energy GmbH
Technical information is subject to change. All rights reserved.

Table of contents

1	Design.....	2
2	Rotor	3
3	Main shaft	3
4	Gearbox	3
5	Generator.....	4
6	Cooling and filtration.....	4
7	Braking system.....	5
8	Hydraulic system.....	6
9	Nacelle.....	6
10	Crane systems.....	6
11	Yaw system.....	6
12	Tower and foundation.....	7
13	Grid connection.....	7
14	Controller and safety system.....	7
15	Lightning protection.....	8
16	Operation control.....	8
17	General reservations.....	9

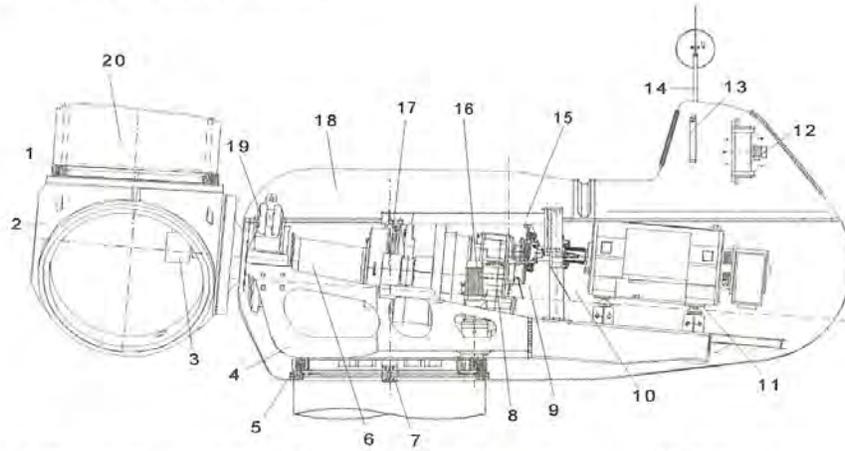
1 Design

The NORDEX N90/2500 is a speed-variable wind turbine with a rotor diameter of 90 m and a nominal power of 2,500 kW. It is offered in several variants for different site conditions, 50 Hz and 60 Hz and also LS and HS (low speed, high speed). The nacelle and rotor are designed for wind class 1. To regulate power the blades can be pitched individually.

This machine is based on the well proven turbine family NORDEX N80.

NORDEX is certified according to ISO 9001 quality standards. Our quality control system and thus also the production processes fulfil the requirements of ISO 9001. For all main components NORDEX co-operates with a number of qualified suppliers.

Nacelle overview NORDEX N90/2500



- | | | | |
|-----------------|-----------------------|---------------------|---------------------|
| 1 Pitch bearing | 6 Rotor shaft | 11 Generator | 16 Yaw drive |
| 2 Rotor hub | 7 Yaw brakes | 12 Generator cooler | 17 Gearbox mounting |
| 3 Pitch drive | 8 Gearbox | 13 Gearbox cooler | 18 Nacelle cover |
| 4 Nacelle frame | 9 Emergency brake | 14 Wind sensors | 19 Main bearing |
| 5 Yaw bearing | 10 Generator coupling | 15 Hoist | 20 Rotor blade |

General Data	
Type	3-blade rotor with horizontal axis, up-wind pitch
Power regulation	2,500 kW
Rated power	approx. 3 m/s
Start wind speed	LS: approx. 14 m/s
Wind speed for rated power	HS: approx. 13 m/s
Stopping wind speed	25 m/s
Calculated lifetime	20 years

Climatic Design Conditions	
Nacelle and rotor certified acc. to	LS: DIBt 3, IEC 2a HS: IEC 1b
Ambient temperature range	-20...+30 °C
Option for hot climate version (HCV)	-20...+40 °C

2 Rotor

The rotor consists of three blades, the hub, the pitch bearings and drives to change the pitch angle of the blades. The rotor blades are made of glass fibre-reinforced plastic. Each rotor blade is controlled and driven independently of the other blades. The blades are equipped with a lightning protection system including lightning receptors deflecting the lightning into the rotor hub.

Rotor main data	
Rotor diameter	90 m
Swept area	6,362 m ²
Maximum tip speed	LS: approx. 70 m/s HS: approx. 75 m/s
Specific power	393 W/m ²
Rotor speed N90/2500 LS	9.6...14.85 rpm
Rotor speed N90/2500 HS	9.6...16.00 rpm
Rotor tilt angle	5°
Blade cone angle	2°
Total weight	approx. 55 t

Rotor hub	
Material	spheroidal graphite cast iron EN-GJS-400-18U-LT
Total weight, incl. pitch system	approx. 25 t

Rotor blades	
Material	glass fibre-reinforced plastic
Total length	43.8 m
Weight per blade	approx. 10.2 t

3 Rotor shaft

The drive train consists of the rotor shaft, the gearbox connected by a shrink-fit coupling, a coupling with overload protection and the generator.

Rotor shaft	
Material	42CrMo4 or 34CrNiMo6
Weight	approx. 11.8 t
Bearing	self-aligning roller bearing
Bearing housing	spheroidal graphite cast iron EN-GJS-400-18U-LT

4 Gearbox

The gearbox is designed as a two-stage planetary and one-stage spur gear. Alternatively a linkage with power split is also possible. The gearbox is cooled through an oil-air cooling circuit with stepped cooling capacity. The bearings and tooth engagements are constantly pump-fed lubricated with cooled oil. The temperatures of the bearings and the oil are constantly monitored.

Gearbox	
Type	multi-stage planetary + one-stage spur gear
Nominal power	2,775 kW
Gear ratio	N90/2500 LS 50 Hz: 1 : 77.44 60 Hz: 1 : 92.93
Gear ratio	N90/2500 HS 50 Hz: 1 : 71.88 60 Hz: 1 : 86.25
Lubrication	pump-fed lubricated
Oil quantity	approx. 360 l
Oil type	VG 320
Oil change	check at every maintenance, change as required
Weight	approx. 18.5 t

5 Generator

The generator is a double-fed asynchronous machine. The generator is kept in its optimum temperature range by a water cooling circuit.

Generator	
Type of enclosure	IP 54
Nominal power	2,500 kW
Nominal voltage	660 V
Frequency	50 or 60 Hz
Speed	740...1,310 rpm
Poles	6
Weight	approx. 12 t

6 Cooling and filtration

The gearbox, generator and inverter of N90/2500 have active cooling systems which are independent from each other. All systems are designed so that also at high ambient temperatures, optimal operating temperatures are achieved. The temperature of some gearbox bearings, the gearbox oil, the generator windings, the generator bearings and the cooling liquid (frostproof water/glycol mixture) are monitored constantly and partially redundantly by the control system.

Gearbox cooling

The gearbox is cooled by the oil circuit in an oil/air heat exchanger. A pump with 2 stages pushes the warm gearbox oil through a combined filter (coarse filter 50 µm, fine-mesh filter 10 µm) into the cooling circuit. The coarse and fine-mesh filters filter impurities out of the oil. Optionally, an additional bypass filtration can be installed (super fine-mesh filter 5 µm).

When the oil does not reach the optimal operating temperature a thermal choke shorts the circuit and conducts the cold oil back to the gearbox. As soon as the optimal operating temperature is exceeded, the active oil/air heat exchanger starts and cools down the oil.

The cooled oil is pumped via a pipe system inside the gearbox to the thermally high loaded parts.

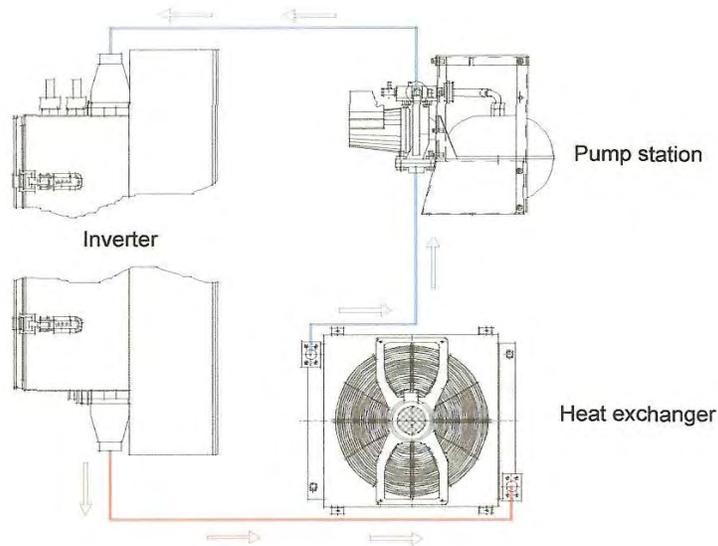
Generator cooling

The heat is led off the generator by a cooling water circuit. The heat is dissipated via an internal air cooling to the cooling water. This is conducted by a maintenance-free rotary pump to an active water/air heat exchanger. The pump starts automatically as soon as the temperature exceeds a defined value and cools down the cooling water and thusly keeps the generator on the optimal operating temperature.

Inverter cooling

The main inverter is integrated in the cabinet on the lowest platform of the tower. It is cooled by cooling water. The cooling water is pumped through the cooling system of the main inverter to an

active water/air heat exchanger. The pump is switched on when the temperature exceeds a defined value. The warmth is dissipated outside.



7 Braking system

The aerodynamic brake is made up by the rotor blades which are controlled independently and which can be swivelled 90° around their own axis. To protect the turbine, a safety system is installed. A back-up system is available for the blade control: In case of unwanted voltage drop of power supply, energy storage devices in the pitch are activated automatically to swivel the blades perpendicular to the direction of rotation.

In addition to the blade pitch control, the NORDEX N90/2500 is equipped with a hydraulical disc brake system. The brake supports the braking by the rotor blades and brings the rotor to a halt. The brake power is controlled by several brake programs to avoid load peaks. After the rotor has come to complete stop, the brake can be fixed.

Aerodynamic Brake	
Type	individual blade pitch
Activation	electrical

Mechanical Brake	
Type	active disc brake
Location	on the high-speed shaft
Disc diameter	1,030 mm
Number of brake callipers	1
Material of brake pads	sintered metal

8 Hydraulic system

The hydraulic system provides the oil pressure for operation of the yaw brakes and rotor brake. The rotor brake and the hydraulic rotor lock are lifted or closed manually.

Hydraulic system	
Hydraulic oil	VG 32
Oil quantity	approx. 20 l
maximum operation pressure	185 bar
Nominal power of the hydraulic pump	1.1 kW

9 Nacelle

The nacelle consists of the cast main frame, the welded generator support and the nacelle cover. The nacelle cover is made of glass fibre-reinforced plastic (GRP). By the shape of the nacelle and the cooler being placed in the top section the natural air flow is exploited for cooling.

