Appendix B

Agency Responses

Nobles 2 Wind Project

Nobles County, Minnesota

NOBLES 2
POWER PARTNERS, LLC

DEPARTMENT OF THE ARMY
ST. PAUL DISTRICT, CORPS OF ENGINEERS
180 FIFTH STREET EAST, SUITE 700
ST. PAUL, MN 55101-1678

REPLY TO ATTENTION OF
REGULATORY BRANCH

MAR 29 2016

Regulatory File No. 2016-00881-RMM

Nobles 2 Power Partners, LLC
c/o Jay Regnier
618 2nd Avenue SE
Minneapolis, Minnesota 55414

Dear Mr. Regnier:

This letter responds to your request for comments about Nobles 2 Power Partners, LLC to obtain a site permit from the Minnesota Public Utilities commission for the Nobles 2 Wind Farm Project. The project site is located in several Sections, Townships, and Ranges in Nobles County.

The placement of aerial lines that cross navigable waters of the U.S. requires authorization under Section 10 of the Rivers and Harbors Act.

Underground utility lines through waters of the U.S., including wetlands, as well as navigable waters of the U. S. are regulated under Section 404 of the Clean Water Act if there is a discharge of dredged or fill material. Any discharge would require authorization by a general permit or letter of permission.

Underground lines installed by vibratory plow and directional bore method through waters of the U.S., including wetlands, do not involve a discharge and a permit is not required. However, if installation of connecting points requires excavation and backfill in waters of the U.S., including wetlands, a permit would be required.

The placement of poles, overhead wiring, and/or buried wiring at upland locations is not within the jurisdiction of the Corps of Engineers, provided the work does not involve the placement of dredged or fill material into any waterbody or wetland.

Temporary placement of fill material into any waterbody or wetland for purposes such as bypass roads, temporary stream crossings, cofferdam construction, or storage sites may require a Department of the Army permit.

If any of the proposed projects would involve the placement of fill material, either permanent or temporary, please notify our office.

Without detailed construction plans, we cannot provide specific comments regarding the effects that the proposed activity would have on watercourse floodstages. It has been our experience that underground and overhead utility construction has negligible effects on flood stages, provided excess construction material is removed from the floodplain and additional care is taken not to disturb its hydraulic characteristics.

You may also need city, county, or State permits for the project. You should contact the appropriate agencies for their permit requirements. If the project includes the placement of dredged or fill material in a Federal regulated waterbody, we will notify the responsible State agency for water quality (401) certification.

If you have any questions, please contact me in our St. Paul office at (651) 290-5286. In any correspondence or inquiries, please refer to the Regulatory number shown above.

Sincerely,

Ryan Malterud
Senior Project Manager

cc:
Kelly Kunst (Agent)

From: cindy.whitten@faa.gov
Sent: Friday, March 18, 2016 2:24 PM
To: Kelly Kunst
Cc: jay.regnier@prcwind.com
Subject: RE: Nobles 2 Wind Farm-Nobles County MN request for comment

Hi there,

The FAA does not comment on environmental issues for any structures. We do study them through our established FAA process for obstruction evaluation and that is all.

Thank you,

Cindy Whitten
Wind Turbine Team Manager
Air Traffic, Obstruction Evaluation Group (AJV-15)
Office (816) 329-2528
Fax (816) 329-2574
https://oeaaa.faa.gov

From: Kelly Kunst [mailto:Kelly.Kunst@westwoodps.com]
Sent: Friday, March 18, 2016 2:19 PM
To: Whitten, Cindy (FAA)
Cc: Jay Regnier
Subject: Nobles 2 Wind Farm-Nobles County MN request for comment

Cindy,
On behalf of Nobles 2 Power Partners, LLC, attached is a letter and site location map requesting comment on the proposed Nobles 2 Wind Farm located in Nobles County, MN.
Regards,

Kelly Kunst
SENIOR ENVIRONMENTAL SCIENTIST
kelly.kunst@westwoodps.com

Direct (952) 906-7421
Main (952) 937-5150
Cell (952) 491-1077

Westwood Multi-Disciplined Surveying & Engineering
7699 Anagram Drive | Eden Prairie, MN 55344

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MNDNR

MINNESOTA DEPARTMENT OF NATURAL RESOURCES
Division of Ecological and Water Resources
21371 Highway 15 South, New Ulm, MN 56073
Phone: 507-359-6073 Email: kevin.mixon@state.mn.us

April 14, 2016

Kelly Kunst
Westwood Professional Services
7699 Anagram Drive
Eden Prairie, MN 55344

Subject: Nobles 2 Large Wind Energy Conversion System
DNR Preliminary Review
Nobles County, MN

Dear Mrs. Kunst:

The Minnesota Department of Natural Resources (MNDNR) appreciates the opportunity to review and comment on the proposed Nobles 2 Large Wind Energy Conversion System. The preliminary review of the Nobles 2 LWECS is based on the information contained in the Site Characterization Study (February 22, 2016), Pre-Construction Avian and Bat Surveys (February 16, 2016), February 29, 2016 meeting, and updated project boundary. The MNDNR will provide further comments during the Public Utilities Commission (PUC) site permitting process.

The DNR recommends that scientifically rigorous fatality monitoring be conducted for this project. Please review the Avian and Bat Survey Protocols on the MNDNR website (http://www.dnr.state.mn.us/eco/ereview/additional_resources.html) in order to develop a specific fatality monitoring plan. The fatality monitoring plan should be included in the PUC required Avian and Bat Protection Plan (ABPP) as it will be a key component to assess project impacts. As a medium risk site, the DNR recommends a minimum of 1 year of fatality monitoring using scientifically valid protocols. Please be advised that the MNDNR may adjust the risk designation based on bat acoustic results.

The medium risk designation has been used due to the proposed 300 MW nameplate capacity of the facility. When you have very large sites the estimated facility wide bat fatalities can be high even when the fatality rate by MW is low. For example, a 50 MW site at 5 estimated bat fatalities per MW has a facility wide bat fatality estimate of 250 while a 300 MW site would have 1,500 estimated bat fatalities. Additional years of fatality monitoring may also be warranted depending on the first year of data.

The MNDNR will be recommending that the PUC Site Permit include a requirement for feathering turbine blades when operating below the cut-in speed for the life span of the project. Arnet et al. (2013) describes one project that discovered feathering turbine blades at or below the manufacturer's cut-in speed resulted in up to 72% fewer bats killed when turbines produced no electricity into the power grid (link attached). The American Wind Energy Association (AWEA) and other states, i.e. Nebraska, have already recommended feathering of turbine blades to reduce bat fatalities. AWEA expects feathering of the blades to reduce impacts to bats from operating wind turbines by as much as 30 percent. Feathering turbine blades below the cut-in speed is likely to reduce bat fatalities/bat fatality estimates and decrease the need for additional operational mitigation.

If bat fatalities are high, despite feathering of the blades, then operational mitigation such as raising the cut-in-speed will need to be discussed as a mechanism to reduce fatalities. Raising the cut-in-speed has been shown to significantly reduce bat fatalities at numerous commercial wind facilities. Arnet et al. (2013) provided a synthesis of operational mitigation studies to reduce bat fatalities at 10 different wind projects (link attached). Most of the studies found that at least a 50% reduction in bat fatalities occurs when turbine cut-in speed was increased by 1.5 m/s above the manufacturer's cut-in speed. They also concluded that changing cut-in speeds offers an ecologically sound and economically feasible strategy for reducing bat fatalities at wind energy facilities. The MNDNR is indicating a potential need for operational mitigation early in the process so the project proponent can make decisions on turbine placement that may minimize bat fatalities and to factor in the possibility of future operational mitigation if high bat fatalities occur.

The Adaptive Management section of the PUC Site Permit should also include information on other factors that may influence the need for operational changes. Factors including but not limited to bat species killed, turbine specific fatalities, and a facility wide bat fatality estimate. The ABPP should include a specific list of options that can be deployed to reduce bat fatalities, if necessary. Monitoring for effectiveness of the operational changes would also be needed to determine their ability to reduce bat fatalities.

Heron Lake Watershed Restoration sites exist within the project area. The Heron Lake Watershed District should be contacted to obtain the locations of restoration sites. Several of them were observed during a site visit. The restoration sites are designed to provide vegetated buffers to streams or wetlands to protect them from agricultural runoff and to add stability into the system.

The DNR looks forward to working in a positive and collaborative manner on this project to ensure that sustainable energy sources are developed while protecting Minnesota's natural resources. Please contact me directly at (507) 359-6073 if you have any questions about this letter.

Sincerely,

Kevin Mixon
Regional Environmental Assessment Ecologist
Division of Ecological and Water Resources

ec: Lisa Joyal, Endangered Species Review Coordinator
Jamie Schrenzel, Environmental Review
Jim Sehl, EWR Assistant Supervisor
Brian Nyborg, Area Hydrologist
Bill Schuna, Area Wildlife Manager
Phil Nasby, Parks and Trails
Margaret Rheude, USFWS
Richard Davis, Department of Commerce-EERA
DNR R4 REAT
ERDB#20160294

Links:

A Synthesis Of Operational Mitigation Studies To Reduce Bat Fatalities At Wind Energy Facilities In North America (Arnet et al. 2013):

http://www.batsandwind.org/pdf/Operational%20Mitigation%20Synthesis%20FINAL%20REPORT%20UPDATED.pdf

Bat Assessment Guidance for Wind Energy Facilities in Nebraska:

http://snr.unl.edu/renewableenergy/download/Bat%20Assessment%20Guidance%20for%20Wind%20Energy%20Facilities%20in%20Nebraska_August%202015.pdf

Minnesota Department of Natural Resources
Division of Ecological and Water Resources, Box 25
500 Lafayette Road
St. Paul, Minnesota 55155-4025
Phone: (651) 259-5091 E-mail: samantha.bump@state.mn.us

May 3, 2016 **Correspondence # ERDB 20160294**

Ms. Kelly Kunst
Westwood Professional Services, Inc.
7699 Anagram Drive
Eden Prairie, MN 55344

RE: Natural Heritage Review of the proposed Nobles 2 Wind Farm, Nobles County

Dear Ms. Kunst,

As requested, the Minnesota Natural Heritage Information System has been queried to determine if any rare species or other significant natural features are known to occur within an approximate one-mile radius of the proposed project. Based on this query, rare features have been documented within the search area (for details, see the enclosed database reports; please visit the Rare Species Guide at http://www.dnr.state.mn.us/rsg/index.html for more information on the biology, habitat use, and conservation measures of these rare species). Please note that the following **rare features *may* be adversely affected** by the proposed project:

Ecologically Significant Areas

- The Minnesota Biological Survey (MBS) has identified several Sites of Biodiversity Significance within the proposed project boundary. Sites of Biodiversity Significance have varying levels of native biodiversity and are ranked based on the relative significance of this biodiversity at a statewide level. Sites ranked as Moderate contain occurrences of rare species and/or moderately disturbed native plant communities, and/or landscapes that have a strong potential for recovery:

  - T104N R43W Section 28 – native prairie, 3 SGCN* birds
  - T104N R42W Section 1 (Fenmount WMA) – native prairie, 9 SGCN* birds
  - T104N R41W Section 20 (Bloom Waterfowl Production Area) – 8 SGCN* birds
  - T104N R41W Sections 33-35 along Jack Creek – native prairie
  - T104N R41W Sections 25 & 36 and T104N R40W Sections 30 & 31 along Jack Creek

  Sites ranked as High contain very good quality occurrences of the rarest species, high quality examples of the rare native plant communities, and/or important functional landscapes:

  - T104N R42W Sections 4, 5, 8, & 9 – high quality prairie

  These particular Sites contain native prairie remnants and rare wetland communities (see enclosed map; GIS shapefiles of MBS Sites of Biodiversity Significance and DNR Native Plant Communities can be downloaded from the MN Geospatial Commons at https://gisdata.mn.gov/).

Given the ecological significance of these areas, the DNR recommends that the MBS Sites ranked Moderate or higher be considered avoidance areas within the permitting boundary. Indirect impacts from surface runoff or the spread of invasive species should also be considered during project design and implementation.

There are areas within the project boundary that the Minnesota Biological Survey considered for Sites of Biodiversity Significance, but these areas were determined to be below the minimum biodiversity threshold for statewide significance (see enclosed map). These sites, however, may have conservation value at the local level as habitat for native plants and animals, corridors for animal movements, buffers surrounding higher quality natural areas, or as areas with high potential for restoration of native habitat. **Some of these "below" areas may contain native prairie** (e.g., T104N R42W Section 3) and should be avoided.

Native Prairie

- As noted above, the Minnesota Biological Survey has identified several native prairie remnants within the project boundary. Additional prairie remnants may also exist in the area. In the mid-1800's, Minnesota had eighteen million acres of prairie. Less than 1% remains. Given that more than 99% of Minnesota's prairies have been destroyed, and more than one-third of Minnesota's endangered, threatened, and special concern species are now dependent on the remaining small fragments of Minnesota's prairie ecosystem, we feel that all prairie remnants merit protection. We also recommend that turbines and other infrastructure be distant enough from native prairies as to allow for prairie management, such as prescribed burning.

  To ensure that prairie is avoided, I recommend that a desktop analysis of historical aerial photos and applicable GIS layers (see attached guidance) be conducted for any grassland areas that have the potential to be impacted by the project. Any on-site prairie surveys should be conducted by a qualified surveyor (see attached list) following the attached guidance.

Please contact me if avoidance of MBS Sites and/or native prairie is not feasible, as surveys for rare species may be needed. We will need to discuss potential surveyors, survey protocol, and other requirements before any survey work for rare species is initiated. Project planning should also take into account that surveys (if needed) will need to be done during the appropriate time of the year, which may be limited. For your information, I have attached a document outlining the Rare Species Survey Process.

Rare Birds

- Several SGCN* birds, including those associated with grasslands, have been documented in the vicinity of the proposed project during MBS surveys. Within the Coteau Moraines Ecological Subsection (where most of the project is located), there are a minimum of 28 SGCN* birds known to use prairie and nonforested wetland habitat such as that found in the vicinity of the project. The Site Characterization Study prepared by Westwood also noted the presence of several state-listed birds and SGCN* birds within approximately ten miles of the project boundary. Please note that many SGCN* are not tracked in the Natural Heritage Information System (NHIS) and that the NHIS does not include records of migrating birds.

  The DNR looks forward to receiving the results of the grassland and riparian bird surveys and may have additional comments regarding rare birds at that time.

State-listed Species

- Blanding's Turtles (*Emydoidea blandingii*), a state-listed threatened species, have been documented in the vicinity of the proposed project. Champepadan Creek and surrounding lands are an area of statewide importance to the Blanding's turtle. These areas are relied upon to maintain the species' security within Minnesota, and the DNR considers them of the highest priority for Blanding's turtle research and management activities. As these turtles travel long distances over land and are known to use agricultural lands for nesting, this species may be encountered on site.

  For your information, I have attached a Blanding's turtle fact sheet that describes the habitat use and life history of this species. The fact sheet also provides two lists of recommendations for avoiding and minimizing impacts to this rare turtle. The first list is relevant for all areas inhabited by Blanding's turtles while the second list contains additional protective measures for areas known to be of statewide importance to this species. In addition, if erosion control mesh will be used, I recommend that the mesh be limited to wildlife-friendly materials (see enclosed fact sheet).

  The attached flyer should be given to all contractors working in the area. If Blanding's turtles are encountered on site, please remember that state law and rules prohibit the destruction of threatened or endangered species, except under certain prescribed conditions. If turtles are in imminent danger they should be moved by hand out of harm's way, otherwise they should be left undisturbed.

