

Appendices

Appendix A
Agency Correspondence



MINNESOTA HISTORICAL SOCIETY
STATE HISTORIC PRESERVATION OFFICE

March 6, 2007

Ms. Sarah Emery
HDR Engineering
701 Xenia Avenue South, Suite 600
Minneapolis, MN 55416

RE: PPM Energy Moraine II Wind Project
Murray and Pipestone Counties
SHPO Number: 2007-1140

Dear Ms. Emery:

Thank you for the opportunity to review and comment on the above project. It has been reviewed pursuant to the responsibilities given the Minnesota Historical Society by the Minnesota Historic Sites Act and the Minnesota Field Archaeology Act.

We believe that there is a good probability that unreported archaeological properties might be present in the project area. Therefore, we recommend that a survey of the area 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 your information, we have enclosed a list of consultants who have expressed an interest in undertaking such surveys.

If the project area can be documented as previously disturbed or previously surveyed, we will re-evaluate the need for survey. Previously disturbed areas are those where the naturally occurring post-glacial soils and sediments have been recently removed. Any previous survey work must meet contemporary standards.

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 license or permit, it should be submitted to our office with reference to the appropriate federal agency.

If you have any questions on our review of this project, please contact us at (651) 259-3455.

Sincerely,

Dennis A. Gimmestad
Government Programs and Compliance Officer

Enclosure: List of Consultants



Minnesota Department of Natural Resources

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

St. Paul, Minnesota 55155-40__

Phone: (651) 259-5109 Fax: (651) 296-1811 E-mail: lisa.joyal@dnr.state.mn.us

RECEIVED

FEB 16 2007

HDR Engineering, Inc.

February 13, 2007

Ms. Sarah Emery
HDR Engineering
701 Xenia Avenue, Suite 600
Minneapolis, MN 55416

Re: Request for Natural Heritage information for vicinity of proposed Moraine II Wind Project

NHNRP Contact #: ERDB 20070526

County	Township (N)	Range (W)	Section(s)
Murray	108	43	30-35
	107	43	2-10, 15-22, 27-34
	106	43	4-6
Pipestone	108	44	22-27, 35, 36
	107	44	1, 12, 13, 24, 25

Dear Ms. Emery,

The Minnesota Natural Heritage database has been reviewed to determine if any rare plant or animal species or other significant natural features are known to occur within an approximate one-mile radius of the area indicated on the map enclosed with your information request. Based on this review, there are 4 known occurrences of rare species or native plant communities in the area searched (for details, please see the enclosed database printouts and the explanation of selected fields). However, based on the nature and location of the proposed project I do not believe it will affect these rare features.

- Please note, however, that an area that has been identified by the Minnesota County Biological Survey as a "Site of Biodiversity Significance" is located in Section 1 of T107N R44W (please see the enclosed map). "Sites of Biodiversity Significance" are areas with varying levels of native biodiversity that may contain high quality native plant communities, rare plants, rare animals, and/or animal aggregations. This particular site contains Dry Hill Prairie native plant communities and a portion of the Woodstock Wildlife Management Area (WMA). Because more than 99% of the prairie that was present in the state before settlement has 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. As such, we highly recommend that turbines not be placed on or within at least ¼ mile, and preferably ½ mile, of native prairie tracts.
- In addition, because Murray County has not yet been surveyed by the Minnesota County Biological Survey Program, there may be native prairie remnants near or within the project site that have not been identified. We are particularly concerned with areas within Sections 20 & 21 of T107N R43W that have been identified as potential prairie habitat by our staff botanist. These areas will be surveyed during the 2007 field season. Please contact me after the 2007 field season for further information if turbines will be sited in the vicinity of these two sections.
- Four WMAs are located within the project study area. Shapefiles of the WMA boundaries can be downloaded from the DNR's Data Deli website at <http://deli.dnr.state.mn.us/index.html>. Please contact the Area Wildlife Manager, Wendy Krueger at (507) 836-6919 to discuss any concerns

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



she may have about turbines being sited near the WMAs.

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

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

The enclosed results of the database search are provided in two formats: short record report and long record report. To control the release of locational information, which might result in the damage or destruction of a rare element, both printout formats are copyrighted.

The short record report provides rare feature locations only to the nearest section, and may be reprinted, unaltered, in an Environmental Assessment Worksheet, municipal natural resource plan, or report compiled by your company for the project listed above. If you wish to reproduce the short record report for any other purpose, please contact me to request written permission. **The long record report includes more detailed locational information, and is for your personal use only. If you wish to reprint the long record report for any purpose, please contact me to request written permission.**

Please be aware that review by the Natural Heritage and Nongame Research Program focuses only on *rare natural features*. It does not constitute review or approval by the Department of Natural Resources as a whole. If you require further information on the environmental review process for other natural resource-related issues, you may contact your Regional Environmental Assessment Ecologist, Todd Kolander, at (507) 359-6073.

An invoice in the amount of \$128.09 will be mailed to you under separate cover within two weeks of the date of this letter. You are being billed for map and database search and staff scientist review. Thank you for consulting us on this matter, and for your interest in preserving Minnesota's rare natural resources.

Sincerely,



Lisa A. Joyal
Endangered Species Environmental Review Technician

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

Minnesota Natural Heritage & Nongame Research Program
Short Record Report of Element Occurrences within 1 mile radius of:
 Moraine II Wind Project
 Multiple TRS
 Murray and Pipestone Counties

Element Name and Occurrence Number	Federal Status	MN Status	State Rank	Global Rank	Last Observed Date
Murray County, MN					
<u>Colonial Waterbird Nesting Area</u> (Colonial Waterbird Nesting Site) #938 Location Description: T108N R43W S28, T108N R43W S17, T108N R43W S16, T108N R43W S20, T108N R43W S29, T108N R43W S21, T108N R43W S22, T108N R43W S27		N/A	SNR	GNR	1993-09-05
Pipestone County, MN					
<u>Cyripedium candidum</u> (Small White Lady's-slipper) #84 Location Description: T108N R44W S22, T108N R44W S15		SPC	S3	G4	1962-05-30
<u>Dry Hill Prairie</u> (Southern) Type #158 Location Description: T108N R44W S28, T108N R44W S33		N/A	S2	GNR	1984-07-24
<u>Sterna forsteri</u> (Forster's Tern) #9 Location Description: T107N R44W S12, T107N R44W S2, T107N R44W S1, T107N R44W S11		SPC	S3B	G5	1976

Records Printed = 4

The Natural Heritage & Nongame Research Program recently adopted a new database system called Biotics. As a result of this change, the layout and contents of the database reports have been revised. Many of the fields included in the new reports are the same or similar to the previous report fields, however there are several new fields and some of the field definitions have been slightly modified. We recommend that you familiarize yourself with the latest field explanations.