Nacelle	
Type of nacelle frame	cast construction
Material	cast iron GGG EN-GJS-400-18U-LT
Type of nacelle cover	shell construction on welded frame
Material	glass fibre-reinforced plastic (GRP)/S235JR

10 Crane systems

Inside the nacelle a service crane is installed, which can be used for lifting tools and other materials. *Two other and more powerful crane systems are available as an option. With option 1 the PowerCrane can be installed which can lift all components.*

Standard equipment	pillar slewing crane
Allowed load	250 kg
Option 1	slewing crane with adjustable telescope extension arm and electrical chain
Allowed load	1000 kg
Option 2 (only with option 1)	PowerCrane, hydraulically heavy-load crane
Allowed load	13.000/25.000 kg

11 Yaw system

The wind direction is continuously monitored by two devices at hub height. When the wind direction changes, the nacelle is yawed actively. Yawing is done by two gear motors operating on the geared yaw ring. When there is no yaw operation, the yaw brakes are activated. The yaw brakes are located at two different positions, first on the circumference of the yaw ring (hydraulically) and second on the high-speed shaft of the yaw gears (electrically).

Yaw bearing	
Type	ball bearing
Material	42CrMo4
Weight	approx. 2.3 t

Yaw drive	
Motor	asynchronous motor
Gear	4-stage planetary gear
Number of drives	2
Lubrication	oil, ISO VG 620
Yaw rate	approx. 0.5 °/s

Yaw brake	
1 st Type	hydraulic disc brake
Material of brake pads	organic
Number of brake callipers	10 or 14
2 nd Type	Electric spring brake at yaw drive

12 Tower and foundation

The NORDEX N90/2500 is erected on a tubular tower for different hub heights and wind classes.

Hub height	80 m (MT)	80 m (MT)	100 m (MT)
Classes	LS: IEC 2a (GL 2a) LS: DIBt 3	HS: IEC 1b	LS: DIBt 2 LS: IEC 3a
Number of tower segments	4	4	6
Weight with built-in equipment [t], approx.	172.8	194.4	318.6

The ladder, climbing safety, resting and working landings are located inside the tower. A service-lift can be supplied as an option.

Corrosion protection of the tubular tower is achieved by an epoxy coating of the tower surface according to ISO 12944.

The foundation depends on the ground conditions at the intended site.

Tower	
Material	S355
Corrosion protection	multi-layer epoxy coating
Tower-to-base connection	flange and bolts cast in concrete

13 Grid connection

Network connection of the turbine is through an IGBT converter based on the principle of the asynchronous generator. The power-factor correction can be adjusted to a value of 0.9 inductive to 0.95 capacitive at the IGBT converter. With this system, the starting current ratio can be limited to a value of about 1.

The turbine can be equipped with an extended grid connection package (see also *Electrical Properties*).

14 Controller and safety system

The wind turbine is controlled by the software *Nordex Control 2*, which analyses the data from the connected sensors and generates the control signals for the wind turbine.

The wind turbine runs with two devices for measuring wind data. One anemometer is used for controlling the turbine; the second anemometer monitors the first one. If one device fails, the second is used for control.

On a control screen at any PC, all operational data can be monitored and checked and a number of functions, such as starting, stopping and yawing can be controlled.

In addition, the turbine is equipped with a remote monitoring system (see also *SCADA*). The data and signal transfer only requires an ISDN-connection and an internet browser.

The turbine control is equipped with an uninterruptible power supply system (UPS). In case of a grid drop, the UPS together with the battery of the pitch system ensure a safe shut down of the turbine. The UPS ensures the operation of controller, hydraulic valves, SCADA-server and Ethernet until the turbine is shut down (minimum 10 minutes). This guarantees the continuous monitoring of the turbine's status and further data of the controller can be downloaded for later analysis until the turbine is shut down.

Controller		
Type	Hardware Software	remote Field Controller/SPS Nordex Control 2
Automatic restart:		
– After grid drop		yes
– After cut-out wind		yes

15 Lightning protection

During the development of the NORDEX N90/2500, the utmost attention has been devoted to lightning protection. For all components, a most reliable protection has been achieved. The lightning and overvoltage protection of the wind turbine is based on the lightning protection zone concept and is according to IEC 61024 and DIN VDE 0185. A detailed description can be found in the document *Lightning and overvoltage protection*.

16 Operation control

The main task of the operational control (computer + software NC 2) is to ensure an automatic and safe operation of the turbine in all situations by monitoring and constantly keeping the parameters within the set range as stored in the control computer of the turbine. The parameters are provided by Nordex and are adapted to the respective site. The objective is a safe and automatic operation of the turbine in all situations.

When the wind speed is lower than the cut-in wind speed, the turbine keeps in stand-by (energy save modus), i.e. only the computer is working and collects data. All further systems are switched on only if required and do not need any power. Exceptions are the safety related functions, e.g. the brake system (hydraulic pump). The rotor is idling.

When the cut-in wind speed is reached, the turbine will change to the mode 'ready for operation'. Now all systems are tested and the nacelle aligns to the wind direction. If the wind increases, the rotor accelerates. When a certain speed is reached, the generator is connected to the grid and the turbine starts producing electricity. During operation, the nacelle follows the wind direction. The nacelle is capable of turning 360° several times. But if a set-value is exceeded the turbine shuts down and the nacelle turns back automatically. Afterwards the WTG starts again.

Once the cut-out wind speed is exceeded, the turbine shuts down, i.e. the blades turn by 90° in wind direction. The rotor slows down and idles until the wind decreases below a safe cut-in wind speed.

Sensors are mounted onto all systems and many components of the turbine. They report the current state to the control unit. There are set-values (parameters) given for each measuring location. These must be kept. If one set-value is exceeded, the control unit reacts respectively.

When exceeding a certain set temperature, at first e.g. the pump of the cooling circuit is switched on. If the temperature falls below the set-value again, the pump is switched off. If another certain value is exceeded, a warning message is sent to the remote control centre of NORDEX. The remote control centre is online 24 h a day, 7 days a week and they can decide what to do by processing all current data of the turbine. If the temperature falls again below a certain value, the warning message disappears. When exceeding a third certain temperature value, the turbine is switched off immediately. This third value is selected to prevent any damage to the turbine. All in all, six parameters belong to this single measuring location, three high and three low temperature limiting values.

When exceeding certain parameters regarding the safe operation, the turbine is switched off immediately, e.g. excess of the cut-out wind speed or pressure decline at the hydraulic system. Disturbances from outside cause a soft braking procedure, e.g. too high wind speed or grid failure. Safety relevant disturbances cause emergency-stops to ensure that the rotor slows down as fast as possible.

For safety reasons after every shut down, a certain delay must be kept after every shut down before the turbine starts again.

17 General reservations

Deviation from the conditions specified above may have an adverse impact on the operation of the wind turbine. In particular, a performance reduction may occur.

At very low temperatures, after e.g. a grid failure, some time for preheating some components of the wind turbine should be allowed before starting again.

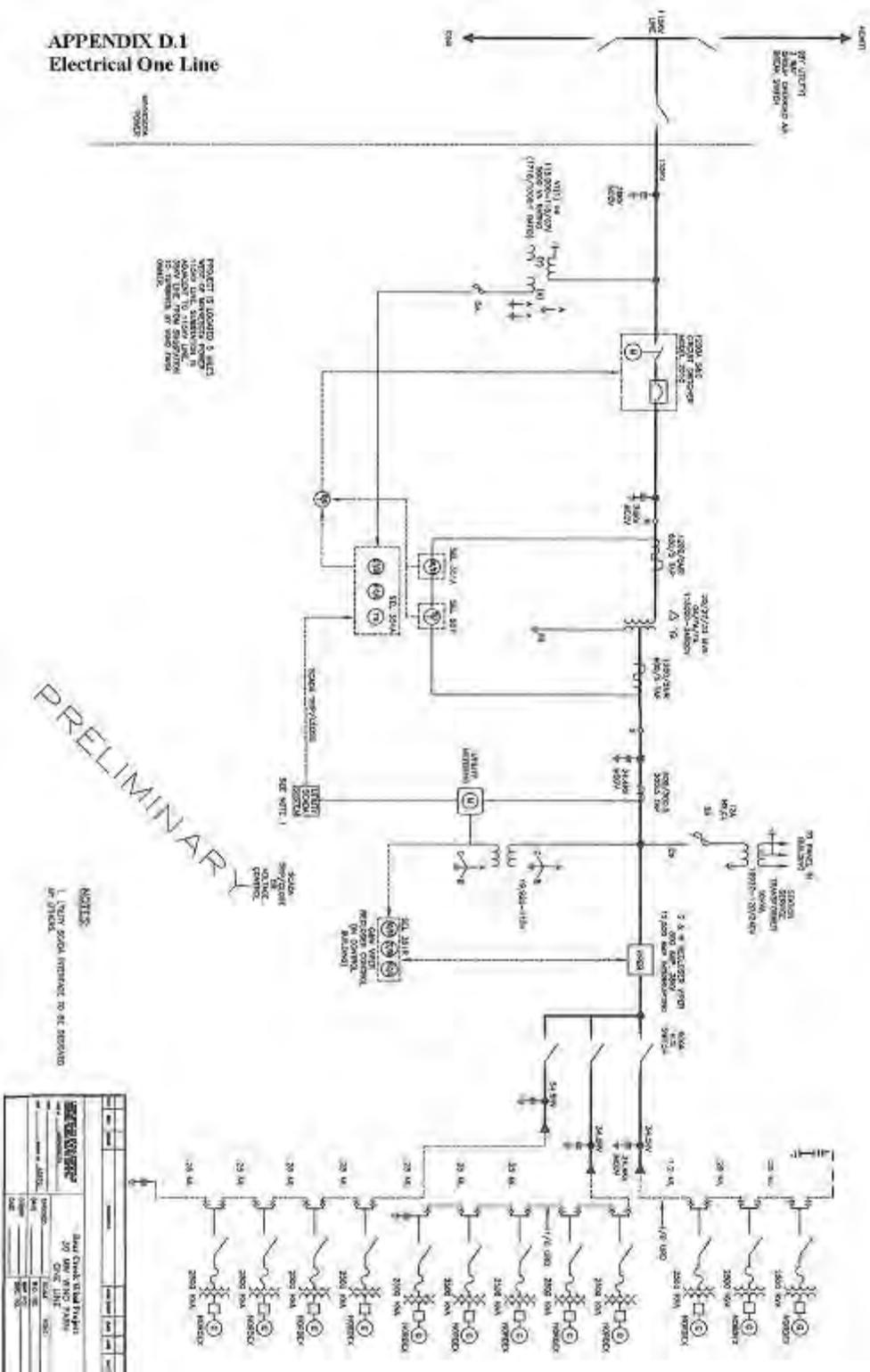
Should icing occur on the rotor blades, the wind turbine must be stopped. An ice warning system can be delivered as an option.

The transformer is usually installed in a separate transformer station. As an option, the transformer can be installed inside the tower.