- Several of the streams within the project boundary flow into creeks (Kanarazi Creek and Champepadan Creek; see enclosed map) that are federally designated as critical habitat for the Topeka shiner (*Notropis topeka*), a federally listed endangered and state-listed special concern fish species. Topeka shiners are adversely impacted by actions which alter stream hydrology or decrease water quality, including sedimentation, dredging and filling, stream dewatering, impoundment, eutrophication, channelization, and pollution/contamination. As several of the streams within the project boundary feed into the above creeks, please include measures to eliminate or minimize these factors in your project plan. For guidance, please see the enclosed recommendations for working in Topeka shiner habitat. Given the federal status of this species, I recommend that you coordinate with the U.S. Fish and Wildlife Service regarding this species.

- The plains topminnow (*Fundulus sciadicus*), a state-listed threatened fish species, has been documented in Champepadan Creek and its tributaries. This species has specialized habitat requirements and is negatively affected by increased turbidity and siltation. Therefore, it is important that stringent erosion and sediment control practices be implemented and maintained near the waterways within the project boundary. Measures to minimize disturbance to the Topeka shiner will also minimize disturbance to this species.

- The Natural Heritage Information System (NHIS) tracks bat roost trees and hibernacula plus some acoustic data, but this information is not exhaustive. Although there are no NHIS records for bats in the vicinity of the proposed project, all seven of Minnesota's bats can be found throughout Minnesota. The northern long-eared bat (*Myotis septentrionalis*), tricolored bat (*Perimyotis subflavus*), big brown bat (*Eptesicus fuscus*), and little brown bat (*Myotis lucifugus*) are all state-listed species of special concern.

The DNR looks forward to receiving the results of the acoustic bat surveys and may have additional comments regarding state-listed bats at that time. As the U.S. Fish and Wildlife Service (USFWS) has listed the northern long-eared bat as threatened under the Endangered Species Act (ESA), please coordinate with the USFWS regarding this species.

Environmental Review and Permitting

- **Further Natural Heritage Review will be needed once the project details (e.g., turbine and infrastructure locations) have been determined and the preconstruction surveys have been completed.**

- Please address potential impacts to the above rare features in the Public Utilities Commission (PUC) Site Permit Application.

- Please include a copy of this letter in any state or local license or permit application. **Please note that measures to avoid or minimize disturbance to the above rare features may be included as restrictions or conditions in any required permits or licenses.**

The Natural Heritage Information System (NHIS), a collection of databases that contains information about Minnesota's rare natural features, is maintained by the Division of Ecological and Water Resources, Department of Natural Resources. The NHIS 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. However, the NHIS is not an exhaustive inventory and thus does not represent all of the occurrences of rare features within the state. Therefore, ecologically significant features for which we have no records may exist within the project area. **If additional information becomes available regarding rare features in the vicinity of the project, further review may be necessary.**

The enclosed results include an Index Report and a Detailed Report of records in the Rare Features Database, the main database of the NHIS. To control the release of specific location information, which might result in the destruction of a rare feature, both reports are copyrighted.

The Index Report provides rare feature locations only to the nearest section, and may be reprinted, unaltered, in an environmental review document (e.g., EAW or EIS), municipal natural resource plan, or report compiled by your company for the project listed above. If you wish to reproduce the index report for any other purpose, please contact me to request written permission. **The Detailed Report is for your personal use only as it may include specific location information that is considered nonpublic data under *Minnesota Statutes*, section 84.0872, subd. 2. If you wish to reprint or publish the Detailed Report for any purpose, please contact me to request written permission.**

For environmental review purposes, the results of this Natural Heritage Review are valid for one year; the results are only valid for the project location (noted above) and the project description provided on the NHIS Data Request Form. Please contact me if project details change or for an updated review if construction has not occurred within one year.

The Natural Heritage Review does not constitute review or approval by the Department of Natural Resources as a whole. Instead, it identifies issues regarding known occurrences of rare features and potential effects to these rare features. To determine whether there are other natural resource concerns associated with the proposed project, please contact your DNR Regional Environmental Assessment Ecologist (contact information available at http://www.dnr.state.mn.us/eco/ereview/erp_regioncontacts.html). Please be aware that additional site assessments or review may be required.

Thank you for consulting us on this matter, and for your interest in preserving Minnesota's rare natural resources. An invoice will be mailed to you under separate cover.

Sincerely,

Lisa Joyal

Lisa Joyal
Endangered Species Review Coordinator

* Species in Greatest Conservation Need as identified in the State Wildlife Action Plan

enc. Rare Features Data: Index Report
Rare Features Data: Detailed Report
Rare Features Data: An Explanation of Fields
Blanding's Turtle Fact Sheet and Flyer
Wildlife Friendly Erosion Control
Topeka Shiner Fact Sheet
Prairie Mapping and Ranking Guidance
DNR List of Surveyors
Rare Species Survey Process
Map

Links: MBS Sites of Biodiversity Significance
http://www.dnr.state.mn.us/eco/mcbs/biodiversity_guidelines.html
DNR Native Plant Communities
http://www.dnr.state.mn.us/npc/index.html

cc: Jamie Schrenzel, DNR
Kevin Mixon, DNR
Richard Davis, DOC
Mags Rheude, USFWS

Environmental Review Fact Sheet Series

Endangered, Threatened, and Special Concern Species of Minnesota

Blanding's Turtle

(*Emydoidea blandingii*)

Minnesota Status:	Threatened	State Rank[1]:	S2
Federal Status:	none	Global Rank[1]:	G4

HABITAT USE

Blanding's turtles need both wetland and upland habitats to complete their life cycle. The types of wetlands used include ponds, marshes, shrub swamps, bogs, and ditches and streams with slow-moving water. In Minnesota, Blanding's turtles are primarily marsh and pond inhabitants. Calm, shallow water bodies (Type 1-3 wetlands) with mud bottoms and abundant aquatic vegetation (e.g., cattails, water lilies) are preferred, and extensive marshes bordering rivers provide excellent habitat. Small temporary wetlands (those that dry up in the late summer or fall) are frequently used in spring and summer -- these fishless pools are amphibian and invertebrate breeding habitat, which provides an important food source for Blanding's turtles. Also, the warmer water of these shallower areas probably aids in the development of eggs within the female turtle. Nesting occurs in open (grassy or brushy) sandy uplands, often some distance from water bodies. Frequently, nesting occurs in traditional nesting grounds on undeveloped land. Blanding's turtles have also been known to nest successfully on residential property (especially in low density housing situations), and to utilize disturbed areas such as farm fields, gardens, under power lines, and road shoulders (especially of dirt roads). Although Blanding's turtles may travel through woodlots during their seasonal movements, shady areas (including forests and lawns with shade trees) are not used for nesting. Wetlands with deeper water are needed in times of drought, and during the winter. Blanding's turtles overwinter in the muddy bottoms of deeper marshes and ponds, or other water bodies where they are protected from freezing.

LIFE HISTORY

Individuals emerge from overwintering and begin basking in late March or early April on warm, sunny days. The increase in body temperature which occurs during basking is necessary for egg development within the female turtle. Nesting in Minnesota typically occurs during June, and females are most active in late afternoon and at dusk. Nesting can occur as much as a mile from wetlands. The nest is dug by the female in an open sandy area and 6-15 eggs are laid. The female turtle returns to the marsh within 24 hours of laying eggs. After a development period of approximately two months, hatchlings leave the nest from mid-August through early-October. Nesting females and hatchlings are often at risk of being killed while crossing roads between wetlands and nesting areas. In addition to movements associated with nesting, all ages and both sexes move between wetlands from April through November. These movements peak in June and July and again in September and October as turtles move to and from overwintering sites. In late autumn (typically November), Blanding's turtles bury themselves in the substrate (the mud at the bottom) of deeper wetlands to overwinter.

IMPACTS / THREATS / CAUSES OF DECLINE

- loss of wetland habitat through drainage or flooding (converting wetlands into ponds or lakes)
- loss of upland habitat through development or conversion to agriculture
- human disturbance, including collection for the pet trade* and road kills during seasonal movements
- increase in predator populations (skunks, raccoons, etc.) which prey on nests and young

*It is illegal to possess this threatened species.

RECOMMENDATIONS FOR AVOIDING AND MINIMIZING IMPACTS

These recommendations apply to typical construction projects and general land use within Blanding's turtle habitat, and are provided to help local governments, developers, contractors, and homeowners minimize or avoid detrimental impacts to Blanding's turtle populations. **List 1** describes minimum measures which we recommend to prevent harm to Blanding's turtles during construction or other work within Blanding's turtle habitat. **List 2** contains recommendations which offer even greater protection for Blanding's turtles populations; this list should be used *in addition to the first list* in areas which are known to be of state-wide importance to Blanding's turtles (contact the DNR's Natural Heritage and Nongame Research Program if you wish to determine if your project or home is in one of these areas), or in any other area where greater protection for Blanding's turtles is desired.

List 1. Recommendations for all areas inhabited by Blanding's turtles.	**List 2. *Additional* recommendations for areas known to be of state-wide importance to Blanding's turtles.**
GENERAL	
A flyer with an illustration of a Blanding's turtle should be given to all contractors working in the area. Homeowners should also be informed of the presence of Blanding's turtles in the area.	Turtle crossing signs can be installed adjacent to road-crossing areas used by Blanding's turtles to increase public awareness and reduce road kills.
Turtles which are in imminent danger should be moved, by hand, out of harms way. Turtles which are not in imminent danger should be left undisturbed.	Workers in the area should be aware that Blanding's turtles nest in June, generally after 4pm, and should be advised to minimize disturbance if turtles are seen.
If a Blanding's turtle nests in your yard, do not disturb the nest.	If you would like to provide more protection for a Blanding's turtle nest on your property, see "Protecting Blanding's Turtle Nests" on page 3 of this fact sheet.
Silt fencing should be set up to keep turtles out of construction areas. It is critical that silt fencing be removed after the area has been revegetated.	Construction in potential nesting areas should be limited to the period between September 15 and June 1 (this is the time when activity of adults and hatchlings in upland areas is at a minimum).
WETLANDS	
Small, vegetated temporary wetlands (Types 2 & 3) should not be dredged, deepened, filled, or converted to storm water retention basins (these wetlands provide important habitat during spring and summer).	Shallow portions of wetlands should not be disturbed during prime basking time (mid morning to mid- afternoon in May and June). A wide buffer should be left along the shore to minimize human activity near wetlands (basking Blanding's turtles are more easily disturbed than other turtle species).
Wetlands should be protected from pollution; use of fertilizers and pesticides should be avoided, and run-off from lawns and streets should be controlled. Erosion should be prevented to keep sediment from reaching wetlands and lakes.	Wetlands should be protected from road, lawn, and other chemical run-off by a vegetated buffer strip at least 50' wide. This area should be left unmowed and in a natural condition.
ROADS	
Roads should be kept to minimum standards on widths and lanes (this reduces road kills by slowing traffic and reducing the distance turtles need to cross).	Tunnels should be considered in areas with concentrations of turtle crossings (more than 10 turtles per year per 100 meters of road), and in areas of lower density if the level of road use would make a safe crossing impossible for turtles. Contact your DNR Regional Nongame Specialist for further information on wildlife tunnels.
Roads should be ditched, not curbed or below grade. If curbs must be used, 4 inch high curbs at a 3:1 slope are preferred (Blanding's turtles have great difficulty climbing traditional curbs; curbs and below grade roads trap turtles on the road and can cause road kills).	Roads should be ditched, not curbed or below grade.

ROADS cont.	
Culverts between wetland areas, or between wetland areas and nesting areas, should be 36 inches or greater in diameter, and elliptical or flat-bottomed.	Road placement should avoid separating wetlands from adjacent upland nesting sites, or these roads should be fenced to prevent turtles from attempting to cross them (contact your DNR Nongame Specialist for details).
Wetland crossings should be bridged, or include raised roadways with culverts which are 36 in or greater in diameter and flat-bottomed or elliptical (raised roadways discourage turtles from leaving the wetland to bask on roads).	Road placement should avoid bisecting wetlands, or these roads should be fenced to prevent turtles from attempting to cross them (contact your DNR Nongame Specialist for details). This is especially important for roads with more than 2 lanes.
Culverts under roads crossing streams should be oversized (at least twice as wide as the normal width of open water) and flat-bottomed or elliptical.	Roads crossing streams should be bridged.
UTILITIES	
Utility access and maintenance roads should be kept to a minimum (this reduces road-kill potential).	
Because trenches can trap turtles, trenches should be checked for turtles prior to being backfilled and the sites should be returned to original grade.	
LANDSCAPING AND VEGETATION MANAGEMENT	
Terrain should be left with as much natural contour as possible.	As much natural landscape as possible should be preserved (installation of sod or wood chips, paving, and planting of trees within nesting habitat can make that habitat unusable to nesting Blanding's turtles).
Graded areas should be revegetated with native grasses and forbs (some non-natives form dense patches through which it is difficult for turtles to travel).	Open space should include some areas at higher elevations for nesting. These areas should be retained in native vegetation, and should be connected to wetlands by a wide corridor of native vegetation.
Vegetation management in infrequently mowed areas -- such as in ditches, along utility access roads, and under power lines -- should be done mechanically (chemicals should not be used). Work should occur fall through spring (after October 1st and before June 1st).	Ditches and utility access roads should not be mowed or managed through use of chemicals. If vegetation management is required, it should be done mechanically, as infrequently as possible, and fall through spring (mowing can kill turtles present during mowing, and makes it easier for predators to locate turtles crossing roads).

Protecting Blanding's Turtle Nests: Most predation on turtle nests occurs within 48 hours after the eggs are laid. After this time, the scent is gone from the nest and it is more difficult for predators to locate the nest. Nests more than a week old probably do not need additional protection, unless they are in a particularly vulnerable spot, such as a yard where pets may disturb the nest. Turtle nests can be protected from predators and other disturbance by covering them with a piece of wire fencing (such as chicken wire), secured to the ground with stakes or rocks. The piece of fencing should measure at least 2 ft. x 2 ft., and should be of medium sized mesh (openings should be about 2 in. x 2 in.). It is ***very important*** that the fencing be **removed before August 1st** so the young turtles can escape from the nest when they hatch!

REFERENCES

[1]Association for Biodiversity Information. "Heritage Status: Global, National, and Subnational Conservation Status Ranks." NatureServe. Version 1.3 (9 April 2001). http://www.natureserve.org/ranking.htm (15 April 2001).

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Oldfield, B., and J. J. Moriarty. 1994. Amphibians and Reptiles Native to Minnesota. University of Minnesota Press, Minneapolis, 237 pp.

Sajwaj, T. D., and J. W. Lang. 2000. Thermal ecology of Blanding's turtle in central Minnesota. Chelonian Conservation and Biology 3(4):626-636.

CAUTION

BLANDING'S TURTLES

MAY BE ENCOUNTERED IN THIS AREA

The unique and rare Blanding's turtle has been found in this area. Blanding's turtles are state-listed as Threatened and are protected under Minnesota Statute 84.095, Protection of Threatened and Endangered Species. Please be careful of turtles on roads and in construction sites. For additional information on turtles, or to report a Blanding's turtle sighting, contact the DNR Nongame Specialist nearest you: Bemidji (218-308-2641); Grand Rapids (218-327-4518); New Ulm (507-359-6033); Rochester (507-206-2820); or St. Paul (651-259-5772).

DESCRIPTION: The Blanding's turtle is a medium to large turtle (5 to 10 inches) with a black or dark blue, dome-shaped shell with muted yellow spots and bars. The bottom of the shell is hinged across the front third, enabling the turtle to pull the front edge of the lower shell firmly against the top shell to provide additional protection when threatened. The head, legs, and tail are dark brown or blue-gray with small dots of light brown or yellow. A distinctive field mark is the bright yellow chin and neck.