Rare Features Database Reports: An Explanation of Fields

The Rare Features database (Biotics) is part of the Natural Heritage Information System, and is maintained by the Natural Heritage and Nongame Research Program, a unit within the Division of Ecological Services, Minnesota Department of Natural Resources (DNR).

Please note that the print-outs are copyrighted and may not be reproduced without permission

Field Name: [Full (non-abbreviated) field name, if different]. Further explanation of field.

-E-

Element Name and Occ #: [Element Name and Occurrence Number]. The Element is the name of the rare feature. For plant and animal species records, this field holds the scientific name followed by the common name in parentheses; for all other elements (such as native plant communities, which have no scientific name) it is solely the element name. Native plant community names correspond to Minnesota's Native Plant Community Classification (Version 2.0). The Occurrence Number, in combination with the Element Name, uniquely identifies each record.

EO Data: [Element Occurrence Data]. For species elements, this field contains data collected on the biology of the Element Occurrence* (EO), including the number of individuals, vigor, habitat, soils, associated species, peculiar characteristics, etc. For native plant community elements, this field is a summary text description of the vegetation of the EO, including structure (strata) and composition (dominant/characteristic species), heterogeneity, successional stage/dynamics, any unique aspects of the community or additional noteworthy species (including animals). Note that this is a new field and it has not been filled out for many of the records that were collected prior to conversion to the new database system. Some of the information meeting the field definition may be found in the General Description field.

EO ID#: [Element Occurrence Identification Number]. Unique identifier for each Element Occurrence record.

EO Rank: [Element Occurrence Rank]. An evaluation of the quality and condition of an Element Occurrence (EO) from A (highest) to D (lowest). Represents a comparative evaluation of: 1) quality as determined by representativeness of the occurrence especially as compared to EO specifications and including maturity, size, numbers, etc. 2) condition (how much has the site and the EO itself been damaged or altered from its optimal condition and character). 3) viability (the long-term prospects for continued existence of this occurrence - used in ranking species only). EO Ranks are assigned based on recent fieldwork by knowledgeable individuals.

Extent Known?: A value that indicates whether the full extent of the Element is known (i.e., it has been determined through field survey) at that location. If null, the value has not been determined.

-F-

Federal Status: Status of species under the U.S. Endangered Species Act: LE = endangered; LT = threatened; LE,LT = listed endangered in part of its range, listed threatened in another part of its range; LT,PDL = listed threatened, proposed for delisting; C = candidate for listing. If null or "No Status" the species has no federal status.

First Observed Date: Date that the Element Occurrence was first reported at the site in format YYYY-MM-DD. A year followed by "Pre" indicates that the observed date was sometime prior to the date listed, but the exact date is unknown.

-G-

General Description: General description or word picture of the area where the Element Occurrence (EO) is located (i.e., the physical setting/context surrounding the EO), including a list of adjacent communities. When available, information on surrounding land use may be included. Note that the information tracked in this field is now more narrowly defined than it was in the old database system, and some of the information still in this field more accurately meets the definition of the new EO Data field. We are working to clean up the records so that the information in the two fields corresponds to the current field explanations described herein. Also note that the use of uppercase in sentences in this field is not significant but rather an artifact of transferring data from the old database system to the new system.

Global Rank: The global (i.e., range-wide) assessment of the relative rarity or imperilment of the species or community. Ranges from G1 (critically imperiled due to extreme rarity on a world-wide basis) to G5 (demonstrably secure, though perhaps rare in parts of its range). Global ranks are determined by NatureServe, an international network of natural heritage programs and conservation data centers.

-L-

Last Observed Date: Date that the Element Occurrence was last observed to be extant at the site in format YYYY-MM-DD.

Last Survey Date: Date of the most recent field survey for the Element Occurrence, regardless of whether it was found during the visit. If the field is blank, assume the date is the same as the Last Observed Date.



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Bishop Henry Whipple Federal Building
1 Federal Drive
Fort Snelling, MN 55111-4056

RECEIVED
APR 04 2007
HDR Engineering, Inc.

IN REPLY REFER TO:

MAR 23 2007

Ms. Sarah Emery
Senior Environmental Scientist
HDR Engineering, Inc.
701 Xenia Avenue South, Suite 600
Minneapolis, Minnesota 55416

Dear Ms. Emery:

We have received your letters dated January 22, 2007, requesting review of two proposed wind farm projects in southwest Minnesota. The Elm Creek Wind Project would include a minimum of 33 to a maximum of 66 turbines located in northeastern Jackson County and two sections of Martin County (T104N, R33W, Sections 19 and 30), Minnesota. The Moraine II Wind Project is located in Pipestone and Murray Counties.

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

Elm Creek Wind Area resources:

There are no known Important Bird Areas, shorebird stopover sites, or other major bird resources in the Martin County portion of the project area. A limited number of northbound spring migrant raptors may utilize the corridor along/above Elm Creek (also in Jackson County) as they move towards more northerly breeding grounds. Species that occur in this area include Sharp-shinned Hawk, Cooper's Hawk, Red-tailed Hawk, Broad-winged Hawk, Northern Harrier, and American Kestrel. Both Bald and Golden Eagles occur in migration in the county and might occasionally be recorded along this minor migration route.

There are no known Important Bird Areas, Shorebird stopover sites, or other major bird resources in the Jackson County portion of the project area apart from the minor raptor migration route noted above. No significant wetlands occur in the project area although vegetated portions of Elm Creek and its North and South Forks offer some minor stopover habitat for migrant woodland passerines during spring and fall migration. Jackson County does have a remnant population of the state endangered Loggerhead Shrike. Other prairie grassland birds nesting and migrating through the county include several birds on the Region 3 Regional Conservation Priority list including Dickcissel, Sedge Wren, Upland Sandpiper, Black-billed Cuckoo,

Henslow's Sparrow, and Grasshopper Sparrow. All of these species may occur at times in all of the sections of the proposed project.

Morraine II Wind Area resources:

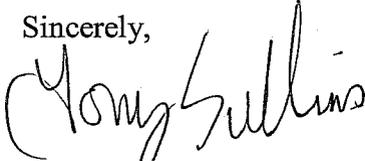
A broad-based fall and spring raptor migration route covers this region but most birds presumably move to the west of this site along a line from where the Minnesota River turns southeast, converging with the Big Sioux River as it runs south along the South Dakota border.