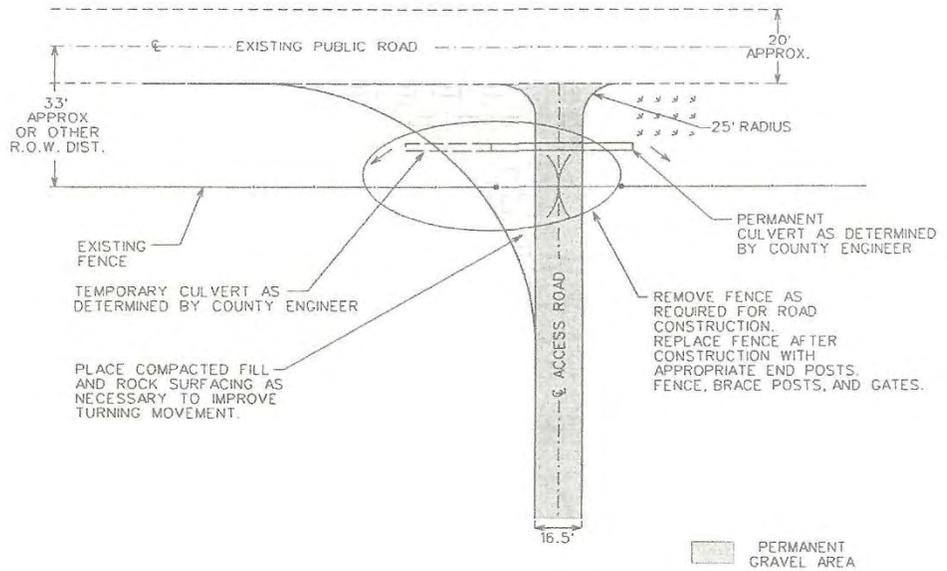
As a further option, Nordex offers a Condition Monitoring System.

In connection with the continuous development and improvement of our products, we reserve the right to make technical changes without prior notice.

**APPENDIX D.1
Electrical One Line**



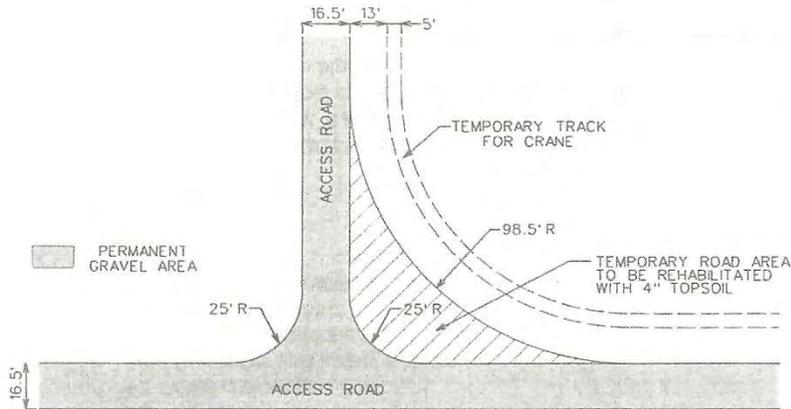
APPENDIX E.1
Access Roads



- NOTES:
- ENTRANCE AT PUBLIC ROAD RIGHT, LEFT IS REVERSE PLAN OF THIS DETAIL.
 - REMOVE TEMPORARY SURFACING AND FILL AFTER CONSTRUCTION. RESTORE AND RESEED AREAS DISTURBED BY CONSTRUCTION. COORDINATE WITH APPROPRIATE COUNTY PERSONNEL.

ACCESS ROAD ENTRANCE DETAIL

NO SCALE



TYPICAL ACCESS ROAD INTERSECTION

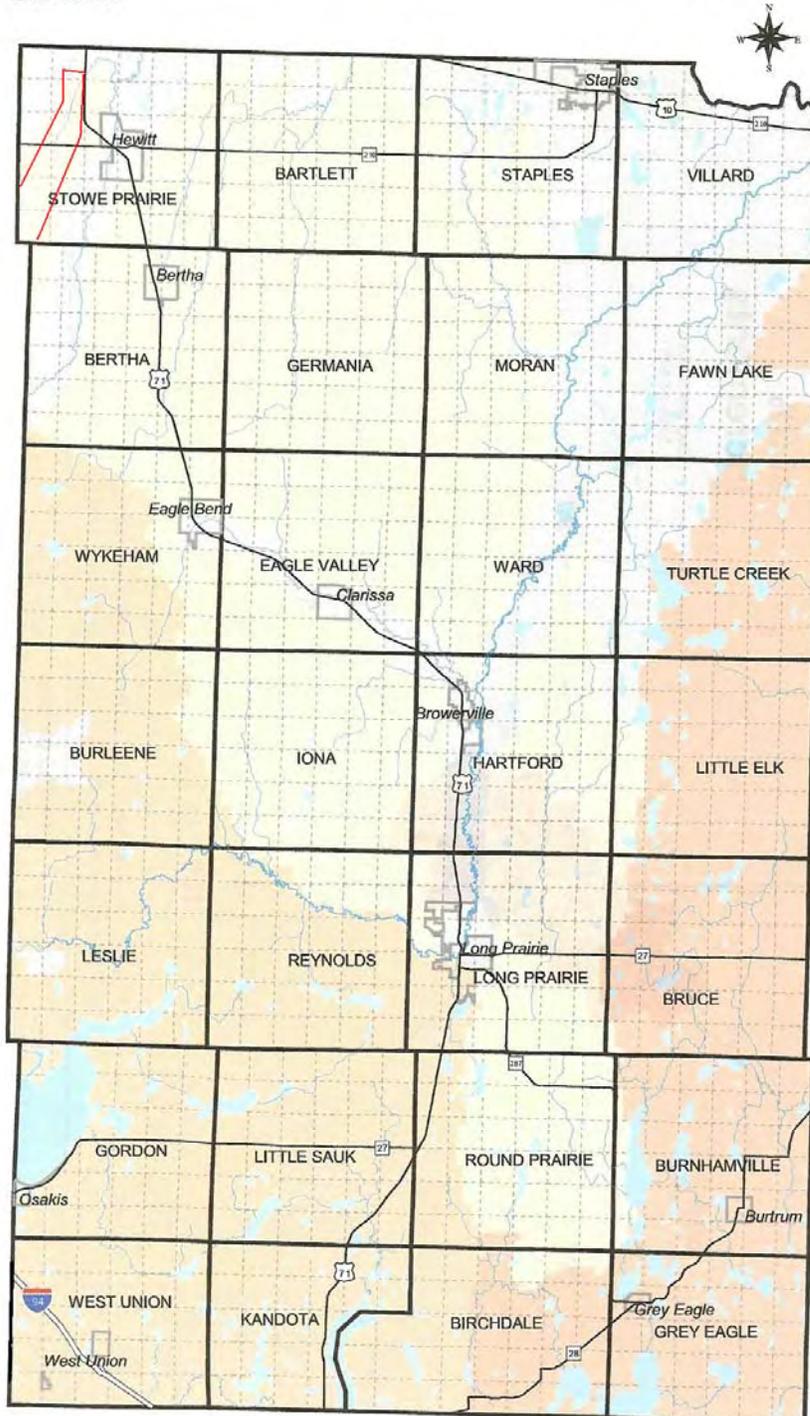
NO SCALE

ACCESS ROAD NOTES:

- ROAD COMPACTION SHALL MEET OR EXCEED 95% OF SPECIFIC MATERIALS MAXIMUM STANDARD PROCTOR (ASTM D698) DRY DENSITY.
- TEST COMPACTION OF ROAD SUBGRADE EVERY 500' MAXIMUM, WITH A MINIMUM OF 2 TESTS PER ROAD.
- DURING CONSTRUCTION CONTRACTOR WILL BE RESPONSIBLE FOR ANY GRADING, CLEARING, AND MAINTENANCE OF ACCESS ROADS TO FACILITATE INSTALLATION.
- CONTRACTOR SHALL REESTABLISH THE TEMPORARY AREAS TO THEIR PRIOR CONDITION INCLUDING THE NECESSARY DE-COMPACTION OF SOILS (WITH A CHISEL PLOW, V-RIPPER, OR EQUIVALENT TYPE EQUIPMENT) AND RE-VEGETATION OF DISTURBED AREAS.

APPENDIX F.1
Landforms

Landform Patterns



Landforms

- Drumlins
- Ground Moraine
- Outwash Plains
- Terminal Moraines

- Lakes
- Streams

Map Resources:
 Landforms - Land Management Information Center
 Road Network - Todd County
 911/Rural Addressing Basemap
 Township and Section Lines - MnDOT, Minnesota Basemap
 Waters - Todd County GIS, Digitized using DNR Protected Waters Inventory

Todd County GIS Department
 Long Prairie, MN 56347
 320-732-4248

Todd County
 Planning & Zoning Department
 (320) 732-4420

Ekola & Associates
 Duluth, Minnesota
 (218) 733-9769

October 4, 2001

APPENDIX G.1

Correspondence with SHPO

6/20/2006

Tom Cinadr
MN SHPO
MN Historical Society
345 Kellogg Blvd. W.
St. Paul, MN. 55102-1903

Re: Bear Creek Wind Project

Dear Mr. Cinadr,

We are requesting a review and scan on significant historical features from your database for an area that a proposed wind project may be constructed. The proposed project area is located in;

Todd County, MN., Stowe Prairie Township, T133N-R35W, Sections 8, 17, 18, 19, 30 and 31,

and;

Otter Tail County, Oak Valley Township, T133N-R36W, Sections 25 and 36,

and;

Otter Tail County, Woodside Township, T132N-R36W, Sections 1, 2 and 12.

The substation is located in Todd County, Bartlett Township, T133N-R34W, Section 7.

Twelve turbines will be constructed, approximately 400 feet tall which includes the tower height and the rotor in the vertical position. Distances between turbines will be approximately 2,500 feet in which access roads and an underground collection system will be built.

We are enclosing an aerial view map of the proposed project with an expected layout. The map depicts the layout as it stands today, minus three turbines which will be sited in one or two of the Sections mentioned above. Those Sections will probably be in Woodside Township, Sections 1, 2, and 12.

We are hoping that your office can tell us whether or not any historical sites within the confines of the project area listed would have an adverse effect on the project being constructed. We are not requesting, necessarily, the exact location just an indication of whether or not construction of the project would prohibit construction in a general area. Also, recommendations as to whether or not more in depth inventories need to be undertaken by the project.

We appreciate your help on the scan and any direction you can provide. Please follow up with any hard copy correspondence by email.

