Appendices

Appendix A

Agency Correspondence

August 6, 2009

Mr. Tom Hingsberger
Department of the Army
Corps of Engineers
St. Paul District, Attn: OP-R
190 Fifth Street East, Suite 401
St. Paul, MN 55101-1638

RE: Paynesville-Zion Wind Project in Stearns County, MN

Dear Mr. Hingsberger:

HDR Engineering, Inc. (HDR) is currently gathering environmental information for the Paynesville-Zion Wind Project, proposed by Geronimo Wind Energy, LLC (Geronimo) in Stearns County, MN (Figure 1). The proposed project will be up to 100 MW. This fall, Geronimo will submit a Site Permit Application for a Large Wind Energy Conversion System to the Minnesota Public Utilities Commission (PUC).

Typically wind facility construction includes erecting wind turbines and constructing associated facilities such as gravel access roads, an underground collector system and overhead 34.5 kV and 115 kV transmission lines. Although final turbine locations, access roads and electrical connections have not been determined at this time, the table below identifies Township sections potentially affected by the project:

Table 1 – Sections within Project Boundary

Township Name	Township	Range	Section
Zion	123N	32W	7-9; 16-22; 29-32
Lake Henry	123N	33W	1; 11-12; 23-26

We welcome any comments the U.S. Army Corps of Engineers may have at this time or throughout the permit application process. In particular, HDR requests your review of the sections identified in Table 1 for jurisdictional waters or other potential permit requirements for the USACE. Your comments will be incorporated into the PUC review process for the project.

HDR Engineering, Inc.
701 Xenia Avenue South, Suite 600
Minneapolis, MN 55416
Phone (763) 591-5400
Fax (763) 591-5413
www.hdrinc.com

Enclosed is a map detailing the location and project boundary of the Paynesville-Zion project area to facilitate your review. If you require further information or have questions regarding this matter, please call me at (763) 278-5925.

Sincerely,

Mike DeRuyter
Environmental Scientist

Enclosures:
Figure 1 - Project Location Map

Cc: Patrick Smith, Geronimo Wind Energy, LLC

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Minneapolis, MN 55416
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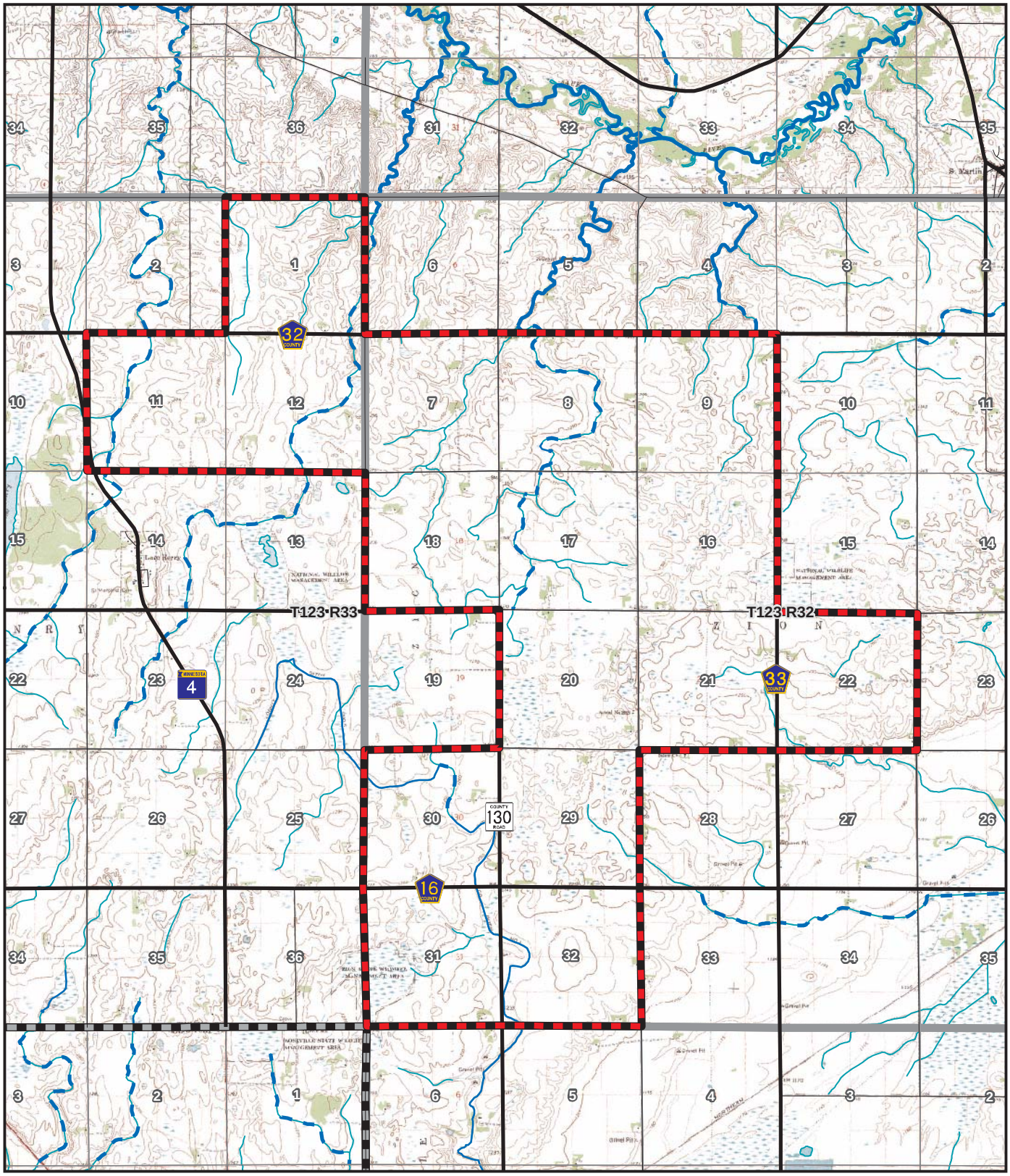

HDR

GERONIMO WIND ENERGY

N

0 0.25 0.5 1 Miles

Legend

- Project Boundary
- Stream (Perennial)
- Stream (Intermittent)
- Other PWI
- 24k Streams

Figure 1. Project Location Map
Paynesville-Zion Wind Farm
Geronimo Wind Energy
Stearns County, MN

Map Document: (\\mspe-gis-file\GISProj\Geronimo\113498_Paynesville-Zion\map_docs\mxd\CulturalResources\Fig1_ProjectLocationMap.mxd)
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August 4, 2009

David Birkholz
Minnesota Department of Commerce
85 7th Place East, Suite 500
St. Paul, MN 55155

RE: Project Notice
Proposed Paynesville-Zion Wind Project
Stearns County, Minnesota

Dear David:

Geronimo Wind Energy, (Geronimo) is exploring development of the "Paynesville-Zion Wind Project" (Project) in Stearns County, MN. This Project includes a 16-square-mile study area. Geronimo has contracted with HDR Engineering, Inc. (HDR) to provide environmental and permitting services for the project. HDR is currently developing a constraint analysis for the Project study area. On behalf of Geronimo, HDR would like to coordinate with your office to review existing data and discuss potential cultural resource issues for this planning effort. Detailed discussion of specific cultural resource issues will occur as project plans, the survey process, and the report process become clear.

The Project site is in the central part of Stearns County. A table of Study Area legal descriptions (Table 1) is below and a map is enclosed. Information concerning the proposed number of turbines, megawatt output, access roads, underground cabling alignments, overhead transmission lines, substations footprints, and operation/maintenance buildings has not been determined.

Table 1. Paynesville-Zion Study Area Legal Descriptions

County	Township	Range	Section
Stearns	123	33	1, 11 and 12
Stearns	123	32	7-9, 16-18, 20-22, 29-32

HDR understands that at this time, the Project does not involve a federal undertaking and is therefore not subject to federal Section 106 historic preservation regulations or guidance. HDR anticipates the Project would be subject to regulations associated with:

- The Minnesota Wind Siting Act (Minnesota Statutes Chapter 216F)
- The Minnesota Administrative Rules Chapter 7836 Wind Siting
- The Minnesota Department of Commerce, Energy Facility, Permitting, Siting, and Routing Department's PUC LWECS Site permit
- Minnesota Statute Chapter 138.661-138.699 (Minnesota Historic Sites Act)

- The Minnesota Pollution Control Agency's (PCA) National Pollutant Discharge Elimination System (NPDES) Permit No: MN R100001 (Appendix A, Part G. Discharges Affecting Historic Places Or Archeological Sites

HDR understands that additional coordination with your office may be needed pursuant to these regulations and guidance.

HDR intends to review cultural resource site forms and surveys to establish the known properties in the project vicinity, review Government Land Office maps for additional information, and Geographic Information System-developed maps. The information we collect will be used for project planning and to identify potential project constraints. We will coordinate with your staff to collect data on file at your office.

We look forward to discussing the project and our data collection efforts with you or your staff. If you have any questions or comments please contact me at (763) 278-5992 or by email at stephen.sabatke@hdrinc.com.

HDR Engineering, Inc.

Stephen Sabatke
Archaeologist

cc: Kelly Gragg-Johnson SHPO Review and Compliance Associate
Scott Anfinson State Archaeologist
Michael S. DeRuyter HDR Environmental Scientist
Patrick Smith Geronimo Environmental Specialist

Enclosures: Project Location Map

August 4, 2009

Kelly Gragg-Johnson
Review and Compliance Associate
Minnesota Historical Society
345 Kellogg Boulevard West
Saint Paul, Minnesota 55102

RE: Project Notice
Proposed Paynesville-Zion Wind Project
Stearns County, Minnesota

Dear Kelly:

Geronimo Wind Energy, (Geronimo) is exploring development of the "Paynesville-Zion Wind Project" (Project) in Stearns County, MN. This Project includes a 16-square-mile study area. Geronimo has contracted with HDR Engineering, Inc. (HDR) to provide environmental and permitting services for the project. HDR is currently developing a constraint analysis for the Project study area. On behalf of Geronimo, HDR would like to coordinate with your office to review existing data and discuss potential cultural resource issues for this planning effort. Detailed discussion of specific cultural resource issues will occur as project plans, the survey process, and the report process become clear.

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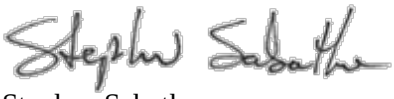
Sincerely,

HDR Engineering, Inc.



Stephen Sabatke
Archaeologist

cc: David Birkholz Minnesota Department of Commerce
Scott Anfinson, State Archaeologist
Michael S. DeRuyter, HDR Environmental Scientist
Patrick Smith, Geronimo Environmental Specialist

Enclosures: Project Location Map

August 4, 2009

Scott Anfinson
State Archaeologist
Minnesota Office of the State Archaeologist
Fort Snelling History Center
Saint Paul, Minnesota 55111

RE: Project Notice
Proposed Paynesville-Zion Wind Project
Stearns County, Minnesota

Dear Scott:

Geronimo Wind Energy, (Geronimo) is exploring development of the "Paynesville-Zion Wind Project" (Project) in Stearns County, MN. This Project includes a 16-square-mile study area. Geronimo has contracted with HDR Engineering, Inc. (HDR) to provide environmental and permitting services for the project. HDR is currently developing a constraint analysis for the Project study area. On behalf of Geronimo, HDR would like to coordinate with your office to review existing data and discuss potential cultural resource issues for this planning effort. Detailed discussion of specific cultural resource issues will occur as project plans, the survey process, and the report process become clear.

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701 Xenia Avenue South
Minneapolis, MN 55416-3636
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Fax (763) 591-5413
www.hdrinc.com

- The Minnesota Pollution Control Agency's (PCA) National Pollutant Discharge Elimination System (NPDES) Permit No: MN R100001 (Appendix A, Part G. Discharges Affecting Historic Places Or Archeological Sites

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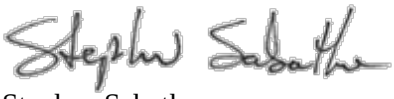
Sincerely,

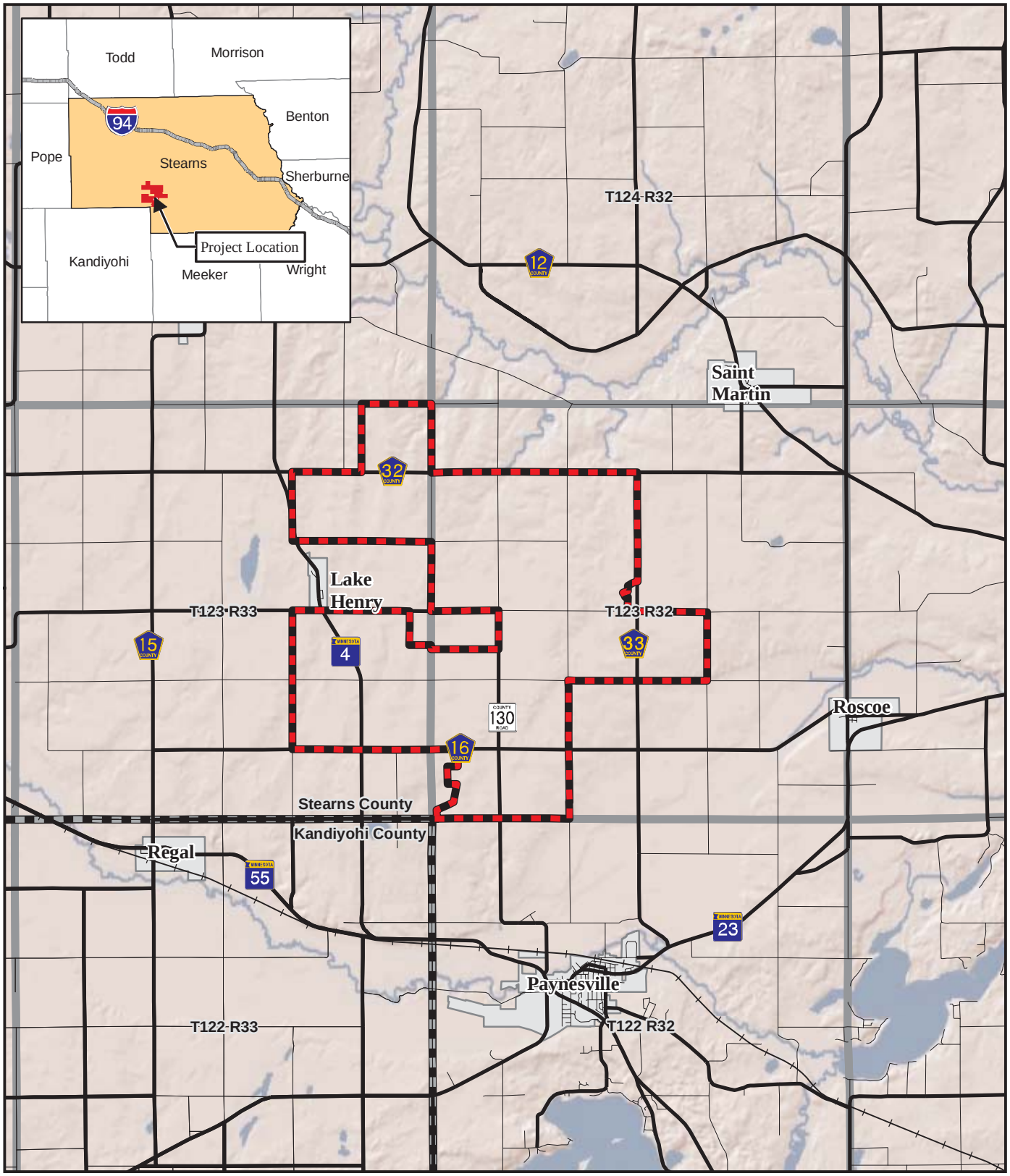
HDR Engineering, Inc.



Stephen Sabatke
Archaeologist

cc: David Birkholz Minnesota Department of Commerce
Patrick Smith Geronimo Environmental Specialist
Michael S. DeRuyter, HDR Environmental Scientist
Kelly Gragg-Johnson SHPO Review and Compliance Associate

Enclosures: Project Location Map



HDR

GERONIMO WIND ENERGY

N

0 0.5 1 2 3 4 Miles

Legend
- Project Boundary
- Cities
- Townships
- County Boundary

Figure 1-1. Project Vicinity Map
Paynesville-Zion Wind Farm
Geronimo Wind Energy
Stearns County, MN

Map Document: (\\mspe-gis-file\GISProj\Geronimo\113498_Paynesville-Zion\map_docs\mxd\LWECS_Permit_Application\Fig1-1_ProjectVicinityMap.mxd)
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October 14, 2009

Mr. Michael North
Minnesota Department of Natural Resources
Regional Environmental Assessment Ecologist
1601 Minnesota Drive
Brainerd, MN 56401

RE: Paynesville-Zion Wind Project in Stearns County, MN

Dear Mr. North:

HDR Engineering, Inc. (HDR) met with you in July, 2009 to discuss requesting your agency's comments in regards to the Paynesville-Zion Wind Project, proposed by Geronimo Wind Energy, LLC (Geronimo) in Stearns County, Minnesota. Recently, the project boundary has changed and now includes additional sections adjacent to the previous project boundary. The proposed project nameplate will be 95 MW. This fall, Geronimo will submit a Site Permit Application for a Large Wind Energy Conversion System to the Minnesota Public Utilities Commission (PUC).