BLANDING'S TURTLES DO NOT MAKE GOOD PETS
IT IS ILLEGAL TO KEEP THIS THREATENED SPECIES IN CAPTIVITY

SUMMARY OF RECOMMENDATIONS FOR AVOIDING AND MINIMIZING IMPACTS TO BLANDING'S TURTLE POPULATIONS

(see Blanding's Turtle Fact Sheet for full recommendations)

- This flyer should be given to all contractors working in the area. Homeowners should also be informed of the presence of Blanding's turtles in the area.
- Turtles that are in imminent danger should be moved, by hand, out of harm's way. Turtles that are not in imminent danger should be left undisturbed to continue their travel among wetlands and/or nest sites.
- If a Blanding's turtle nests in your yard, do not disturb the nest and do not allow pets near the nest.
- Silt fencing should be set up to keep turtles out of construction areas. It is critical that silt fencing be removed after the area has been revegetated.
- Small, vegetated temporary wetlands should not be dredged, deepened, or filled.
- All wetlands should be protected from pollution; use of fertilizers and pesticides should be avoided, and run-off from lawns and streets should be controlled. Erosion should be prevented to keep sediment from reaching wetlands and lakes.
- Roads should be kept to minimum standards on widths and lanes.
- Roads should be ditched, not curbed or below grade. If curbs must be used, 4" high curbs at a 3:1 slope are preferred.
- Culverts under roads crossing wetland areas, between wetland areas, or between wetland and nesting areas should be at least 36 in. diameter and flat-bottomed or elliptical.
- Culverts under roads crossing streams should be oversized (at least twice as wide as the normal width of open water) and flat-bottomed or elliptical.
- Utility access and maintenance roads should be kept to a minimum.
- Because trenches can trap turtles, trenches should be checked for turtles prior to being backfilled and the sites should be returned to original grade.
- Terrain should be left with as much natural contour as possible.
- Graded areas should be revegetated with native grasses and forbs.
- Vegetation management in infrequently mowed areas -- such as in ditches, along utility access roads, and under power lines -- should be done mechanically (chemicals should not be used). Work should occur fall through spring (after October 1st and before June 1st).

Compiled by the Minnesota Department of Natural Resources Division of Ecological and Water Resources, Updated August 2012
Endangered Species Review Coordinator, 500 Lafayette Rd., Box 25, St. Paul, MN 55155 / 651-259-5109

Wildlife Friendly Erosion Control

Wildlife entanglement in, and death from, plastic netting and other man-made plastic materials has been documented in birds (Johnson, 1990; Fuller-Perrine and Tobin, 1993), fish (Johnson, 1990), mammals (Derraik, 2002), and reptiles (Barton and Kinkead, 2005; Kapfer and Paloski, 2011). Yet the use of these materials continues in many cases, without consideration for wildlife impacts. Plastic netting is frequently used for erosion control during construction and landscape projects and can negatively impact terrestrial and aquatic wildlife populations as well as snag in maintenance machinery resulting in costly repairs and delays. However, wildlife friendly erosion control materials do exist, and are sold by several large erosion control material companies. Below are a few key considerations before starting a project.

Know Your Options

- Remember to consult with local natural resource authorities (DNR, USFWS, etc.) before starting a project. They can help you identify sensitive areas and rare species.
- When erosion control is necessary, select products with biodegradable netting (natural fiber, biodegradable polyesters, etc.).
- DO NOT use products that require UV-light to biodegrade (also called, "photodegradable"). These do not biodegrade properly when shaded by vegetation.
- Use netting with rectangular shaped mesh (not square mesh).
- Use netting with flexible (non-welded) mesh.

Woven 100% natural fiber erosion control materials being utilized along a central Minnesota stream. ©MN DNR, Nick Proulx

Know the Landscape

- It is especially important to use wildlife friendly erosion control around:
    - Areas with threatened or endangered species.
    - Wetlands, rivers, lakes, and other watercourses.
    - Habitat transition zones (prairie – woodland edges, rocky outcrop – woodland edges, steep rocky slopes, etc.).
    - Areas with threatened or endangered species.
- Use erosion mesh wisely, not all areas with disturbed ground necessitate its use. Do not use plastic mesh unless it is specifically required. Other erosion control options exist (open weave textile (OWT), rolled erosion control products (RECPs) with woven natural fiber netting).

Fish trapped and killed by welded-plastic square erosion control mesh improperly placed along a small central Minnesota stream. Photo courtesy of Ben Lowe.

Protect Wildlife

- Avoid photodegradable erosion control materials where possible.
- Use only biodegradable materials (typically made from natural fibers), preferably those that will biodegrade under a variety of conditions.
- Wildlife friendly erosion control material costs are often similar to conventional plastic netting.

Plains Gartersnake trapped and killed by welded-plastic square erosion control mesh placed along a newly installed cement culvert in southern Minnesota. ©MN DNR, Carol Hall

A small vole that was strangled and killed by plastic erosion control material with welded and square mesh. Photo taken in southern Minnesota and provided courtesy of Tom Jessen.

Literature Referenced

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Minnesota Department of Natural Resources
Division of Ecological & Water Resources
500 Lafayette Road, Box 25
St. Paul, MN 55155-4025

September 13, 2017 **Correspondence # ERDB 20160294-0003**

Ms. Kelly Kunst
Westwood Professional Services, Inc.
7699 Anagram Drive
Eden Prairie, MN 55344

RE: Natural Heritage Review of the proposed Nobles 2 Wind Farm, Nobles County

Dear Ms. Kunst,

As requested, the Minnesota Natural Heritage Information System has been queried to determine if any rare species or other significant natural features are known to occur in the vicinity of the revised project boundary. Based on this query, rare features have been documented within the search area. Please note that the proposed project has the potential to negatively affect the following rare features:

Ecologically Significant Areas

- The Minnesota Biological Survey (MBS) has identified several Sites of Biodiversity Significance in the vicinity of the proposed project (see enclosed map). The revised boundary has resulted in avoidance of most of these Sites. Sites of Biodiversity Significance have varying levels of native biodiversity and are ranked based on the relative significance of this biodiversity at a statewide level. Sites ranked as Moderate contain occurrences of rare species and/or moderately disturbed native plant communities, and/or landscapes that have a strong potential for recovery:

  - T104N R42W Section 1 (Fenmount WMA) – native prairie, 9 SGCN* birds (adjacent);
  - T104N R41W Section 20 (Bloom Waterfowl Production Area) 8 SGCN* birds (adjacent);
  - T104N R41W Sections 33-35 along Jack Creek – native prairie (within).

  Sites ranked as High contain very good quality occurrences of the rarest species, high quality examples of the rare native plant communities, and/or important functional landscapes:

  - T104N R42W Sections 4 & 9 – high quality prairie (within).

  These particular Sites contain native prairie remnants and rare wetland communities (GIS shapefiles of MBS Sites of Biodiversity Significance and DNR Native Plant Communities can be downloaded from the MN Geospatial Commons at https://gisdata.mn.gov/).

  Given the ecological significance of these areas, the DNR recommends that the MBS Sites ranked Moderate or higher be considered avoidance areas within the permitting boundary. Indirect impacts from surface runoff or the spread of invasive species should also be considered during project design and implementation.

There are areas within the project boundary that the Minnesota Biological Survey considered for Sites of Biodiversity Significance, but these areas were determined to be below the minimum biodiversity threshold for statewide significance. These sites, however, may have conservation value at the local level as habitat for native plants and animals, corridors for animal movements, buffers surrounding higher quality natural areas, or as areas with high potential for restoration of native habitat. **Some of these "below" areas may contain native prairie** (e.g., T104N R42W Section 3) and should be avoided.

Native Prairie

As noted above, the Minnesota Biological Survey has identified native prairie remnants within the project boundary. Additional prairie remnants may also exist in the area. In the mid-1800's, Minnesota had eighteen million acres of prairie. Less than 1% remains. Given that more than 99% of Minnesota's prairies have been destroyed, and more than one-third of Minnesota's endangered, threatened, and special concern species are now dependent on the remaining small fragments of Minnesota's prairie ecosystem, we feel that all prairie remnants merit protection. We also recommend that turbines and other infrastructure be distant enough from native prairies as to allow for prairie management, such as prescribed burning.

To ensure that prairie is avoided, I recommend that a desktop analysis of historical aerial photos and applicable GIS layers (see attached guidance) be conducted for any grassland areas that have the potential to be impacted by the project. Any on-site prairie surveys should be conducted by a qualified surveyor (see attached list) following the attached guidance.

Please contact me if avoidance of MBS Sites and/or native prairie is not feasible, as surveys for rare species may be needed. We will need to discuss potential surveyors, survey protocol, and other requirements before any survey work for rare species is initiated. Project planning should also take into account that surveys (if needed) will need to be done during the appropriate time of the year, which may be limited. For your information, I have attached a document outlining the Rare Species Survey Process.

Rare Birds

- Several SGCN* birds, including those associated with grasslands, have been documented in the vicinity of the proposed project during MBS surveys. Within the Coteau Moraines Ecological Subsection (where most of the project is located), there are a minimum of 28 SGCN* birds known to use prairie and nonforested wetland habitat such as that found in the vicinity of the project. The Site Characterization Study prepared by Westwood also noted the presence of several state-listed birds and SGCN* birds within approximately ten miles of the project boundary using readily available data. It should be noted that many SGCN* are not tracked in the Natural Heritage Information System (NHIS) and that the NHIS does not include records of migrating birds.

  The 2016-2017 Annual Pre-Construction Avian Survey Report prepared by Westwood documents the observation of 521 individuals of 12 rare species including the loggerhead shrike (*Lanius ludovicianus*), state-listed as endangered, and Wilson's phalarope (*Phalaropus tricolor*), state-listed as threatened. The American white pelican (*Pelecanus erythrorhynchos*), trumpeter swan (*Cygnus*

buccinator), purple martin (*Progne subis*), and Franklin's gull (*Leucophaeus pipixcan*), all state-listed species of special concern, were also observed during the 2016-2017 surveys. One fatality of an American white pelican has been documented at the nearby Lakefield Wind. Actions to minimize impacts to state-listed species may include, but are not limited to, the following recommendations:

- Place turbines an adequate distance from grasslands and wetlands,
- Feather turbine blades below cut-in speeds, and
- Conduct post-construction fatality monitoring.

State-listed Species

- Blanding's Turtles (*Emydoidea blandingii*), a state-listed threatened species, have been documented in the vicinity of the proposed project. Champepadan Creek and surrounding lands are an area of statewide importance to the Blanding's turtle. These areas are relied upon to maintain the species' security within Minnesota, and the DNR considers them of the highest priority for Blanding's turtle research and management activities. As these turtles travel long distances over land and are known to use agricultural lands for nesting, this species may be encountered on site.

  For your information, I have attached a Blanding's turtle fact sheet that describes the habitat use and life history of this species. The fact sheet also provides two lists of recommendations for avoiding and minimizing impacts to this rare turtle. The first list is relevant for all areas inhabited by Blanding's turtles while the second list contains additional protective measures for areas known to be of statewide importance to this species. In addition, if erosion control mesh will be used, I recommend that the mesh be limited to wildlife-friendly materials (see enclosed fact sheet).

  The attached flyer should be given to all contractors working in the area. If Blanding's turtles are encountered on site, please remember that state law and rules prohibit the destruction of threatened or endangered species, except under certain prescribed conditions. If turtles are in imminent danger they should be moved by hand out of harm's way, otherwise they should be left undisturbed.

- Several of the streams within the project boundary flow into creeks (Kanarazi Creek and Champepadan Creek; see enclosed map) that are federally designated as critical habitat for the Topeka shiner (*Notropis topeka*), a federally listed endangered and state-listed special concern fish species. Topeka shiners are adversely impacted by actions which alter stream hydrology or decrease water quality, including sedimentation, dredging and filling, stream dewatering, impoundment, eutrophication, channelization, and pollution/contamination. As several of the streams within the project boundary feed into the above creeks, please include measures to eliminate or minimize these factors in your project plan. For guidance, please see the enclosed recommendations for working in Topeka shiner habitat. Given the federal status of this species, I recommend that you coordinate with the U.S. Fish and Wildlife Service regarding this species.

- The plains topminnow (*Fundulus sciadicus*), a state-listed threatened fish species, has been documented in Champepadan Creek and its tributaries. This species has specialized habitat requirements and is negatively affected by increased turbidity and siltation. Therefore, it is important

that stringent erosion and sediment control practices be implemented and maintained near the waterways within the project boundary. Measures to minimize disturbance to the Topeka shiner will also minimize disturbance to this species.

- The Natural Heritage Information System (NHIS) tracks bat roost trees and hibernacula plus some acoustic data, but this information is not exhaustive. Although there are no NHIS records for bats in the vicinity of the proposed project, all seven of Minnesota's regular occurring bats can be found throughout Minnesota.

  The 2016 Annual Pre-Construction Acoustic Bat Survey Report prepared by Westwood Professional Services and Zotz Ecological Solutions documents the presence of six bat species: tricolored bat (*Perimyotis subflavus*), big brown bat (*Eptesicus fuscus*), and little brown bat (*Myotis lucifugus*), which are all state-listed species of special concern; and silver-haired bat (*Lasionycteris noctivagans*), eastern red bat (*Lasiurus borealis*), and hoary bat (*Lasiurus cinereus*). The most common bat species detected were the hoary bat (minimum of 24% of the bat passes) and the big brown bat (minimum of 16% of the bat passes). The northern long-eared bat (*Myotis septentrionalis*), state-listed as special concern and federally listed as threatened, was not positively detected.

  Given the presence of state-listed species and the high bat fatalities documented at the nearby Lakefield Wind, measures to minimize impacts should be implemented. Actions to minimize impacts may include, but are not limited to, the following recommendations:

  - Place turbines an adequate distance from stream corridors and forested areas,
  - Feather turbine blades below cut-in speeds, and
  - Conduct post-construction fatality monitoring.

Environmental Review and Permitting

- **Further Natural Heritage Review will be needed once the project details (e.g., turbine and infrastructure locations) have been determined and the preconstruction surveys have been completed.**

- Please address potential impacts to the above rare features in the Public Utilities Commission (PUC) Site Permit Application.

- **Please include a copy of this letter in any state or local license or permit application. Potential impacts to the state-listed plants and mussels should be resolved prior to the issuance of any pertinent license or permit. To the extent applicable, measures to avoid or minimize disturbance to the above rare features should be included as restrictions or conditions in any required permits or licenses.**

The Natural Heritage Information System (NHIS), a collection of databases that contains information about Minnesota's rare natural features, is maintained by the Division of Ecological and Water Resources, Department of Natural Resources. The NHIS 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. However, the NHIS is not an exhaustive inventory and thus does

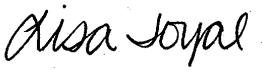
not represent all of the occurrences of rare features within the state. Therefore, ecologically significant features for which we have no records may exist within the project area. **If additional information becomes available regarding rare features in the vicinity of the project, further review may be necessary.**

For environmental review purposes, the results of this Natural Heritage Review are valid for one year; the results are only valid for the project location (noted above) and the project description provided on the NHIS Data Request Form. Please contact me if project details change or for an updated review if construction has not occurred within one year.

The Natural Heritage Review does not constitute review or approval by the Department of Natural Resources as a whole. Instead, it identifies issues regarding known occurrences of rare features and potential effects to these rare features. If you have not done so already, please contact your DNR Regional Environmental Assessment Ecologist to determine whether there are other natural resource concerns associated with the proposed project (contact information available at http://www.dnr.state.mn.us/eco/ereview/erp_regioncontacts.html). Please be aware that additional site assessments or review may be required.

Thank you for consulting us on this matter, and for your interest in preserving Minnesota's rare natural resources. An invoice will be mailed to you under separate cover.