Thank you,
Sincerely,

John M. Ihle
PlainStates Energy
Representing
Bear Creek Wind Partners
27451 S. Hwy 34
Barnesville, MN 56514

APPENDIX G.2

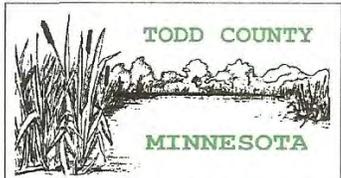
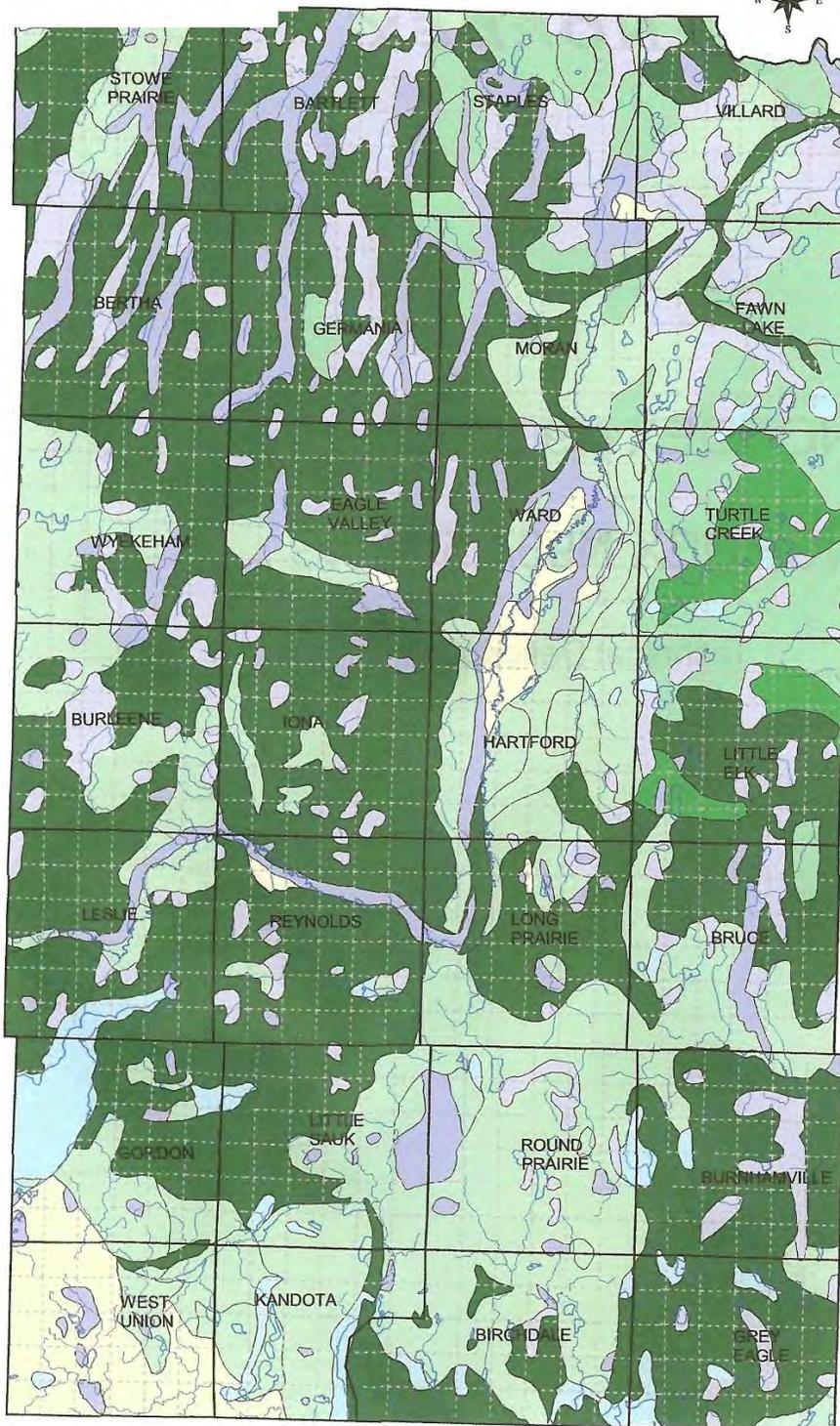
Response from SHPO re Cultural Scan (July 14 & October 25, 2006)

History/Architecture

PROPERTY NAME	ADDRESS	Twp	Range	SecQtrs	USGS	Report	NRHP	CEFDOE	InvNumber
COUNTY		Otter Tail							
CITY/TOWNSHIP:		Woodside Twp.							
commercial building		13	36			2Wrightstown			OT-WOD-001
store (ruins)		132	36			2Wrightstown			OT-WOD-002
COUNTY		Todd							
CITY/TOWNSHIP:		Stowe Prairie Twp.							
Lone Oak School	off Co. Rd. 73	133	35		8SW-SE-SW	Wrightstown	TO-85-1H	TO-	STO-001

APPENDIX G
Pre-Settlement Map

Pre-Settlement Vegetation



**Community - Based
Comprehensive Plan**

**Vegetation Classes
in acres**

-  Undefined
-  Prairie
20,990 acres
-  Brush Prairie
161,377
-  Pines
46,052
-  Mixed Hardwood and Pine
11,253
-  Hardwoods
267,729
-  Conifer Bogs & Swamps
59,063
-  Wet Prairie
44,608
-  Lakes (open water)
15,709

Present Day Water

-  Streams
-  Lakes

Map Resources:
Pre-Settlement Vegetation - MN DNR,
based on Marschner's original analysis of
Public Land Survey notes of 1895,
condensed from 15 classes to 8 by
Todd County GIS
Township and Section Lines - MnDOT,
Minnesota Basemap



Todd County GIS Department
Long Prairie, MN 56347
320-732-4248

Todd County
Planning & Zoning Department
(320) 732-4420

Ekola & Associates
Duluth, Minnesota
(218) 733-9769

May 19, 2000

Todd Co. GIS Dept. has made every effort to provide the most up-to-date information in this publication and cannot be held responsible for any unforeseen errors.



A WHITE PAPER ON
ELECTRIC AND MAGNETIC FIELD (EMF)
POLICY AND MITIGATION OPTIONS

PREPARED BY

THE MINNESOTA STATE
INTERAGENCY WORKING GROUP
ON EMF ISSUES

SEPTEMBER 2002

EXECUTIVE SUMMARY

Over the last two decades concern about the health effects of electric and magnetic fields (EMF) has increased. Early scientific studies reported a weak association between increased rates of cancer and closeness to certain kinds of power lines that can cause strong electric and magnetic fields. As more electric facilities are built to meet growing demands for electricity, policy makers will increasingly be faced with questions regarding the potential health impacts of EMF. This report is the result of an interagency work group that was formed to examine these issues and provide useful, science-based information to policy makers in Minnesota.

Electric and magnetic fields are a basic force of nature generated by electricity from both natural and human sources. Exposure to EMF comes from high voltage transmission lines and distribution lines, wiring in buildings, and electric appliances. Electric fields are easily shielded by common objects such as trees, fences, and walls. Magnetic fields are difficult to shield; this is why magnetic fields produced by power lines can extend into people's homes.

Transmission and distribution lines are part of the complete electric power system. Transmission lines carry between 69 and 500 kilovolts (kV) of electricity and transport it from generation sources to regions of the state needing electricity. Primary distribution lines generally carry less than 69 kV of electricity and bring it from transmission lines to homes, offices, and other sites where there are end users of electricity.

Based on forecasts of future electrical use, Minnesota has now reached the point at which new generation and transmission capacity is needed. Over the ten years from 1990 to 2000, total annual electric consumption in the State grew by 27 percent; summer peak demand is predicted to grow by 16 percent over the next ten years. Several transmission expansion projects are planned over the next ten years to meet this demand. These projects will need to be reviewed and approved by the Public Utilities Commission and the Environmental Quality Board.

Research on the health effects of EMF has been carried out since the 1970s. Epidemiological studies have mixed results – some have shown no statistically significant association between exposure to EMF and health effects, and some have shown a weak association. More recently, laboratory studies have failed to show such an association, or to establish a biological mechanism for how magnetic fields may cause cancer. A number of scientific panels convened by national and international health agencies and the U.S. Congress have reviewed the research carried out to date. Most concluded that there is insufficient evidence to prove an association between EMF and health effects; however, many of them also concluded that there is insufficient evidence to prove that EMF exposure is safe.

In deciding whether or how much to regulate EMF, decision-makers have several possible options. Each approach has advantages and disadvantages. At one extreme, regulators can require virtual certainty of harm before they address it. At the other extreme, proposers of a project would need to demonstrate its safety before regulators would allow them to proceed. Several options along this continuum are presented below for regulators to consider when routing power lines.

Several EMF exposure mitigation options are available. Mitigation options for transmission lines include increasing distance to the EMF source, phase cancellation by changing the proximity of the conductors, shielding the EMF source, and reducing voltage or current levels on the lines. Principles for decreasing EMF from primary distribution lines are similar and include increasing the right-of-way around distribution lines, phase cancellation, and burying the lines. There are also several options for mitigating EMF exposure in the home, including increasing distance to operating appliances and properly following electrical codes for wiring the home.

The Minnesota Department of Health (MDH) concludes that the current body of evidence is insufficient to establish a cause and effect relationship between EMF and adverse health effects. However, as with many other environmental health issues, the possibility of a health risk from EMF cannot be dismissed. Construction of new generation and transmission facilities to meet increasing electrical needs in the State is likely to increase public exposure to EMF and public concern regarding potential adverse health effects.

Given the questions and controversy surrounding this issue, several Minnesota agencies that regularly deal with electric generation and transmission formed an Interagency Work Group to provide information and options to policy makers. Work Group members included representatives from the Department of Commerce, the Department of Health, the Pollution Control Agency, the Public Utilities Commission, and the Environmental Quality Board. Based on its review, the Work Group believes the most appropriate public health policy is to take a prudent avoidance approach to regulating EMF. Based on this approach, policy recommendations of the Work Group include:

- Apply low-cost EMF mitigation options in electric infrastructure construction projects;
- Encourage conservation;
- Encourage distributed generation;
- Continue to monitor EMF research;
- Encourage utilities to work with customers on household EMF issues; and
- Provide public education on EMF issues.

10/18/2006

Sarah Wren, Program Coordinator
MNDNR,
Environmental Review
500 Layfayette Rd.
St. Paul , MN 55155-4040

Re: Bear Creek Wind Project

Dear Ms. Wren,

We are requesting a review for assistance in identifying sites and environmental properties in an area that a proposed wind project may be constructed. The proposed project area is located in;

1. Todd County, Bartlett Township, Section 7 (substation),
2. Stowe Prairie Township (turbines), Sections 8, 17, 18, 19, 30 and 31.
3. Otter Tail County, Oak Valley Township (turbines), Section 25 and Section 36.

I have included a site map for your review.

We are specifically interested in identifying the location of notable scientific wildlife interests, sensitive species habitats, and any other special or sensitive environmental conditions that exist in the proposed project area.

The map indicates 15 site locations where turbines will be constructed, approximately 400 feet tall which includes the tower height and the rotor in the vertical position. Distances between turbines will be approximately 3,000 feet. The project will be operating 24 hours a day, 7 days a week; the rpm's of the rotor are 17 revolutions per minute.

An overhead line will be built from the project constructed substation in Bartlett Township, Section 7, south along CR 23 to 490th St., the west along 490th Street approximately 4 miles, crossing Bear Creek and the Wing River along the south side of Sections 12, 11, 10 and 9. Please see the attached map for the entire route of the proposed overhead line. The project will file the necessary permit applications with the DNR to cross the state managed waters mentioned above.