Two wetlands located within the project boundary are of particular concern. Klinker Slough in Sections 9 and 10 in Murray County, includes conservation lands and is valuable for waterfowl, some shorebirds, American Bitterns, Sedge Wrens, and Black Terns. The second area is Engbarth Slough in Pipestone County in Section 9. This is one of the few wetlands in the entire county and as such is extremely important as stopover habitat for waterfowl, waterbirds, and shorebirds. Species vary seasonally with water availability and water depths but species diversity is high and this slough has been identified as a prime birding area in Kim Eckert's *A Birder's Guide to Minnesota*.

Grassland birds breeding in this region include several rarities such as the Blue Grosbeak which is gradually colonizing southwestern Minnesota, Upland Sandpiper, a scarce shorebird that breeds on grassy knolls in the Coteau country and could be directly impacted by turbines, and Swainson's Hawks which breed in farm groves and shelterbelts. Additional breeding grassland birds here include Black-billed Cuckoo, Western Kingbird, Sedge Wren, Grasshopper Sparrow, and Dickcissel. There are no known gallinaceous bird leks in this region although the amount of available prairie habitat makes a future reintroduction a possibility. The presence of turbines would effectively discourage lek species like the Greater Prairie Chicken from becoming established within range of the turbines.

In addition to the avian resources present in this area, there are numerous state managed Wildlife Management Areas which should be avoided. We recommend that you contact Todd Kolander, with the Minnesota Department of Natural Resources (DNR) in New Ulm, Minnesota, to determine exact locations and ownership boundaries.

We appreciate the opportunity to provide preliminary comments on the proposed projects. We recommend that the DNR, the Service, and project representatives meet to discuss the specific turbine locations and related infrastructure concerns, especially in the resource sensitive Morraine II area. Please contact staff biologist, Ms. Laurie Fairchild, at (612) 725-3548, extension 214, regarding future project coordination.

Sincerely,

Tony Sullins
Field Supervisor

cc: Todd Kolander, MNDNR
Mark Vaniman, Windom WMD
Bob Russell, Migratory Birds Office

Appendix B
Cultural Resources Memorandum

To: Tim Seck	
From: Laura Kennedy	Project: PPM Moraine II Wind Farm
CC:	
Date: February 1, 2007	Job No: 54322

RE: Moraine II Wind Farm Cultural Resources Literature Review

This memorandum documents the cultural resources data collection (Phase Ia Inventory) for the proposed Moraine II Wind Project. HDR Engineering, Inc. (HDR) initiated this data collection in January 2007 to assist PPM Energy, Inc. (PPM) in project planning. Data collection includes gathering information within the project area and one-mile buffer. The standard one-mile buffer is used to gather valuable information regarding the location of previously identified cultural resources and cultural resources surveys. This information is then used to identify site types that may be encountered and landforms or areas that have a higher potential for containing significant cultural resources. The known cultural resources information, derived from previous professional cultural resources surveys and reported site leads, was collected from the State Historic Preservation Office (SHPO) in St. Paul, Minnesota. Collected data includes archaeological site files and previous cultural resources studies and reports. In addition, HDR reviewed 19th-century Public Land Survey (PLS) maps to identify potential historic-period cultural features that may yet exist in the project area.

Cultural Background

The proposed project area lies within the Southwest Riverine and Prairie Lake South Archaeological Regions (Anfinson 1990). The Southwest Riverine Archaeological Region is located in southwestern Minnesota and includes much of Pipestone County and the extreme southwestern corner of Murray County. The Southwest Riverine region was not glaciated during the Late Wisconsin and soils within this portion of the project area consist of fine silty loams. This region featured tallgrass prairie vegetation and streams, but was devoid of lakes. While there are few sources of lithic materials of suitable quality for stone tools, this region does contain outcrops of Catlinite, a soft stone mined by Native Americans to make pipes and other ceremonial objects. Habitation sites in this region are commonly located near wooded areas along major streams.

The topography of the Prairie Lakes South region includes typical swell and swale topography of a ground moraine. Soils within the project area consist of medium to fine textured prairie soils. Habitation sites in this region are commonly located near wooded areas, near major lakes or river valleys. Resource procurement sites may be located in upland settings, but more commonly would be found along areas near waters edge.

Buffalo Ridge extends into the one-mile buffer area for the project. Buffalo Ridge is a 62-mile segment of the Bemis Moraine that runs diagonally, northwest to southeast, along the eastern edge of the Coteau des Prairies, a 200-mile long plateau that separates the Missouri and Mississippi River watersheds. Buffalo Ridge is identified as both a broad geomorphic region and a more specific landform with historical and cultural significance to the Native Americans of the region (the Dakota). While twentieth-century geological definitions identify Buffalo Ridge as the larger section of the Bemis Moraine, historical and cultural interpretations define the Ridge specifically as the highest point of the Coteau des Prairies, running two to three miles from the northwest corner of Section 16 to the southeast corner of Section 21 of Township 106, Range 43.

The Minnesota State Register of Historic Places lists Buffalo Ridge as an Historic Place under Minnesota Statutes 138.664.13. The SHPO Geographic Features of Cultural and Historic Significance Inventory Form records Buffalo Ridge in Sections 16 and 21, Township 106, Range 43, but also suggests that the Ridge may extend into the southeastern corner of Section 8 and the southwestern corner of Section 9 of the same township. These sections are within the one-mile buffer for this project area. First identified as "Buffalo Ridge" in the historical record by T.H. Lewis in *American Anthropologist* (1890), the name was said to have been translated from the Dakota term for the ridge and related to a stone buffalo effigy that was located on the crest of the landform. The effigy is still visible on Buffalo Ridge in Section 21, Township 106, Range 43, which is outside the one-mile buffer for this project area. While a portion of Buffalo Ridge may extend into the one-mile buffer area for this project, no previously identified cultural sites associated with Buffalo Ridge exist within the project area or one-mile buffer.

Cultural Resources Reports and Sites

HDR reviewed existing cultural resources documentation for the following townships that comprise the Moraine II Wind Farm project area (Table 1).

Township Name	Township	Range	Section
Chanarambie	106N	43W	2-10
Cameron	107N	43W	1-36
Rock	107N	44W	1-3, 10-15, 22-27, 35-36
Ellsborough	108N	43W	18-20, 25-36
Aetna	108N	44W	22-27, 35-36

The Phase Ia inventory documented nine previous cultural resources reports documenting eight cultural resources investigations within the project area and the one-mile buffer (Table 2). Four of these reports pertain to investigations conducted in support of wind farm construction.

Table 2. Previous Cultural Resources Investigations in the Project Area and One Mile Buffer.