Sincerely,



Lisa Joyal
Endangered Species Review Coordinator
lisa.joyal@state.mn.us

* Species in Greatest Conservation Need as identified in the State Wildlife Action Plan

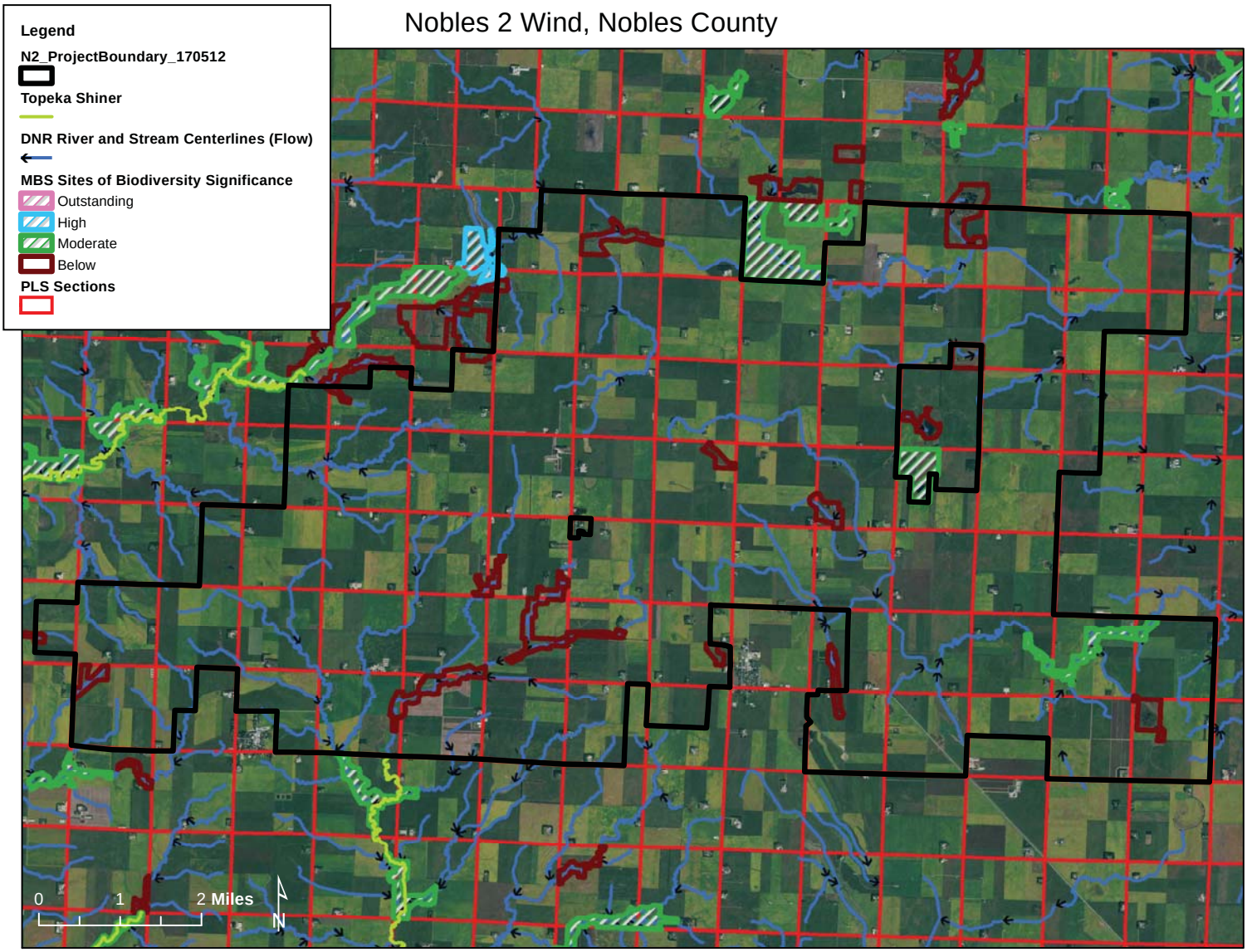
enc. Blanding's Turtle Fact Sheet and Flyer
Wildlife Friendly Erosion Control
Topeka Shiner Fact Sheet
Prairie Mapping and Ranking Guidance
DNR List of Surveyors
Rare Species Survey Process
Map

Links: DNR Rare Species Guide
www.dnr.state.mn.us/rsg/index.html
Provides information on the biology, habitat use, and conservation measures of rare species MBS

Sites of Biodiversity Significance
http://www.dnr.state.mn.us/eco/mcbs/biodiversity_guidelines.html
DNR Native Plant Communities
http://www.dnr.state.mn.us/npc/index.html

cc: Cynthia Warzecha, DNR
Kevin Mixon, DNR
Richard Davis, DOC
Mags Rheude, USFWS

Nobles 2 Wind, Nobles County



Recommendations for Projects Affecting Waters Inhabited by Topeka Shiners (*Notropis topeka*) in Minnesota

U.S. Fish and Wildlife Service
Twin Cities Field Office
(952) 252-0092

Background

Topeka shiner (*Notropis topeka*) occurs throughout the Big Sioux and Rock River Watersheds in five southwestern Minnesota counties (Figure 1). The U.S. Fish and Wildlife Service (Service) listed Topeka shiner as an endangered species in 1998 and designated critical habitat[1] for it in 2004 (Figure 2). The Endangered Species Act (ESA) prohibits the taking[2] of this species.

Endangered Species Act Guidance for Actions Affecting Topeka Shiner Habitat

Federal Agency Actions

Federal agencies or their designated non-federal representatives must consult with the Service on any action that they fund, authorize, or carry out that may affect Topeka shiner or its critical habitat. If an agency proposes to implement an action that is likely to result in adverse effects to Topeka shiner, it must undergo formal consultation with the Service. If the agency determines that an action may affect Topeka shiners, but that those effects are not likely to be adverse, it may avoid formal consultation by receiving written concurrence on this determination from the Service.

For general information regarding the section 7 process, contact the Service's Twin Cities Field Office at (952) 252-0092, or http://www.fws.gov/midwest/Endangered/section7/index.html.

Private or Local (Non-federal) Actions

Private landowners, corporations, state or local governments, and other non-federal entities or individuals who wish to conduct activities that might incidentally take Topeka shiners must first

[1] See 69 Federal Register 44,736 (July 27, 2004) or https://www.fws.gov/midwest/endangered/fishes/TopekaShiner/index.html for further information about Topeka shiner critical habitat.
[2] The term "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.

obtain an incidental take permit from the U.S. Fish and Wildlife Service (Service). To determine whether an action may require an incidental take permit, coordinate with the Service when planning actions that may affect streams or off-channel habitats in the Rock River or Big Sioux River watersheds in Minnesota. Contact the Service's Twin Cities Field Office (952/252-0092) for further information or visit the following website for information regarding Endangered Species permits – http://endangered.fws.gov/permits/index.html?#forms.

Project Recommendations

The following recommendations are provided to help design actions that would avoid or minimize adverse effects to Topeka shiner. These recommendations may not address every way in which proposed actions may affect this species and may not preclude the need for formal consultation for federal actions or for an incidental take permit for non-federal actions. Therefore, we highly recommend that you coordinate as early in the planning process as possible with the Service's Twin Cities Field Office (952/252-0092) when contemplating any action that may affect streams or associated off-channel habitats (oxbows, abandoned channels, etc.) in the Big Sioux River or Rock River watersheds in Minnesota (Figure 1).

In some cases, projects may not be implemented without going against one or more of these recommendations. In those cases, project planners, landowners, etc. should promptly coordinate with the Service's Twin Cities Field Office to determine whether formal section 7 consultation (federal agencies) or an incidental take permit (private landowners, local government agencies, etc.) would be required.

1. Avoid dewatering or temporarily diverting stream reaches for construction if Topeka shiners are likely to be present.

2. To protect Topeka shiners during their peak spawning period, no project activity should be conducted within the stream channel between the dates of May 15 and July 31, inclusive. Construction and removal of temporary crossings, causeways, and weirs should also be avoided during this timeframe.

3. Special attention should be taken to protect any off-channel wetland complexes, such as old oxbow meanders that are present near the project area. Additional siltation prevention measures should be implemented, if necessary, to ensure the protection of these habitats.

4. Follow all applicable requirements and best management practices for stormwater and erosion control – for example, requirements contained within stormwater permits from Minnesota Pollution Control Agency (MPCA).[3]

5. Minimize removal of riparian (streamside) vegetation; if such removal is necessary, it should occur sequentially as needed over the length of the project and it should be replaced as soon as feasible upon project completion.

6. Mulch areas of disturbed soils and reseed promptly with non-invasive plant species, preferably native species.

7. Implement appropriate erosion and sediment prevention measures to the maximum extent practicable. Inspect devices frequently to ensure that they are effective and in good repair, especially after precipitation.

8. If rolled erosion control products are to be utilized, they should be limited to 'bio-netting', 'natural-netting' or woven type products. Avoid welded plastic mesh netting to reduce potential for fish and wildlife entanglement.

9. Leave existing features, such as bridge abutments, retaining walls, and riprap, in place as much as is feasible.

10. Design and install instream structures in a manner that will not impair movement of Topeka shiners and other fish species after construction.

11. Where feasible, replace stream crossings with span bridges or other open-bottomed structures to avoid altering the natural stream bottoms. If culverts are used, they should be installed below grade to preserve the natural stream bed and prevent the formation of fish barriers.

12. Avoid operating motorized vehicles instream. Excavation, culvert placement, etc. should be conducted from streambanks outside of standing or flowing water.

13. Backfill placed in the stream should consist of rock or granular material free of fines, silts, and mud. Machinery parts (i.e., backhoe buckets, etc.) should be cleaned of all such material and free of grease, oil, etc. before their instream use.

14. If the project is modified, or if field conditions change, the applicant or agency representative should contact the Service's Twin Cities Field Office

15. Ensure that contractors and subcontractors understand all permit provisions that are necessary to avoid or minimize adverse effects to Topeka shiners.

[3] Resources for designing effective erosion control – Protecting Water Quality in Urban Areas Manual (MPCA, see http://www.pca.state.mn.us/water/pubs/sw-bmpmanual.html); Minnesota Department of Transportation Erosion Control Handbook for Local Roads (http://www.mnltap.umn.edu/pdf/erosioncontrolhandbook.pdf). Also see http://www.pca.state.mn.us/water/stormwater/stormwater-c.html#factsheets.

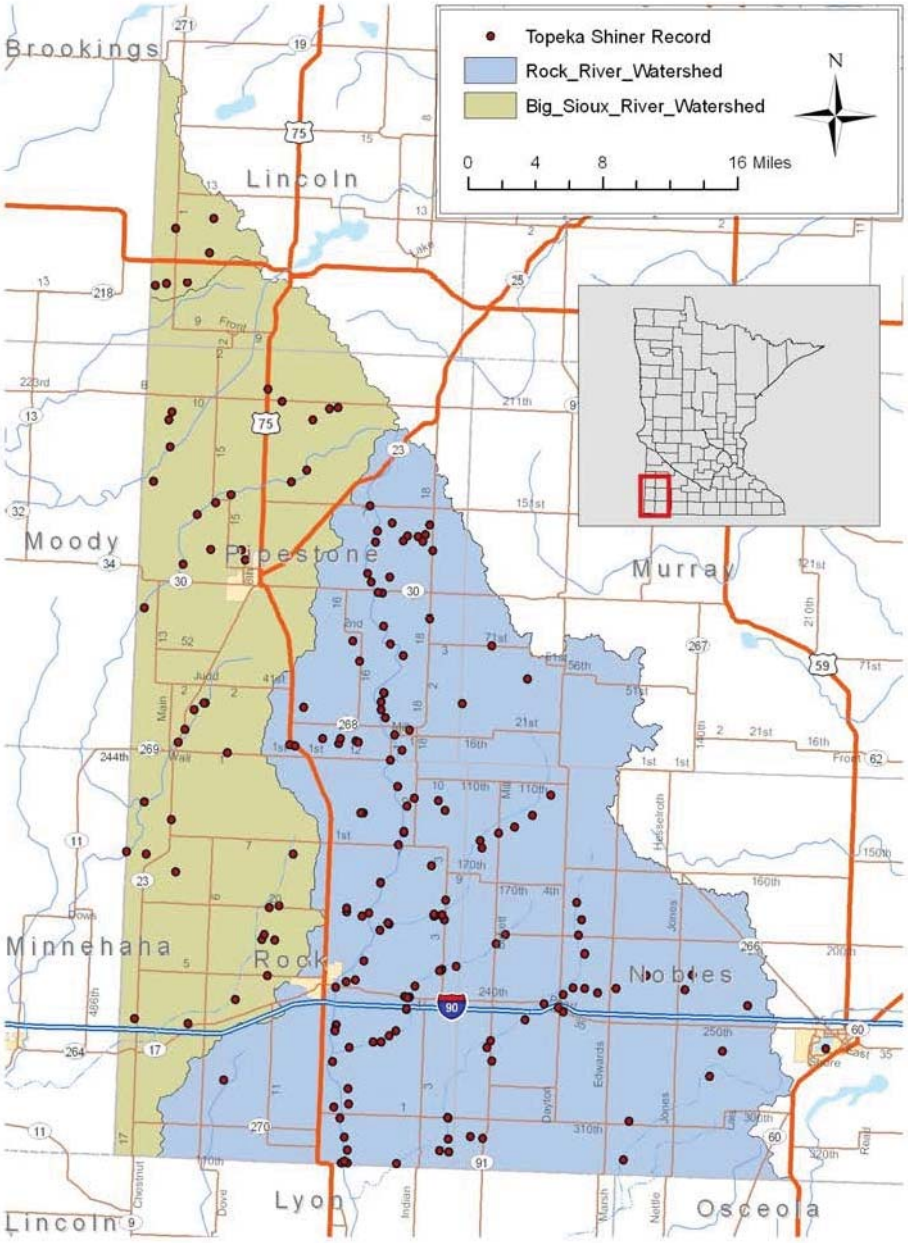


Figure 1. Recorded occurrences of Topeka shiner in Minnesota. Data included here were provided by the Natural Heritage and Nongame Research Program of the Division of Ecological Services, Minnesota Department of Natural Resources (DNR). These data are not based on an exhaustive inventory of the state. The lack of data for any geographic area shall not be construed to mean that Topeka shiners are absent. For information on a specific area, please contact the Service's Twin Cities Field Office at (952) 252-0092.