Typically wind facility construction includes erecting wind turbines and constructing associated facilities such as gravel access roads, an underground collector system and overhead 34.5 kV and 69 kV transmission lines. Although final turbine locations, access roads and electrical connections have not been determined at this time, the table below identifies Township sections potentially affected by the project:

Table 1 – Original Sections within Project Boundary

Township Name	Township	Range	Section
Zion	123N	32W	7-9; 16-22; 29-32
Lake Henry	123N	33W	1; 11-12; 23-26

Table 2 – Updated Sections within Project Boundary

Township Name	Township	Range	Section
Zion	123N	32W	4-9; 16-22; 29-32
Paynesville	122N	32W	4, 5, 8, 9
Spring Hill	124N	33W	36

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701 Xenia Avenue South, Suite 600
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Phone (763) 591-5400
Fax (763) 591-5413
www.hdrinc.com

Township Name	Township	Range	Section
Lake Henry	123N	33W	1; 11-13; 22-27

We welcome any comments the Minnesota Department of Natural Resources may have at this time or throughout the permit application process. Table 1 identifies the original sections within the Project boundary. In particular, HDR requests your review of the sections located in Paynesville, Lake Henry, Zion and Spring Hill townships, identified in Tables 1 and 2 for potential permit requirements for the DNR. Your comments will be incorporated into the PUC review process for the project.

Enclosed is a map detailing the location and project boundary of the Paynesville-Zion project area to facilitate your review. If you require further information or have questions regarding this matter, please call me at (763) 278-5925.

Sincerely,

Mike DeRuyter
Environmental Scientist

Enclosures:
Figure 1 - Project Location Map

Cc: Patrick Smith, Geronimo Wind Energy, LLC

HDR Engineering, Inc.
701 Xenia Avenue South, Suite 600
Minneapolis, MN 55416
Phone (763) 591-5400
Fax (763) 591-5413
www.hdrinc.com

October 14, 2009

Ms. Lisa Joyal
Minnesota Department of Natural Resources
Natural Heritage Program
500 Lafayette Road
St. Paul, MN 55155-4025

RE: Paynesville-Zion Wind Project in Stearns County, MN

Dear Ms. Joyal:

HDR Engineering, Inc. (HDR) sent you a letter in November, 2008, requesting a search of the Natural Heritage Information Service (NHIS)database and your agency's comments in regards to the proposed Paynesville-Zion Wind Project, proposed by Geronimo Wind Energy, LLC (Geronimo) in Stearns County, Minnesota. Recently, the project boundary has changed and now includes additional sections adjacent to the previous project boundary. The proposed project nameplate will be 95 MW. This fall, Geronimo will submit a Site Permit Application for a Large Wind Energy Conversion System to the Minnesota Public Utilities Commission (PUC).

Typically wind facility construction includes erecting wind turbines and constructing associated facilities such as gravel access roads, an underground collector system and overhead 34.5 kV and 69 kV transmission lines. Although final turbine locations, access roads and electrical connections have not been determined at this time, the table below identifies Township sections potentially affected by the project:

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Paynesville	122N	32W	4, 5, 8, 9

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Minneapolis, MN 55416
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Township Name	Township	Range	Section
Spring Hill	124N	33W	36
Lake Henry	123N	33W	1; 11-13; 22-27

We welcome any comments the Minnesota Department of Natural Resources may have at this time or throughout the permit application process, and request a revised search of the NHIS database. Table 1 identifies the original sections within the Project boundary. In particular, HDR requests your review of the sections located in Paynesville, Lake Henry, Zion and Spring Hill townships, identified in Tables 1 and 2 for potential permit requirements for the DNR. Your comments will be incorporated into the PUC review process for the project.

Enclosed is a map detailing the location and project boundary of the Paynesville-Zion project area to facilitate your review. If you require further information or have questions regarding this matter, please call me at (763) 278-5925.

Sincerely,

Mike DeRuyter
Environmental Scientist

Enclosures:
Figure 1 - Project Location Map

Cc: Patrick Smith, Geronimo Wind Energy, LLC

October 14, 2009

Mr. Tom Hingsberger
Department of the Army
Corps of Engineers
St. Paul District, Attn: OP-R
190 Fifth Street East, Suite 401
St. Paul, MN 55101-1638

RE: Paynesville-Zion Wind Project in Stearns County, MN

Dear Mr. Hingsberger:

HDR Engineering, Inc. (HDR) sent you a letter on August 6, 2009, requesting your agency's comments in regards to the proposed Paynesville-Zion Wind Project, proposed by Geronimo Wind Energy, LLC (Geronimo) in Stearns County, Minnesota. Recently, the project boundary has changed and now includes additional sections adjacent to the previous project boundary. The proposed project nameplate will be 95 MW. This fall, Geronimo will submit a Site Permit Application for a Large Wind Energy Conversion System to the Minnesota Public Utilities Commission (PUC).

Typically wind facility construction includes erecting wind turbines and constructing associated facilities such as gravel access roads, an underground collector system and overhead 34.5 kV and 69 kV transmission lines. Although final turbine locations, access roads and electrical connections have not been determined at this time, the table below identifies Township sections potentially affected by the project:

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Township Name	Township	Range	Section
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We welcome any comments the U.S. Army Corps of Engineers may have at this time or throughout the permit application process. Table 1 identifies the original sections within the Project boundary. In particular, HDR requests your review of the sections located in Paynesville, Lake Henry, Zion and Spring Hill townships, identified in Tables 1 and 2 for jurisdictional waters or other potential permit requirements for the USACE. Your comments will be incorporated into the PUC review process for the project.

Enclosed is a map detailing the location and project boundary of the Paynesville-Zion project area to facilitate your review. If you require further information or have questions regarding this matter, please call me at (763) 278-5925.

Sincerely,

Mike DeRuyter
Environmental Scientist

Enclosures:
Figure 1 - Project Location Map

Cc: Patrick Smith, Geronimo Wind Energy, LLC

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701 Xenia Avenue South, Suite 600
Minneapolis, MN 55416
Phone (763) 591-5400
Fax (763) 591-5413
www.hdrinc.com

October 14, 2009

Mr. Richard Davis
U.S. Fish and Wildlife Service
Twin Cities Field Office
4101 American Boulevard East
Bloomington, MN 55425

RE: Paynesville-Zion Wind Project in Stearns County, MN

Dear Mr. Davis:

HDR Engineering, Inc. (HDR) and Geronimo Wind Energy met with you in July, 2009 to discuss your agency's concerns with the proposed Paynesville-Zion Wind Project, proposed by Geronimo Wind Energy, LLC (Geronimo) in Stearns County, Minnesota. Recently, the project boundary has changed and now includes additional sections adjacent to the previous project boundary. The proposed project nameplate will be 95 MW. This fall, Geronimo will submit a Site Permit Application for a Large Wind Energy Conversion System to the Minnesota Public Utilities Commission (PUC).

Typically wind facility construction includes erecting wind turbines and constructing associated facilities such as gravel access roads, an underground collector system and overhead 34.5 kV and 69 kV transmission lines. Although final turbine locations, access roads and electrical connections have not been determined at this time, the table below identifies Township sections potentially affected by the project:

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Township Name	Township	Range	Section
Lake Henry	123N	33W	1; 11-13; 22-27

We welcome any comments the U.S. Fish and Wildlife Service may have at this time or throughout the permit application process. Table 1 identifies the original sections within the Project boundary. In particular, HDR requests your review of the sections located in Paynesville, Lake Henry, Zion and Spring Hill townships, identified in Tables 1 and 2 for potential permitting requirements for the USFWS. Your comments will be incorporated into the PUC review process for the project.

Enclosed is a map detailing the location and project boundary of the Paynesville-Zion project area to facilitate your review. If you require further information or have questions regarding this matter, please call me at (763) 591-5479.

Sincerely,

Mike DeRuyter
Environmental Scientist

Enclosures:
Figure 1 - Project Location Map

Cc: Patrick Smith, Geronimo Wind Energy, LLC

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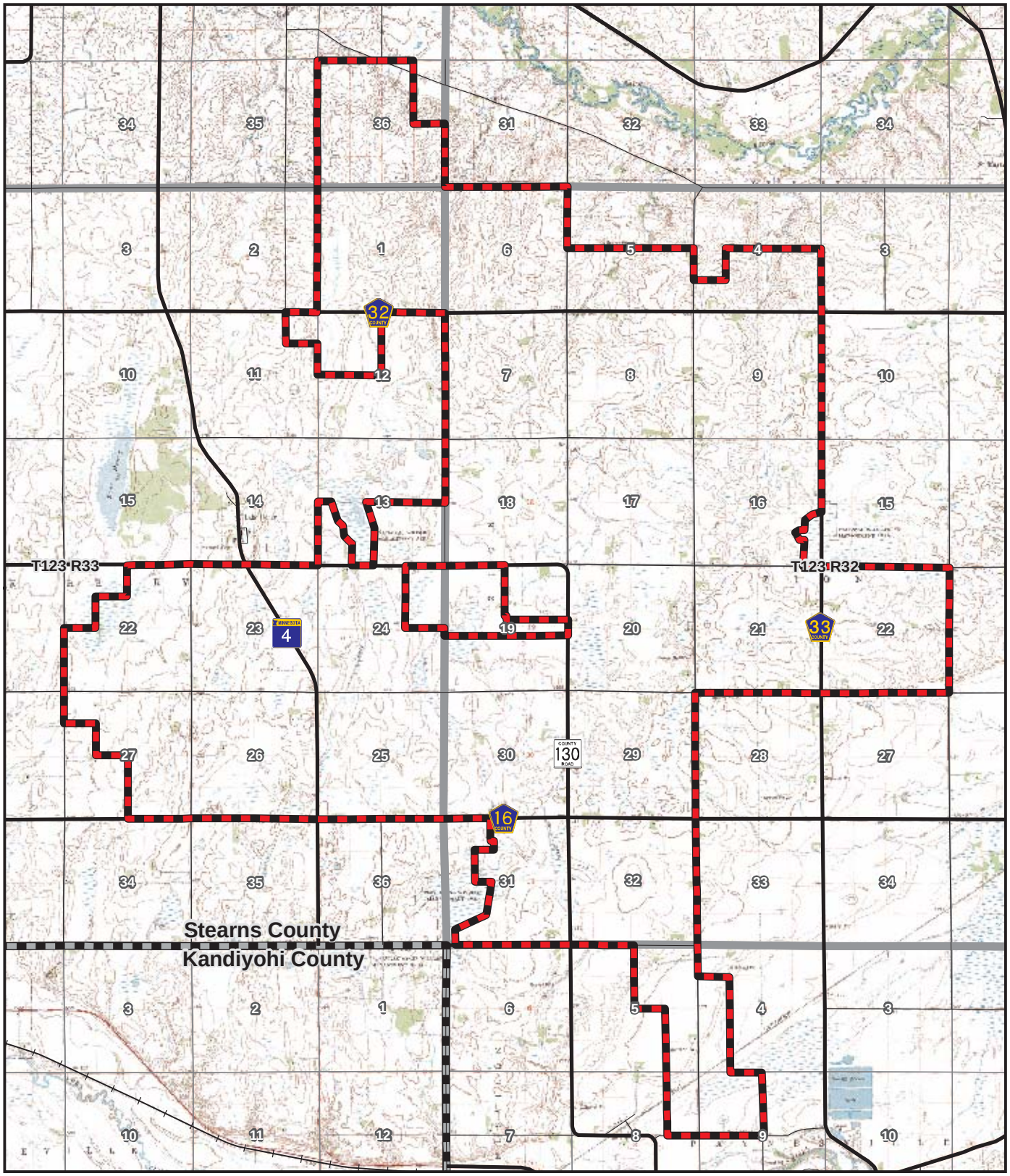

HDR

GERONIMO WIND ENERGY

N

0 0.25 0.5 1 1.5 Miles

Legend

Project Boundary

County Boundary

Figure 1. Project Location Map
Paynesville Wind Farm
Geronimo Wind Energy
Stearns County, MN

Map Document: (\\mspe-gis-file\GISProj\Geronimo\113498_Paynesville-Zion\map_docs\mxd\LWECS_Permit_Application\Fig1-2_ProjectLocationMap.mxd)
9/24/2009 -- 1:34:36 PM

October 5, 2009

David Birkholz
Minnesota Department of Commerce
85 7th Place East, Suite 500
St Paul, MN 55155

RE: Project Notice: Paynesville-Zion Wind Project, Project Area Revision
Stearns County, Minnesota

Dear David:

Geronimo Wind Energy, (Geronimo) sent you a project notification letter on August 4, 2009, for the Paynesville-Zion Wind Project (Project). The original letter detailed Geronimo's desire to develop a 20 square mile area for a wind farm. Since the initial letter was sent, Geronimo has expanded the project area to include an additional 5square miles. HDR Engineering, Inc. (HDR) is providing this letter so that project communication, coordination, and understanding can be updated for this project.

The Project site is located in the central part of Stearns County. Enclosed is a revised map. A table of the Study Area legal descriptions (Table 1) is below. Not yet determined are the proposed number of turbines and megawatt output, or the location of access roads, underground cabling alignments, overhead transmission lines, substation footprints, and operation and maintenance buildings.

Table 1. Paynesville-Zion Study Area Legal Descriptions

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Stearns	123	32	4-9, 16-22, and 29-32
Stearns	124	32	5

HDR understands that coordination with your office may be needed pursuant to the regulations and guidance cited in the August 4 letter.

As Geronimo's consultant, HDR intends to review cultural resource site forms and surveys within the revised project area to establish the known properties in the project vicinity, review Government Land Office maps for additional information, and review Geographic Information System-developed maps. The information we collect will be used for project planning and to identify potential project constraints. We will coordinate with your staff to collect data on file at your office.

We look forward to discussing the project and our data collection efforts with you or your staff. If you have any questions or comments please contact me at (763) 278-5992 or by e-mail at stephen.sabatke@hdrinc.com.

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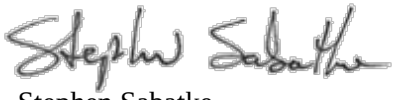

Stephen Sabatke
Archaeologist

cc: Kelly Gragg-Johnson SHPO Review and Compliance Associate
Scott Anfinson State Archaeologist
Michael S. DeRuyter HDR Environmental Scientist
Patrick Smith Geronimo Environmental Specialist

Enclosures: Project Location Map (Figure 1)

October 5, 2009

Kelly Gragg-Johnson
Review and Compliance Associate
Minnesota Historical Society
345 Kellogg Boulevard West
Saint Paul, Minnesota 55102

RE: Project Notice: Paynesville-Zion Wind Project, Project Area Revision
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Stearns	122	33	36
Stearns	123	33	1, 11-13, and 22-27
Stearns	123	32	4-9, 16-22, and 29-32
Stearns	124	32	5

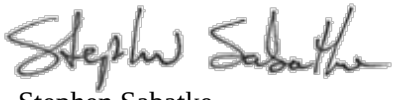
HDR understands that coordination with your office may be needed pursuant to the regulations and guidance cited in the August 4 letter.

As Geronimo's consultant, HDR intends to review cultural resource site forms and surveys within the revised project area to establish the known properties in the project vicinity, review Government Land Office maps for additional information, and review Geographic Information System-developed maps. The information we collect will be used for project planning and to identify potential project constraints. We will coordinate with your staff to collect data on file at your office.

We look forward to discussing the project and our data collection efforts with you or your staff. If you have any questions or comments please contact me at (763) 278-5992 or by e-mail at stephen.sabatke@hdrinc.com.

Sincerely,

HDR Engineering, Inc.



Stephen Sabatke
Archaeologist

cc: David Birkholz Minnesota Department of Commerce
Scott Anfinson State Archaeologist
Michael S. DeRuyter HDR Environmental Scientist
Patrick Smith Geronimo Environmental Specialist

Enclosures: Project Location Map (Figure 1)

October 5, 2009

Scott Anfinson
State Archaeologist
Minnesota Office of the State Archaeologist
Fort Snelling History Center
Saint Paul, Minnesota 55111

RE: Project Notice: Paynesville-Zion Wind Project, Project Area Revision
Stearns County, Minnesota

Dear Scott:

Geronimo Wind Energy, (Geronimo) sent you a project notification letter on August 4, 2009, for the Paynesville-Zion Wind Project (Project). The original letter detailed Geronimo's desire to develop a 20 square mile area for a wind farm. Since the initial letter was sent, Geronimo has expanded the project area to include an additional 5square miles. HDR Engineering, Inc. (HDR) is providing this letter so that project communication, coordination, and understanding can be updated for this project.