Survey Report Date	Report Title	Author(s)/Association	Comment	Associated Archaeological Sites
1911	<i>The Aborigines of Minnesota</i>	N.H. Winchell	This T.H. Lewis survey was completed within Pipestone and Murray counties. It is unclear if a portion of the survey was completed within or near the project area.	No sites noted within the project area or buffer
1980	<i>An Archaeological Survey of Nobles, Pipestone, and Rock Counties, Minnesota</i>	G. Gibbon/ University of Minnesota	Within project area.	Four sites (21MU0028, 21PP0022, 21PP0025, 21PP0026) were noted within the project area
1981	<i>Southwest Minnesota Plateau in Coteau des Prairies Effigy (And Other Alignments) Field Survey</i>	H.C. Pederson/ Archaeological Field Services, Inc.	Within one-mile buffer.	One site (21PP0029) was noted within the one-mile buffer.
1989	<i>Woodstock Wildlife Management Area Archaeological Survey</i>	H.C. Pederson/ Institute for Minnesota Archaeology	Within one-mile buffer.	One site (21PP0031) was noted within the one-mile buffer.
1998	<i>Lake Benton II 103.5 MW Large Wind Energy Conversion System, Pipestone County, MN</i>	J. McFarlane, et. al./ Loucks & Associates, Inc.	Within one-mile buffer.	Eight sites (21PP0036-40, 42, 43, 45) were noted within the one-mile buffer.
2001	<i>A Phase I Cultural Resources Survey of Selected Properties in Murray County, Minnesota for Proposed Placement of Wind Farm Turbines.</i>	P. Boden/ Hemisphere Field Services, Inc.	Within project area.	Three sites (21MU0062, 21MU0063, 21MU0064) were noted within the project area.

Table 2. Previous Cultural Resources Investigations in the Project Area and One Mile Buffer.

Survey Report Date	Report Title	Author(s)/Association	Comment	Associated Archaeological Sites
2003	<i>Report of a Phase I Cultural Resources Survey of Select Locations for Construction of Wind Turbines in Murray County, Minnesota.</i>	P. Boden and H. Rabb/ 4G Consulting, LLC	Within one-mile buffer.	One site (21MU0068) was noted within the one-mile buffer.
2003	<i>Cultural Resources Management Moraine Wind Project, Pipestone and Murray Counties, Minnesota, Phase I Investigation</i>	D. Stubbs, et. al./ HDR, Inc.	Within project area.	Two sites (21MU0066, 21MU0067) were noted. 21MU0066 is located within the project area; 21MU0067 is located within the one-mile buffer.

Previous investigations documented 21 archaeological resources in the project area and one-mile buffer, and five resources were noted within the project area, specifically. These sites consist of three lithic scatters (21MU0063, 21MU0064, 21MU0066) and two isolates (21MU0062, 21MU0068).

Site Number	Site Type	Comment	NRHP Status
21MU0062	Isolate	Within project area	Unknown
21MU0063	Lithic Scatter	Within project area	Unknown
21MU0064	Lithic Scatter	Within project area	Unknown
21MU0066	Lithic Scatter	Within project area	Unknown
21MU0068	Isolate	Within project area	Unknown

Public Land Survey Map Review

HDR reviewed PLS maps for the project area and one-mile buffer (Table 4). The maps illustrate environmental conditions, including elevation variations across the landscape and watercourses, during the mid 1880s. The maps indicate historic-period land use within the project area, including roads and trail systems.

Township Name	Township	Range	PLS Dates (Commenced-Completed)	Cultural Features/Location
Chanarambie	106N	43W	1866	Wagon trail through Sections 1 and 2
Cameron	107N	43W	1866	Wagon trail through Sections 31, 32, 33, 34
Rock	107N	44W	1867	Lake Shetek and Sioux Falls Road in Sections 35 and 36
Ellsborough	108N	43W	1866	None
Aetna	108N	44W	1866	None

SHPO Correspondence (see attached)

A letter was sent to the Minnesota SHPO on January 22, 2007 requesting a review of the proposed project area and potential impacts to cultural resources. HDR received a response on March 6, 2007,

stating that the SHPO recommended the completion of a cultural resources survey prior to project construction.

Implications for Archaeological Resources

After review of the recorded archaeological site information and the information in previous survey reports, HDR suggests that the project area has a relatively high potential for pre-contact archaeological resources on elevated landforms and areas within close proximity to permanent water sources.

Conclusions

HDR recommends a Phase I archaeological resources survey for areas proposed for project construction; including wind turbine locations, associated access roads, electrical cables and other construction elements. These investigations must be conducted by a professional archaeologist meeting the Secretary of the Interior's Standards for Archaeology as published in the Code of Federal Regulations, 36 CFR Part 6. Survey strategies would depend on surface exposure and the characteristics of the landforms proposed for development. After receiving the proposed turbine, access road and electrical cable layouts, HDR archaeologists will design an appropriate survey strategy. Higher potential areas will most likely include portions of the project area within close proximity to a permanent water source and areas of higher elevation. If cultural resources are identified during the survey, HDR archaeologists will provide recommendations for National Register eligibility, and offer recommendations for site avoidance, impact minimization, or mitigation if necessary.

Appendix C
Animals in Project Area

From “Avian monitoring studies at the Buffalo Ridge, Minnesota wind resource area: results of a 4-year study,” Western EcoSystems Technology, Inc. 2000.

Appendix A. List of birds seen in vicinity of Buffalo Ridge study area, 1996-1999.