Information you or your office provides will help us in determining more specifically the layout of the turbines, roads and underground collections system with the intent on minimizing environmental impacts.

Thank you,

Sincerely,

John M. Ihle

PlainStates Energy
Representing
Bear Creek Wind Partners
27451 S. Hwy 34
Barnesville, MN 56514
701-232-4948

11/20/2006

Paul Stolen, Program Coordinator
MNDNR,
Environmental Review
2115 Birchmont Beach Rd., NE
Bemidji, MN 56601

Re: Bear Creek Wind Project

Dear Mr. Stolen,

Thank you for your time this morning.

We are requesting a review for assistance in the coordination concerning the identification potential issues relative to wildlife, plants and other environmental aspects which may be impacted in an area that a proposed wind project may be constructed. The proposed project area is located in;

1. Todd County, Bartlett Township, Section 7 (substation),
2. Stowe Prairie Township (turbines), Sections 8, 17, 18, 19, 30 and 31.
3. Otter Tail County, Oak Valley Township (turbines), Section 25 and Section 36.

I have included a site map for your review.

We are specifically interested in mitigating problems which may arise from the location of our substation, the overhead collection system and turbine locations. There are 15 turbine locations depicted on the map but only 12 locations are needed for our project. Depending upon soil surveys done, especially in the west ½ of Section 30 (Stowe Prairie), or other locations, we have 3 alternate sites which may be used for placement. Turbines 01 through 12 are the preferred locations and are representative but the actual locations may change by as much as 300 feet.

The turbines are approximately 400 feet tall which includes the tower height and the rotor in the vertical position. Distances between turbines will be approximately 3,000 feet. The project will be operating 24 hours a day, 7 days a week; the rpm's of the rotor are 17 revolutions per minute.

An overhead line will be built from the project constructed substation in Bartlett Township, Section 7, south along CR 23 to 490th St., the west along 490th Street approximately 4 miles, crossing Bear Creek and the Wing River along the south side of Sections 12, 11, 10 and 9. Please see the attached map for the entire route of the proposed overhead line. The project will file the necessary permit applications with the DNR to cross the state managed waters mentioned above.

Information you or your office provides will help us in determining more specifically the layout of the turbines, roads and underground collections system with the intent on minimizing environmental impacts.

Thank you,

Sincerely,

John M. Ihle

PlainStates Energy
Representing
Bear Creek Wind Partners
27451 S. Hwy 34
Barnesville, MN 56514
701-232-4948



Minnesota Department of Natural Resources

Natural Heritage and Nongame Research Program, Box 25
500 Lafayette Road

St. Paul, Minnesota 55155-40__

Phone: (651) 259-5107 Fax: (651) 296-1811 E-mail: sarah.wren@dnr.state.mn.us

November 8, 2006

John M. Ihle
Bear Creek Wind Partners LLC
27451 S. Highway 34
Barnesville, MN 56514

Re: Request for Natural Heritage information for vicinity of proposed Bear Creek Wind Facility, T133N R35W Sections 8-12, 17-19, 30, & 31 and T133N R34W Section 7, Todd County; T133N R36W Sections 25 & 36, Otter Tail County
NHNRP Contact #: ERDB 20070334

Dear Mr. Ihle,

The Minnesota Natural Heritage database has been reviewed to determine if any rare plant or animal species or other significant natural features are known to occur within an approximate one-mile radius of the area indicated on the map enclosed with your information request. Based on this review, there is 1 known occurrence of a geological feature in the area searched (for details, see enclosed database printouts and explanation of selected fields). Based on the nature and location of the proposed project, I do not believe it will affect this rare feature. Please note however that several mussel species including Creek Heelsplitters (*Lasnigona compressa*), a special concern species, have been documented in the Wing River upstream of the project area. Freshwater mussels are declining nation-wide and have been described as one of North America's most imperiled groups of animals. In Minnesota, 25 of our 48 native mussel species are listed as either endangered, threatened, or of special concern. The primary reason behind the decline is the degradation of our lakes and rivers as a result of runoff and physical changes such as damming, channelization, and dredging. Mussels are particularly vulnerable to deterioration in water quality, especially increased siltation. As such, it is imperative that sound erosion and sediment control practices be implemented and maintained throughout the duration of the project.

The Natural Heritage database is maintained by the Natural Heritage and Nongame Research Program, a unit within the Division of Ecological Services, Department of Natural Resources. It is continually updated as new information becomes available, and is the most complete source of data on Minnesota's rare or otherwise significant species, native plant communities, and other natural features. Its purpose is to foster better understanding and protection of these features.

Because our information is not based on a comprehensive inventory, there may be rare or otherwise significant natural features in the state that are not represented in the database. A county-by-county survey of rare natural features is now underway, and has been completed for Todd and Otter Tail Counties. Our information about native plant communities is, therefore, quite thorough for those counties. However, because survey work for rare plants and animals is less exhaustive, and because there has not been an on-site survey of all areas of each county, ecologically significant features for which we have no records may exist on the project area.

The enclosed results of the database search are provided in two formats: index and full record. To control the release of locational information which might result in the damage or destruction of a rare element, both printout formats are copyrighted. The index provides rare feature locations only to the nearest section, and may be reprinted, unaltered, in an Environmental Assessment Worksheet, municipal natural resource plan, or report compiled by your company for the project listed above. If you wish to reproduce the index for any

DNR Information: 651-296-6157 • 1-888-646-6367 • TTY: 651-296-5484 • 1-800-657-3929

other purpose, please contact me to request written permission. **The full-record printout includes more detailed locational information, and is for your personal use only. If you wish to reprint the full-record printouts for any purpose, please contact me to request written permission.**

Please be aware that review by the Natural Heritage and Nongame Research Program focuses only on *rare natural features*. It does not constitute review or approval by the Department of Natural Resources as a whole. If you require further information on the environmental review process for other natural resource-related issues, you may contact your Regional Environmental Assessment Ecologists, Paul Stolen at (218) 755-4068 or Mike North at (320) 255-4279.

An invoice in the amount of \$83.55 will be mailed to you under separate cover within several weeks of the date of this letter. You are being billed for map and database search and staff scientist review. Thank you for consulting us on this matter, and for your interest in preserving Minnesota's rare natural resources.

Sincerely,



Sarah D. Wren
Endangered Species Environmental Review Coordinator

encl: Database search results
Rare Feature Database Print-Outs: An Explanation of Fields



Minnesota Department of Natural Resources

Ecological Services Division
2115 Birchmont Beach Road NE
Bemidji, MN 56601

January 27, 2007

John M. Ihle
PlainStates Energy
Bear Creek Wind Partners
27451 S Hwy 34
Barnesville, MN 56514

Re: Your request for a preliminary review of the Bear Creek Wind Project

Dear Mr. Ihle:

Thank you for providing us with the opportunity to review your project, as well as your patience because of the undue delay in responding. I apologize for that delay and hope it hasn't inconvenienced you.

We do review proposed permits for wind projects when the project requires a Public Utilities Commission permit. Therefore, these are preliminary comments on the project. However, you have indicated a willingness to re-locate or drop some of the proposed turbine sites you had sent us in late November. If this is done, and if the recommended actions are taken, we feel the likely impacts will be substantially reduced.

A. General issues related to bird strikes with wind towers and transmission lines. There are a fair number of wetlands with open water (for at least some of the year) mixed with emergent vegetation in the project area. These features are oriented linearly from Northeast to Southwest following various rivers and streams in the part of Todd County where the turbines and transmission line is to be located. Many of these wetlands are used by waterfowl, including some use by trumpeter swans during spring and fall migration. Birds often use landscape cues in navigation, and, for waterfowl, these cues are waterbodies, streams, and rivers. To some extent, these locations can be identified during a project review and mitigation measures such as markers built into the project that can reduce impacts. But there are also bird flights between many wetlands that cannot be predicted, especially with local breeding birds.

The US Fish and Wildlife Service (USFWS) has developed guidelines concerning wind facilities and associated transmission lines, entitled "Service Interim Guidance on Avoiding and Minimizing Wildlife Impacts from Wind Turbines." This document contains detailed guidelines, and we also use them when looking at projects such as yours. In addition, our recommendations are based on a review of other technology such as radio towers, since research has been done on these facilities to determine proper lighting that can reduce bird mortality.

DNR Information: 651-296-6157 • 1-888-646-6367 • TTY: 651-296-5484 • 1-800-657-3929

An Equal Opportunity Employer
Who Values Diversity



Printed on Recycled Paper Containing a
Minimum of 10% Post-Consumer Waste

Mitigation measures likely most relevant to the Bear Creek proposal that can reduce impacts include:

1. Not building wind turbines next to bird concentration areas, or moving them an adequate distance away.
2. Clustering towers as much as possible so that there are gaps between them to allow migrating birds to more easily navigate through danger areas
3. Using proper lighting on top of the turbines that is specifically designed to reduce bird strikes. The USFWS contains guidance on this topic; at this point, there is evidence that flashing red lights are better than steady red lights. However, the Federal Communication Commission (FCC) has just gone through a public notice process seeking recommendations regarding how to reduce bird strikes from communication towers. They have tentatively concluded that medium intensity white strobe lights provide the best warning for such strikes; and sought comment on this topic as well as others. This is a rather complicated topic, since there are also views that white lights might be problematic during heavy fog conditions. However, because of the FCC notice, it is likely updated recommendations will be coming out in the near future. We can provide you with our final recommendations about this topic in the future.
4. There are bird diverters that can be placed on overhead transmission lines where there is a risk of collision. We feel that the large swan diverters are preferable
5. Undergrounding utility lines results in entirely avoiding bird mortality from transmission lines.

B. Specific recommendations

1. Turbine locations. Based on our phone conversations, you had indicated that you had some flexibility in moving or even dropping some turbine locations. There is a high concentration of emergent wetlands and potholes, including some larger ponds, in Section 30 and 31 of Stowe Prairie Township. There also might be possible impacts to waterfowl, and possibly other wetland birds, because of night movement between these sections and Sections 36 and 25 of Oak Valley Township. We especially recommend eliminating Turbine #10.

Reducing the number of turbines in Sections 36 and 25, and concentrating them in other areas besides Sections 30 and 31, also would help reduce impacts.

We recommend that the USFWS guidelines referenced above be followed when siting the towers. Based on what we know at the time, our recommendations here reflect these guidelines

2. Lighting wind turbines In all cases, we recommend that lighting be used on the turbines, and that it follow the most up-to-date information. It would seem likely that the USFWS guidelines, and any new recommendations from the FCC based on the comments received, should provide the necessary guidance. (The FCC comment period closed on January 22, 2007)

3. Transmission lines The route appears to cross or be near a large number of watercourses along with some semi-permanent wetlands. These areas are valuable for waterfowl and other water birds, and are especially important during the early part of the season when water is high, and birds are conducting mating flights and nesting. We recommend that bird diverters be installed along a fair amount or most of the length of overhead lines. The preferred style is the large swan diverters. There are at least 8-9 areas where the line crosses watercourses or wetlands, and an additional 4-5 locations of varying length where there are important wetlands that would be in close proximity to the transmission line.