The Project site is located in the central part of Stearns County. Enclosed is a revised map. A table of the Study Area legal descriptions (Table 1) is below. Not yet determined is the proposed number of turbines and megawatt output, or the location of access roads, underground cabling alignments, overhead transmission lines, substation footprints, and operation and maintenance buildings.

Table 1. Paynesville-Zion Study Area
Legal Descriptions

County	Township	Range	Section
Stearns	122	33	36
Stearns	123	33	1, 11-13, and 22-27
Stearns	123	32	4-9, 16-22, and 29-32
Stearns	124	32	5

HDR understands that coordination with your office may be needed pursuant to the regulations and guidance cited in the August 4 letter.

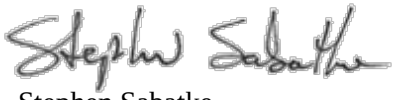
As Geronimo's consultant, HDR intends to review cultural resource site forms and surveys within the revised project area to establish the known properties in the project vicinity, review Government Land Office maps for additional information, and review Geographic Information System-developed maps. The information we collect will be used for project planning and to identify potential project constraints. We will coordinate with your staff to collect data on file at your office.

HDR Engineering, Inc.
701 Xenia Avenue South
Minneapolis, MN 55416-3636
Phone (763) 591-5400
Fax (763) 591-5413
www.hdrinc.com

We look forward to discussing the project and our data collection efforts with you or your staff. If you have any questions or comments please contact me at (763) 278-5992 or by e-mail at stephen.sabatke@hdrinc.com.

Sincerely,

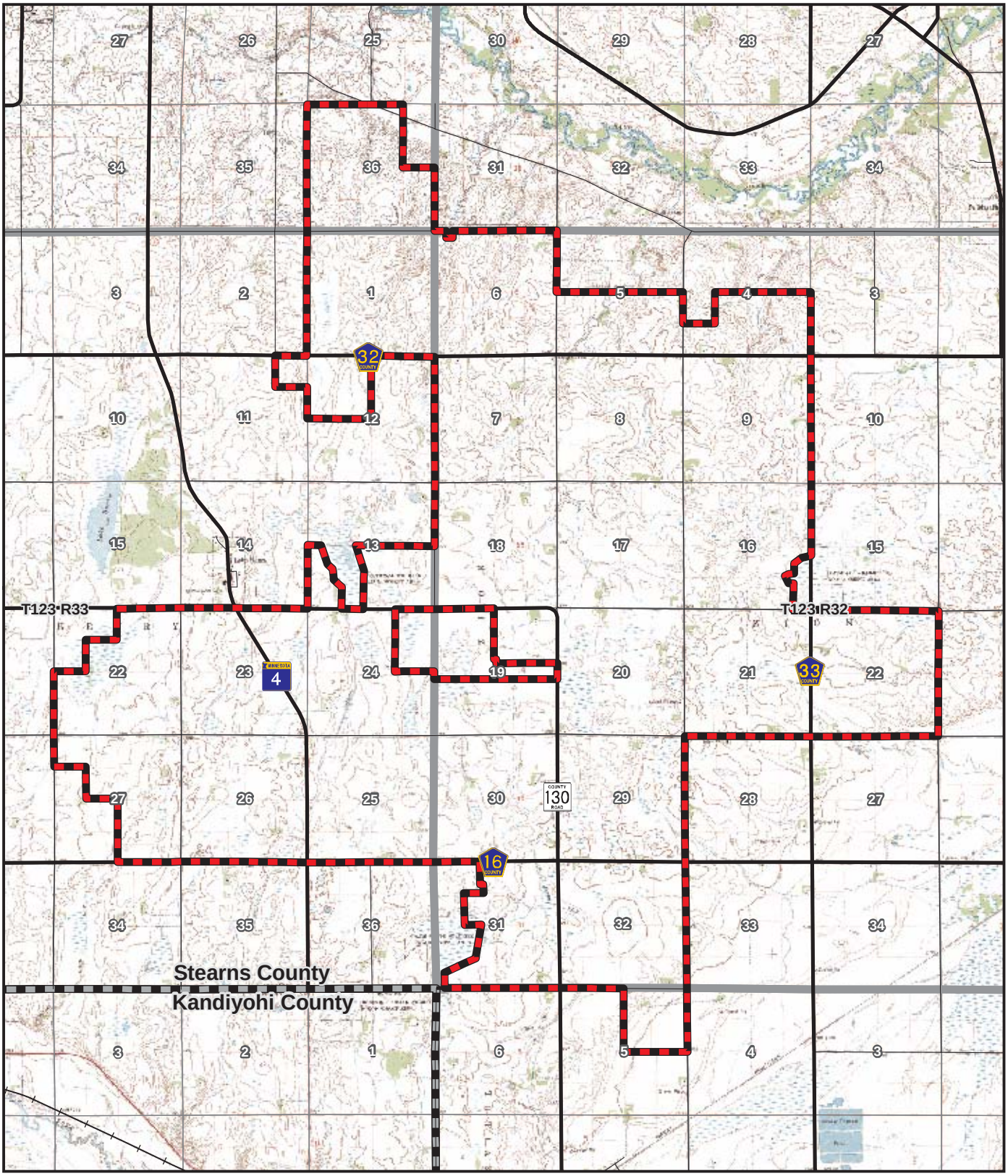
HDR Engineering, Inc.



Stephen Sabatke
Archaeologist

cc: Kelly Gragg-Johnson SHPO Review and Compliance Associate
David Birkholz Minnesota Department of Commerce
Michael S. DeRuyter HDR Environmental Scientist
Patrick Smith Geronimo Environmental Specialist

Enclosures: Project Location Map (Figure 1)



HDR

GERONIMO WIND ENERGY

N

0 0.25 0.5 1 1.5 Miles

Legend

Project Boundary

County Boundary

Figure 1. Project Location Map
Paynesville-Zion Wind Project
Geronimo Wind Energy
Stearns County, MN

Map Document: (\\mspe-gis-file\GISProj\Geronimo\113498_Paynesville-Zion\map_docs\mxd\LWECS_Permit_Application\Fig1-2_ProjectLocationMap.mxd)
9/24/2009 -- 1:34:36 PM

Minnesota Department of Natural Resources

Division of Ecological Resources, Box 25

500 Lafayette Road

St. Paul, Minnesota 55155-4025

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

December 22, 2008

Mr. Patrick Smith
Geronimo Wind Energy
5050 Lincoln Drive, #420
Edina, MN 55436

Re: Request for Natural Heritage information in the vicinity of the proposed Paynesville Wind Farm, T123N R32W Sections 20-22 & 29-32, Stearns County
Correspondence # : ERDB 20090197

Dear Mr. Smith,

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, several rare features have been documented within the search area (for details, see the enclosed database reports). Please address the following issues in the Public Utilities Commission (PUC) Site Permit Application for this project:

- Several Wildlife Management Areas (WMAs) are located in the vicinity of the project area (a GIS shapefile of the State Wildlife Management Area Boundaries can be downloaded from the DNR Data Deli at http://deli.dnr.state.mn.us/). The boundary of the proposed project should be modified to explicitly exclude all WMAs. In addition, we recommend a minimum ¼ mile setback from all WMAs for all wind turbines. Please contact the Area Wildlife Manager, Fred Bengtson at 320-255-4279, to discuss any concerns he may have about turbines being sited near the WMAs.

- There are also several USFWS Waterfowl Production Areas in the vicinity of the project area. If you have not done so already, I encourage you to contact the USFWS Twin Cities Field Office at 612-725-3548.

- In 1997, there were several breeding season observations of marbled godwits (*Limosa fedoa*), a state-listed bird of special concern, in the vicinity of the project. In addition, the WMAs and WPAs in the vicinity provide habitat during the breeding season and during migration for many other species of birds. Given this, and the potential for wind turbines to cause avian mortality, we strongly encourage pre- and post-construction avian monitoring. Any cumulative impact assessment should also address the issue of avian mortality.

- Please send me a copy of the Preconstruction Biological Preservation Survey (Section III.D.1. of the Site Permit) required by the PUC.

- If applicable, please send me a copy of the native prairie protection and management plan (Section III.C.6. of the Site Permit). The plan should include measures to avoid impacts to native prairie and measures to mitigate for impacts if unavoidable.

- Given that the proposed project is within an important complex of wildlife habitats and conservation lands, we also encourage you to consider alternate locations for the proposed wind farm so that the most appropriate site in this area may be selected. Further guidance on wind farm siting can be found at http://www.fws.gov/midwest/Eco_Serv/wind/index.htm.

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 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.

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.**

Please be aware that this letter focuses only on potential effects to *rare natural features*; there may be other natural resource concerns associated with the proposed project. This letter does not constitute review or approval by the Department of Natural Resources as a whole. If you would like further information on the environmental review process, please contact your Regional Environmental Assessment Ecologist, Mike North, at 320-255-4279 ext. 235.

An invoice in the amount of $86.04 will be mailed to you under separate cover within two weeks of the date of this letter. You are being billed for the database search and printouts, 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 Joyal

Lisa Joyal
Endangered Species Environmental Review Coordinator

enc. Rare Features Database: Index Report
Rare Features Database: Detail Report
Rare Features Database Reports: An Explanation of Fields

cc: Fred Bengtson
Mike North
Matt Langan

Printed October 2008
Data valid for one year

Minnesota Natural Heritage Information System: Rare Features Database
Index Report of records within 1 mile radius of:
Paynesville Windfarm
Multiple TRS
Stearns County

Element Name and Occurrence Number	Federal Status	MN Status	State Rank	Global Rank	Last Observed Date	EO ID #
Stearns County, MN						
Bartramia longicauda (Upland Sandpiper) #400 Location Description: T122N R32W S9, T122N R32W S4		NON	S4B	G5	1997-06-18	23020
Cypripedium candidum (Small White Lady's-slipper) #273 Location Description: T122N R32W S4		SPC	S3	G4	1997-06-05	22297
Cypripedium candidum (Small White Lady's-slipper) #274 Location Description: T122N R32W S4, T122N R32W S3		SPC	S3	G4	1997-06-05	22298
Cypripedium candidum (Small White Lady's-slipper) #275 Location Description: T123N R32W S22, T123N R32W S16, T123N R32W S15, T123N R32W S21		SPC	S3	G4	1997-06-10	22300
Cypripedium candidum (Small White Lady's-slipper) #282 Location Description: T122N R32W S9, T122N R32W S3, T122N R32W S4		SPC	S3	G4	1998-06-02	23863
Limosa fedoa (Marbled Godwit) #137 Location Description: T123N R32W S29, T123N R32W S31, T123N R32W S30, T123N R33W S25		SPC	S3B	G5	1997-06-30	22769
Limosa fedoa (Marbled Godwit) #145 Location Description: T123N R32W S21, T123N R32W S15, T123N R32W S16		SPC	S3B	G5	1997-06-10	22767
Limosa fedoa (Marbled Godwit) #261 Location Description: T123N R32W S22, T123N R32W S15		SPC	S3B	G5	1997-06-06	22928
Mesic Prairie (Southern) Type #6 Location Description: T122N R32W S4		N/A	S2	GNR	1997-06-05	1257
Mesic Prairie (Southern) Type #475 Location Description: T123N R32W S22, T123N R32W S16, T123N R32W S15, T123N R32W S21		N/A	S2	GNR	1997-06-10	27303
Speyeria idalia (Regal Fritillary) #62 Location Description: T122N R32W S4, T122N R32W S9, T123N R32W S34, T122N R32W S10, T [...]		SPC	S3	G3	1997-07-15	23556
Wet Prairie (Southern) Type #20 Location Description: T122N R32W S9, T122N R32W S4		N/A	S2	GNR	1998-06-02	461
Wet Prairie (Southern) Type #126 Location Description: T123N R32W S34, T122N R32W S3, T122N R32W S4		N/A	S2	GNR	1998-06-02	24692

Records Printed = 13

Copyright 2008, Division of Ecological Resources, State of Minnesota DNR

The Division of Ecological Resources 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 Division of Ecological Resources, 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.

Location Description: County or Counties in which the Element Occurrence was documented followed by Township, Range, and Section information (not listed in any particular order). Each unique Township, Range, and Section combination is separated by a comma. In some cases, there are too many Township, Range, and Section combinations to list in the field, in which case, the information will be replaced with, "Legal description is too lengthy to fit in allotted space".

-M-

Managed Area(s): Name of the federally, state, locally, or privately managed park, forest, refuge, preserve, etc., containing the occurrence, if any. If this field is blank, the element probably occurs on private land. If "(Statutory Boundary)" occurs after the name of a managed area, the location may be a private inholding within the statutory boundary of a state forest or park.

MN Status: [Minnesota Status]. Legal status of plant and animal species under the Minnesota Endangered Species Law: END = endangered; THR = threatened; SPC = special concern; NON = tracked, but no legal status. Native plant communities, geological features, and colonial waterbird nesting sites do not have any legal status under the Endangered Species Law and are represented by a N/A.

-N-

NPC Classification (v1.5): Native plant community name in Minnesota's Native Vegetation: A Key to Natural Communities (Version 1.5). This earlier classification has been replaced by Minnesota's Native Plant Community Classification (Version 2.0).

-O-

Observed Area: The total area of the Element Occurrence, in acres, which is measured or estimated during fieldwork. If null, the value has not been determined.

Ownership Type: Indicates whether the land on which the Element Occurrence was located was publicly or privately owned; for publicly owned land, the agency with management responsibility is listed, if known.

-S-

Site Name: The name of the site(s) where the Element Occurrence is located. Sites are natural areas of land with boundaries determined and mapped according to biological and ecological considerations.

Survey Site #/Name: The name of the survey site, if applicable, where the Element Occurrence is located. Survey sites are sites that provide a geographic framework for recording and storing data, but their boundaries are not based on biological and ecological considerations. Minnesota County Biological Survey site numbers, if applicable, are also listed in this field.

Survey Type: Information on the type of survey used to collect information on the Element Occurrence.

Surveyor(s): Name(s) of the person(s) that collected survey information on the Element Occurrence.

State Rank: Rank that best characterizes the relative rarity or endangerment of the taxon or plant community in Minnesota. The ranks do not represent a legal status. They are used by the Minnesota Department of Natural Resources to set priorities for research, inventory and conservation planning. The state ranks are updated as inventory information becomes available. S1 = Critically imperiled in Minnesota because of extreme rarity or because of some factor(s) making it especially vulnerable to extirpation from the state. S2 = Imperiled in Minnesota because of rarity or because of some factor(s) making it very vulnerable to extirpation from the state. S3 = Vulnerable in Minnesota either because rare or uncommon, or found in a restricted range, or because of other factors making it vulnerable to extirpation. S4 = Apparently secure in Minnesota, usually widespread. S5 = Demonstrably secure in Minnesota, essentially ineradicable under present conditions. SH = Of historical occurrence in the state, perhaps having not been verified in the past 20 years, but suspected to be still extant. An element would become SH without the 20-year delay if the only known occurrences in the state were destroyed or if it had been extensively and unsuccessfully looked for. SNR = Rank not yet assessed. SU = Unable to rank. SX = Presumed extinct in Minnesota. SNA = Rank not applicable. S#S# = Range Rank: a numeric range rank (e.g., S2S3) is used to indicate the range of uncertainty about the exact status of the element. S#B, S#N = Used only for migratory animals, whereby B refers to the breeding population of the element in Minnesota and N refers to the non-breeding population of the element in Minnesota.

-V-

Vegetation Plot: Code(s) for any vegetation plot data that have been collected within this Element Occurrence (i.e., either Releve Number or the word "RELEVE" indicates that a releve has been collected).

---

* Element Occurrence – an area of land and/or water in which an Element (i.e., a rare species or community) is, or was, present, and which has practical conservation value for the Element as evidenced by potential continued (or historical) presence and/or regular recurrence at a given location. Specifications for each species determine whether multiple observations should be considered 1 Element Occurrence or 2, based on minimum separation distance and barriers to movement.

Data Security

Locations of some rare features must be treated as sensitive information because widespread knowledge of these locations could result in harm to the rare features. For example, wildflowers such as orchids and economically valuable plants such as ginseng are vulnerable to exploitation by collectors; other species, such as bald eagles, are sensitive to disturbance by observers. For this reason, we prefer that publications not identify the precise locations of vulnerable species. We suggest describing the location only to the nearest section. If this is not acceptable for your purposes, please call and discuss this issue with the Endangered Species Environmental Review Coordinator at (651) 259-5109.