Common Name	Scientific Name
Common Loon ^b	<i>Gavia immer</i>
Pied-billed Grebe ^{ab}	<i>Podilymbus podiceps</i>
Western Grebe ^c	<i>Aechmophorus occidentalis</i>
Horned Grebe ^c	<i>Podiceps auritus</i>
Eared Grebe ^c	<i>Podiceps nigricollis</i>
Red-necked Grebe ^c	<i>Podiceps grisegena</i>
American White Pelican ^{ab}	<i>Pelicanus erythrorhynchos</i>
Double-crested Cormorant ^{ab}	<i>Phalacrocorax auritus</i>
American Bittern ^a	<i>Botaurus lentiginosus</i>
Least Bittern ^c	<i>Ixobrychus exilis</i>
Green Heron ^{ab}	<i>Butorides striatus</i>
Cattle Egret ^a	<i>Bubulcus ibis</i>
Great Egret ^{ab}	<i>Casmerodius albus</i>
Great Blue Heron ^{ab}	<i>Ardea herodias</i>
Turkey Vulture ^b	<i>Cathartes aura</i>
Tundra Swan ^c	<i>Cygnus columbianus</i>
Canada Goose ^{ab}	<i>Branta canadensis</i>
Greater White-fronted Goose ^{ab}	<i>Anser albifrons</i>
Snow Goose ^{ab}	<i>Chen caerulescens</i>
Mallard ^{ab}	<i>Anas platyrhynchos</i>
Black Duck ^c	<i>Anas rubripes</i>
Gadwall ^{ab}	<i>Anas strepera</i>
American Wigeon ^{ab}	<i>Anas americana</i>
Northern Pintail ^{ab}	<i>Anas acuta</i>
Green-winged Teal ^a	<i>Anas crecca</i>
Blue-winged Teal ^{ab}	<i>Anas discors</i>
Northern Shoveler ^{ab}	<i>Anas chrypeata</i>
Wood Duck ^{ab}	<i>Aix sponsa</i>
Canvasback ^b	<i>Aythya vallisineria</i>
Redhead ^c	<i>Aythya americana</i>
Ring-necked Duck ^b	<i>Aythya collaris</i>
Greater Scaup ^a	<i>Aythya marila</i>
Lesser Scaup ^{ab}	<i>Aythya affinis</i>
Common Goldeneye ^a	<i>Bucephala clangula</i>
Bufflehead ^a	<i>Bucephala albeola</i>
Ruddy Duck ^c	<i>Oxyura jamaicensis</i>
Hooded Merganser ^c	<i>Lophodytes cucullatus</i>
Common Merganser ^{ab}	<i>Mergus merganser</i>
Red-breasted Merganser ^{ab}	<i>Mergus serrator</i>
Northern Goshawk ^{ab}	<i>Accipiter gentilis</i>
Sharp-shinned Hawk ^{ab}	<i>Accipiter striatus</i>
Cooper's Hawk ^{ab}	<i>Accipiter cooperi</i>
Red-tailed Hawk ^{ab}	<i>Buteo jamaicensis</i>
Broad-winged Hawk ^{ab}	<i>Buteo platypterus</i>
Swainson's Hawk ^{ab}	<i>Buteo swainsoni</i>
Rough-legged Hawk ^{ab}	<i>Buteo lagopus</i>

^a Observed during point count surveys; ^b Observed during RLB surveys;
^c Observed only during incidental wildlife observations

Appendix A (Continued). List of birds seen in vicinity of Buffalo Ridge study area, 1996-1999.

Common Name	Scientific Name
Ferruginous Hawk ^{ab}	<i>Buteo regalis</i>
Northern Harrier ^{ab}	<i>Circus cyaneus</i>
Golden Eagle ^{ab}	<i>Aquila chrysaetos</i>
Bald Eagle ^{ab}	<i>Haliaeetus leucocephalus</i>
Osprey ^{ab}	<i>Pandion haliaetus</i>
Peregrine Falcon ^{ab}	<i>Falco peregrinus</i>
Merlin ^a	<i>Falco columbarius</i>
American Kestrel ^{ab}	<i>Falco sparverius</i>
Wild Turkey ^b	<i>Meleagris gallopavo</i>
Ring-necked Pheasant ^{ab}	<i>Phasianus colchicus</i>
Gray Partridge ^{ab}	<i>Perdix perdix</i>
Sandhill Crane ^{ab}	<i>Grus canadensis</i>
Sora ^c	<i>Porzana carolina</i>
Virginia Rail ^c	<i>Rallus limicola</i>
American Coot ^{ab}	<i>Fulica americana</i>
Semipalmated Plover ^c	<i>Charadrius semipalmatus</i>
Buff-breasted Sandpiper ^a	<i>Tryngites subruficollis</i>
American Golden-plover ^{ab}	<i>Pluvialis dominica</i>
Killdeer ^a	<i>Charadrius vociferus</i>
Black-bellied Plover ^b	<i>Pluvialis squatarola</i>
Common Snipe ^{ab}	<i>Gallinago gallinago</i>
Upland Sandpiper ^{ab}	<i>Bartramia longicauda</i>
Spotted Sandpiper ^a	<i>Actitis macularia</i>
Solitary Sandpiper ^{ab}	<i>Tringa solitaria</i>
Greater Yellowlegs ^{ab}	<i>Tringa melanoleuca</i>
Lesser Yellowlegs ^{ab}	<i>Tringa flavipes</i>
Marbled Godwit ^c	<i>Limosa fedoa</i>
Pectoral Sandpiper ^{ab}	<i>Calidris melanotos</i>
White-rumped Sandpiper ^a	<i>Calidris fuscicollis</i>
Least Sandpiper ^a	<i>Calidris minutilla</i>
Dowitcher ^b	<i>Limnodromus sp.</i>
Semipalmated Sandpiper ^c	<i>Calidris pusilla</i>
Wilson's Phalarope ^c	<i>Phalaropus tricolor</i>
Herring Gull ^b	<i>Larus argentatus</i>
California Gull ^c	<i>Larus californicus</i>
Ring-billed Gull ^{ab}	<i>Larus delawarensis</i>
Franklin's Gull ^{ab}	<i>Larus pipixcan</i>
Bonaparte's Gull ^{ab}	<i>Larus philadelphia</i>
Forster's Tern ^{ab}	<i>Sterna forsteri</i>
Common Tern ^b	<i>Sterna hirundo</i>
Black Tern ^{ab}	<i>Chlidonias niger</i>
Mourning Dove ^a	<i>Zenaida macroura</i>
Rock Dove ^a	<i>Columba livia</i>
Black-billed Cuckoo ^a	<i>Coccyzus erythrophthalmus</i>
Yellow-billed Cuckoo ^a	<i>Coccyzus americanus</i>
Eastern Screech-owl ^c	<i>Otus asio</i>

^a Observed during point count surveys; ^b Observed during RLB surveys;
^c Observed only during incidental wildlife observations

Appendix A (Continued). List of birds seen in vicinity of Buffalo Ridge study area, 1996-1999.