Additional work needs to be done in determining mitigation measures for the transmission lines. In our view, there are more and more lines that are being placed underground because of higher reliability and lower maintenance costs. We recommend underground placement be used as much as possible in this case. It is unclear in your letter as to whether an overhead or underground line is proposed to for use as a collector for the turbines.

Note our concern about bird impacts in the locations noted in Comment B 1. With the towers located in clusters, birds will tend to fly between them, but if overhead line is present at least some low flying birds will be funneled toward it. Underground line in these areas would eliminate the need for markers and eliminate this source of bird mortality.

3. License to cross public waters We note the statement in your letter that you will be contacting the DNR to obtaining the proper permits for crossing Bear Creek and the Wing River. The contact person in this case is Paul Purman in our Division of Lands and Minerals (651-772-7942) In general, many electrical lines are being directionally bored under crossings, and we recommend making these bores as long as possible in these river corridors if the rest of the line is to be overhead.

4. Field review We can provide further more detailed recommendations regarding marking transmission lines after you apply for your permit from the PUC. Please contact the Area Wildlife Manager for Todd County, Beau Liddell (320-616-2450X222) as well as me to set up a field visit. This spring would be a good time if this worked out according to the PUC permit process.

5. Rare species and habitats and Natural Heritage information. This topic has been covered in Sarah Wren's November 8, 2006 letter to you. This should be submitted to the PUC with your application.

Thank you for the opportunity to review this project before you submit the permit application, and for being responsive to our questions and suggestions. It has been a pleasure to work with you. If you have any questions, please don't hesitate to call (218-755-4068) or email me.

Sincerely,



Paul Stolen
Regional Environmental Assessment Ecologist

c: Wayne Barstad
Beau Liddell
Don Schultz
Paul Purman
Tim Crocker
Peter Buesseler

Minnesota Natural Heritage & Nongame Research Program
 Short Record Report of Element Occurrences within 1 mile radius of:

Bear Creek Wind Partners

T133N R34W Section 7; Todd County
 T133N R35W Sections 8-12, 17-19, 30, & 31; Todd County

T133N R36W Sections 25 & 36; Otter Tail County

Element Name and Occurrence Number	Status	State Rank	Global Rank	Last Observed Date
Todd County, MN				
Ice composite (Quaternary) #1	N/A	SNR	GNR	1977
Location Description: T133N R35W S14, T133N R35W S24, T133N R35W S23, T133N R35W S13				

Records Printed = 1

10/18/2006

Sarah Wren, Program Coordinator
MNDNR,
Environmental Review
500 Layfayette Rd.
St. Paul , MN 55155-4040

Re: Bear Creek Wind Project

Dear Ms. Wren,

We are requesting a review for assistance in identifying sites and environmental properties in an area that a proposed wind project may be constructed. The proposed project area is located in;

1. Todd County, Bartlett Township, Section 7 (substation),
2. Stowe Prairie Township (turbines), Sections 8, 17, 18, 19, 30 and 31.
3. Otter Tail County, Oak Valley Township (turbines), Section 25 and Section 36.

I have included a site map for your review.

We are specifically interested in identifying the location of notable scientific wildlife interests, sensitive species habitats, and any other special or sensitive environmental conditions that exist in the proposed project area.

The map indicates 15 site locations where turbines will be constructed, approximately 400 feet tall which includes the tower height and the rotor in the vertical position. Distances between turbines will be approximately 3,000 feet. The project will be operating 24 hours a day, 7 days a week; the rpm's of the rotor are 17 revolutions per minute.

An overhead line will be built from the project constructed substation in Bartlett Township, Section 7, south along CR 23 to 490th St., the west along 490th Street approximately 4 miles, crossing Bear Creek and the Wing River along the south side of Sections 12, 11, 10 and 9. Please see the attached map for the entire route of the proposed overhead line. The project will file the necessary permit applications with the DNR to cross the state managed waters mentioned above.

Information you or your office provides will help us in determining more specifically the layout of the turbines, roads and underground collections system with the intent on minimizing environmental impacts.

Thank you,

Sincerely,

John M. Ihle

PlainStates Energy
Representing
Bear Creek Wind Partners
27451 S. Hwy 34
Barnesville, MN 56514
701-232-4948

11/20/2006

Paul Stolen, Program Coordinator
MNDNR,
Environmental Review
2115 Birchmont Beach Rd., NE
Bemidji, MN 56601

Re: Bear Creek Wind Project

Dear Mr. Stolen,

Thank you for your time this morning.

We are requesting a review for assistance in the coordination concerning the identification potential issues relative to wildlife, plants and other environmental aspects which may be impacted in an area that a proposed wind project may be constructed. The proposed project area is located in;

1. Todd County, Bartlett Township, Section 7 (substation),
2. Stowe Prairie Township (turbines), Sections 8, 17, 18, 19, 30 and 31.
3. Otter Tail County, Oak Valley Township (turbines), Section 25 and Section 36.

I have included a site map for your review.

We are specifically interested in mitigating problems which may arise from the location of our substation, the overhead collection system and turbine locations. There are 15 turbine locations depicted on the map but only 12 locations are needed for our project. Depending upon soil surveys done, especially in the west ½ of Section 30 (Stowe Prairie), or other locations, we have 3 alternate sites which may be used for placement. Turbines 01 through 12 are the preferred locations and are representative but the actual locations may change by as much as 300 feet.

The turbines are approximately 400 feet tall which includes the tower height and the rotor in the vertical position. Distances between turbines will be approximately 3,000 feet. The project will be operating 24 hours a day, 7 days a week; the rpm's of the rotor are 17 revolutions per minute.

An overhead line will be built from the project constructed substation in Bartlett Township, Section 7, south along CR 23 to 490th St., the west along 490th Street approximately 4 miles, crossing Bear Creek and the Wing River along the south side of Sections 12, 11, 10 and 9. Please see the attached map for the entire route of the proposed overhead line. The project will file the necessary permit applications with the DNR to cross the state managed waters mentioned above.

Information you or your office provides will help us in determining more specifically the layout of the turbines, roads and underground collections system with the intent on minimizing environmental impacts.

Thank you,

Sincerely,

John M. Ihle

PlainStates Energy
Representing
Bear Creek Wind Partners
27451 S. Hwy 34
Barnesville, MN 56514
701-232-4948

January 16, 2007

John Ihle
Bear Creek Wind

John,

The Todd County TEP members looked at your project and found that the post and pilings are not fill when used for utilities. You may place overhead power lines through the wetlands.

I would like to be contacted and to do a site visit when you get closer to construction and know where on the landscape you will be putting the turbine towers. At the time of the site visit I will be looking at where you will be placing the access road to the turbines. This will allow me to help avoid wetland impacts.

If you have any questions please call 320-732-2644.

Sincerely,

Ed Uhlenkamp
Todd County WCA Coordinator

Appendix K

10/18/2006
Ms. Laurie Fairchild
U.S. Dept of the Interior
Fish and Wildlife Svc.
Twin Cities Field Ofc.
4101 East 80th St.
Mpls., MN 55425-1665
612-725-3548 x 214

Re: Bear Creek Wind Project

Dear Ms. Fairchild,

We are requesting a review on threatened and endangered species and migratory birds in an area that a proposed wind project may be constructed. The proposed project area is located in;

1. Todd County, Bartlett Township, Section 7 (substation);
2. Stowe Prairie Township (turbines), Sections 8, 17, 18, 19, 30 and 31.
3. Otter Tail County, Oak Valley Township (turbines), Section 25 and Section 36.

I have included a site map for your review.

We are specifically interested in identifying the location of notable scientific wildlife interests, sensitive species habitats, and any other special or sensitive environmental conditions that exist in the proposed project area.

The map indicates 15 site locations where turbines will be constructed, approximately 400 feet tall which includes the tower height and the rotor in the vertical position. Distances between turbines will be approximately 3,000 feet. The project will be operating 24 hours a day, 7 days a week; the rpm's of the rotor are 17 revolutions per minute.

An overhead line will be built from the project constructed substation in Bartlett Township, Section 7, south along CR 23 to 490th St., the west along 490th Street approximately 4 miles, crossing Bear Creek and the Wing River along the south side of Sections 12, 11, 10 and 9. Please see the attached map for the entire route of the proposed overhead line. The project will file the necessary permit applications with the DNR to cross the state managed waters mentioned above.

Information you or your office provides will help us in determining more specifically the layout of the turbines, roads and underground collections system with the intent on minimizing environmental impacts.

In addition to information regarding which species are located in the area we would like your office to express concerns and recommendations and actions (under Section 7 of the Endangered Species Act) so we can minimize the project's impact to these species as well as migratory birds.

Thank you,
Sincerely,

John M. Ihle
PlainStates Energy
Representing
Bear Creek Wind Partners
27451 S. Hwy 34
Barnesville, MN 56514
701-232-4948



IN REPLY REFER TO:
FWS/AFWE-TCFO

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Twin Cities Field Office
4101 East 80th Street
Bloomington, Minnesota 55425-1665



JUL 25 2006

Mr. John Ihle
Plain States Energy
27451 South Highway 34
Barnesville, Minnesota 56514

Dear Mr. Ihle:

We have received your letter dated June 20, 2006, requesting review of a proposed 18-turbine wind farm. The proposed Bear Creek Wind Project is located in Sections 8, 17-19, 30, and 31 of T133N, R35W, in Todd County and Section 25 and 36 of T133N, R36W, and Sections 1, 2, and 12 of T133N, R34W in Ottertail County, Minnesota.

There are no known federally listed threatened or endangered species, critical habitat, or candidate species, as listed under the Endangered Species Act (ESA) of 1973, as amended, in the proposed action area. If the project size or location changes significantly, or the project is not constructed within one year of the date of this review, we recommend that you contact us regarding project modifications and potential interactions with federally listed species and their habitat(s).

A copy of the U.S. Fish and Wildlife Service's (Service) guidelines for siting and construction of wind turbines is available at <http://www.fws.gov/habitatconservation/wind.pdf>. The specific guidelines are located on pages 2-4 of the document. These measures are meant to aid developers in minimizing wind farm effects on migratory birds and their habitat and in meeting the intent of the Migratory Bird Treaty Act (MBTA).

Mr. Kevin Brennan, Project Leader at the Fergus Falls Wetland Management District (WMD), provided the enclosed map showing locations of sandhill cranes he observed June 27, 2006, exhibiting behavior consistent with local nesting. Nesting of sandhill cranes in this region of Minnesota is infrequently recorded. This species is considered a migratory bird for purposes of MBTA enforcement but is not listed under the ESA.

We appreciate the opportunity to comment on the proposed project. If you are unable to adhere to the Interim Guidelines, please contact us regarding the specific conditions and reasons for

non-compliance. If you have questions regarding our comments, please contact Ms. Laurie Fairchild, at (612) 725-3548 extension 214.

Sincerely,

A handwritten signature in black ink that reads "Michael Olson". The signature is written in a cursive, flowing style.