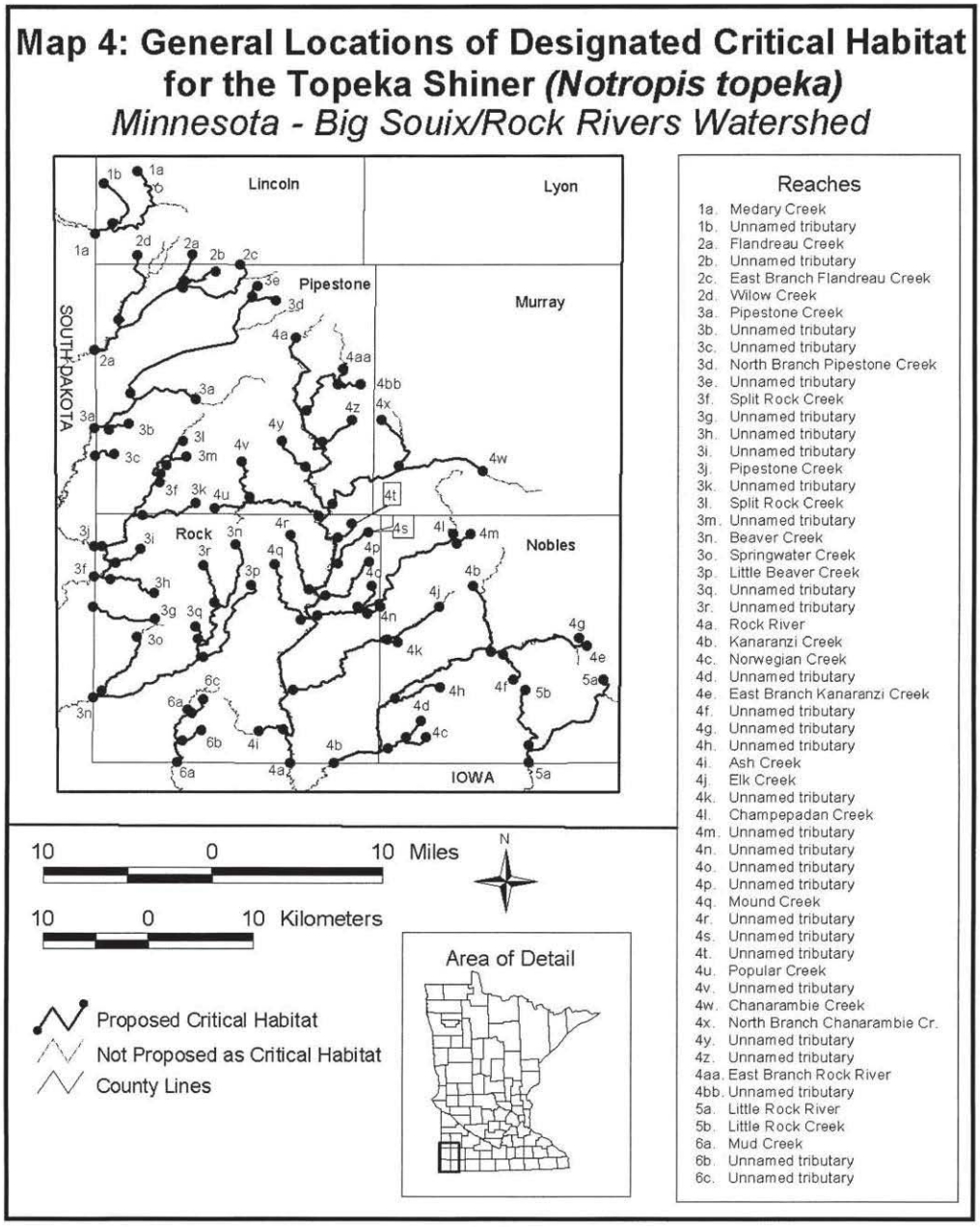


Figure 2. Designated Critical Habitat for Topeka shiner in Minnesota. This map was originally published in the Federal Register on July 27, 2004.

Preventing Entanglement by Erosion Control Blanket

Plastic mesh netting is a common component in erosion control blanket. It is utilized to hold loose fibrous materials in place (EG straw) until vegetation is established. Erosion control blanket is being utilized extensively and is effective for reducing soil erosion, benefitting both soil health and water quality. Unfortunately there is a negative aspect of the plastic mesh component: It is increasingly being documented that its interaction with reptiles and amphibians can be fatal (Barton and Kinkead, 2005; Kapfer and Paloski, 2011). Mowing machinery is also susceptible to damage due to the long lasting plastic mesh.

Potential Problems:

- Plastic netting remains a hazard long after other components have decomposed.
- Plastic mesh netting can result in entanglement and death of a variety of small animals. The most vulnerable group of animals are the reptiles and amphibians (snakes, frogs, toads, salamanders, turtles). Ducklings, small mammals, and fish have also been observed entangled in the netting.
- Road maintenance machinery can snag the plastic mesh and pull up long lengths into machinery, thus binding up machinery and causing damage and/or loss of time cleaning it out.

Suggested Alternatives:

- Do not use in known locations of reptiles or amphibians that are listed as Threatened or Endangered species.
- Limit use of blanket containing welded plastic mesh to areas away from where reptiles or amphibians are likely (near wetlands, lakes, watercourses, or rock outcrops) or habitat transition zones (prairie – woodland edges, rocky outcrop – woodland edges, steep rocky slopes, etc.)
- Select products with biodegradable netting (preferably made from natural fibers, though varieties of biodegradable polyesters also exist on the market). Biodegradable products will degrade under a variety of moisture and light conditions.
- DO NOT use products that require UV-light to degrade (also called “photodegradable”) as they do not degrade properly when shaded by vegetation.

Solution: Most categories of erosion control blanket and sediment control logs are available in natural net options.

- Specify ‘Natural Netting’ for rolled erosion control products, per MnDOT Spec 3885. See Table 3885-1.
- Specify ‘Natural Netting’ for sediment control logs, per MnDOT Spec 3897

The plastic mesh component of erosion control blanket becomes a net for entrapment.

Literature Referenced

Barton, C. and K. Kinkead. 2005. Do erosion control and snakes mesh? Soil and Water Conservation Society 60:33A-35A.
Kapfer, J.M., and R.A. Paloski. 2011. On the threat to snakes of mesh deployed for erosion control and wildlife exclusion. Herpetological Conservation and Biology 6:1-9.

Environmental Review Fact Sheet Series

Endangered, Threatened, and Special Concern Species of Minnesota

Blanding's Turtle

(*Emydoidea blandingii*)

Minnesota Status:	Threatened	State Rank[1]:	S2
Federal Status:	none	Global Rank[1]:	G4

HABITAT USE

Blanding's turtles need both wetland and upland habitats to complete their life cycle. The types of wetlands used include ponds, marshes, shrub swamps, bogs, and ditches and streams with slow-moving water. In Minnesota, Blanding's turtles are primarily marsh and pond inhabitants. Calm, shallow water bodies (Type 1-3 wetlands) with mud bottoms and abundant aquatic vegetation (e.g., cattails, water lilies) are preferred, and extensive marshes bordering rivers provide excellent habitat. Small temporary wetlands (those that dry up in the late summer or fall) are frequently used in spring and summer -- these fishless pools are amphibian and invertebrate breeding habitat, which provides an important food source for Blanding's turtles. Also, the warmer water of these shallower areas probably aids in the development of eggs within the female turtle. Nesting occurs in open (grassy or brushy) sandy uplands, often some distance from water bodies. Frequently, nesting occurs in traditional nesting grounds on undeveloped land. Blanding's turtles have also been known to nest successfully on residential property (especially in low density housing situations), and to utilize disturbed areas such as farm fields, gardens, under power lines, and road shoulders (especially of dirt roads). Although Blanding's turtles may travel through woodlots during their seasonal movements, shady areas (including forests and lawns with shade trees) are not used for nesting. Wetlands with deeper water are needed in times of drought, and during the winter. Blanding's turtles overwinter in the muddy bottoms of deeper marshes and ponds, or other water bodies where they are protected from freezing.

LIFE HISTORY

Individuals emerge from overwintering and begin basking in late March or early April on warm, sunny days. The increase in body temperature which occurs during basking is necessary for egg development within the female turtle. Nesting in Minnesota typically occurs during June, and females are most active in late afternoon and at dusk. Nesting can occur as much as a mile from wetlands. The nest is dug by the female in an open sandy area and 6-15 eggs are laid. The female turtle returns to the marsh within 24 hours of laying eggs. After a development period of approximately two months, hatchlings leave the nest from mid-August through early-October. Nesting females and hatchlings are often at risk of being killed while crossing roads between wetlands and nesting areas. In addition to movements associated with nesting, all ages and both sexes move between wetlands from April through November. These movements peak in June and July and again in September and October as turtles move to and from overwintering sites. In late autumn (typically November), Blanding's turtles bury themselves in the substrate (the mud at the bottom) of deeper wetlands to overwinter.

IMPACTS / THREATS / CAUSES OF DECLINE

- loss of wetland habitat through drainage or flooding (converting wetlands into ponds or lakes)
- loss of upland habitat through development or conversion to agriculture
- human disturbance, including collection for the pet trade* and road kills during seasonal movements
- increase in predator populations (skunks, raccoons, etc.) which prey on nests and young

*It is illegal to possess this threatened species.

RECOMMENDATIONS FOR AVOIDING AND MINIMIZING IMPACTS

These recommendations apply to typical construction projects and general land use within Blanding's turtle habitat, and are provided to help local governments, developers, contractors, and homeowners minimize or avoid detrimental impacts to Blanding's turtle populations. **List 1** describes minimum measures which we recommend to prevent harm to Blanding's turtles during construction or other work within Blanding's turtle habitat. **List 2** contains recommendations which offer even greater protection for Blanding's turtles populations; this list should be used *in addition to the first list* in areas which are known to be of state-wide importance to Blanding's turtles (contact the DNR's Natural Heritage and Nongame Research Program if you wish to determine if your project or home is in one of these areas), or in any other area where greater protection for Blanding's turtles is desired.

List 1. Recommendations for all areas inhabited by Blanding's turtles.	**List 2. *Additional* recommendations for areas known to be of state-wide importance to Blanding's turtles.**
GENERAL	
A flyer with an illustration of a Blanding's turtle should be given to all contractors working in the area. Homeowners should also be informed of the presence of Blanding's turtles in the area.	Turtle crossing signs can be installed adjacent to road-crossing areas used by Blanding's turtles to increase public awareness and reduce road kills.
Turtles which are in imminent danger should be moved, by hand, out of harms way. Turtles which are not in imminent danger should be left undisturbed.	Workers in the area should be aware that Blanding's turtles nest in June, generally after 4pm, and should be advised to minimize disturbance if turtles are seen.
If a Blanding's turtle nests in your yard, do not disturb the nest.	If you would like to provide more protection for a Blanding's turtle nest on your property, see "Protecting Blanding's Turtle Nests" on page 3 of this fact sheet.
Silt fencing should be set up to keep turtles out of construction areas. It is critical that silt fencing be removed after the area has been revegetated.	Construction in potential nesting areas should be limited to the period between September 15 and June 1 (this is the time when activity of adults and hatchlings in upland areas is at a minimum).
WETLANDS	
Small, vegetated temporary wetlands (Types 2 & 3) should not be dredged, deepened, filled, or converted to storm water retention basins (these wetlands provide important habitat during spring and summer).	Shallow portions of wetlands should not be disturbed during prime basking time (mid morning to mid- afternoon in May and June). A wide buffer should be left along the shore to minimize human activity near wetlands (basking Blanding's turtles are more easily disturbed than other turtle species).
Wetlands should be protected from pollution; use of fertilizers and pesticides should be avoided, and run-off from lawns and streets should be controlled. Erosion should be prevented to keep sediment from reaching wetlands and lakes.	Wetlands should be protected from road, lawn, and other chemical run-off by a vegetated buffer strip at least 50' wide. This area should be left unmowed and in a natural condition.
ROADS	
Roads should be kept to minimum standards on widths and lanes (this reduces road kills by slowing traffic and reducing the distance turtles need to cross).	Tunnels should be considered in areas with concentrations of turtle crossings (more than 10 turtles per year per 100 meters of road), and in areas of lower density if the level of road use would make a safe crossing impossible for turtles. Contact your DNR Regional Nongame Specialist for further information on wildlife tunnels.
Roads should be ditched, not curbed or below grade. If curbs must be used, 4 inch high curbs at a 3:1 slope are preferred (Blanding's turtles have great difficulty climbing traditional curbs; curbs and below grade roads trap turtles on the road and can cause road kills).	Roads should be ditched, not curbed or below grade.

ROADS cont.	
Culverts between wetland areas, or between wetland areas and nesting areas, should be 36 inches or greater in diameter, and elliptical or flat-bottomed.	Road placement should avoid separating wetlands from adjacent upland nesting sites, or these roads should be fenced to prevent turtles from attempting to cross them (contact your DNR Nongame Specialist for details).
Wetland crossings should be bridged, or include raised roadways with culverts which are 36 in or greater in diameter and flat-bottomed or elliptical (raised roadways discourage turtles from leaving the wetland to bask on roads).	Road placement should avoid bisecting wetlands, or these roads should be fenced to prevent turtles from attempting to cross them (contact your DNR Nongame Specialist for details). This is especially important for roads with more than 2 lanes.
Culverts under roads crossing streams should be oversized (at least twice as wide as the normal width of open water) and flat-bottomed or elliptical.	Roads crossing streams should be bridged.
UTILITIES	
Utility access and maintenance roads should be kept to a minimum (this reduces road-kill potential).	
Because trenches can trap turtles, trenches should be checked for turtles prior to being backfilled and the sites should be returned to original grade.	
LANDSCAPING AND VEGETATION MANAGEMENT	
Terrain should be left with as much natural contour as possible.	As much natural landscape as possible should be preserved (installation of sod or wood chips, paving, and planting of trees within nesting habitat can make that habitat unusable to nesting Blanding's turtles).
Graded areas should be revegetated with native grasses and forbs (some non-natives form dense patches through which it is difficult for turtles to travel).	Open space should include some areas at higher elevations for nesting. These areas should be retained in native vegetation, and should be connected to wetlands by a wide corridor of native vegetation.
Vegetation management in infrequently mowed areas -- such as in ditches, along utility access roads, and under power lines -- should be done mechanically (chemicals should not be used). Work should occur fall through spring (after October 1st and before June 1st).	Ditches and utility access roads should not be mowed or managed through use of chemicals. If vegetation management is required, it should be done mechanically, as infrequently as possible, and fall through spring (mowing can kill turtles present during mowing, and makes it easier for predators to locate turtles crossing roads).

Protecting Blanding's Turtle Nests: Most predation on turtle nests occurs within 48 hours after the eggs are laid. After this time, the scent is gone from the nest and it is more difficult for predators to locate the nest. Nests more than a week old probably do not need additional protection, unless they are in a particularly vulnerable spot, such as a yard where pets may disturb the nest. Turtle nests can be protected from predators and other disturbance by covering them with a piece of wire fencing (such as chicken wire), secured to the ground with stakes or rocks. The piece of fencing should measure at least 2 ft. x 2 ft., and should be of medium sized mesh (openings should be about 2 in. x 2 in.). It is ***very important*** that the fencing be **removed before August 1st** so the young turtles can escape from the nest when they hatch!

REFERENCES

[1]Association for Biodiversity Information. "Heritage Status: Global, National, and Subnational Conservation Status Ranks." NatureServe. Version 1.3 (9 April 2001). http://www.natureserve.org/ranking.htm (15 April 2001).

Coffin, B., and L. Pfannmuller. 1988. Minnesota's Endangered Flora and Fauna. University of Minnesota Press, Minneapolis, 473 pp.

REFERENCES (cont.)

Moriarty, J. J., and M. Linck. 1994. Suggested guidelines for projects occurring in Blanding's turtle habitat. Unpublished report to the Minnesota DNR. 8 pp.

Oldfield, B., and J. J. Moriarty. 1994. Amphibians and Reptiles Native to Minnesota. University of Minnesota Press, Minneapolis, 237 pp.

Sajwaj, T. D., and J. W. Lang. 2000. Thermal ecology of Blanding's turtle in central Minnesota. Chelonian Conservation and Biology 3(4):626-636.

CAUTION

BLANDING'S TURTLES

MAY BE ENCOUNTERED IN THIS AREA

The unique and rare Blanding's turtle has been found in this area. Blanding's turtles are state-listed as Threatened and are protected under Minnesota Statute 84.095, Protection of Threatened and Endangered Species. Please be careful of turtles on roads and in construction sites. For additional information on turtles, or to report a Blanding's turtle sighting, contact the DNR Nongame Specialist nearest you: Bemidji (218-308-2641); Grand Rapids (218-327-4518); New Ulm (507-359-6033); Rochester (507-206-2820); or St. Paul (651-259-5772).

DESCRIPTION: The Blanding's turtle is a medium to large turtle (5 to 10 inches) with a black or dark blue, dome-shaped shell with muted yellow spots and bars. The bottom of the shell is hinged across the front third, enabling the turtle to pull the front edge of the lower shell firmly against the top shell to provide additional protection when threatened. The head, legs, and tail are dark brown or blue-gray with small dots of light brown or yellow. A distinctive field mark is the bright yellow chin and neck.