Common Name	Scientific Name
Great Horned Owl ^{ab}	<i>Bubo virginianus</i>
Snowy Owl ^c	<i>Nyctea scandiaca</i>
Long-eared Owl ^c	<i>Asio otus</i>
Short-eared Owl ^a	<i>Asio flammeus</i>
Common Nighthawk ^{ab}	<i>Chordeiles minor</i>
Whip-poor-will ^c	<i>Caprimulgus carolinensis</i>
Chimney Swift ^a	<i>Chaetura pelagica</i>
Ruby-throated Hummingbird ^a	<i>Archilochus colubris</i>
Belted Kingfisher ^{ab}	<i>Ceryle alcyon</i>
Northern Flicker ^a	<i>Colaptes auratus</i>
Red-headed Woodpecker ^a	<i>Melanerpes erythrocephalus</i>
Red-bellied Woodpecker ^a	<i>Melanerpes carolinus</i>
Hairy Woodpecker ^a	<i>Picoides villosus</i>
Downy Woodpecker ^a	<i>Picoides pubescens</i>
Yellow-bellied Sapsucker ^c	<i>Sphyrapicus varius</i>
Eastern Kingbird ^a	<i>Tyrannus tyrannus</i>
Western Kingbird ^a	<i>Tyrannus verticalis</i>
Eastern Phoebe ^a	<i>Sayornis phoebe</i>
Say's Phoebe ^a	<i>Sayornis saya</i>
Eastern Wood Pewee ^a	<i>Contopus virens</i>
Least Flycatcher ^a	<i>Empidonax minimus</i>
Yellow-bellied Flycatcher ^c	<i>Empidonax flaviventris</i>
Olive-sided Flycatcher ^c	<i>Contopus borealis</i>
Great Crested Flycatcher ^c	<i>Myiarchus crinitus</i>
Horned Lark ^a	<i>Eremophila alpestris</i>
Purple Martin ^a	<i>Progne subis</i>
Tree Swallow ^a	<i>Tachycineta bicolor</i>
Bank Swallow ^a	<i>Riparia riparia</i>
Northern Rough-winged Swallow ^a	<i>Stelgidopteryx serripennis</i>
Barn Swallow ^a	<i>Hirundo rustica</i>
Cliff Swallow ^a	<i>Hirundo pyrrhonota</i>
Blue Jay ^a	<i>Cyanocitta cristata</i>
American Crow ^{ab}	<i>Corvus brachyrhynchos</i>
Black-capped Chickadee ^a	<i>Parus atricapillus</i>
White-breasted Nuthatch ^a	<i>Sitta carolinensis</i>
Red-breasted Nuthatch ^c	<i>Sitta canadensis</i>
Brown Creeper ^a	<i>Certhia americana</i>
House Wren ^a	<i>Troglodytes aedon</i>
Sedge Wren ^a	<i>Cistothorus platensis</i>
Marsh Wren ^c	<i>Cistothorus palustris</i>
Gray Catbird ^a	<i>Dumetella carolinensis</i>
Brown Thrasher ^a	<i>Toxostoma rufum</i>
American Robin ^a	<i>Turdus migratorius</i>
Hermit Thrush ^a	<i>Catharus guttatus</i>
Swainson's Thrush ^a	<i>Catharus ustulatus</i>
Gray-cheeked Thrush ^a	<i>Catharus minimus</i>

^a Observed during point count surveys; ^b Observed during RLB surveys;

^c Observed only during incidental wildlife observations

Appendix A (Continued). List of birds seen in vicinity of Buffalo Ridge study area, 1996-1999.

Common Name	Scientific Name
Eastern Bluebird ^a	<i>Sialia sialis</i>
Mountain Bluebird ^c	<i>Sialia currucoides</i>
Golden-crowned Kinglet ^c	<i>Regulus satrapa</i>
Ruby-crowned Kinglet ^a	<i>Regulus calendula</i>
Blue-gray Gnatcatcher ^c	<i>Piliptila caerulea</i>
American Pipit ^a	<i>Anthus spinoletta</i>
Cedar Waxwing ^a	<i>Bombycilla cedrorum</i>
Northern Shrike ^a	<i>Lanius excubitor</i>
Loggerhead Shrike ^a	<i>Lanius ludovicianus</i>
European Starling ^a	<i>Sturnus vulgaris</i>
Blue-headed Vireo ^a	<i>Vireo solitarius</i>
Red-eyed Vireo ^a	<i>Vireo olivaceus</i>
Warbling Vireo ^a	<i>Vireo gilvus</i>
Philadelphia Vireo ^c	<i>Vireo philadelphicus</i>
Yellow-throated Vireo ^c	<i>Vireo flavifrons</i>
Black-and-white Warbler ^a	<i>Mniotilta varia</i>
Tennessee Warbler ^a	<i>Vermivora peregrina</i>
Orange-crowned Warbler ^a	<i>Vermivora celata</i>
Nashville Warbler ^a	<i>Vermivora ruficapilla</i>
Brewster's Warbler ^c	<i>Vermivora chrysopterna</i> X <i>pinus</i>
Blue-winged Warbler ^c	<i>Vermivora pinus</i>
Yellow Warbler ^a	<i>Dendroica petechia</i>
Yellow-rumped Warbler ^a	<i>Dendroica coronata</i>
Black-throated Green Warbler ^a	<i>Dendroica virens</i>
Pine Warbler ^c	<i>Dendroica pinus</i>
Cape May Warbler ^c	<i>Dendroica tigrina</i>
Chestnut-sided Warbler ^c	<i>Dendroica pensylvanica</i>
Blackburnian Warbler ^c	<i>Dendroica fusca</i>
Magnolia Warbler ^a	<i>Dendroica magnolia</i>
Blackpoll Warbler ^a	<i>Dendroica striata</i>
Palm Warbler ^a	<i>Dendroica palmarum</i>
Northern Parula ^c	<i>Parula americana</i>
Connecticut Warbler ^a	<i>Oporornis agilis</i>
Mourning Warbler ^a	<i>Oporornis philadelphia</i>
Common Yellowthroat ^a	<i>Geothlypis trichas</i>
Wilson's Warbler ^c	<i>Wilsonia pusilla</i>
Canada Warbler ^a	<i>Wilsonia canadensis</i>
American Redstart ^a	<i>Setophaga ruticilla</i>
Ovenbird ^c	<i>Seiurus aurocapillus</i>
Northern Waterthrush ^c	<i>Seiurus noveboracensis</i>
House Sparrow ^a	<i>Passer domesticus</i>
Bobolink ^a	<i>Dolichonyx oryzivorus</i>
Western Meadowlark ^a	<i>Sturnella neglecta</i>
Yellow-headed Blackbird ^a	<i>Xanthocephalus xanthocephalus</i>
Red-winged Blackbird ^a	<i>Agelaius phoeniceus</i>

^a Observed during point count surveys; ^b Observed during RLB surveys;
^c Observed only during incidental wildlife observations