Michael Olson
Acting Field Supervisor

cc: Kevin Brennan, Fergus Falls WMD

Enclosure

Sandhill Crane Locations



- Wrightstown NWI
- Roads
 - Interstate Hwy
 - US Trunk Hwy
 - MN Trunk Hwy
 - County State Aid Hwy
 - County Rd
 - Township Rd
 - City Street
 - Ramp
- Township Boundaries
- PLSS - Sections
- County Boundaries





Executive Summary – Wind Power GeoPlanner™

Licensed Microwave Search & Worst Case Fresnel Zone

Comsearch performed an analysis to evaluate the potential effect of the planned Bear Creek Wind Project in Todd County and Otter Tail County, Minnesota on existing non-Federal Government microwave telecom systems.

Microwave Search Results: Comsearch's Wind Power GeoPlanner™ provides a graphical representation of affected microwave paths and provides supporting technical parameters. The microwave path data is overlaid on topographic basemaps. Comsearch identified one microwave path that intersects the project area (see Figure 1 and Table 1 below).

Comsearch then calculated a Worst Case Fresnel Zone (WCFZ) for each microwave path in the project area. The mid-point of a full microwave path is the location where the widest (or worst case) Fresnel zone occurs. Fresnel zones are calculated for each path using the following formula.

$$Rn \cong 17.3 \sqrt{\frac{n}{FGHz} \left(\frac{d1d2}{d1+d2} \right)}$$

The calculated WCFZ radius, giving the linear path an area or swath, buffers each microwave path in the project area. The distance unit is in meters and can be found in the column attribute "WCFZ." In general, this is the XY area where the planned wind turbines should be avoided, if possible. These areas are shown in Figure 2.

The microwave path was identified to have no potential XY conflict with respect to the proposed turbines.

Turbines: 15 turbines were considered in the analysis, each with 90 meters diameter. The coordinates provided were in NAD83, which is consistent with the datum of our GeoPlanner™ application.

Map Projection: The ESRI® Shapefiles contained in the enclosed GeoPlanner CD are in NAD 83 UTM Zone 15 projected coordinate system.



Bear Creek Wind Partners LLC
Bear Creek Wind Project

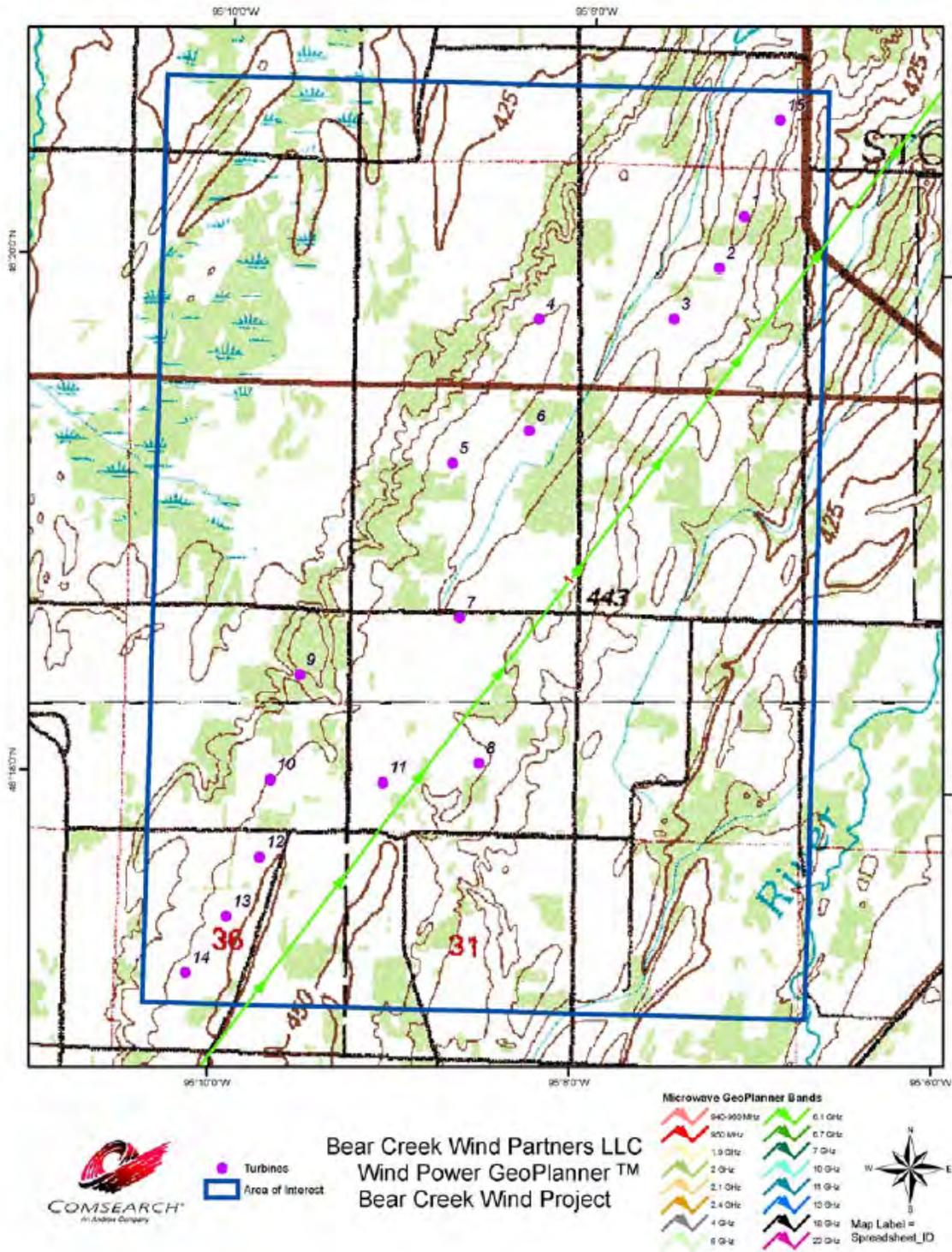
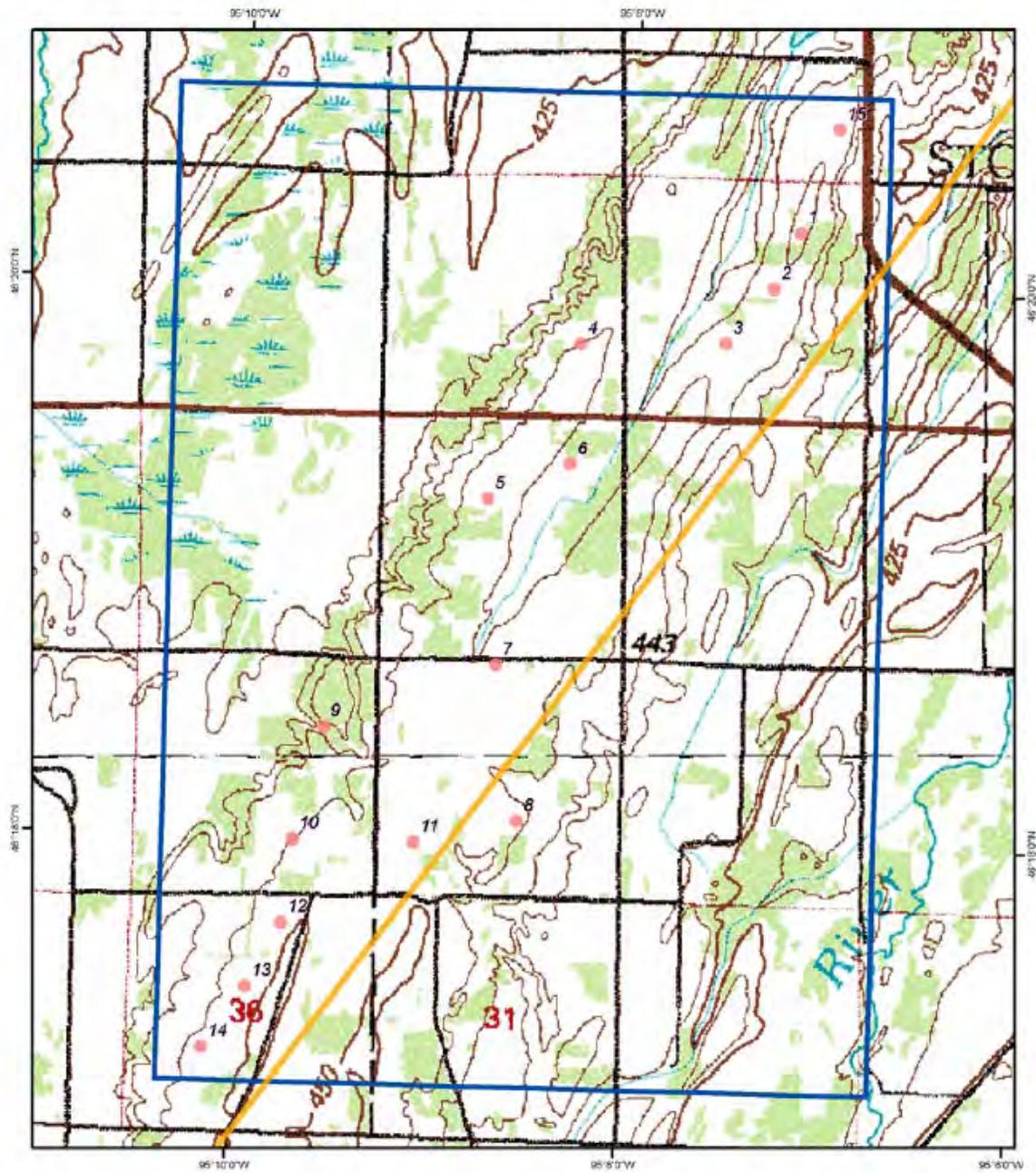