HDR | ONE COMPANY *Many Solutions*℠

Meeting Notes

Subject: Geronimo Paynesville Wind Farm		
Client: Geronimo Wind Energy, LLC	Project No: 113498	
Project: Paynesville Wind Farm	Meeting Location:	Minnesota Valley National Wildlife Refuge, Bloomington, MN and Conference Call
Meeting Date: July 21, 2009	Notes by:	Mike DeRuyter

**NOTE: ALTHOUGH SEVERAL GERONIMO WIND PROJECTS WERE DISCUSSED AT THIS MEETING, THESE MINUTES HAVE BEEN EDITED TO ONLY INCLUDE THE PORTIONS OF THE DISCUSSION RELEVANT TO THE PAYNESVILLE PROJECT*

ATTENDEES:

Mike North – (conference call) Minnesota DNR Regional Environmental Assessment Ecologist, Central Region, michael.north@drn.state.mn.us, 320-255-4279, ext. 235

John Schaldweiler – (conference call) Minnesota DNR , Ecological Resources Regional Manager, South Region, john.schladweiler@dnr.state.mn.us, 507-359-6003

Todd Mattson – HDR, Senior Environmental Project Manager, todd.mattson@hdrinc.com, 763-278-5931

Mike DeRuyter – HDR, Environmental Scientist, michael.deruyter@hdrinc.com, 763-591-5479

Patrick Smith – Geronimo, Environmental Specialist, patrick@geronimowind.com, 952-988-9000

Charlie Daum – Geronimo, Director of Development, charlie@geronimowind.com, 952-988-9000

Justin Pickar – Geronimo, Development Associate, justin@geronimowind.com, 952-988-9000

Kevin Mixon – (conference call) Minnesota DNR, Regional Environmental Assessment Ecologist, South region, kevin.mixon@dnr.state.mn.us , 507-359-6073

Nick Snavely – (conference call) Minnesota DNR, Assistant Area Wildlife Manager, nicholas.snavely@dnr.state.mn.us, 320-255-4279

Rich Davis – USFWS Fish and Wildlife Biologist, Richard_Davis@fws.gov, 612-725-3548, ext. 2214

TOPICS DISCUSSED

Introduce Geronimo Projects
Near term projects and schedule
Site characterization
Additional Wildlife Studies

ACTION/NOTES

Geronimo Projects: Multiple projects in early development stages throughout the state, including the 95 MW Paynesville Wind Farm in Stearns County.

Near Term Projects and Schedules: Paynesville is slated for 2010 construction. A site characterization study is in progress, and Minnesota Large Wind Energy Conversion System (LWECS) permit will be required by the Department of Commerce (DOC). The LWECS application will be submitted to the DOC this fall, with approvals and pre-construction meeting expected in June or July, 2010. Geronimo is considering participation in the U.S. Department of Energy's loan guarantee program. While details about this program are not yet fully understood, this would be a non-discretionary federal funding mechanism that is expected to trigger NEPA review at an EA level.

Site Characterization: HDR described habitat, land cover, general characterization of the Paynesville site. The site is mostly cropland, with little or no native habitats within the project boundary. Several Wildlife Management Areas (WMAs) and Waterfowl Production Areas (WPAs) are located near the project boundary, two of which bordering and one within the project boundary. DNR staff asked why the Zion WMA was included within the project boundary, since the December 22, 2008 letter from the DNR to Geronimo said the boundary should be modified to explicitly exclude all WMA's. They also asked what the proposed setback would be from WMAs. Charlie Daum said they plan to use a 1,250 to 1,500 foot setback.

DNR staff said that there is native prairie within the Lake Henry WMA, which borders the project boundary, and that they would prefer a ½ mile setback from native prairie. They asked how many turbines are proposed at the site. Patrick Smith said 63 turbines are currently planned for the project.

HDR presented a broad overview of the LWECS schedule. Layouts will be developed in August, field surveys will be completed this fall, and the LWECS permit will be submitted to the DOC in October. The plan is to hold site meetings with the agencies and have permit approvals in place in spring, 2010, with construction planned for mid-summer to autumn, 2010. Geronimo is exploring the possibility of applying for the U.S. Department of Energy's loan guarantee program, which is a federal discretionary funding mechanism for wind projects that is part of the stimulus plan. This will trigger NEPA review, although the exact process has not been worked out.

DNR staff asked where the power will be routed for the Paynesville project. Patrick Smith said there are 2 potential interconnection points- one within the site, and one approximately 4 miles south in the City of Paynesville. DNR staff indicated they do not want transmission lines to run north along County Highway 4, which could result in impacts to a calcareous fen.

DNR staff asked whether smoke discharge could conflict with a wind farm, as it sometimes creates conflicts with transmission lines during prescribed burns for management purposes.

HDR and Geronimo staff said they did know of any conflicts with smoke discharge near wind farms.

HDR said that a site characterization study is being completed based on USFWS wind farm siting guidelines. Emphasis will be placed on avoidance of significant habitat and features. Geronimo has committed to developing an Avian and Bat Protection Plan (ABPP) that will include specific commitments to project design standards that minimize impacts to birds and bats. HDR asked whether there are any specific issues regarding migratory birds that USFWS has, and how they want them addressed. USFWS staff said they had not looked at the Paynesville site in regard to avian issues.

DNR staff expressed concern that there are known records of marbled godwit in the project area and that this species requires a large area of grassland habitat. They suggested that Geronimo consult with Bob Russell in the FWS regional office, as he has done work related to this species.

DNR staff from the Rock County area said they are recommending avian mortality studies for wind projects, which they said the DNR will apply to wind projects across the state. They are developing protocol that they will send to Geronimo in a few weeks. They said to expect the survey protocol to consist of pedestrian surveys in a 100 meter radius around each turbine base for 5 days per week between April 1st and November 15th. They anticipate that this method will accurately measure mortality during the spring, breeding season, and fall, to account for any mortality during the season.

DNR staff also said they are working on a guidance document for wind projects that will include recommendations for setbacks from natural features. He said the draft document is not available yet, but they expect to adopt the draft in August or September. He said to expect the following setbacks to be included in the draft recommendations:

1,000 feet from Public Waters
600 feet from non-public Circular 39 Types 3, 4, and 5 wetlands
¼ mile from native prairie
5 rotor diameter from WMAs in all directions
Other areas that DNR staff wants avoided, based on input from regional and Natural Heritage Program staff

HDR asked if any industry comments had been solicited during the development of these recommendations. DNR staff said that industry comment was not requested because the guidance is based solely on DNR's mission as an agency to protect the resource.
HDR asked if the recommendations are based on any scientific research relating to wind turbine impacts. DNR staff said that the 600 foot setback from Type 3, 4, and 5 wetlands is included in many county ordinances, and the 1,000 foot setback from Public Waters is meant to avoid shadow flicker and other impacts to Public Waters. DNR staff emphasized that the forthcoming guidance will be only be recommendations, not requirements, and that there would be flexibility based on site specific circumstances.

DNR staff asked how long the leases would be. Geronimo said they would be for 20 years, with three 10-year extensions possible. DNR staff asked that during installation of collector lines, vehicles would be cleaned off after passing through wetland areas in order to avoid spreading exotic species.

Minnesota
Historical Society
STATE HISTORIC PRESERVATION OFFICE

RECEIVED
SEP 29 2009
HDR Engineering, Inc.

September 24, 2009

Mr. Stephen Sabatke
HDR Engineering, Inc.
701 Xenia Avenue South, Suite 600
Minneapolis, MN 55416

RE: Geronimo Wind Energy's Paynesville-Zion Wind Project
Stearns County
SHPO Number: 2009-3432

Dear Mr. Sabatke:

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.

Due to the nature of the proposed project, we recommend that an archaeological survey 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 me at (651) 259-3456.

Sincerely,

Kelly Gragg-Johnson

for Dennis A. Gimmestad
Government Programs and Compliance Officer

Enclosure: List of Consultants

DEPARTMENT OF THE ARMY
ST. PAUL DISTRICT, CORPS OF ENGINEERS
SIBLEY SQUARE AT MEARS PARK
190 FIFTH STREET EAST, SUITE 401
ST. PAUL MINNESOTA 55101-1638

REPLY TO
ATTENTION

OCT 16 2009

RECEIVED
OCT 19 2009
HDR Engineering, Inc.

Operations
Regulatory (2009-04755-TJH)

Mr. Mike DeRuyter
HDR Engineering, Inc.
701 Xenia Avenue South, Suite 600
Minneapolis, MN 55416

Dear Mr. DeRuyter:

We have received your letter dated 14 October 2009 requesting comments regarding the Paynesville-Zion Wind Project proposal of Geronimo Wind Energy, LLC in Stearns County, Minnesota. Due to limited staff and resources, it is unlikely that U.S. Army Corps of Engineers Regulatory staff will review or comment on this document until we receive a jurisdictional determination request and/or a permit application. In lieu of a specific response, please consider the following general information concerning our regulatory program that may apply to the proposed project.

If the proposal involves activity in navigable waters of the United States, it may be subject to the Corps of Engineers' jurisdiction under Section 10 of the Rivers and Harbors Act of 1899 (Section 10). Section 10 prohibits the construction, excavation, or deposition of materials in, over, or under navigable waters of the United States, or any work that would affect the course, location, condition, or capacity of those waters, unless the work has been authorized by a Department of the Army permit.

If the proposal involves discharge of dredged or fill material into waters of the United States, it may be subject to the Corps of Engineers' jurisdiction under Section 404 of the Clean Water Act (CWA Section 404). Waters of the United States include navigable waters, their tributaries, and adjacent wetlands (33 CFR § 328.3). CWA Section 301(a) prohibits discharges of dredged or fill material into waters of the United States, unless the work has been authorized by a Department of the Army permit under Section 404. Information about the Corps permitting process can be obtained online at http://www.mvp.usace.army.mil/regulatory.

The Corps' evaluation of a Section 10 and/or a Section 404 permit application involves multiple analyses, including (1) evaluating the proposal's impacts in accordance with the National Environmental Policy Act (NEPA) (33 CFR part 325), (2) determining whether the proposal is contrary to the public interest (33 CFR § 320.4), and (3) in the case of a Section 404 permit, determining whether the proposal complies with the Section 404(b)(1) Guidelines (Guidelines) (40 CFR part 230).

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If the proposal requires a Section 404 permit application, the Guidelines specifically require that "no discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences" (40 CFR § 230.10(a)). Time and money spent on the proposal prior to applying for a Section 404 permit cannot be factored into the Corps' decision whether there is a less damaging practicable alternative to the proposal.

If an application for a Corps permit has not yet been submitted, the project proposer may request a pre-application consultation meeting with the Corps to obtain information regarding the data, studies or other information that will be necessary for the permit evaluation process. A pre-application consultation meeting is strongly recommended if the proposal has substantial impacts to waters of the United States, or if it is a large or controversial project.

For further information or to request a pre-application consultation meeting, please contact Tom Hingsberger at 651-290-5367, the Corps' project manager for the County in which this proposal is located.

Sincerely,

for Tamara E. Cameron
Chief, Regulatory Branch

Minnesota Department of Natural Resources

Division of Ecological Resources
940 Industrial Drive South, Suite 103
Sauk Rapids, Minnesota 56379

320-255-4279 ext 235

November 13, 2009

Mr. Mike DeRuyter
HDR Engineering, Inc.
701 Xenia Avenue South, Suite 600
Minneapolis, Minnesota 55416

Dear Mr. DeRuyter:

The Minnesota Department of Natural Resources has received your letter of October 14, 2009 inviting comments on an expanded boundary for the Paynesville-Zion Windfarm in Stearns County.

Your letter indicates that the boundary has been expanded by adding sections 4, 5, and 6 in Zion Twp.; sections 4, 5, 8, and 9 in Paynesville Twp.; section 36 in Spring Hill Twp.; and sections 13, 22, and 27 in Lake Henry Twp. However, materials available to me do not indicate we were aware that sections 23-26 had previously been proposed within the windfarm boundary, so I am treating them as also new in this response.

I recommend that you reconnect with Lisa Joyal in our Natural Heritage Program to request an updated search of the Natural Heritage Database. The addition of the sections in Paynesville Twp. abut mapped native plant communities, and it includes a portion of the Glacial Lake State Trail. Any transmission line crossings of the trail would require a License to Cross Public Lands from the Department.

I have also checked the website of the Minnesota Breeding Bird Atlas and downloaded and attached some data that has been collected on breeding birds in the area. The data is not comprehensive, but informative. In addition to the typical species adapted to rural agriculture, there are several grassland species (e.g., vesper sparrow, clay-colored sparrow, dickcissel, sedge wren, common yellowthroat, horned lark) that represent a guild of birds that are in significant decline (i.e., 61% of grassland species [Sauer et al. 2008],[1] attached). There was also a surprising number of confirmed breeding records of American kestrels (i.e., 3 of only 10 reported throughout the state). Please note that there are no data yet from Spring Hill Twp. or the part of Lake Henry Twp. encompassing sections 22-27. (In the breeding bird atlas survey, each township is divided into four blocks: block "a" contains sections 1-3 and 10-15, block "b" contains sections 22-27 and 34-36, block "c" contains sections 19-21 and 28-33, and block "d" contains sections 4-9

[1] Sauer, J.R., J.E. Hines, and J. Fallon. 2008. The North American Breeding Bird Survey, Results and Analysis 1966-2007. Online via Patuxent Wildlife Research Center.

and 16-18). We recommend additional surveys to characterize the breeding bird community throughout the entire windfarm project area.

Thank you for the opportunity to review the additional information. If you have any questions, please contact me at 320-255-4279 ext. 235.

Sincerely,

Michael R. North

Michael R. North
Regional Environmental Assessment Ecologist

ERDB 20090195, 20090197

Attachments

Cc: Randall Doneen, Lisa Joyal, Jan Wolff (DNR)

Block Profile: T123R32d (T123R32d)

General Information | 2009-2013 Results | Block Map

Results from 2009-13

print Results

Observed	Possible	Probable	Confirmed	Total
1	4	0	5	10

Several sensitive species are not being displayed at this time

- Flagged records to be reviewed.

Species (alphabetic) (taxonomic)	Breeding Evidence
Canada Goose (*Branta canadensis*)	Confirmed (FL)
Great Blue Heron* (*Ardea herodias*)	Observed (O)
Horned Lark (*Eremophila alpestris*)	Possible (X)
Barn Swallow (*Hirundo rustica*)	Confirmed (FL)
Sedge Wren (*Cistothorus platensis*)	Possible (X)
European Starling (*Sturnus vulgaris*)	Confirmed (FL)
Common Yellowthroat (*Geothlypis trichas*)	Possible (X)
Red-winged Blackbird (*Agelaius phoeniceus*)	Confirmed (FY)
American Goldfinch (*Carduelis tristis*)	Possible (X)
House Sparrow (*Passer domesticus*)	Confirmed (FL)

Block Profile: T123R32c (T123R32c)

General Information | 2009-2013 Results | Block Map

print Results

Results from 2009-13

Observed	Possible	Probable	Confirmed	Total
0	6	2	4	12

Several sensitive species are not being displayed at this time

- Flagged records to be reviewed.

Species (alphabetic) (taxonomic)	Breeding Evidence
Blue-winged Teal (*Anas discors*)	Possible (X)
American Kestrel (*Falco sparverius*)	Confirmed (FL)
Killdeer (*Charadrius vociferus*)	Possible (X)
Rock Pigeon (*Columba livia*)	Possible (X)
Mourning Dove (*Zenaida macroura*)	Probable (P)
Eastern Kingbird (*Tyrannus tyrannus*)	Confirmed (FL)
Barn Swallow (*Hirundo rustica*)	Confirmed (FL)
Sedge Wren (*Cistothorus platensis*)	Probable (M)
Eastern Bluebird (*Sialia sialis*)	Possible (X)
Clay-colored Sparrow (*Spizella pallida*)	Confirmed (FY)
American Goldfinch (*Carduelis tristis*)	Possible (X)
House Sparrow (*Passer domesticus*)	Possible (X)

Block Profile: T123R32b (T123R32b)

General Information | 2009-2013 Results | Block Map

print Results

Results from 2009-13

Observed	Possible	Probable	Confirmed	Total
0	7	0	6	13

Several sensitive species are not being displayed at this time

- Flagged records to be reviewed.