Mammals Expected to Occur in the Project Area

Common Name	Scientific Name
Badger	<i>Taxidea taxus</i>
Big brown bat	<i>Eptesieus fuscus</i>
Coyote	<i>Canis latrans</i>
Deer mouse	<i>Peromyscus maniculatus</i>
Eastern cottontail	<i>Sylvilagus floridnus</i>
Eastern fox squirrel	<i>Sciurus niger</i>
Eastern gray squirrel	<i>Sciurus carolinensis</i>
Eastern pipistrelle	<i>Pipistrellus subflavus</i>
Hoary bat	<i>Lasiurus cinereus</i>
House mouse	<i>Mus musculus</i>
Least weasel	<i>Mustela nivalis</i>
Little brown bat	<i>Myotis lucifugus</i>
Longtail weasel	<i>Mustela frenata</i>
Meadow vole	<i>Microtus pennsylvanicus</i>
Mink	<i>Mustela vison</i>
Plains pocket gopher	<i>Geomys bursarius</i>
Prairie vole	<i>Microtus ochrogaster</i>
Raccoon	<i>Procyon lotor</i>
Red bat	<i>Lasiurus borealis</i>
Red fox	<i>Vulpes fulva</i>
Short-tailed weasel	<i>Mustela erminea</i>
Silver-haired bat	<i>Lasionycteris noctivagans</i>
Stripped skunk	<i>Mephitis mephitis</i>
White-tailed deer	<i>Odocoileus virginianus</i>
White-tailed jackrabbit	<i>Lepus townsendi</i>

Reptiles and Amphibians Expected to Occur in the Project Area

Common Name	Scientific Name
Reptiles	
Bullsnake	<i>Pituophis melanoleucus</i>
Northern prairie skink	<i>Eumeces septentrionalis</i>
Red-bellied snake	<i>Storeria occipitomaculata</i>
Red-sided garter snake	<i>Thamnophis sirtalis</i>
Snapping turtle	<i>Chelydra serpentina</i>
Western fox snake	<i>Elaphe vulpine</i>
Western hognose snake	<i>Heterodon nasicus</i>
Western painted turtle	<i>Chrysemys picta</i>
Western plains garter snake	<i>Thamnophis radix</i>
Western smooth green snake	<i>Opheodrys vernalis</i>
Amphibians	
American toad	<i>Bufo americanus</i>
Eastern tiger salamander	<i>Ambystoma tigrinum</i>
Gray treefrog	<i>Hyla versicolor</i>
Great plains toad	<i>Bufo cognatus</i>
Northern leopard frog	<i>Rana pipiens</i>
Western chorus frog	<i>Pseudacris triseriata</i>

Appendix D
Prime and Other Important Farmland Soils

Prime and Other Important Farmland Soils

Map Symbol	Map Unit Name	Farmland Classification
Murray County		
33B	Barnes loam, 2 to 4 percent slopes	All areas are prime farmland
33B2	Barnes loam, 3 to 6 percent slopes, eroded	All areas are prime farmland
70	Svea loam	All areas are prime farmland
94B	Terril loam, 2 to 8 percent slopes	All areas are prime farmland
96A	Collinwood silty clay, 0 to 2 percent slopes	All areas are prime farmland
96B	Collinwood silty clay, 2 to 6 percent slopes	All areas are prime farmland
102B	Clarion loam, 2 to 4 percent slopes	All areas are prime farmland
102B2	Clarion loam, 3 to 6 percent slopes, eroded	All areas are prime farmland
118	Crippin loam	All areas are prime farmland
130	Nicollet loam	All areas are prime farmland
141A	Egeland sandy loam, 0 to 2 percent slopes	All areas are prime farmland
141B	Egeland sandy loam, 2 to 6 percent slopes	All areas are prime farmland
149B	Everly clay loam, 2 to 4 percent slopes	All areas are prime farmland
149B2	Everly clay loam, 3 to 6 percent slopes, eroded	All areas are prime farmland
184	Hamerly loam	All areas are prime farmland
212	Sinai silty clay	All areas are prime farmland
284B	Poinsett silty clay loam, 2 to 4 percent slopes	All areas are prime farmland
284B2	Poinsett silty clay loam, 3 to 6 percent slopes, eroded	All areas are prime farmland

Map Symbol	Map Unit Name	Farmland Classification
297B	Vienna silty clay loam, 2 to 4 percent slopes	All areas are prime farmland
297B2	Vienna silty clay loam, 3 to 6 percent slopes, eroded	All areas are prime farmland
339A	Fordville loam, 0 to 2 percent slopes	All areas are prime farmland
339B	Fordville loam, 2 to 6 percent slopes	All areas are prime farmland
345	Wilmington clay loam	All areas are prime farmland
470	Lismore silty clay loam	All areas are prime farmland
506	Overly silty clay loam	All areas are prime farmland
590	Moines clay loam	All areas are prime farmland
127A	Sverdrup sandy loam, 0 to 2 percent slopes	Farmland of statewide importance
127B	Sverdrup sandy loam, 2 to 6 percent slopes	Farmland of statewide importance
149C2	Everly clay loam, 6 to 12 percent slopes, eroded	Farmland of statewide importance
341A	Arvilla sandy loam, 0 to 2 percent slopes	Farmland of statewide importance
341B	Arvilla sandy loam, 2 to 6 percent slopes	Farmland of statewide importance
902C2	Barnes-Buse loams, 6 to 12 percent slopes, eroded	Farmland of statewide importance
904B	Arvilla-Barnes-Buse complex, 2 to 6 percent slopes	Farmland of statewide importance
904C	Arvilla-Barnes-Buse complex, 6 to 12 percent slopes	Farmland of statewide importance
920C2	Storden-Clarion-Arvilla complex, 6 to 15 percent slopes, eroded	Farmland of statewide importance
921C2	Clarion-Storden loams, 6 to 12 percent slopes, eroded	Farmland of statewide importance

Map Symbol	Map Unit Name	Farmland Classification
964C2	Vienna-Buse complex, 6 to 12 percent slopes, eroded	Farmland of statewide importance
36	Flom clay loam	Prime farmland if drained
86	Canisteo clay loam	Prime farmland if drained
113	Webster clay loam	Prime farmland if drained
114	Glencoe silty clay loam	Prime farmland if drained
140	Spicer silty clay loam	Prime farmland if drained
210	Fulder silty clay	Prime farmland if drained
211	Lura silty clay	Prime farmland if drained
219	Rolfe silty loam	Prime farmland if drained
229	Waldorf silty clay	Prime farmland if drained
236	Vallers clay loam	Prime farmland if drained
241	Letri clay loam	Prime farmland if drained
246	Marysland loam	Prime farmland if drained
276	Oldham silty clay loam	Prime farmland if drained
344	Quam silty clay loam	Prime farmland if drained
392	Biscay loam	Prime farmland if drained
436	Hidewood silty clay loam	Prime farmland if drained
562	Knoke silty clay loam	Prime farmland if drained
594	Jeffers clay loam	Prime farmland if drained
418	Lamoure silty clay loam, occasionally flooded	Prime farmland if drained