BLANDING'S TURTLES DO NOT MAKE GOOD PETS
IT IS ILLEGAL TO KEEP THIS THREATENED SPECIES IN CAPTIVITY

SUMMARY OF RECOMMENDATIONS FOR AVOIDING AND MINIMIZING IMPACTS TO BLANDING'S TURTLE POPULATIONS

(see Blanding's Turtle Fact Sheet for full recommendations)

- This flyer should be given to all contractors working in the area. Homeowners should also be informed of the presence of Blanding's turtles in the area.
- Turtles that are in imminent danger should be moved, by hand, out of harm's way. Turtles that are not in imminent danger should be left undisturbed to continue their travel among wetlands and/or nest sites.
- If a Blanding's turtle nests in your yard, do not disturb the nest and do not allow pets near the nest.
- Silt fencing should be set up to keep turtles out of construction areas. It is critical that silt fencing be removed after the area has been revegetated.
- Small, vegetated temporary wetlands should not be dredged, deepened, or filled.
- All wetlands should be protected from pollution; use of fertilizers and pesticides should be avoided, and run-off from lawns and streets should be controlled. Erosion should be prevented to keep sediment from reaching wetlands and lakes.
- Roads should be kept to minimum standards on widths and lanes.
- Roads should be ditched, not curbed or below grade. If curbs must be used, 4" high curbs at a 3:1 slope are preferred.
- Culverts under roads crossing wetland areas, between wetland areas, or between wetland and nesting areas should be at least 36 in. diameter and flat-bottomed or elliptical.
- Culverts under roads crossing streams should be oversized (at least twice as wide as the normal width of open water) and flat-bottomed or elliptical.
- Utility access and maintenance roads should be kept to a minimum.
- Because trenches can trap turtles, trenches should be checked for turtles prior to being backfilled and the sites should be returned to original grade.
- Terrain should be left with as much natural contour as possible.
- Graded areas should be revegetated with native grasses and forbs.
- Vegetation management in infrequently mowed areas -- such as in ditches, along utility access roads, and under power lines -- should be done mechanically (chemicals should not be used). Work should occur fall through spring (after October 1st and before June 1st).

Compiled by the Minnesota Department of Natural Resources Division of Ecological and Water Resources, Updated August 2012
Endangered Species Review Coordinator, 500 Lafayette Rd., Box 25, St. Paul, MN 55155 / 651-259-5109

Minnesota Biological Survey

Upland Prairie System – Condition Ranking Guidelines

(This is a working document that is periodically revised as new information is available)

September 2014 version

Condition Ranks for Native Plant Communities

Condition Ranks for native plant communities reflect the degree of ecological integrity of a specific occurrence of a native plant community. Condition Ranks are assigned by considering species composition, vegetation structure, ecological processes and functions, level of human disturbance, presence of exotic species, and other factors. Condition Ranks are assigned on a scale of A to D.

- A-rank occurrences have excellent ecological integrity. They have species composition, structure, and ecological processes typical of the natural or historic range of the community and have been little degraded by recent human activity or invasive species.
- B-rank occurrences have good ecological integrity. They include plant communities with modest degradation or that were degraded in the past but have recovered and now have relatively natural composition and structure. B-rank occurrences normally will return to A-rank condition with protection or appropriate management.
- C-rank occurrences have fair ecological integrity. They show strong evidence of human-caused degradation, but retain some characteristic species and have some potential for recovery with protection and management.
- D-rank occurrences have poor ecological integrity. The original composition and structure of the community have been severely altered by human-caused degradation or invasion by exotic species. They have little chance of recovery to their natural or historic condition.

- The Upland Prairie System contains the following native plant community classes and types:
  - UPn12 Northern Dry Prairie
    - UPn12a Dry Barrens Prairie (Northern)
    - UPn12b Dry Sand – Gravel Prairie (Northern)
    - UPn12c Dry Sand – Gravel Brush Prairie (Northern)
    - UPn12d Dry Hill Prairie (Northern)
  - UPn13 Northern Dry Savanna
    - UPn13a Dry Barrens Jack Pine Savanna (Northern)
    - UPn13b Dry Barrens Oak Savanna (Northern)
    - UPn13c Dry Sand-Gravel Oak Savanna (Northern)
    - UPn13d Dry Hill Oak Savanna (Northern)
  - UPn23 Northern Mesic Prairie
    - UPn23a Mesic Brush-Prairie (Northern)
    - UPn23b Mesic Prairie (Northern)
  - UPn24 Northern Mesic Savanna
    - UPn24a Mesic Oak Savanna (Northern)
    - UPn24b Aspen Openings (Northern)
  - UPs13 Southern Dry Prairie
    - UPs13a Dry Barrens Prairie (Southern)
    - UPs13b Dry Sand – Gravel Prairie (Southern)
    - UPs13c Dry Bedrock Bluff Prairie (Southern)
    - UPs13d Dry Hill Prairie (Southern)
  - UPs14 Southern Dry Savanna
    - UPs14a Dry Barrens Oak Savanna (Southern)
      - UPs14a1 Jack Pine Subtype

        - UPs14a2 Oak Subtype
    - UPs14b Dry Sand-Gravel Oak Savanna (Southern)
    - UPs14c Dry Hill Oak Savanna (Southern)
- UPs23 Southern Mesic Prairie
    - UPs23a Mesic Prairie (Southern)
- UPs24 Southern Mesic Savanna
    - UPs24a Mesic Oak Savanna (Southern)

- For information on the plant community classes, types, and subtypes in this System, please refer to the Upland Prairie System in the *Field Guide to Native Plant Communities of Minnesota: The Prairie Parkland and Tallgrass Aspen Parklands Provinces* (MNDNR 2005) or the *Field Guide to Native Plant Communities of Minnesota: The Eastern Broadleaf Forest Province* (MNDNR 2005). Native plant community class fact sheets from the field guides are available on-line at: http://www.dnr.state.mn.us/npc/classification.html

- For checklists and distribution maps of native plant species in Minnesota, refer to the MNDNR's State Checklists on the MNDNR website at: http://www.dnr.state.mn.us/eco/mcbs/plant_lists.html

1) What is an A-rank Occurrence?:

- Site has structure and composition free of human-caused degradation, including overgrazing, poorly-timed haying, fire suppression and forest/woodland succession, herbicide application/drift, invasive species invasion, fertilizer drift, tree planting, excessive burning, and ATV use. A-rank occurrences are considered high-quality prairie and typically have the following conditions:
    - A diverse assemblage of native species is present, including "decreaser" species (see Weaver 1954) that decline with persistent moderate to heavy grazing (Table 1).
    - A-rank prairies properly managed with light or periodic grazing for conservation, in combination with controlled burns and rest, will likely have greater overall species richness (number of species) than ungrazed sites, but will also contain a full complement of decreaser species appropriate for the prairie type and geographic region. Though species richness is high, many decreaser and increaser species are naturally not abundant. Some decreaser species increase in abundance with light grazing (e.g., prairie plum [*Astragalus crassicarpus*]) but decrease with heavier grazing.
    - The vegetation often has heterogeneous patterns of species composition and structure, typically including distinct patches or zones that correlate with variation in microenvironmental conditions, fire frequency, or other disturbances such as grazing. Different dominant species and floras will occur in wet-mesic, mesic, dry-mesic, and dry microhabitats. Vegetation structure and species abundances may also vary from year to year, due to variation in management practices and weather conditions.
    - Non-native, invasive species are absent or are minor components. Kentucky bluegrass (*Poa pratensis*) and/or Canada bluegrass (*Poa compressa*) are present in nearly all prairies and savannas remaining today but in high-quality prairies are sparse and do not displace native species.
    - For prairies, overall tree cover is generally <10% and limited to fire-tolerant species. Fire-sensitive woody species are restricted to naturally fire-protected microsites.
    - For savannas, total tree cover averages 10 to 70%, with trees scattered and/or in small to large clusters. Trees have open-grown growth form and are fire-tolerant/dependent species, such as bur oak and northern pin oak.

2) What is a B-rank Occurrence?:

- Site has structure and composition similar to that of an A-rank occurrence, but has altered species abundances and richness due to moderate levels of degradation from overgrazing, poorly-timed haying, woody plant invasion, minor wetland drainage, fertilizer drift, minor herbicide exposure, invasive species, tree planting, or low to moderate ATV use. B-rank occurrences are considered high-quality prairie and typically have the following conditions:
    - Site has high native species richness but some decreaser species appropriate to the site are missing, and other decreaser species are much more uncommon than in A-rank sites (Table 1).
    - Some prairies are in this condition as a result of past land use and not present management.
    - In savannas, total tree cover averages 10 to 70%, with trees in scattered and/or clumped patterns. Fire-tolerant/dependent species with open-grown growth form predominate, but fire-sensitive native woody species have become well-established.
    - Low to moderate levels of invasive species may be present.
    - In sites that have been grazed, compaction and hummocking of the ground surface is minimal to moderate.

3) What is a C-rank Occurrence?:

- Site is still dominated by native species, but has undergone moderate to heavy degradation from overgrazing, wetland drainage, fire suppression, repeated herbicide treatment, siltation, invasive species invasion, or tree planting. C-rank occurrences are considered fair-quality prairie and typically have the following conditions:
    - Native graminoids and shrubs still dominate throughout most of the site, but overall plant species richness and diversity is low due to loss of most decreaser and many increaser species (Tables 1 and 2). Portions of the site (such as mesic toe slopes on hillsides) may be dominated by exotic species.
    - In persistently heavily grazed prairies and savannas, dominance shifts to native graminoids that are more resilient to heavy grazing, including species of grama grass (*Bouteloua* spp.), three-awn (*Aristida* spp.), Scribner's panic grass (*Dichanthelium oligosanthes),* Wilcox's panic grass *(Dichanthelium wilcoxianum),* western wheatgrass *(Pascopyrum smithii)*, purple lovegrass (*Eragrostis spectabilis)*, and, in shaded areas, Pennsylvania sedge (*Carex pensylvanica*). Grass species that are less resilient to persistent heavy grazing may be somewhat sparse, including prairie dropseed (*Sporobolus heterolepis),* big bluestem *(Andropogon gerardii),* Indian grass *(Sorghastrum nutans),* switchgrass *(Panicum virgatum),* junegrass *(Koeleria pyramidata)*, and Canada wild rye (*Elymus canadensis)*.
    - In savannas, enough structure remains so that the community is still recognizable as savanna. In most cases, succession to woodland/forest is progressing, and often is quite far along, although some patches still retain the native prairie flora of open savanna.
    - Invasive species are often abundant, including smooth brome (*Bromus inermis)*, Kentucky bluegrass, Canada bluegrass, timothy *(Phleum pratense),* black medic *(Medicago lupulina),* red clover *(Trifolium repens),* or redtop (*Agrostis gigantea)* (Table 3).
    - In persistently overgrazed sites, the ground surface is compacted and slopes are terraced.

4) What is a D-rank Occurrence?:

- Site has been highly degraded and the native vegetation has been severely altered, but enough native species are present that the occurrence can still be recognized as the community type it was prior to being degraded. D-rank occurrences are considered poor-quality prairie and typically have the following conditions:
    - Open areas in the site are dominated by exotic species, typically smooth brome, Kentucky bluegrass, Canada bluegrass, quackgrass (*Elymus repens)*, and/or redtop (Table 3), but native graminoids are common enough for the occurrence to be recognized as native prairie or savanna and not old field. Buckthorn (*Rhamnus cathartica)* may be abundant in shaded portions of savannas.
    - Overall native species richness is very low.
    - Generally a few, highly disturbance-tolerant increaser species, such as Canada goldenrod (*Solidago canadensis),* wolfberry *(Symphoricarpos occidentalis),* or rough fleabane (*Erigeron strigosus)* are highly abundant (Table 2). Pennsylvania sedge and armed shrubs often dominate shaded areas in savannas.
    - In overgrazed sites, the ground surface is often highly compacted and slopes are often highly terraced.
    - D-rank occurrences include sites dominated by native grasses where herbicide has repeatedly been applied and all forbs and shrubs are absent.

5) Mapping notes:

- Mesic Oak Savanna: map all occurrences, as this community is all but extirpated from the state.
- All other communities:
    - Map A- to D-rank occurrences that are 5 acres or larger.
    - Map smaller occurrences if they meet one of the following exceptions:
        - It is within a larger area of native plant communities important for conservation action.
        - It is part of a series of small occurrences—such as numerous small dry prairies along a valley slope.
        - It is habitat for a rare species.
        - It is one of very few occurrences of the type in an LTA.
        - It is A- or B-rank.
- On rare occasions, a reconstructed or restored prairie may be sufficiently diverse—consisting of species and ecotypes appropriate for its location—to be ranked as a native plant community. If such a site is virtually indiscernible from a native occurrence, it may be mapped and ranked according to the criteria in these guidelines, but polygon attributes and other database entries should note that it is restored/reconstructed.
- Generally, small (2-acre) dry prairie openings in savanna-dominated landscapes are mapped as savanna, though larger areas of prairie have been mapped as dry prairie apart from adjacent savanna.

Revised by Fred Harris and Robert Dana **May 2014**

Reference:

Weaver, J.E. 1954. North American Prairie. Johansen Publishing Co., Lincoln, NE.

Table 1. Examples of grazing decreasers[1] in Upland Prairie System communities:

Common Name	Scientific Name	Limited Distribution
Glaucous false dandilion	*Agoseris glauca*	Western MN
Prairie wild onion	*Allium stellatum*	
Leadplant	*Amorpha canescens*	
Fragrant false indigo	*Amorpha nana**	Rarely seen in SW MN
Big bluestem	*Andropogon gerardii*	
Bearberry	*Arctostaphylos uva-ursi*	Dunes, sand-gravel
Woolly milkweed	*Asclepias lanuginosa*	Dry prairie
Oval-leaved milkweed	*Asclepias ovalifolia**	
Showy milkweed	*Asclepias speciosa*	Wet to mesic prairie, Western MN
Prairie milk-vetch	*Astragalus adsurgens*	
Canada milkvetch	*Astragalus canadensis*	
Ground plum	*Astragalus crassicarpus*	
False boneset	*Brickellia eupatorioides*	
Toothed-leaved evening primrose	*Calylophus serrulatus*	
American New Jersey tea	*Ceanothus americanus*	Southern MN
Irish moss	*Cetraria arenaria (a lichen)**	
Reindeer lichens	*Cladina spp.**	
Bird's foot coreopsis	*Coreopsis palmata**	Southern MN & S end of NW MN
White prairie clover	*Dalea candida var. candida**	
Purple prairie clover	*Dalea purpurea*	
Silky prairie clover	*Dalea villosa**	Dunes
Canada tick trefoil	*Desmodium canadense*	
Leiberg's panic grass	*Dichanthelium leibergii**	
Narrow-leaved purple coneflower	*Echinacea angustifolia*	Western MN
Canada wild rye	*Elymus canadensis*	
Rattlesnake master	*Eryngium yuccifolium**	Southeastern MN
Blanket-flower	*Gaillardia aristata*	Sand-gravel prairie in NW MN
Bottle gentian	*Gentiana andrewsii*	
Downy gentian	*Gentiana puberulenta*	
Stiff gentian	*Gentianella quinquefolia*	SE MN
Canada frostweed	*Helianthemum canadense**	SE MN, sand-gravel savanna
Stiff sunflower	*Helianthus pauciflorus*	
Ox-eye	*Heliopsis helianthoides*	
Porcupine grass	*Hesperostipa spartea*	
Alumroot	*Heuchera richardsonii*	
Long-bearded hawkweed	*Hieracium longipilum*	SE MN sand-gravel prairie
Rough blazing star	*Liatris aspera*	
Cylindric blazing star	*Liatris cylindracea*	SE MN & Ordway Prairie
Northern plains blazing star	*Liatris ligulistylis**	Wet-mesic prairie
Wood lily	*Lilium philadelphicum**	
Plains muhly	*Muhlenbergia cuspidata*	Dry hill prairie
Rhombic-petaled evening primrose	*Oenothera rhombipetala*	SE MN dunes
Silver-leaved scurfpea	*Pediomelum argophyllum*	
Prairie turnip	*Pediomelum esculentum*	
Prairie phlox	*Phlox pilosa**	Southern MN & southern end of UPn23
Tall cinquefoil	*Potentilla arguta*	
Smooth rattlesnakeroot	*Prenanthes racemosa**	
Little bluestem	*Schizachyrium scoparium*	
Rock spikemoss	*Selaginella rupestris**	Dunes, rock outcrops
Compass plant	*Silphium laciniatum**	Southernmost 2-3 tiers of counties in MN
Upland white aster	*Solidago ptarmicoides*	
Showy goldenrod	*Solidago speciosa*	
Indian grass	*Sorghastrum nutans*	
Prairie dropseed	*Sporobolus heterolepis**	
Western spiderwort	*Tradescantia occidentalis*	Dunes, sand-gravel prairie
Heart-leaved alexanders	*Zizia aptera**	