Species (alphabetic) (taxonomic)	Breeding Evidence
Canada Goose (*Branta canadensis*)	Confirmed (FL)
Mallard (*Anas platyrhynchos*)	Confirmed (FL)
Ring-necked Pheasant (*Phasianus colchicus*)	Confirmed (FL)
American Kestrel (*Falco sparverius*)	Confirmed (FL)
Mourning Dove (*Zenaida macroura*)	Possible (X)
Eastern Kingbird (*Tyrannus tyrannus*)	Confirmed (FL)
Horned Lark (*Eremophila alpestris*)	Possible (X)
Barn Swallow (*Hirundo rustica*)	Confirmed (FL)
Sedge Wren (*Cistothorus platensis*)	Possible (X)
American Robin (*Turdus migratorius*)	Possible (X)
Vesper Sparrow (*Pooecetes gramineus*)	Possible (X)
Song Sparrow (*Melospiza melodia*)	Possible (X)
American Goldfinch (*Carduelis tristis*)	Possible (X)

Block Profile: T123R33a (T123R33a)

General Information | 2009-2013 Results | Block Map

print Results

Results from 2009-13

Observed	Possible	Probable	Confirmed	Total
1	5	3	2	11

Several sensitive species are not being displayed at this time

- Flagged records to be reviewed.

Species (alphabetic) (taxonomic)	Breeding Evidence
Great Blue Heron* (*Ardea herodias*)	Observed (O)
American Kestrel (*Falco sparverius*)	Confirmed (FL)
Killdeer (*Charadrius vociferus*)	Possible (X)
Mourning Dove (*Zenaida macroura*)	Probable (P)
Horned Lark (*Eremophila alpestris*)	Confirmed (FL)
Sedge Wren (*Cistothorus platensis*)	Possible (X)
American Robin (*Turdus migratorius*)	Probable (P)
Common Yellowthroat (*Geothlypis trichas*)	Possible (X)
Clay-colored Sparrow (*Spizella pallida*)	Possible (X)
Dickcissel (*Spiza americana*)	Possible (X)
American Goldfinch (*Carduelis tristis*)	Probable (M)

Block Profile: T123R33b (T123R33b)

General Information | 2009-2013 Results | Block Map

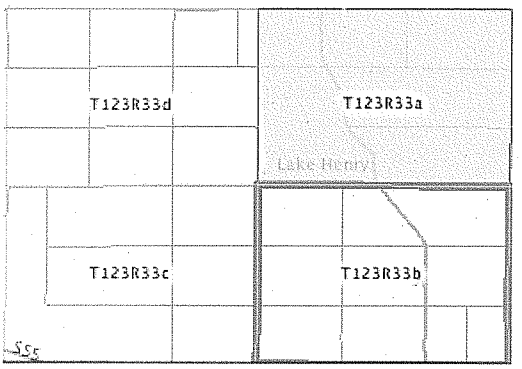
T123R33b (T123R33b)

Block Status: Incomplete
Block Owner: Unowned
Priority Block: No (T123R33a)
Region: Region 17 (Bonnie Sample, Surveyor)
Hours of Effort:
Block Owner (0 hrs.)
Other Atlasers (0 hrs.)

Request to own this block
view Region 17
Contact Regional Coordinator
Enter Observations
View My Observations

Number of Species

	Observed	Possible	Probable	Confirmed	Total
2009-13	0	0	0	0	0



complete block
owned block
unowned block

Block Profile: T124R33b (T124R33b)

General Information | 2009-2013 Results | Block Map

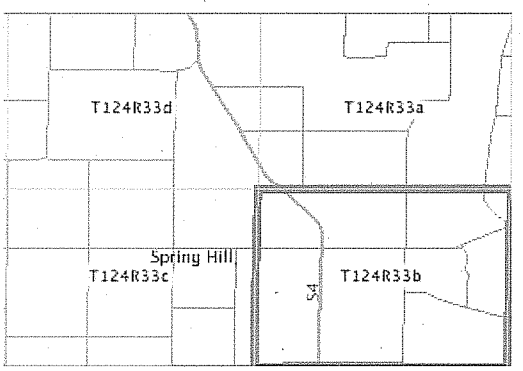
T124R33b (T124R33b)

Block Status: Incomplete
Block Owner: Unowned
Priority Block: No (T124R33a)
Region: Region 17 (Bonnie Sample, Surveyor)
Hours of Effort:
Block Owner (0 hrs.)
Other Atlasers (0 hrs.)

Request to own this block
view Region 17
Contact Regional Coordinator
Enter Observations
View My Observations

Number of Species

	Observed	Possible	Probable	Confirmed	Total
2009-13	0	0	0	0	0



complete block
owned block
unowned block

Block Profile: T122R32d (T122R32d)

General Information | 2009-2013 Results | Block Map

print Results

Results from 2009-13

Observed	Possible	Probable	Confirmed	Total
0	2	0	0	2

Several sensitive species are not being displayed at this time

- Flagged records to be reviewed.

Species (alphabetic) (taxonomic)	Breeding Evidence
Common Nighthawk (*Chordeiles minor*)	Possible (X)
Eastern Phoebe (*Sayornis phoebe*)	Possible (X)

pgm:/data/cgi-bin/guild07
doc:/bbs/trend/guild07.html

USGS
science for a changing world
Patuxent Wildlife Research Center

DRAFT North American Breeding Bird Survey Species Group Summary Results

Species Group is Grassland Breeding
Period: 1966 - 2007
Region is SUR

Summary Data for Species Group	Estimate
Number of species encountered on more than 14 routes	28.
Proportion of species with positive trend estimates	0.14
Proportion of species with significant negative trend estimates	0.61
Proportion of species with significant positive trend estimates	0.07
Prior mean trend	-1.48
Prior variance	2.647

Estimated trends:

Note: Estimated trends are presented , along with the precision-adjusted estimates. The adjusted estimates take into account the relative precision of the estimated trends, and provide a better ranking of change for the species relative to other species in the group. Results are ranked by the precision-adjusted estimates.

Declining Species:

Species	Adjusted Trend	N routes	(Unadjusted Trend	P value)
Significant trends (P less than 0.1):				
Henslow's Sparrow	-3.8435	187	(-8.0870	0.0003)
Grasshopper Sparrow	-3.4846	1659	(-3.5790	0.0000)
Sprague's Pipit	-3.3597	169	(-3.9030	0.0000)
Short-eared Owl	-2.8599	182	(-4.0860	0.0086)
Eastern Meadowlark	-2.8247	2188	(-2.8410	0.0000)
Baird's Sparrow	-2.6779	141	(-3.4100	0.0083)
Chestnut-col. Longspur	-2.5549	160	(-2.8270	0.0007)
Mountain Plover	-2.5434	48	(-2.6800	0.0000)
Horned Lark	-1.9775	2097	(-1.9850	0.0000)

Bobolink	-1.7724	1288	(	-1.7800	0.0000)
Lark Bunting	-1.6633	394	(	-1.6770	0.0002)
Cassin's Sparrow	-1.3614	265	(	-1.3510	0.0055)
Northern Harrier	-1.2075	1118	(	-1.1800	0.0226)
Vesper Sparrow	-0.9866	1746	(	-0.9770	0.0000)
Savannah Sparrow	-0.9824	1763	(	-0.9760	0.0000)
Western Meadowlark	-0.9261	1703	(	-0.9210	0.0000)
Ring-necked Pheasant	-0.6806	1398	(	-0.6580	0.0164)

Nonsignificant trends (P greater than 0.1):

Barn Owl	-1.7812	46	(	-2.2600	0.2846)
Greater Prairie-Chicken	-1.7505	56	(	-2.4690	0.3573)
McCown's Longspur	-1.6873	71	(	-1.9770	0.3077)
Burrowing Owl	-1.5029	353	(	-1.5860	0.6052)
Long-billed Curlew	-0.9254	280	(	-0.8490	0.1614)
Dickcissel	-0.5752	981	(	-0.2470	0.8010)
Le Conte's Sparrow	-0.5200	227	(	-0.3280	0.6529)

Increasing Species:

Species	Adjusted Trend	N routes	(Unadjusted Trend	P value)

Significant trends (P less than 0.1):

Sedge Wren	1.3144	415	(	1.5300	0.0008)
Ferruginous Hawk	1.5952	265	(	2.6000	0.0056)

Nonsignificant trends (P greater than 0.1):

Sharp-tailed Grouse	-0.2385	168	(	1.1800	0.4988)
Upland Sandpiper	0.3512	672	(	0.4160	0.1743)

Return to the input form page, if you want.

Appendix B

Cultural Resources Memorandum

Geronimo Paynesville Zion Wind Farm Project

A Phase Ia Literature Search Report
In Stearns County, Minnesota

For

Geronimo Wind Energy,
Edina, Minnesota

By

Stephen Sabatke, M.A.
HDR Engineering, Inc.
701 Xenia Avenue South
Suite 600
Minneapolis , MN 55416
(763) 591-5400

SHPO Project No: 2009-3432

October 21, 2009

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1.0 Introduction

This report documents the archaeological and facilities resource data collection effort (Phase Ia Literature Search Report) conducted for the proposed Paynesville Zion Wind Farm Project (project), in Stearns County. In May of 2009 HDR Engineering, Inc. (HDR) began assisting Geronimo Wind Energy (Geronimo) in preparing a Minnesota Large Wind Energy Conversion System (LWECS) permit application. In June 2009, HDR reviewed information on file at the Minnesota State Historic Preservation Office (MNSHPO) located in St. Paul, Minnesota, to review relevant archaeological and facility properties documentation. This documentation will be used during project planning. Cultural resource data, housed at MNSHPO, consisted of cultural resource site files, cultural resource site leads, and previous professional cultural resource surveys and reports. In addition, HDR reviewed 19th Century Public Land Survey (PLS) maps to identify potential historic-period cultural features in the project area.

During the first week of July, HDR senior archaeologist Michael Madson performed a windshield survey of the data gathering area for the project, which was defined as the project area plus one mile buffer zone surrounding the project area. This survey was conducted to review the existing environment and understand the landform types in the project vicinity. Initial project area documentation was completed at this time.

The project is located in the township, range, and sections shown in Table 1. A map (Figure 1) attached to the end of this report visually represents this area.

Table 1. Paynesville Data Gathering Area Legal Descriptions

County	Township	Range	Section
Stearns	124	32	31-34
Stearns	124	33	25, 26, 35, 36
Stearns	123	32	3-10, 15-23, 26-34
Stearns	123	33	1, 2, 10-12, 13-16, 21-28, 33-36
Stearns	122	32	3-10, 15-18*
Stearns	122	33	1

* *The project boundary located in T122N R32W Sections 4, 5, 8 and 9 represents the probable route for a transmission line. This change to the project boundary was made on October 16, 2009, and HDR is in the process of updating the existing site information for the future report.*

The project is located within the Minnesota Archaeological Resource Region known as the Central Lakes Deciduous, and sub-region Central Lakes Deciduous South.

2.0 SHPO Correspondence

In August 2009, Geronimo contacted MNSHPO and the Minnesota Office of the State Archaeologist (MN OSA) to request a review of potential project-related impacts on known or suspected cultural resources within the proposed project area. MNSHPO responded with a letter (SHPO Number: 2009-3432) recommending that Geronimo sponsor an archival records search within the data-gathering area. In the letter MNSHPO stated that there is a potential for unrecorded archaeological properties to exist in the project area. Therefore; MNSHPO suggested that an

archaeological inventory take place in the proposed project area where construction impacts are likely to occur.

Subsequent to the initial agency contact, the project area was revised. HDR updated the coordination effort with MNSHPO and MN OSA by sending a second letter with a revised project location map on October 5, 2009, to document the revised project area. At this time no response has been received from MNSHPO or MN OSA

3.0 Regulatory Framework

As currently defined, this proposed action has been determined not to be a federal undertaking under Section 106 of the National Historic Preservation Act of 1966, as amended, and its implementing regulations (36CRF 800). If the project changes or if future information indicates the action is a federal undertaking, then this report may serve as a basis for additional study.

Through consultation with MNSHPO, MN OSA, and Geronimo, it has been determined that this project is subject to regulations associated with:

- The Minnesota Wind Siting Act (Minnesota Statutes Chapter 216F)
- Minnesota Administrative Rules Chapter 7836 Wind Siting
- The Minnesota Department of Commerce, Energy Facility, Permitting, Siting, and Routing Department's PUC LWECS Site permit
- Minnesota Statute Chapter 138.661-138.699 (Minnesota Historic Sites Act)
- The Minnesota Pollution Control Agency's (PCA) National Pollutant Discharge Elimination System (NPDES) Permit No: Mn R100001 (Appendix A, Part G. Discharges Affecting Historic Places Or Archeological Sites)

4.0 Brief Environmental and Historic Context

The proposed wind farm project is located within the Central Lakes Deciduous South archaeological sub-region. The following environmental history of this sub-region is based on information contained in an overview entitled "Minnesota's Environment and Native American Culture History" by Gibbon, Johnson, and Hobbs (2002). In addition, other sources of information are used to add to the description of this region. These sources are noted when used in the text.

The Central Lakes Deciduous sub-region of Minnesota includes all of Anoka, Benton, Chisago, Hennepin, Isanti, Mille Lacs, Morrison, Ramsey, Sherburne, Stearns, Todd, Wadena, Washington, and Wright counties. It also contains portions of Becker, Cass, Crow Wing, Dakota, Douglas, Kandiyohi, Kanabec, Meeker, Otter Tail, Pine, Pope, and Swift counties. This region extends into west central Wisconsin.

The topography of the Central Lakes Deciduous South sub-region is made up of moraines, till plains, and outwash plains. Many lakes, rivers, and other wetlands are found throughout the region. During the period of Euro-American contact, the vegetation near the project area was a mixed deciduous-coniferous forest dominated by oak and dominated by pine in the northern regions. Most soils in this region have medium to coarse texture with forest soils in the north and east and prairie soils in the south and west. The average annual precipitation ranges from 22 to 28 inches. The average January high temperatures range from 12 to 24 °F and the average July highs range from 78 to 82 °F. The frost-free season lasts up to 140 days in the north and up to 160 days in the south.

Subsistence resources at the time of Euro-American contact would have included: white-tailed deer, beaver, bear, moose in the north and east, and small herds of bison and elk in the south and west. Fish and waterfowl would have been plentiful throughout the region with extensive beds of wild rice found throughout most of the region. Acorns would also have been an abundant food source.

4.1 Physiographic region

The topographic features in the area are complex because of numerous geologic events throughout the millennia occurring within the region. Descriptions of the topographic regions found near the project are based on information contained in an overview entitled "Physiography of Minnesota" by H.E. Wright, Jr. (1972:569-572). The topographic regions identified are entitled: Brainerd-Automba Drumlin Area, Anoka Sand Plain Area, Western St. Croix Moraine, Wadena Drumlin Area, and Alexandria Moraine Area. A brief discussion of each is exhibited below.

Brainerd-Automba Drumlin Area (Wright 1972:569): This area constitutes most of the ground moraine of the Rainy and Superior lobes. Much of this area is marked by drumlin fields. The largest of these drumlin fields is located south of Mille Lacs Lake and identified as the Pierz area. However, the entire area is interrupted by outwash pains, the largest being the Mississippi River valley. Areas south of Mille Lacs Lake contain sharp erosional valleys with swamps, lakes, or streams. These locations are considered to be tunnel valleys, which were formed by subglacial streams flowing under very great hydrostatic pressure.

Anoka Sandplain Area (Wright 1972:569): This broad sandplain was formed largely by glacial drainage from the north and west. This location was covered initially by the Superior lobe and later by the Grantsburg sublobe. Features exist upon this plain and are represented by low areas that were not covered by the outwash plain and high areas representing old sand dunes. Other low areas are represented by lakes and marshes (remnants or old ice blocks), and tunnel valleys formed by subglacial streams flowing under great hydrostatic pressure.

Western St. Croix Moraine (Wright 1972:570): This moraine borders the upper Mississippi River on the west for about 100 miles and averages about 6 miles wide with a sharp face to the west. The moraine is transected west of Brained by a gap which carries the Crow River to the Mississippi River. The southern portion of this moraine is cut longitudinally by several broad drainageways. These drainageways were formed by southward flowing outlet streams from post glacial lakes during ice retreat.

Wadena Drumlin Area (Wright 1972:571): This area is surrounded by the Itasca moraine in the north, the St. Croix moraine in the east, and was over run by the Des Moines lobe in the south. The drumlins in this region spread to the west and south and are obscured by various outwash plains. Glacial blocks at various locations surrounding this region caused streams and rivers, which would normally flow north, to flow south. After glacial retreat the streams and rivers reversed their course further contributing to outwash plains.

Alexandria Moraine Area (Wright 1972:572): This lake dotted moraine extends northward in an arc through west-central Minnesota. It is covered by extensive areas of outwash and contains the drift of two different ice lobes. This moraine contains the thickest glacial drift in Minnesota and reaches some of the highest elevations in western Minnesota. The relief of this area is rugged and heavily wooded. This moraine in general divides the forested east from the prairie west in Minnesota.