Map Symbol	Map Unit Name	Farmland Classification
51	La Prairie loam	Prime farmland if drained
Pipestone County		
J26B	Darnen loam, 2 to 6 percent slopes	All areas are prime farmland
J47A	Swenoda sandy loam, 1 to 3 percent slopes	All areas are prime farmland
J69A	Athelwold silty clay loam, 0 to 2 percent slopes	All areas are prime farmland
J70A	Brandt silty clay loam, 0 to 2 percent slopes	All areas are prime farmland
J71A	Brookings silty clay loam, 1 to 3 percent slopes	All areas are prime farmland
J74A	Estelline silty clay loam, 0 to 2 percent slopes	All areas are prime farmland
J74B	Estelline silty clay loam, 2 to 6 percent slopes	All areas are prime farmland
J75A	Fordville loam, 0 to 2 percent slopes	All areas are prime farmland
J75B	Fordville loam, 2 to 6 percent slopes	All areas are prime farmland
J78A	Lismore silty clay loam, 1 to 3 percent slopes	All areas are prime farmland
J79B	Vienna-Brookings complex, 1 to 4 percent slopes	All areas are prime farmland
J84A	Strayhoss loam, 0 to 2 percent slopes	All areas are prime farmland
J84B	Strayhoss loam, 2 to 6 percent slopes	All areas are prime farmland
J86B	Vienna silty clay loam, 3 to 6 percent slopes	All areas are prime farmland
J87A	Waubay silty clay loam, loess deposit, 1 to 3 percent slopes	All areas are prime farmland
J88B	Kranzburg silty clay loam, 3 to 6 percent slopes	All areas are prime farmland
J89B	Lanona-Swenoda complex, 2 to 6 percent slopes	All areas are prime farmland

Map Symbol	Map Unit Name	Farmland Classification
J90B	Kranzburg-Brookings complex, 1 to 4 percent slopes	All areas are prime farmland
J91B	Darnen loam, stratified substratum, 2 to 6 percent slopes	All areas are prime farmland
J96B	Barnes-Buse complex, 3 to 6 percent slopes	All areas are prime farmland
J101B	Hokans-Svea complex, 1 to 4 percent slopes	All areas are prime farmland
J104A	Svea loam, 1 to 3 percent slopes	All areas are prime farmland
J106B	Barnes-Buse-Svea complex, 1 to 6 percent slopes	All areas are prime farmland
P11A	Dempster silt loam, 0 to 2 percent slopes	All areas are prime farmland
P11B	Dempster silt loam, 2 to 6 percent slopes	All areas are prime farmland
P12B	Everly silty clay loam, 2 to 6 percent slopes	All areas are prime farmland
P14A	Flandreau silt loam, 0 to 2 percent slopes	All areas are prime farmland
P14B	Flandreau silt loam, 2 to 6 percent slopes	All areas are prime farmland
P16A	Graceville silt loam, 0 to 2 percent slopes	All areas are prime farmland
P17A	Ihlen silty clay loam, 0 to 2 percent slopes	All areas are prime farmland
P17B	Ihlen silty clay loam 2 to 6 percent slopes	All areas are prime farmland
P24B	Moody silty clay loam, 2 to 5 percent slopes	All areas are prime farmland
P27A	Primghar silty clay loam, 1 to 3 percent slopes	All areas are prime farmland
P28A	Ransom silty clay loam, 1 to 3 percent slopes	All areas are prime farmland
P30B	Sac silty clay loam, 2 to 5 percent slopes	All areas are prime farmland
P34B	Splitrock silty clay loam, 2 to 5 percent slopes	All areas are prime farmland

Map Symbol	Map Unit Name	Farmland Classification
P48A	Allendorf silty clay loam, 0 to 2 percent slopes	All areas are prime farmland
P48B	Allendorf silty clay loam, 2 to 6 percent slopes	All areas are prime farmland
P56B	Kanaranzi silt loam, 2 to 6 percent slopes	All areas are prime farmland
J7A	Sverdrup sandy loam, 0 to 2 percent slopes	Farmland of statewide importance
J7B	Sverdrup sandy loam, 2 to 6 percent slopes	Farmland of statewide importance
J22A	Renshaw loam, 0 to 3 percent slopes	Farmland of statewide importance
J92C2	Buse-Vienna complex, 6 to 12 percent slopes, moderately eroded	Farmland of statewide importance
J96C2	Barnes-Buse complex, 6 to 12 percent slopes, moderately eroded	Farmland of statewide importance
J105A	Arvilla sandy loam, 0 to 2 percent slopes	Farmland of statewide importance
P12C2	Everly silty clay loam, 6 to 12 percent slopes, moderately eroded	Farmland of statewide importance
P20B	Judson silt loam, 3 to 8 percent slopes	Farmland of statewide importance
P34C2	Splitrock silty clay loam, 5 to 9 percent slopes, moderately eroded	Farmland of statewide importance
P38B	Thurman sandy loam, 2 to 6 percent slopes	Farmland of statewide importance
J1A	Parnell silty clay loam, depressionnal, 0 to 1 percent slopes	Prime farmland if drained
J12A	Marysland loam, 0 to 2 percent slopes	Prime farmland if drained
J76A	Parnell silty clay loam, depressionnal, verdi, 0 to 1 percent slopes	Prime farmland if drained
J85A	Trosky silty clay loam, 0 to 2 percent slopes	Prime farmland if drained
J93A	Hidewood-Badger complex, 0 to 3 percent slopes	Prime farmland if drained
J94A	Parnell-McIntosh complex, 0 to 3 percent slopes	Prime farmland if drained

Map Symbol	Map Unit Name	Farmland Classification
J99A	Lakepark clay loam, 0 to 3 percent slopes, overwash	Prime farmland if drained
J107A	Lakepark-Roliss-Parnell, depressional, complex, 0 to 3 percent slopes	Prime farmland if drained
P29A	Rushmore silty clay loam, 0 to 2 percent slopes	Prime farmland if drained
P36A	Talcot silty clay loam, 0 to 2 percent slopes, occasionally flooded	Prime farmland if drained
P42A	Whitewood silty clay loam, 0 to 2 percent slopes	Prime farmland if drained
J2A	La Prairie loam, 0 to 2 percent slopes, occasionally flooded	Prime farmland if drained
J23A	Lamoure silty clay loam, 0 to 2 percent slopes, occasionally flooded	Prime farmland if drained
P5A	Calco silty clay loam, 0 to 2 percent slopes, occasionally flooded	Prime farmland if drained
P8A	Cylinder loam, 0 to 2 percent slopes, occasionally flooded	Prime farmland if drained
P33A	Spillco silt loam, 0 to 2 percent slopes, occasionally flooded	Prime farmland if drained