Figure 1 – Wind Power GeoPlanner™



Bear Creek Wind Partners LLC
Bear Creek Wind Project

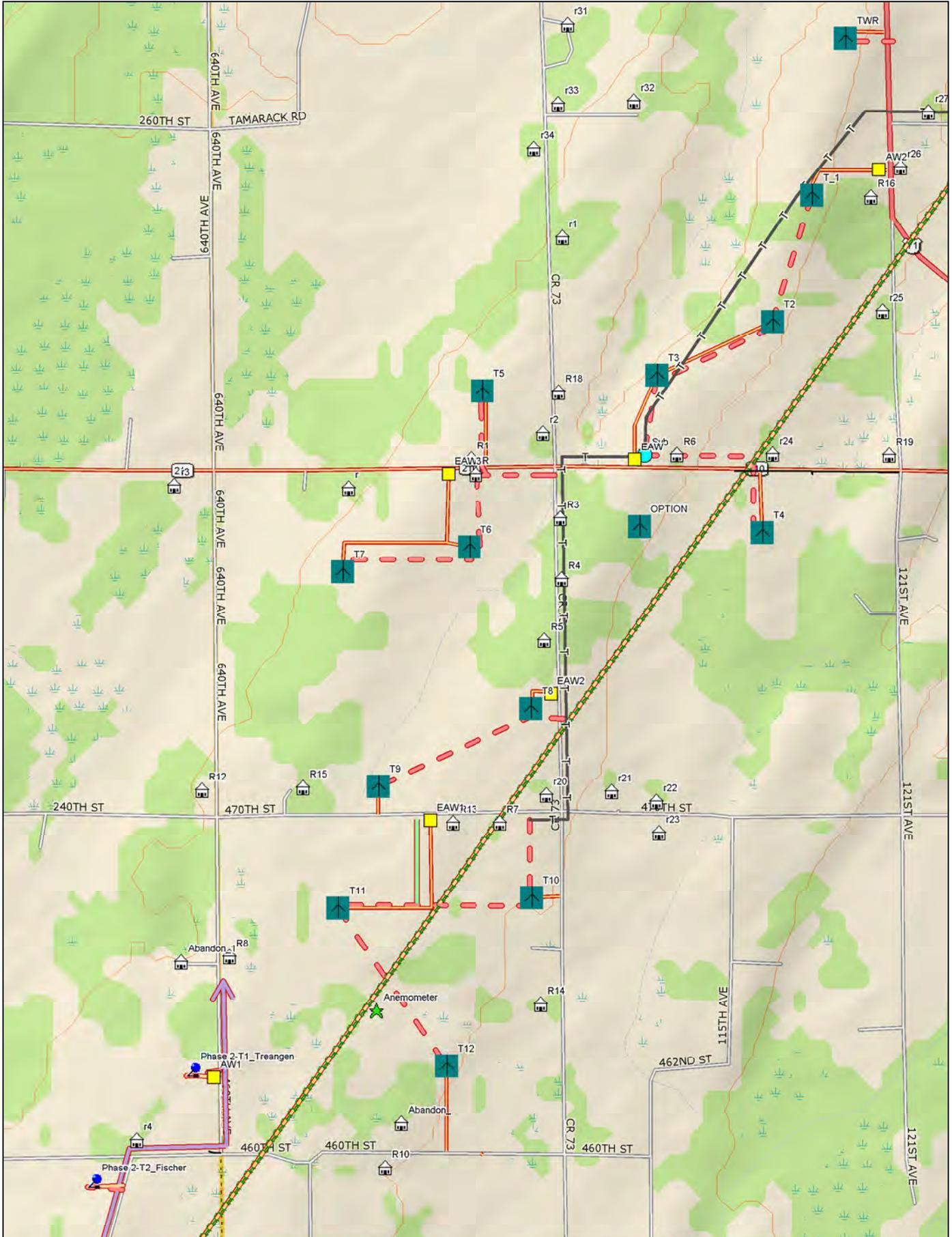


Bear Creek Wind Partners LLC
Wind Power GeoPlanner™
Bear Creek Wind Project

- WCFZ
- Blades: 90m Diameter of Turbines
- Area of Interest



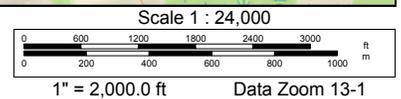
Figure 2 – Wind Power GeoPlanner™ & WCFZ



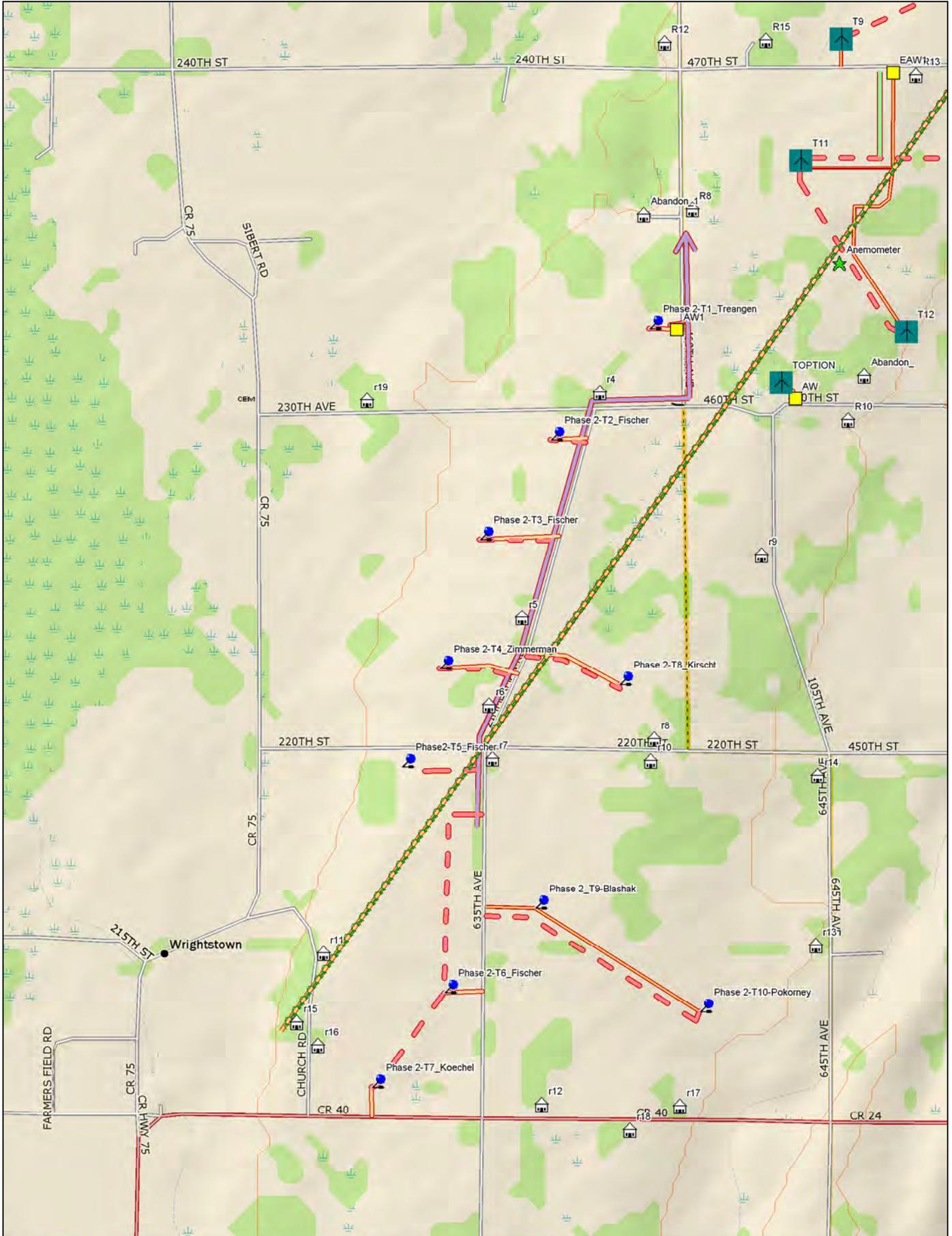
Data use subject to license.

© DeLorme. XMap® 5.0 Professional.

www.delorme.com



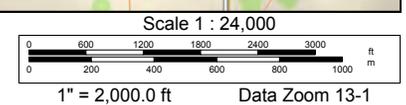
1" = 2,000.0 ft Data Zoom 13-1



Data use subject to license.

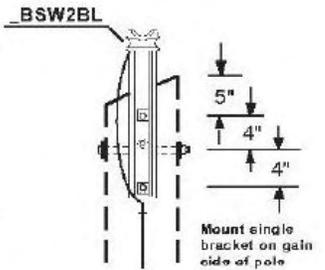
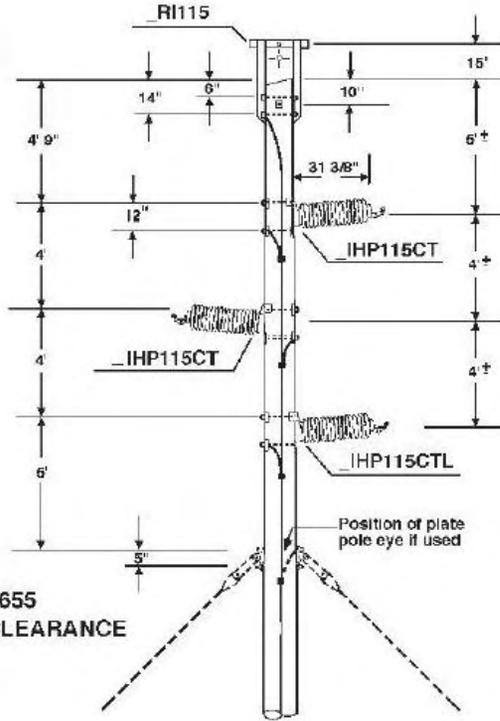
© DeLorme. XMap® 5.0 Professional.

www.delorme.com



DATE	DES.	DR.	APP.	REVISION
6/87	DBP	RES	RFJ	GS Armor grip support
10/90	DBP	RES	RFJ	Redraw pole top to scale
12/95	GW	KE		Revised from 3651 and 3652

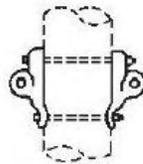
Conductor sleeves must be 4 ft. or more from support. If sleeve is 4 to 15 feet from support, install a spiral vibration damper.



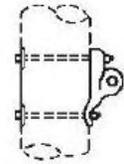
Pole top framing for 3650
Two static brackets and longer bolts supplied with 3650A

REFER TO 3655 FOR UNDERBUILD CLEARANCE

PLATES FOR GUYING NOT INCLUDED
Use construction unit code for single or double attachment if required



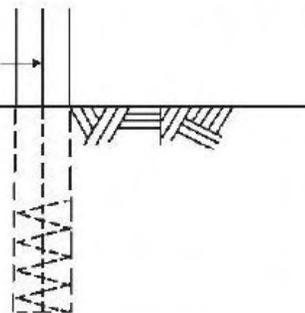
_PDPE2BWGC
Plate double pole eye
2 bolts with
ground connector



_PPE2BWGC
Plate pole eye
2 bolts with
ground connector

Refer to 5093-5096 for down guys and anchors. For the framings illustrated this page, guy framing 50938D will generally be adequate.

GROUND FRAMING
5181 or 5193



BOTTOM CONDUCTOR SUPPORT HEIGHTS	
29' 0"	on 50' pole set 8.0'
33' 6"	on 55' pole set 8.5'
38' 0"	on 60' pole set 9.0'
42' 6"	on 65' pole set 9.5'
REFER TO ENGINEERING STANDARDS 7151 FOR CLEARANCE REQUIREMENTS	

Pole Length	Setting Depth
45'	7.5'
50'	8.0'
55'	8.5'
60'	9.0'
65'	9.5'
70'	10.0'
75'	10.5'
80'	11.0'

TANGENT 115 KV VERTICAL WITH T2 SHIELD WIRE	3650
TANGENT WITH DOUBLE STATIC BRACKET 115 KV VERTICAL WITH T2 SHIELD WIRE	3650A
TANGENT 115 KV VERTICAL WITH 3/8S SHIELD WIRE	3651