[1] species that appear to decrease in abundance with persistent moderate to heavy grazing

* species that appear to be the most sensitive to grazing

Table 2. Examples of grazing increasers[2] in Upland Prairie System communities:

Yarrow	*Achillea millefolium*	Fall witch grass	*Digitaria cognata* (E MN)
Rough false foxglove	*Agalinus aspera*	Ridge-seeded spurge	*Euphorbia glyptosperma/geyeri*
Ragweed species	*Ambrosia spp.*	Grass-leaved goldenrod	*Euthamia graminifolia*
Western androsace	*Androsace occidentalis*	Western sunflower	*Helianthus occidentale* (SE MN)
Pasqueflower	*Anemone patens var. multifida*	Hairy golden aster	*Heterotheca villosa*
Pussytoes species	*Antennaria spp.*	Baltic rush	*Juncus arcticus v. balticus*(w.mesic)
Three-awn species	*Aristida spp.*	Eastern red cedar	*Juniperus virginiana*
Sage species	*Artemisia spp.*	Stiffstem flax	*Linum rigidum*
Whorled milkweed	*Asclepias verticillata*	Green-flowered peppergrass	*Lepidium densiflorum*
Sideoats grama	*Bouteloua curtipendula*	Skeletonweed	*Lygodesmia juncea* (W MN)
Blue grama	*Bouteloua gracilis*	Wild bergamot	*Monarda fistulosa*
Hairy grama	*Bouteloua hirsuta*	Horsemint	*Monarda punctata* (dunes SE MN)
Threadleaf sedge	*Carex filifolia* (dry prairie)	Green needle grass	*Nasella viridula*
Sun-loving sedge	*Carex inops*	Common evening primrose	*Oenothera biennis*
Pennsylvania sedge	*Carex pensylvanica* (shade)	False gromwell	*Onosmodium molle*
Dry spike sedge	*Carex siccata* (dunes, sand-gravel)	White beard tongue	*Penstemon albidus* (W MN)
Spikerush sedge	*Carex duriuscula* (dry prairie)	Slender beard tongue	*Penstemon gracilis*
Field chickweed	*Cerastium arvense*	Pennsylvania cinquefoil	*Potentilla pensylvanica* (W MN)
Nuttall's groundrose	*Chamaerhodos erecta*(NW MN, snd-g)	Virginia mountain mint	*Pycnanthemum virginianum*
Toadflax	*Comandra umbellata*	Prairie coneflower	*Ratibida columnifera* (W MN)
Slender nut-sedge	*Cyperus lupulinus* (dunes)	Gooseberry species	*Ribes spp.* (shade)
Schweinitz's nut-sedge	*Cyperus schweinitzi* (dunes)	Blackberry species	*Rubus spp.* (shade)
Scribner's panic grass	*Dichanthelium oligosanthes*	Canada goldenrod	*Solidago canadensis*
Wilcox's panic grass	*Dichanthelium wilcoxianum* (sand)	Missouri goldenrod	*Solidago missouriensis*
Yellow whitlow grass	*Draba nemorosa*	Gray goldenrod	*Solidago nemoralis*
Carolina whitlow grass	*Draba reptans*	Stiff goldenrod	*Solidago rigida*
Western wheatgrass	*Pascopyrum smithii* (W MN)	Rough dropseed	*Sporobolus compositus*
Field horsetail	*Equisetum arvense*	Sand dropseed	*Sporobolus cryptandrus* (dunes)
Daisy fleabane	*Erigeron strigosus*	Wolfberry	*Symphoricarpos occidentalis*
Flowering spurge	*Euphorbia corollata* (SE MN)	Heath aster	*Symphytotrichum ericoides*
Ridge-seeded spurge	*Euphorbia glyptosperma/geyeri*	Hoary vervain	*Verbena stricta*
Grass-leaved goldenrod	*Euthamia graminifolia*	Ironweed	*Vernonia faciculata* (wet-mesic)
Prairie smoke	*Geum triflorum*	Prairie bird's foot violet	*Viola palmata var. pedatifida*
Mock pennyroyal	*Hedeoma hispida* (SE MN)	Prickly ash	*Zanthoxylum americanum* (shade)
Giant sunflower	*Helianthus gigantea/grosseserratus*		

[2] species that appear to increase in abundance with persistent moderate to heavy grazing

Table 3. Examples of invasive species in Upland Prairie System communities:

Redtop	*Agrostis stolonifera/ gigantea*	Curly cup gumweed	*Grindelia squarrosa*
Absinthe wormwood	*Artemisia absinthium*	Stickseed species	*Lappula spp.*
Hoary alyssum	*Berteroa incana*	Butter-and-eggs	*Linaria vulgaris*
Smooth brome	*Bromus inermis*	Tartarian honeysuckle	*Lonicera tatarica*
Japanese brome	*Bromus japonicus*	Black medic	*Medicago lupulina*
Cheatgrass	*Bromus tectorum*	Sweet clover species	*Melilotus spp.*
Plumeless thistle	*Carduus acanthoides*	Wild parsnip	*Pastinaca sativa*
Nodding (musk) thistle	*Carduus nutans*	Timothy	*Phleum pratense*
Spotted knapweed	*Centaurea maculosa*	Common plantain	*Plantago major*
Canada thistle	*Cirsium arvense*	Pursh's plantain	*Plantago patagonica*
Bull thistle	*Cirsium vulgare*	Canada bluegrass	*Poa compressa*
Horseweed	*Conyza canadensis*	Kentucky bluegrass	*Poa pratensis*
Crown vetch	*Coronilla varia*	Buckthorn	*Rhamnus cathartica*
Orchard grass	*Dactylis glomerata*	Russian thistle	*Salsola iberica/ tragus*
Wild carrot	*Daucus carota*	Dandilion	*Taraxacum spp.*
Russian olive	*Eleagnus angustifolia*	Clover species	*Trifolium spp.*
Quack grass	*Elymus repens*	Stinging nettle	*Urtica dioica*

Wildlife Friendly Erosion Control

Wildlife entanglement in, and death from, plastic netting and other man-made plastic materials has been documented in birds (Johnson, 1990; Fuller-Perrine and Tobin, 1993), fish (Johnson, 1990), mammals (Derraik, 2002), and reptiles (Barton and Kinkead, 2005; Kapfer and Paloski, 2011). Yet the use of these materials continues in many cases, without consideration for wildlife impacts. Plastic netting is frequently used for erosion control during construction and landscape projects and can negatively impact terrestrial and aquatic wildlife populations as well as snag in maintenance machinery resulting in costly repairs and delays. However, wildlife friendly erosion control materials do exist, and are sold by several large erosion control material companies. Below are a few key considerations before starting a project.

Know Your Options

- Remember to consult with local natural resource authorities (DNR, USFWS, etc.) before starting a project. They can help you identify sensitive areas and rare species.
- When erosion control is necessary, select products with biodegradable netting (natural fiber, biodegradable polyesters, etc.).
- DO NOT use products that require UV-light to biodegrade (also called, "photodegradable"). These do not biodegrade properly when shaded by vegetation.
- Use netting with rectangular shaped mesh (not square mesh).
- Use netting with flexible (non-welded) mesh.

Woven 100% natural fiber erosion control materials being utilized along a central Minnesota stream. ©MN DNR, Nick Proulx

Know the Landscape

- It is especially important to use wildlife friendly erosion control around:
    - Areas with threatened or endangered species.
    - Wetlands, rivers, lakes, and other watercourses.
    - Habitat transition zones (prairie – woodland edges, rocky outcrop – woodland edges, steep rocky slopes, etc.).
    - Areas with threatened or endangered species.
- Use erosion mesh wisely, not all areas with disturbed ground necessitate its use. Do not use plastic mesh unless it is specifically required. Other erosion control options exist (open weave textile (OWT), rolled erosion control products (RECPs) with woven natural fiber netting).

Fish trapped and killed by welded-plastic square erosion control mesh improperly placed along a small central Minnesota stream. Photo courtesy of Ben Lowe.

Protect Wildlife

- Avoid photodegradable erosion control materials where possible.
- Use only biodegradable materials (typically made from natural fibers), preferably those that will biodegrade under a variety of conditions.
- Wildlife friendly erosion control material costs are often similar to conventional plastic netting.

Plains Gartersnake trapped and killed by welded-plastic square erosion control mesh placed along a newly installed cement culvert in southern Minnesota. ©MN DNR, Carol Hall

A small vole that was strangled and killed by plastic erosion control material with welded and square mesh. Photo taken in southern Minnesota and provided courtesy of Tom Jessen.

Literature Referenced

Barton, C. and K. Kinkead. 2005. Do erosion control and snakes mesh? Soil and Water Conservation Society 60:33A-35A.

Derraik, J.G.B. 2002. The pollution of the marine environment by plastic debris: a aeview. Marine Pollution Bulletin 44:842-852.

Fuller-Perrine, L.D., and M.E. Tobin. 1993. A method for applying and removing bird-exclusion netting in commercial vineyards. Wildlife Society Bulletin 21:47-51.

Johnson, S.W. 1990. Distribution, abundance, and source of entanglement debris and other plastics on Alaskan beaches, 1982-1988. Proceedings of the Second International Conference on Marine Debris 331-348.

Kapfer, J. M., and R. A. Paloski. 2011. On the threat to snakes of mesh deployed for erosion control and wildlife exclusion. Herpetological Conservation and Biology 6:1-9.

Minnesota Historical Society

STATE HISTORIC PRESERVATION OFFICE

Using the Power of History to Transform Lives
PRESERVING › SHARING › CONNECTING

April 20, 2016

Mr. Jay Regnier
Nobles 2 Power Partners
618 2nd Avenue SE
Minneapolis, MN 55414

RE: Nobles 2 Wind Farm
Murray and Nobles County
MnHPO No. 2016-1984

Dear Mr. Regnier:

Thank you for the opportunity to review and comment on the above project. Information received in our office on 24 March 2016 has been reviewed pursuant to the responsibilities given the Minnesota Historical Society by the Minnesota Historic Sites Act and the Minnesota Field Archaeology Act.

Due to the nature and location of the proposed project, we recommend that a Phase IA archaeological assessment be completed. If, as a result of this assessment, a Phase I archaeological survey is recommended, this survey should be completed. The survey must meet the requirements of the Secretary of the Interior's Standards for Identification and Evaluation, and should include an evaluation of National Register eligibility for any properties that are identified. For a list of consultants who have expressed an interest in undertaking such surveys, please visit the website **preservationdirectory.mnhs.org**, and select "Archaeologists" in the "Search by Specialties" box.

We will reconsider the need for survey if the project area can be documented as previously surveyed or disturbed. Any previous survey work must meet contemporary standards. **Note:** plowed areas and right-of-way are not automatically considered disturbed. Archaeological sites can remain intact beneath the plow zone and in undisturbed portions of the right-of-way.

Please note that this comment letter does not address the requirements of Section 106 of the National Historic Preservation Act of 1966 and 36CFR800, Procedures of the Advisory Council on Historic Preservation for the protection of historic properties. If this project is considered for federal assistance, or requires a federal permit or license, it should be submitted to our office by the responsible federal agency.

If you have any questions regarding our review of this project, please contact Kelly Gragg-Johnson, Review and Compliance Specialist, at (651) 259-3455.

Sincerely,

Sarah J. Beimers

Sarah J. Beimers, Manager
Government Programs and Compliance

Minnesota Department of Transportation
District 7
2151 Bassett Drive
Mankato, MN 56001

March 28, 2016

Mr. Jay Regnier P.Eng., Director of Project Development
Nobles 2 Power Partners, LLC
618 – 2nd Avenue SE
Minneapolis, MN 55414

RE: 250-300 MW Nobles 2 Wind Farm

Dear Mr. Regnier,

Thank you for providing MnDOT District 7 with the opportunity to comment on the proposed wind farm project in Nobles County, MN.

The proposed project area includes a section of Minnesota Trunk Highway 91. MnDOT will be resurfacing this segment of highway from Interstate 90 to the Nobles/Murray county line. The project is a mill and overlay and includes the replacement of two box culverts (Bridge #8793 at the county line and Bridge #1503 approximately 10 miles south of the county line). Both of the box culvert bridges are outside of the proposed project area; however, it could impact delivery of the wind turbine components. Timing of the project is still being determined, but will likely occur between late-summer/Fall of 2018 or summer of 2019.

Also, please keep the following conditions in mind:

1. All work must be completed outside of the MnDOT right-of-way
2. Wind turbines should be set back far enough from Highway 91 so that if a turbine were to fall, no piece of the wind turbine would land on the trunk highway
3. Any work within the MnDOT right-of way (for example, modification to existing accesses or construction of potential new temporary accesses) would require a permit from MnDOT

Thank you again for the opportunity to provide comment. Do not hesitate to contact our office if you have any questions or require additional information.

Sincerely,

Greg Ous, P.E.
District Engineer

cc: Ronda Allis, MnDOT {via email}
Marc Fischer, MnDOT {via email}

PUBLIC WORKS
960 Diagonal Road
PO Box 187
Worthington, MN 56187-0187

Phone: 507-295-5322
Fax: 507-372-8348
PublicWorks@co.nobles.mn.us

March 21, 2016

Jay Regnier, P.E.
Director of Project Development
618 2nd Ave. SE
Minneapolis, MN 55414

Dear Mr. Regnier,

Nobles County Environmental Services is excited to receive your request for comments for the Nobles 2 Wind Farm project. We have been working for the past year with development manager Ryan Ammermann to permit the necessary meteorological towers for the Environmental Reviews required by the State for this project.

Nobles County is experienced in working with the Public Utilities Commission on large wind energy conversion systems (LWECS). Nobles County Environmental Services believes the statewide standards for permitting such as setbacks for wind access, homes, noise standards, public roads, drain tile avoidance and repair, wetlands buffers, site determination, permittee responsibilities, surveys, decommissioning plans, reports, and additional standards adequately address the concerns of the our residents.

Nobles County's Planning and Zoning Commission looks forward to participating at the Minnesota Public Utilities Commission's meetings held for the draft permit. If we can be of assistance to you in the development of your project, please do not hesitate to contact us.

Sincerely,

Wayne Smith

Wayne Smith
Environmental Services Director

PUBLIC WORKS
960 Diagonal Road
PO Box 187
Worthington, MN 56187-0187

Phone: 507-295-5322
Fax: 507-372-8348
PublicWorks@co.nobles.mn.us

April 19, 2016

Jay Regnier, PE
Director of Project Development
618 2nd Avenue SE
Minneapolis, MN 55414

Dear Mr. Regnier:

Re: Nobles 2 Wind Farm

Thank you for the opportunity for Nobles County to comment on the proposed wind farm in the north part of the County.

The County Board supports the project and feels it will provide a positive economic impact on Nobles County.

I have attached a concern regarding the Minnesota ARMOUR Radio system that is part of the emergency communication system. It is important that no towers be built in the line of sight between the towers. The wind towers may disrupt the communications signal.

Since the permitting will be going through the Minnesota Public Utilities Commission, Nobles County planning and zoning will not be directly involved in issuing a permit for the towers. There may be the need for a land use permit for a laydown site depending on the location. Authorization may also be needed for power line installations depending the kilowatt capacity of the line. You will also be required to obtain E-911 addresses for each tower location. You may contact Wayne Smith, Environmental Services Director at 507-295-5322 for additional information on land use requirements.