4.1.1 Rock Formations

Bedrock outcrops in the region are limited to occasional granite rock exposures (Gibbon et al 2002). A brief examination of a bedrock map produced by the University of Minnesota-Minnesota Geological Survey, Bedrock map of Minnesota, Bedrock Geology lists five different bedrock formations located within Stearns County. These formations are described as: Quartzfeldspathic gneiss, amphibolites and other high grade metamorphic rock; Meta and sedimentary rocks (argillite, slate, shale, greywacke) of the Virginia, Thomson, and Rove Formations; Metasedimentary rocks (slate, quartzite, and metagraywacke) intercalated with volcanic rocks and iron formations; Intrusive rocks (granite and granodiorite) of the Penokean orogeny; and Cretaceous rocks dominated by marine sediment, shale, and sandstone.

It is important to note that any rock formation has the potential under the right conditions to produce rock of desirable quality to ancient populations. However, according to Andrefsky in Lithics Macrosopic approaches to analysis (1998:57) for the rock to be useful it must retain these compositional qualities: be fine grained, hard, brittle, and fracture conchoidally. While rock of a desirable quality may exist within the region glacial disturbance may restrict access to these formations and chunks of the material from these formations may be widely scattered in the till.

4.1.2 Hydrology

The major river basin in this area is the Mississippi River (Gibbon et al 2002). The Mississippi River flows through the central and eastern portions of this region. The St. Croix River forms the eastern boundary of this region, while the western portion of the region drains into the Red River valley.

4.1.3 Flora and Fauna

The vegetation during the contact period comprised of mixed hardwood forest and deciduous forest biomes. During the early settlement period, oak trees were predominant in the south and east and pine in the north (Gibbon et al 2002).

The dominant pre Euro-American fauna in the region was white tail deer. Occasional herds of bison and elk could be found on the southern boundary, while the northern boundary would contain beaver, black bear, and moose. This region would have contained numerous fur bearing mammals, such as; gophers, white-tailed jackrabbits, badgers, red foxes, ground squirrels, coyotes, wolves, raccoons, skunks, weasels, voles, shrews, mice, and in wet areas beaver, muskrat, and mink. Plentiful wetlands allowed for an abundance of fish, waterfowl, and other aquatic animals. Birds in the region include bald eagles, crows, ravens, red - winged blackbirds, owls, and hawks.

4.1.4 Paleo-Environment Context

Through an examination of the information contained in MN/Model (Gibbon et al 2002). and the Outline of Historic Contexts for the Prehistoric Period (ca. 12,000 B.P. - A.D. 1700) and The Contact Period Contexts (ca. 1630 A.D. – 1820 A.D.) created by Dobbs, C. A. 1988. the following context was generated.

Around 14,000 years ago gradual warming in the northern hemisphere forced the glacial advance to retreat. The retreat of the glaciers set the stage for the present landscape of Minnesota. About 12,000 years ago sufficient warming had pushed the glacial front out of southern Minnesota and by about 11,000 years ago the glacial front was pushed out of northern Minnesota. Following the retreat of the glacial front, the immediate environment would have been a tundra-like plain followed

closely by a spruce parkland like environment where temperature had reach the appropriate level to support it. Immediately following the spruce parkland environment would have been a coniferous dominated forest. Fossil evidence gathered from southern Minnesota suggests that now-extinct megafauna, such as large buffalo, mastodon, and giant beaver, existed along with wolverine, moose, lynx, caribou, mountain line, white-tail deer, and a variety of other animals.

Around 11,500 years ago deciduous forests, following the retreating spruce parkland/coniferous forest front, moved into southern Minnesota and by 10,500 years ago had pushed into central/northern Minnesota. Fossil evidence suggests that animal populations consisted of many birds, fish, amphibians, beaver, black bear, white-tailed deer, porcupine, weasels, moose, fisher, coyote, otter, bobcats, red fox, and timber wolf.

Around 10,000 years ago prairie vegetation, following the retreating deciduous forest front, moved into southern Minnesota. By 8,000 years ago Minnesota, excluding the northeastern arrowhead region of Minnesota, was prairie lands. Numerous bison bone beds can be found in Minnesota dating to this time. Other animals associate with this time period were gophers, white-tailed jackrabbits, badgers, red foxes, ground squirrels, coyotes, raccoons, skunks, weasels, voles, shrews, mice, and in wet areas, beavers, muskrat, mink. Along with numerous fish, waterfowl, and other prairie birds, such as prairie-chickens, sparrows, meadowlarks, red-winged blackbirds, yellow-headed blackbirds owls, and hawks.

Around 6,000 years ago wetter conditions allowed the deciduous forest to reclaim land to the west and south. Starting at 3,000 years ago continued expansion of the deciduous forest west and south would set the boundary of prairie vs. forest as found at European contact. Animal and plant biomes at this time would have greatly resembled those described at European contact.

4.2 Brief Historic Context

The following summaries of cultural contexts relevant to the data gathering area are based partially on information contained in a series of statewide historic contexts developed by the Minnesota SHPO (Dobbs 1990a; Dobbs 1990b; SHPO 1993), and in "Minnesota's Environment and Native American Culture History" by Gibbon, Johnson, and Hobbs (2002).

4.2.1 Paleoindian Tradition (9500 - 6000 B.C.)

The earliest human inhabitants of Minnesota entered the area about 11,000 years ago as the glacial front was pushed out of northern Minnesota. These peoples, comprising the Paleoindian Tradition, were migratory groups of mobile hunter-gatherers that followed herds of large game animals such as bison, woodland caribou, and mastodon into the tundra and open pine and oak forests that characterized Minnesota as the glaciers retreated. There is little archeological evidence of Paleoindian inhabitants in Minnesota, as they did not generate large artifact deposits. Cultural materials left by these people are often deeply buried underneath more recent sediment. Archaeological finds from this period consist mainly of isolated discoveries of large and distinct projectile points that are characteristic of this tradition. These points are divided into the Fluted Point Pattern (Clovis and Folsom points) and the non-fluted Lanceolate Point Pattern (Plano). Other tool types associated with the Paleoindian tradition include bifacially flaked knives, simple choppers, and large scrapers for processing kills.

4.2.2 Archaic Tradition (6000 - 500 B.C.)

As Minnesota became warmer and drier, expanses of prairie began to displace the previous forested land. The melting ice exposed new land surfaces with extensive lakes and large, swift rivers quite unlike any in present-day Minnesota. The landscape was interspersed with large lakes and swiftly flowing rivers fed by the glacial run-off.

The Pleistocene megafauna died out and the human inhabitants had to adapt to the altered landscape. As a result, new tool types and means of subsistence associated with the Archaic Tradition were developed. The Archaic Tradition is distinguished from the Paleo-Indian period by an increased diversity in tool types, the raw materials they were made from, and the exploitation of a larger variety of animal and plant communities. This diversity has been attributed to the adaptation of Archaic peoples to local resources and a relative abundance of animal and plant resources. The archaeological record of the Archaic Tradition displays evidence of the beginnings of cultural variation. Notched and stemmed projectile points, along with groundstone tools and chipped-stone scrapers, knives, punches, and drills, are found in the Archaic toolkit. About 7,000 years ago, copper implements appeared and continued to about 3,500 years ago.

Four distinct Archaic contexts have been identified in Minnesota: Shield Archaic, Lake-Forest Archaic, Prairie Archaic, and Eastern Archaic. Site locations during this time period are generally tied to locations near water. These locations would have been occupied for longer periods and would show larger amounts of artifact deposition. However, small encampments can be found scattered throughout the environment. These types of sites often represent an area of specific resource extraction or a location that takes advantage of a seasonal event such as a bison kill site, a flora gathering site, or a waterfowl breeding site. Artifact deposition at these locations is generally very minimal.

4.2.3 Woodland Tradition (500 B.C. - A.D. 1650)

Beginning about 3,000 years ago, the Minnesota's climate began to stabilize and resembled the climate that exists today. Expanses of prairie were found in the western portion of the state. A swath of oak savanna, stretching from the northwest to the southeast, separated the prairie from the pine forests of the arrowhead region.

Woodland period cultures exhibit evidence of an increasingly more sedentary lifestyle. Domestication of plants, ceramic technology, long-term re-occurring occupation of seasonal village sites, and mound construction emerged in the Woodland period. These innovations were not adopted in all areas of the state at the same time or necessarily together. Because they are not as deeply buried, Woodland sites are encountered more often than Paleo-Indian or Archaic sites. Woodland sites can also be more definitively attributed to a tradition based on ceramics and distinct tool types. Known ceramic traditions have allowed the Woodland period to be divided into an Early, Middle, and Late chronological framework. In Minnesota, the Woodland tradition is also divided into an earlier Initial Woodland period (including the Early and Middle periods, ca. 500 B.C. – A.D. 500) and a later Terminal Woodland period (including the Late period, ca. A.D. 500-1650).

Regional differences in the Woodland period resulted in the identification of distinct regional complexes such as such as Howard Lake, Fox Lake, Malmo, and Laurel. Within central Minnesota, a Transitional Woodland period, from 500 to 1000 A.D., has been defined and is associated with St. Croix and Onamia ceramics. Within Northern Minnesota, the geographic distribution of the

distinctive ceramics and burial practices of the period have allowed archaeologists to identify archaeological cultures such as Kathio, Blackduck, and Psinomani. In northern Minnesota, it was Terminal Woodland people who met the first Europeans to visit the state in the middle of the 17th century (Gibbon, Johnson, and Hobbs, 2002).

4.2.4 Mississippian/Plains Village (A.D. 1000 – 1500)

About 1,000 years ago, a new tradition developed in southern Minnesota. In the western part of the state, this tradition is known as the Plains Village Tradition and in the eastern part of the state, this tradition is known as the Mississippian Tradition. These traditions are distinguished from Woodland traditions by an intensification of agriculture, including cultivation of corn, and larger, more complex societies. These influences spread into southwestern Minnesota from the Missouri River and into southeastern Minnesota from the Mississippi River and have possible ties to cultures of the southern United States and possibly Mexico. Mississippian/Plains Village sites are distinguished by distinct ceramic styles, large village complexes, a greater density of artifacts, and community vegetable storage pits. Effigy mounds in the shape of animals such as birds and snakes, as well as flat-topped mounds and villages encircled by protective palisades, were constructed in this period.

4.2.5 Fur Trade/Contact (1630s – 1858)

By the 1620s, the first European goods may have reached the upper Midwest through trade with the Ottawa and Huron. The first fur trade contact in this area occurred between 1659 and 1660, when two French explorers named Sieur des Groseilliers and Sieur de Radisson entered present day Minnesota in search of natural resources such as furs. Increasing number of explorers and fur tradesmen would reach the area in the years following first contact. This time period is recognized by the establishment, operation, and adaptation of gathering mammals of a fur bearing nature in exchange for other goods and materials. This exchange linked the Northern Plains to a worldwide economic and political system. By the late 1670s, a trade agreement had been established between merchants in Quebec and Montreal with the Dakota. This relationship initiated the French period of exploration and occupation in Minnesota, which lasted into the early 1760s. During this period of French influence much of the state and the surrounding region were occupied with an extensive network of forts and fur trading posts.

The 1763 Treaty of Paris, which brought an end to the Seven Years War, began a half century of British activity in Minnesota. This time period brought further development of the fur trade industry with more trading posts and consequently major changes in the distribution of Native American people in the region. By 1800, the Ojibwa took control of the lakes and forests of northern Minnesota, and the Dakota moved south along the Minnesota River valley.

The 1783 Treaty of Paris, which brought the American Revolutionary War to an end, granted legal possession of the region that ultimately became Minnesota up to the east bank of the Mississippi River to the United States. The United States later gained the lands on the west bank of the Mississippi River through the Louisiana Purchase of 1803. The United States generally began to exert control of Minnesota after Zebulon Pike's 1805-1807 expedition, and later with the establishment of Fort Snelling at the junction of the Minnesota and Mississippi rivers in 1819. The changes in Native American life brought about by French, British, and later United States control of Minnesota included migrations of Native American populations from the east, depopulation of native peoples in certain areas because of introduced diseases and tribal warfare, and resulted in the gradual movement of the Ojibwa into northern Minnesota and movement of the Dakota into

southern Minnesota. The Native American populations in Minnesota also began to switch from hunting for subsistence to hunting for trade and Native American manufacturing materials began to be replaced by European materials.

Travel and settlement of the state were mostly restricted to corridors along larger bodies of water. In 1837 the Dakota, Winnebago, and Ojibwa signed treaties that opened up east-central Minnesota to logging and settlement, and by 1849 Minnesota had become organized as a Territory. Following the establishment of Minnesota as a state in 1858, Euro-American settlement increased, bringing a wave of new towns, cities, and non-fur trade-related enterprises. The Dakota War of 1862 further altered the distribution of Native American people in Minnesota with the removal of the majority of the Dakota from Minnesota.

4.2.6 Northern Minnesota Lumbering (1870 – 1930s)

After 1870, the lumbering industry in Minnesota expanded northward and westward from the east central part of the state known as the St. Croix Triangle, where lumbering began in the 1830s. This expansion was fueled by increased capital investment, expanded markets, and advancements in logging, lumbering equipment, and transportation. Logging occurred primarily near major rivers and their tributaries, the primary transportation arteries for logs. After 1870, railroads provided the single most important factor in the rapid growth of the lumber industry, as their expansion onto the Great Plains expanded the market for Minnesota lumber. New railroads in northern Minnesota opened timberland to loggers, reduced dependence on risky water transportation, and allowed the operation of lumber mills closer to the timber supply. Railroads had become the primary mover of logs by 1910. After peaking at the turn of the century, the lumber industry of Minnesota started to decline, with the last major sawmills closing in the 1930s. After 1890, an agricultural land boom began in northern Minnesota as lumber companies, railroads, chambers of commerce, land colonization companies, real estate companies, the State Bureau of Immigration, and other private and public agencies encouraged settlement of the cutover. Poor soil, an unfavorable climate, and the high cost of cultivating cutover land made farming here unprofitable, and with the lumber industry's rapid decline in the 1920s and a national farm-sector depression, many farms were abandoned in the 1920s and 1930s.

4.2.7 Minnesota Tourism and Recreation in the Lake Regions (1870 – 1945)

Beginning in the 1870s, railroads transported vacationers in search of scenery, fishing, hunting, and canoeing to northern Minnesota. After World War I, improved roads, increased automobile usage, increased leisure time, and extensive promotional campaigns fueled a rapid expansion of the resort industry. Tourists and seasonal residents came from the Twin Cities and other urban areas, other states in the Midwest, and from the South. During the 1930s, the expansion of Minnesota's state parks and forests provided additional facilities and attractions to vacationers. Many resorts began as lumber camps and private lodges constructed by hunting and fishing associations, however a majority of them began as collections of tourist cabins constructed by local farmers and landowners. In the 1920s, a classic resort configuration consisted of a central lodge surrounded by individual cabins. Other structure types associated with the vacation industry included lakeside summer cottages, seasonal estates, planned recreational communities, private sporting clubs, youth camps, and public tourist camps. Some of these structure types would develop into motels and other structures associated with tourism, but not necessarily with the resort industry

5.0 Recorded Archaeological Sites

The records search at MN SHPO produced one archaeological site (21-SN-0051) within the data gathering area (Table 2). This site is represented by a single piece of stone debitage. The site form identifies *Mn Model 1995* as the associated survey report. At the time of the data search, this report could not be located. It is likely that additional undiscovered archaeological sites exist within the project boundary from any of the types mentioned above.

6.0 Recorded Historic Facilities

The records search at SHPO produced four standing structures (Table 2) within the data gathering area. These structures are represented by two schools (resource numbers: SN-ZON-001 and SN-ZON-002), one church (resource number: SN-ZON-003), and a rail related facility (resource number: SN-PVT-008). Resources SN-ZON-001, SN-ZON-002, and SN-ZON-003 are located within the project boundary. No federal agency has made a determination of significance for these facilities to date.

Table 2. Previously Identified Archaeological and Historic Facilities Within the Data Gathering Area

Site Number	Legal Description			Location in Relation to Project Boundary	Property Name/ Description	Eligibility Determination
	Township	Range	Section			
21-SN-0051	123N	33W	35	Within one mile	Isolated find	Not Evaluated
SN-PVT-008	122N	32W	4, 8	Within project boundary	Rail Related	Eligible
SN-ZON-001	123N	32W	7	Within project boundary	School	Not Evaluated
SN-ZON-002	123N	32W	20	Within project boundary	School	Not Evaluated
SN-ZON-003	123N	32W	28	Adjacent to project boundary	Church	Not Evaluated

SN-PVT-008 (segment of the Great Northern Railroad) is located in Paynesville Township of Stearns County. The track material (rails and ties) have been removed, but the original embankment remains in place. The period of significance for this historic facility is from 1886 to 1907 and it is considered eligible for listing on the NRHP.

SN-ZON-001 (American Legion Pavilion) is located in Zion Township of Stearns County. The pavilion is located on the grounds of a former rural school. The documentation does not show any surface expression of the school (documentation as of June 1979).

SN-ZON-002 (Rural School) is located in Zion Township of Stearns County. Documentation as of June 1979 shows that the school house is still standing. However, the condition of the school house at the time of documentation can not be determined.

SN-ZON-003 (Salem Community Church) is located in Zion Township of Stearns County. The church has been undergoing further investigation to support its recommendation of eligibility for the NRHP since the early 80's.

7.0 Previous Archaeological and Facility Investigations

The records search at SHPO produced one previous cultural resource report (Table 3) in the data gathering area. This report is a multiple property listing for Stearns County documenting the historic facilities contained within its boarders. The report is associated with historic facilities SN-PVT-008, SN-ZON-001, SN-ZON-002, SN-ZON-003.

Table 3. Pervious Cultural Resource Reports Within the Data Gathering Area

Manuscript Number	Report Date	Manuscript Title	Author(s)/Association	Comment
SN-80-1H	1980	Multiple Resource Area Nomination to the National Register: Stearns County Inventory of Historic Buildings and Structures	Minnesota Historical Society/State Historic Preservation Office	Documents a partial survey of the standing structures and buildings in Stearns County

SN-80-1H Historic Resource of Stearns County documents a partial survey of the standing structures and buildings in Stearns County. The properties included in the document illustrate significant aspects of the history of the county. In this document site SN-PVT-008 (St. Cloud Mankato & Austin Rail Road/Great Northern), SN-ZON-001 (Rural School), SN-ZON-002 (Rural School), SN-ZON-003 (Salem Church) are mentioned.

7.1.1 Public Land Survey Maps/Andreas Maps/Trygg Maps/and Mounds and Burial Review

19th Century Public Land Survey (PLS) maps examined for the data gathering area has identified a archaeological/historic facilities resources within the data gathering area. The PLS maps represent the resources as a road running from Pembina to St. Cloud and the Mississippi (also known as a *Red River Road*). The road runs through these Townships, Ranges and Sections:

- 123N 33W, 3, 4, 10-12
- 123N 32W, 7-9, 13-16
- 124N 32W, 32-34

The presence of this resource in the data gathering area shows that early American settlement had reached this vicinity by around 1860.

The Andreas illustrated hand book (*An Illustrated Historical Atlas of the State of Minnesota*) published in 1871 documents one property owner (E.O. Hamlin Section 33, T123N R32W) and two buildings (Church Section 28, T123N R32W and House Section 5, T123 R32W respectively) within the Project area. In addition, numerous roads and the town of Paynesville are documented on the map.

Trygg maps of the area show no more information then what is contained in the PLS maps.

Minnesota's Indian Mounds and Burial Sites: A Synthesis of Prehistoric and Early Historic Archaeological Data book identifies about 50 mounds in Stearns County. None of these mounds are identified near the project boundary.

8.0 Implications for Archaeological and Facility resources

One archaeological resource was identified in the data gathering area. However, an additional expanded search for archaeological resources was preformed to understand these types of resources in the project vicinity better. When the search was expanded to a six mile buffer plus the data gathering area, ten archaeological resources were found. These resources were represented by lithic scatters, some with animal bones, and some with projectile points. Do to the similarity of the landscape; HDR feels any archaeological sites found within the data gathering area could be from any of the types and time periods mentioned in the above context section, but will most likely be consistent with pattern mentioned above.

HDR visually observed a handful of resources that may be considered historic archaeology locations. These locations are represented by abandoned farmsteads, historic farmstead scatters, and farmstead ruins. Further investigation of these locations may be needed to consider project effects on them.

A handful of historic facilities may have been identified in the data gathering area. These locations are represented by graveyards and farmsteads. Further investigation of these locations may be needed to consider project effects on them.

Visual disturbance from the proposed wind farm is negligible because the landscape is already disturbed by numerous other structures. These structures are represented by over head cabling and power lines poles, over head cabling and telephone poles, and transmission towers of various sorts. HDR believes no landscape view sheds are located within the data gathering area.

After review of all the information gathered, HDR believes that the project area has potential to yield additional archaeological and historic facility resources. Specific locations needing further ground survey for archaeological resources will be water crossings, high landforms, and areas of pervious significant land use. In addition HDR feels the because of the close proximity of documented early historic settlement locations, that the data gathering area has an increased chance to contain resource of the same type and age.

The construction of the wind farm will determine the potential impacts to cultural resources. Geronimo in coordination with HDR will consider impacts to identified resources to the extent practical. Constructing the wind farm, when possible, to avoid sensitive resources in the data gathering area.

9.0 Conclusion

HDR recommends a Phase I archaeological reconnaissance survey for the project area. The survey should occur at a time when ground visibility is 25 percent or greater to minimize shovel testing. Surveyors should use a methodology that reviews the probable construction impact locations, but pays special attention to the high to medium probability areas within the project area that will receive construction impact. The investigation must be conducted by a professional archaeologist permitted by the State of Minnesota per Minnesota Statutes 138.31-.42. Site SN-PVT-008 (St. Cloud

Mankato & Austin Rail Road/Great Northern) is located within the project boundary. The site has been determined to be considered eligible for listing on the NRHP by the SHPO and a federal agency during a formal Section 106 process. In addition, site SN-ZON-003 (Salem Church) is in the process of being nominated to the NRHP. Additional coordination may be required by SHPO to deal with possible impacts to these resources. Investigators should document the ground disturbing activities in the project area, the existing resources in the area, and offer recommendations for avoidance. If avoidance is not practical or can not be achieved additional investigation of the resource may be needed and further discussion with regulating agencies would be needed. This additional information would require the development of a new scope and budget.

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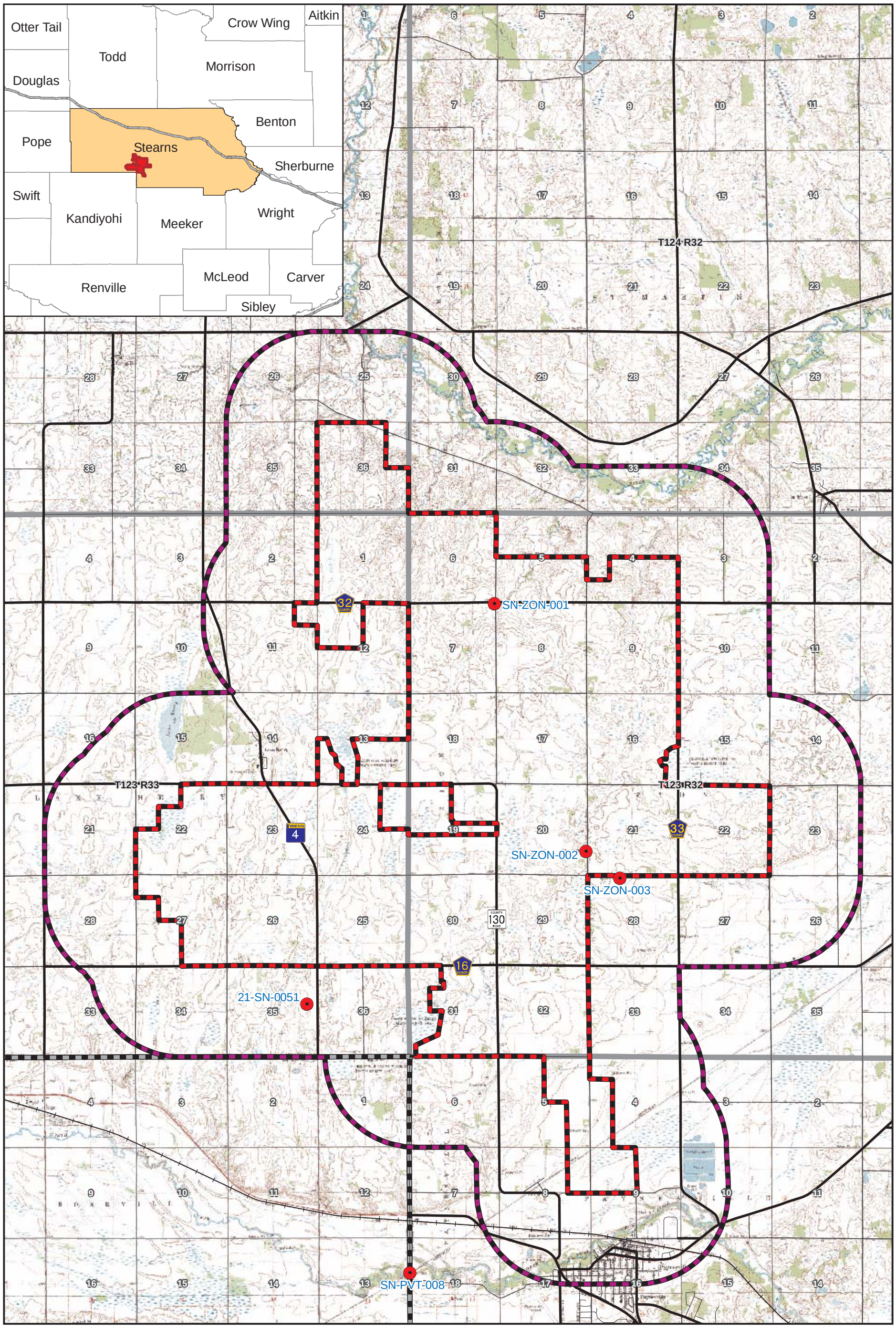
Figure 1. Cultural Resources Map



HDR

GERONIMO WIND ENERGY

N

0 0.25 0.5 1 Miles

Legend

- CRM Sites
- Project Boundary
- Project Boundary (1 Mile Buffer)

Figure 1. Cultural Resources Map
Paynesville Wind Project
Geronimo Wind Energy
Stearns County, MN

Map Document: (\\mspe-gis-file\GISProj\Geronimo\113498_Paynesville-Zion\map_docs\mxd\CulturalResources\Cultural Resources Map.mxd)
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Appendix C

Animals in Project Area

2007 North American Breeding Bird Survey Route: New London, 50064

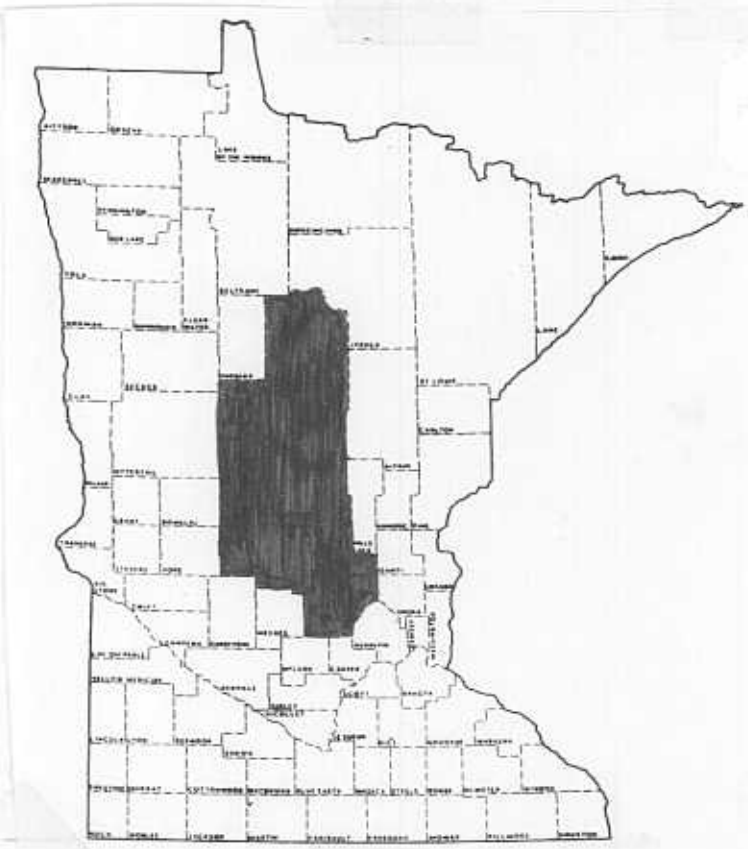
Source: http://www.mbr-pwrc.usgs.gov/cgi-bin/rtena226.pl?50064

Common	Scientific	Birds/Route
Alder Flycatcher	*Empidonax alnorum*	0.13
American Coot	*Fulica americana*	0.13
American Crow	*Corvus brachyrhynchos*	28.38
American Goldfinch	*Carduelis tristis*	13.13
American Kestrel	*Falco sparverius*	2.63
American Redstart	*Setophaga ruticilla*	0.38
American Robin	*Turdus migratorius*	42
American White Pelican	*Pelecanus erythrorhynchos*	3.5
Baltimore Oriole	*Icterus galbula*	0.75
Bank Swallow	*Riparia riparia*	1
Barn Swallow	*Hirundo rustica*	27.75
Bell's Vireo	*Vireo bellii*	0.63
Belted Kingfisher	*Ceryle alcyon*	0.13
Black Tern	*Chlidonias niger*	1
Black-billed Cuckoo	*Coccyzus erythropthalmus*	0.88
Black-capped Chickadee	*Poecile atricapillus*	0.5
Black-crn. Night Heron	*Nycticorax nycticorax*	0.13
Blue Jay	*Cyanocitta cristata*	4.75
Blue-winged Teal	*Anas discors*	0.75
Bobolink	*Dolichonyx oryzivorus*	20.75
Brewer's Blackbird	*Euphagus cyanocephalus*	6.63
Brown Thrasher	*Toxostoma rufum*	2.38
Brown-headed Cowbird	*Molothrus ater*	27.63
Canada Goose	*Branta canadensis*	1.38
Cedar Waxwing	*Bombycilla cedrorum*	5.13
Chimney Swift	*Chaetura pelagica*	5
Chipping Sparrow	*Spizella passerina*	10.25
Clay-colored Sparrow	*Spizella pallida*	7.88
Cliff Swallow	*Petrochelidon pyrrhonota*	41.5
Common Grackle	*Quiscalus quiscula*	122.88
Common Loon	*Gavia immer*	0.25
Common Nighthawk	*Chordeiles minor*	0.13
Common Yellowthroat	*Geothlypis trichas*	66.88
Dickcissel	*Spiza americana*	3.75
Double-crest. Cormorant	*Phalacrocorax auritus*	0.5
Downy Woodpecker	*Picoides pubescens*	0.38
Eastern Bluebird	*Sialia sialis*	0.88
Eastern Kingbird	*Tyrannus tyrannus*	2
Eastern Meadowlark	*Sturnella magna*	4

Eastern Phoebe	*Sayornis phoebe*	1.63
Eastern Towhee	*Pipilo erythrophthalmus*	0.13
Eastern Wood-Pewee	*Contopus virens*	2.38
European Starling	*Sturnus vulgaris*	59.5
Field Sparrow	*Spizella pusilla*	0.13
Gadwall	*Anas strepera*	1.5
Grasshopper Sparrow	*Ammodramus savannarum*	35.63
Gray Catbird	*Dumetella carolinensis*	4.13
Gray Partridge	*Perdix perdix*	0.13
Great Blue Heron	*Ardea herodias*	0.75
Great Egret	*Ardea alba*	3
Great Horned Owl	*Bubo virginianus*	1
Grt. Crested Flycatcher	*Myiarchus crinitus*	1.38
Hairy Woodpecker	*Picoides villosus*	0.13
Henslow's Sparrow	*Ammodramus henslowii*	0.13
Horned Lark	*Eremophila alpestris*	45.63
House Finch	*Carpodacus mexicanus*	0.5
House Sparrow	*Passer domesticus*	28.63
House Wren	*Troglodytes aedon*	13
Indigo Bunting	*Passerina cyanea*	0.75
Killdeer	*Charadrius vociferus*	27.63
Lark Sparrow	*Chondestes grammacus*	0.5
Least Flycatcher	*Empidonax minimus*	1
Mallard	*Anas platyrhynchos*	13.88
Marbled Godwit	*Limosa fedoa*	0.88
Marsh Wren	*Cistothorus palustris*	6
Mourning Dove	*Zenaida macroura*	65.63
N. Rough-winged Swallow	*Stelgidopteryx serripennis*	1.13
Northern Cardinal	*Cardinalis cardinalis*	0.88
Northern Flicker	*Colaptes spp.*	1.38
Northern Harrier	*Circus cyaneus*	2
Orchard Oriole	*Icterus spurius*	0.25
Pied-billed Grebe	*Podilymbus podiceps*	0.5
Purple Martin	*Progne subis*	2.25
Red-bellied Woodpecker	*Melanerpes carolinus*	0.13
Red-eyed Vireo	*Vireo olivaceus*	2.5
Red-headed Woodpecker	*Melanerpes erythrocephalus*	0.13
Red-tailed Hawk	*Buteo jamaicensis*	1.75
Red-winged Blackbird	*Agelaius phoeniceus*	169.38
Ring-billed Gull	*Larus delawarensis*	0.38
Ring-necked Pheasant	*Phasianus colchicus*	33.38
Rock Dove	*Columba livia*	12.13
Rose-breasted Grosbeak	*Pheucticus ludovicianus*	1.63
Savannah Sparrow	*Passerculus sandwichensis*	5

Sedge Wren	*Cistothorus platensis*	17.75
Song Sparrow	*Melospiza melodia*	15.5
Sora	*Porzana carolina*	0.38
Swamp Sparrow	*Melospiza georgiana*	1.88
Tree Swallow	*Tachycineta bicolor*	3.38
Upland Sandpiper	*Bartramia longicauda*	2.25
Veery	*Catharus fuscescens*	0.25
Vesper Sparrow	*Pooecetes gramineus*	6.75
Virginia Rail	*Rallus limicola*	0.13
Warbling Vireo	*Vireo gilvus*	4.5
Western Meadowlark	*Sturnella neglecta*	9.75
White-breasted Nuthatch	*Sitta carolinensis*	0.75
Willow Flycatcher	*Empidonax traillii*	1
Willow/Alder Flycatcher	*Empidonax spp.*	1.13
Wood Duck	*Aix sponsa*	2
Wood Thrush	*Hylocichla mustelina*	0.25
Yellow Warbler	*Dendroica petechia*	7.38
Yellow-head. Blackbird	*Xanthocephalus xanthocepha*	9.5

GUIDE TO THE NONGAME MAMMALS OF CENTRAL MINNESOTA-REGION 3W



MINNESOTA DEPARTMENT OF NATURAL RESOURCES

September 1, 1979

Guide to the Nongame Mammals of Central Minnesota

Region 3 West

By Carrol Henderson and Julie Reitter

This preliminary guide has been prepared as a reference to the occurrence and distribution of nongame mammals of Region 3 West in central Minnesota. Taxonomy is based on Jones, et al., (1975). Identification marks are described in Burt and Grossenheider (1964).