The project will also require permits for the installation or modifications of road approaches, overweight and over dimension loads to transport equipment and materials over the County Highway system. Also involved are the roadway maintenance and repair, county ditch system repairs and the movement of heavy erection cranes across roadways. Utility permits are also

required for the placement of power lines in or over the road right of way. These items are covered under a project development agreement. I have already sent an example document electronically for you to review.

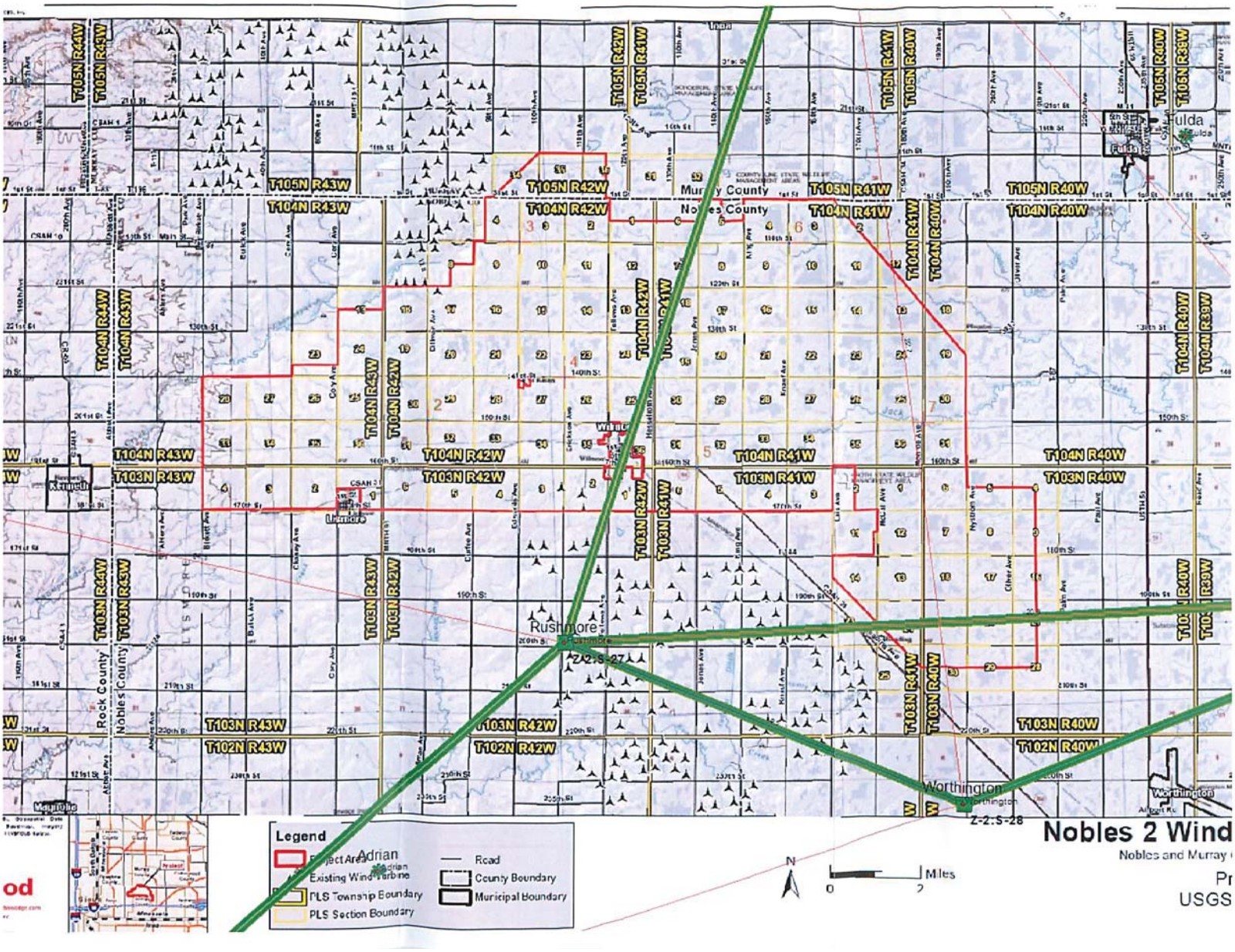
Nobles County looks forward to working with you on the development of this project. Please contact me if you have any questions.

Sincerely,

Stephen P. Schnieder

Stephen P. Schnieder, PE
Public Works Director

Enclosure



Nobles 2 Wind

Nobles and Murray

Pr

USGS

From: Catherine Wegehaupt <catherine.wegehaupt@noblesswcd.org>
Sent: Thursday, April 28, 2016 3:10 PM
To: Kelly Kunst
Subject: RE: Nobles 2 Wind Farm-Nobles and Murray counties, MN request for comment
Attachments: HLWD Project Map.jpg

Kelly,

I have attached a map of the most recent projects we have completed. The projects shown on the map don't include any federal restoration projects or filter strips along streams. I hope this helps give you an idea of our project locations. If you have any more questions, let me know.

Thanks,

Catherine Wegehaupt
Watershed Technician
Heron Lake Watershed District
1567 McMillan St.
Worthington, MN 56187
507-376-9150 Ext. 111

From: Catherine Wegehaupt [mailto:catherine.wegehaupt@noblesswcd.org]
Sent: Wednesday, April 27, 2016 12:42 PM
To: 'Kelly.Kunst@westwoodps.com' <Kelly.Kunst@westwoodps.com>
Subject: RE: Nobles 2 Wind Farm-Nobles and Murray counties, MN request for comment

Kelly,

I tried reaching you at your direct line and left a message. I had a question about the information you needed. We do have a GIS layer of the watershed area. Would it be helpful to send this to you in an email? Also, if you need to find any permit forms or information, that is located on our website under the permit tab. Let me know what information you are looking for and I'd be happy to help.

Thanks,

Catherine Wegehaupt
Watershed Technician
Heron Lake Watershed District
1567 McMillan St.
Worthington, MN 56187
507-376-9150 Ext. 111
Website: www.hlwdonline.org

From: Jan Voit [mailto:jan.voit@mysmbs.com]
Sent: Wednesday, April 27, 2016 11:02 AM
To: 'Catherine Wegehaupt' <catherine.wegehaupt@noblesswcd.org>

Subject: FW: Nobles 2 Wind Farm-Nobles and Murray counties, MN request for comment
Importance: High

From: Kelly Kunst [mailto:Kelly.Kunst@westwoodps.com]
Sent: Tuesday, April 26, 2016 1:42 PM
To: Jan Voit <jan.voit@mysmbs.com>
Cc: Jay Regnier <jay.regnier@prcwind.com>
Subject: RE: Nobles 2 Wind Farm-Nobles and Murray counties, MN request for comment

Hi Jan,
I am writing to follow up on some information about the HLWD restoration sites that I understand are located within the Project Area of the proposed Noble 2 Wind Project. On April 14th I sent a letter, on behalf of Nobles 2 Power Partners, LLC, requesting comment on the Nobles 2 Wind Project. Could you review the Nobles 2 Project boundary in that request letter and provide GIS data of what, if any, HLWD restoration sites exist within the Nobles 2 Project Area?
Let me know if this is possible or if you have any questions.
Thanks in advance.

Kelly Kunst
SENIOR ENVIRONMENTAL SCIENTIST
kelly.kunst@westwoodps.com

Direct (952) 906-7421
Main (952) 937-5150
Cell (952) 491-1077

Westwood Multi-Disciplined Surveying & Engineering
7699 Anagram Drive | Eden Prairie, MN 55344

westwoodps.com
(888) 937-5150

From: Jan Voit [mailto:jan.voit@mysmbs.com]
Sent: Tuesday, April 19, 2016 8:07 AM
To: Kelly Kunst
Subject: RE: Nobles 2 Wind Farm-Nobles and Murray counties, MN request for comment

Kelly,

Our technician is out of the office until tomorrow. I will speak with her about this when she returns.

Jan Voit
Heron Lake Watershed District
PO Box 345
Heron Lake, MN 56137
Phone: 507-793-2462
Email: jan.voit@mysmbs.com
Website: www.hlwdonline.org
Office hours: Monday – Thursday

WATERSHED ASSISTANCE THROUGH EDUCATION & RESOURCES

HERON LAKE WATERSHED DISTRICT

From: Kelly Kunst [mailto:Kelly.Kunst@westwoodps.com]
Sent: Thursday, April 14, 2016 4:06 PM
To: jan.voit@mysmbs.com
Cc: Jay Regnier <jay.regnier@prcwind.com>
Subject: Nobles 2 Wind Farm-Nobles and Murray counties, MN request for comment

Ms. Voit,
On behalf of Nobles 2 Power Partners, LLC, attached is a letter and site location map requesting comment on the proposed Nobles 2 Wind Farm located in Nobles and portions of Murray County, MN.
Regards,

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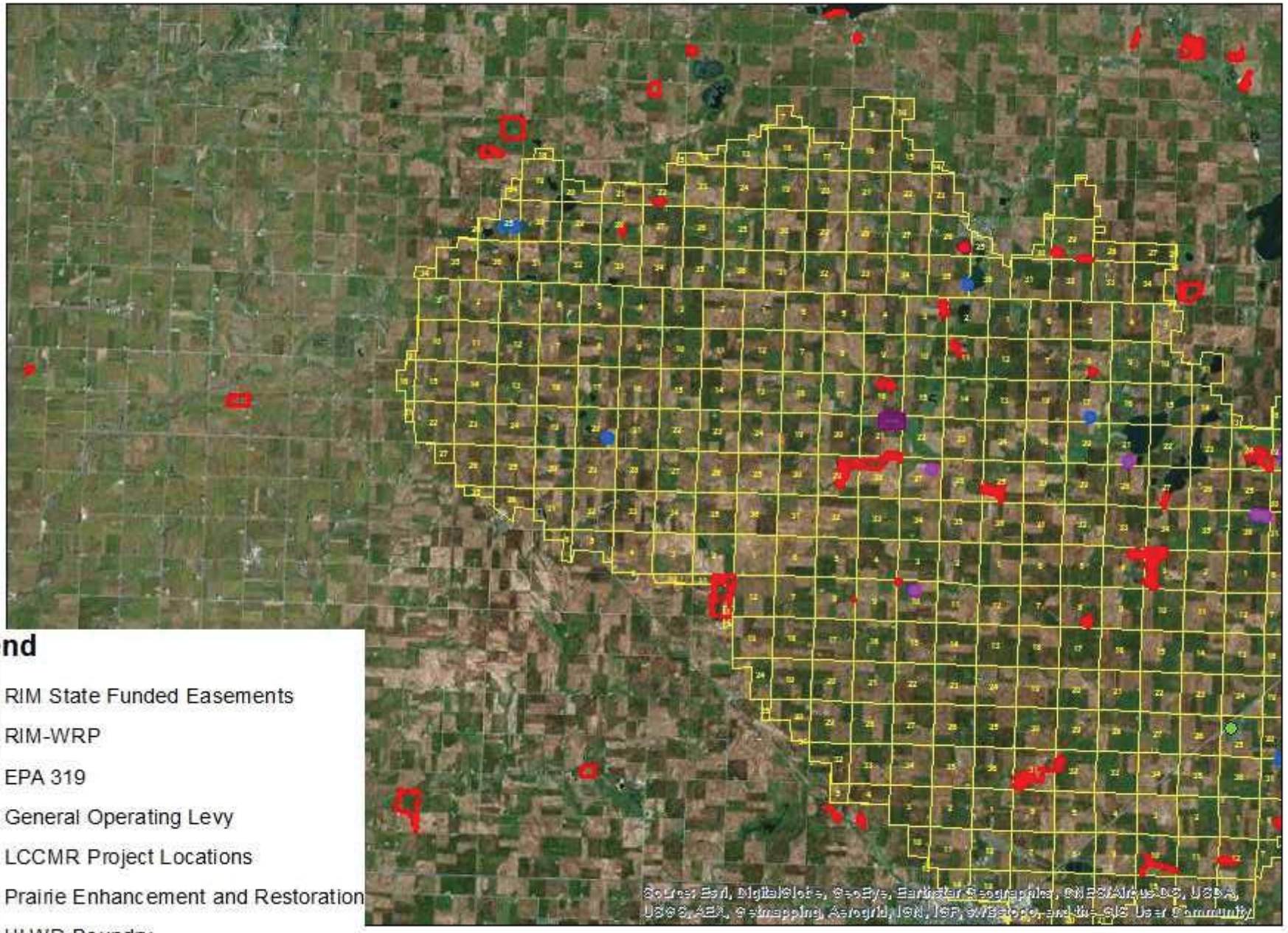
HLWD Projects



From: Catherine Wegehaupt <catherine.wegehaupt@noblesswcd.org>
Sent: Tuesday, May 03, 2016 10:35 AM
To: Kelly Kunst; 'Jan Voit'
Subject: RE: Nobles 2 Wind Farm-HLWD Projects
Attachments: Bloom 20.jpg

Kelly,

I have attached a map of the Bloom project. The project is not a restoration site but a terrace project that is located on crop land. I am assuming this shouldn't have any effect on your project area.

I am not a federal employee and wouldn't be able to provide you with any of their information. You can contact FSA or individual landowners for these details. Also, you could check with US Fish and Wildlife Service for any of their restoration sites. I've listed contact information below.

Nobles County FSA: 507-376-6194

Windom US Fish and Wildlife Service: 507-831-2220

Thanks,

Catherine Wegehaupt
Watershed Technician
Heron Lake Watershed District
1567 McMillan St.
Worthington, MN 56187
507-376-9150 Ext. 111

From: Kelly Kunst [mailto:Kelly.Kunst@westwoodps.com]
Sent: Tuesday, May 03, 2016 8:45 AM
To: Catherine Wegehaupt <catherine.wegehaupt@noblesswcd.org>; Jan Voit <jan.voit@mysmbs.com>
Cc: Jay Regnier <jay.regnier@prcwind.com>
Subject: RE: Nobles 2 Wind Farm-HLWD Projects

Hi Catherine,
I looked over the map you sent indicating HLWD projects. Based on your map it looks like there is just one HLWD project (indicated as a LCCMR Project) in S20, T104, R41, southeast of the Bloom Waterfowl Production Area. Could you provide some general information as to the nature of this project, size and more precise location so we can site the Nobles project accordingingly?

Also, if/when you provide a formal response to our request for comment on the Nobles 2 project, could you indicate whether there are any other federal restoration projects within the Nobles 2 boundary that we should be aware of (because you indicated those were not included on the map).
Thanks again for your help on this.
Regards,

Kelly Kunst
SENIOR ENVIRONMENTAL SCIENTIST
kelly.kunst@westwoodps.com

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Website: www.hlwdonline.org

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Importance: High

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HERON LAKE WATERSHED DISTRICT

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SENIOR ENVIRONMENTAL SCIENTIST
kelly.kunst@westwoodps.com

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ENRTF and LCCMR

WATER
Watershed Assistance Through Education & Resources

0 350 700 1,400 2,100 2,800 Feet

N

Broadbase Terrace
Nobles County, MN
Blooom Township, Section 20

Ryan Grohnke

From: Jay Regnier <jay.regnier@prcwind.com>
Sent: Wednesday, March 30, 2016 11:08 AM
To: Kelly Kunst
Subject: Contact from Gary Hornerman

Hi Kelly,

I was contacted via phone by Gary Hornerman, Chairman of the Larkin Township Board on March 24, 2016. He was wondering where the turbines were going to go in Larkin Township. I let him know that we did not have a turbine layout at this time but that we would be working on this in the coming weeks and I would be sure to let him know once we have something to share.

Cheers,

Jay Regnier P.Eng.

Director of Project Development
Project Resources Corporation
Tel: 612-331-1486 (x4)
Cell: 612-402-9226
jay.regnier@prcwind.com
www.prcwind.com