Game mammals have not been included in this survey.

Counties in this region are Wadena, Cass, Crow Wing, Todd, Morrison, Benton, Stearns, Wright, and Sherburne. Figure 1 is a map of Region 3 West.

Table 1 is a list of the nongame mammals of Region 3 West.

TABLE 1 - Nongame Mammals of Region 3 West

Marsupials

Virginia opossum (A)

Insectivores

Masked shrew
Arctic shrew
Northern water shrew
Pygmy shrew
Short-tailed shrew
Star-nosed mole
Eastern mole

Bats

Little brown bat
Keen's little brown bat*
Silver-haired bat
Eastern pipistrelle (?)*
Big brown bat*
Red bat
Hoary bat

Carnivores

Marten (?)*
Short-tailed weasel
Least weasel (?)*
Long-tailed weasel*

Carnivores (cont.)

Spotted skunk*
Striped skunk
Coyote
Gray wolf*
Cougar (?)*

Squirrels

Woodchuck
Thirteen-lined ground squirrel
Franklin's ground squirrel
Eastern chipmunk
Least chipmunk
Red squirrel
Southern flying squirrel*
Northern flying squirrel*

Other Rodents

Porcupine
Plains pocket gopher
Plains pocket mouse
Deer mouse
White-footed mouse
Southern bog lemming
Northern bog lemming (?)
Gapper's red-backed vole
Meadow vole

Other Rodents (cont.)

Prairie vole
Norway rat (E)
House mouse (E)
Meadow jumping mouse
Woodland jumping mouse (?)

Ungulates
American Elk (X)

Key

* - Priority species - reports needed
** - Priority species - known only from this region
E - Exotic species
? - Hypothetical species
A - Accidental species
X - Extirpated species

A total of 40 nongame mammal species are found in Region 3 West. The eastern pipistrelle, marten, least weasel, cougar, northern bog lemming, and woodland jumping mouse are hypothetical species.

The opossum is accidental. It is not a regular species.

The house mouse and Norway rat are the only exotic species.

Priority Species

There are no species which are found only in Region 3 West. Priority species for which more data is needed are the Keen's little brown bat, big brown bat, long-tailed weasel, spotted skunk, gray wolf, southern flying squirrel, and northern flying squirrel.

Threatened and Endangered Species

The gray wolf is officially a threatened species.

Data Collection

If you encounter any new county records, be sure to record the date, county, township, range, section number (or distance and direction from the nearest town) and habitat in which the animal was found. Note all identifying features which distinguish that species from similar ones. Photographs or plaster casts of tracks are important for large mammals like cougars. Skulls of small mammal specimens should be retained for documentation of new county records.

Mammal records should be sent to the Nongame Supervisor, Department of Natural Resources, Box 7, Centennial Bldg., 658 Cedar St., St. Paul, Minnesota 55155.

County Records

County records for this region are given in Table 2.

TABLE 2 - Nongame Mammals of Region 3 West

	WADENA	CASS	CROW WING	TODD	MORRISON	BENTON	STEARNS	WRIGHT	SHERBURNE
Virginia Opossum								X4	
Masked Shrew	X2	X6+	X6-	X6-	X6+				X4,6+
Arctic Shrew	X2		X6-						X4,6+
Northern Water Shrew					X6+				X6+
Pygmy Shrew	X2,8								X6+,8
Short-tailed Shrew	X2	X6-			X6+				X4,6-
Star-nosed Mole		X6+	X6-						X4,6-
Eastern Mole									X6+
Little Brown Bat					X6+		X6-		X6+
Keen's Little Brown Bat							X6+		X6-
Silver-Haired Bat	X8						X6-	X8	X6+
Eastern Pipistrelle									
Big Brown Bat					X6+		X6-		
Red Bat						X8			X6-
Hoary Bat						X6-	X6-		X6-
Marten									
Short-tailed Weasel	X2								X6-
Least Weasel									
Long-tailed Weasel				X6-				X6+	X6-
Spotted Skunk					X6-			X6-	X6-
Striped Skunk	X6-	X6-	X6-	X6-	X6-	X6-	X6-	X6-	X4,6-
Coyote	X4,6-	X4,6-	X4,6-	X4	X4		X4	X4	X4,6-
Gray Wolf									

	WADENA	CASS	CROW WING	TODD	MORRISON	BENTON	STEARNS	WRIGHT	SHERBURNE
Cougar									
Woodchuck		X4,6+							X6-
Thirteen-lined Ground Squirrel		X4					X6+		X4,6+
Franklin's Ground Squirrel		X4,6-						X6+	X6-
Eastern Chipmunk	X2	X6+			X6+				X4,6+
Least Chipmunk	X2	X6+							
Red Squirrel	X2	X4,6-							X4,6+
Southern Flying Squirrel			X8						X6+
Northern Flying Squirrel	X2,6+	X6+							X6-
Plains Pocket Gopher									X6+
Plains Pocket Mouse									X6+
Deer Mouse	X2	X6+			X6+		X6+		X4,6+
White-footed Mouse	X2				X6+		X6+		X4,6+
Southern Bog Lemming	X2,8								X6-
Northern Bog Lemming									
Gapper's Red-backed Vole	X2	X6+			X6+				X4,6+
Meadow Vole	X2				X6+				X4,6+
Prairie Vole	X8								X6+
Norway Rat									X6-
House Mouse									X6-
Meadow Jumping Mouse	X2,6+				X6+		X6+		X4,6+
Woodland Jumping Mouse									
Porcupine		X4							X6-
American Elk									

LITERATURE CITED

X-2 Birney, E.C. and Gerda E. Nordquist 1978. The importance of peatland habitats to small mammals in Minnesota. Mimeo. 52 pp.

X-3 Burt, W.H. and R.P. Grossenheider 1964. A field guide to the Mammals. 2nd Ed. Houghton Mifflon Co. Boston. 284 pp.

X-4 Department of Natural Resources Wildlife data files of wildlife breeding and distribution records. Section of Wildlife, St. Paul.

X-6 Gunderson, H.L. and J.R. Beer 1953. The Mammals of Minnesota. Univ. Minn. Press Mpls. 190 pp. (6+ = specimans seen, 6- = authentic records)

X-8 Heaney, L.R. and E.C. Birney 1975. Comments on the distribution and natural history of some mammals in Minnesota. Canadian Field Nat. 89:29-34

X-9 Jones, J.K. Jr., D.C. Carter and H.H. Genoways 1975. Rev. check-list of North American Mammals North of Mexico. Occ. Pap. Mus. Texas Tech. Univ. 28:1-14

Guide to the Reptiles and Amphibians of Central Minnesota-Region 3W

Minnesota Department of Natural Resources

August 1, 1980

Guide to the Herpetofauna of Central Minnesota

Region 3 - West

This preliminary guide has been prepared as a reference to the occurrence and distribution of reptiles and amphibians of Region 3 - West in Central Minnesota. Taxonomy and identification are based on "A Field Guide to Reptiles and Amphibians" by Roger Conant (Second Edition 1975). Figure 1 is a map of the region.

Counties Included: Benton, Cass, Crow Wing, Morrison, Sherburne, Stearns, Todd, Wadena and Wright.

SPECIES LIST

Turtles

Common snapping turtle
Map turtle
Western painted turtle
*Blanding's turtle
Western spiny softshell
Smooth softshell

Lizards

Northern prairie skink

Snakes

Red-bellied snake
Texas brown (Dekay's) snake
Northern water snake
Western plains garter snake
Red-sided garter snake } s.s.
Eastern garter snake }
Eastern hognose snake
*Western smooth green snake } s.s.
*Eastern smooth green snake }
Bullsnake

Salamanders

Blue-spotted salamander
Eastern tiger salamander
Mudpuppy (?)
*Central (Common) newt (?)
*Red-backed salamander (?)

Toads

American toad

Frogs

Northern spring peeper
Common (gray) treefrog
Boreal chorus frog } s.s.
Western chorus frog }
Mink frog
Northern leopard frog
Green frog
Wood frog

s.s. - single species
(?) - hypothetical species - reports needed
* - special interest species - reports needed

Summary

A total of 24 species are found in Region 3 - West. The mudpuppy, central newt, and red-backed salamander are probably present but have not yet been recorded. The common garter snake, smooth green snake and chorus frog are represented by two subspecies.

Four species are of special interest: the Blanding's turtle, which is unofficially considered threatened by the state, the smooth green snake, red-backed salamander, and central newt. Any sightings of these species should be recorded and sent to the nongame supervisor.

County records for this region are given on the following pages. If you encounter any new county records, the speciman should be captured and either photographed from several angles or preserved in isopropyl alcohol. The best identification record for frogs and toads is a recording of the call. Record the collector's name and address, date, county, township, range, section number (or distance and direction from the nearest town), and the habitat in which the animal was found. The nongame supervisor should be contacted concerning disposition of specimens.

Unless otherwise specified, all county records on the following pages are derived from Reptiles and Amphibians of Minnesota by Walter J. Breckenridge.

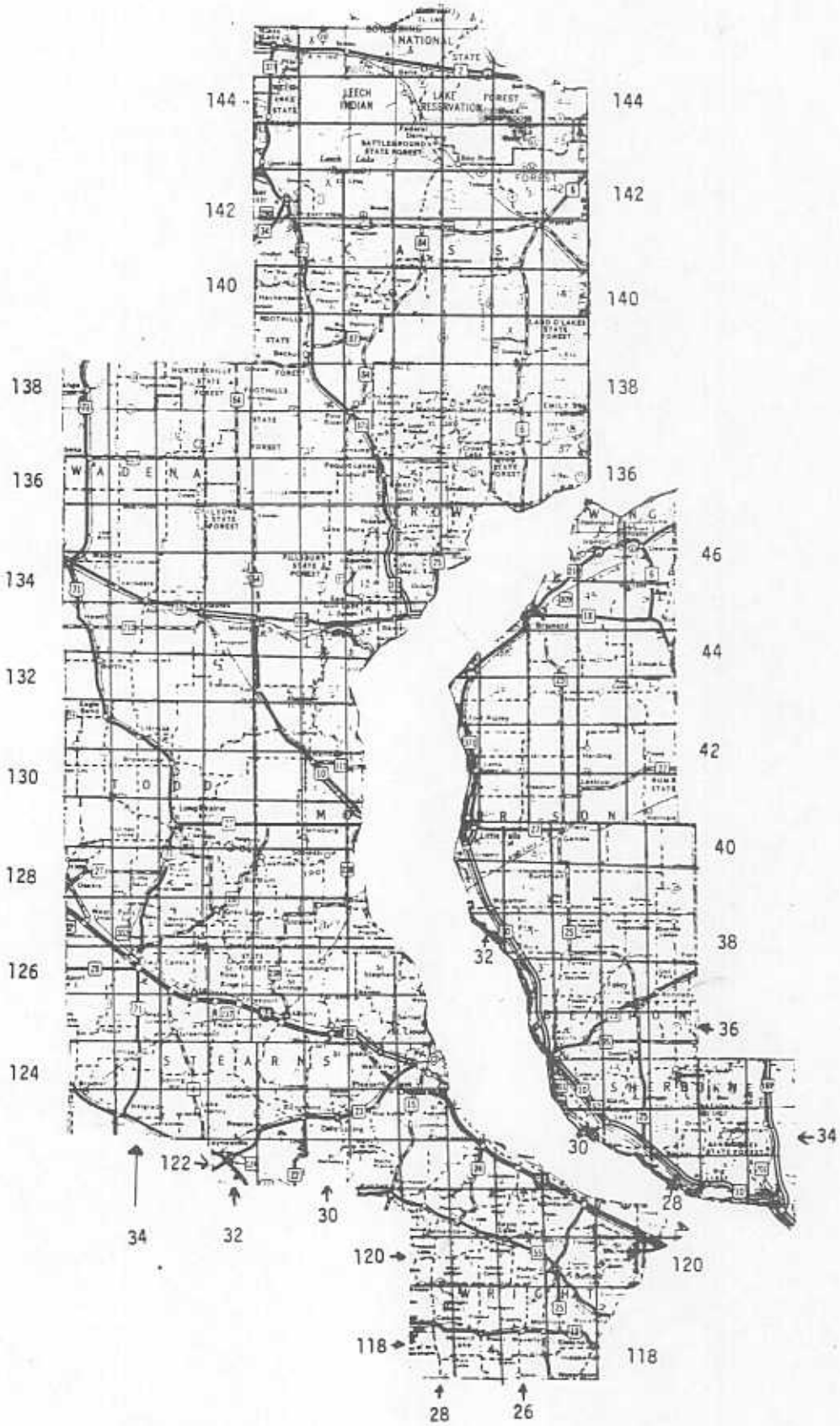


Figure 1. Map of Region 3-West. Township numbers are on right and left margins. Range numbers are on the bottom margin.

Reptiles and Amphibians of Minnesota - Region 3 West

	Wadena	Cass	Crow Wing	Todd	Morrison	Benton	Stearns	Wright	Sherburne
Turtles									
Common Snapping Turtle		X	X	X	X	X	X	X	X
Map Turtle							X	X	
Western Painted Turtle		X	DNR X	X	X	X	X	X	X
Blanding's Turtle	X	X	X		X	X			X
Western Spiny Softshell			X			X	X	DNR X	X
Smooth Softshell								X-DNR	X-DNR
Lizards									
Northern Prairie Skink	X	X	X		X	X	X		X
Snakes									
Red-bellied Snake		X	X		X			X	X
Texas Brown Snake							X	X	X
Northern Water Snake									X
Western Plains Garter Snake		X	X	X	X	X	X	X	X
Red-sided Garter Snake) s.s.			X			X	X		X
Eastern Garter Snake) s.s.	X	X	X			X	X	X	X
Eastern Hognose Snake	X	X	X	X			X	X	
Western Smooth Green Snake) s.s.			X		X				X
Eastern Smooth Green Snake) s.s.			X		X				X
Bullsnake					X	X			X
Salamanders									
Mudpuppy (?)									
Central Newt (?)									
Blue-spotted Salamander			X		X				X
Eastern Tiger Salamander		X	X		X	X	X	X	X

	Wadena	Cass	Crow Wing	Todd	Morrison	Benton	Stearns	Wright	Sherburne
Salamanders - Continued									
Red-backed Salamander (?)									
Toads									
American Toad		X	X						X
Frogs									
Northern spring peeper		X	X						
Gray treefrog		X	X				X	DNR X	X
Boreal chorus frog) s.s.	X	X	X				X		X
Western chorus frog) s.s.	X	X	X				X		X
Mink frog		?	X						
Northern leopard frog		X	X	X		X	X		X
Green frog		X	X				X		X
Wood frog	X	X	X		X				X

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