Appendix F

Phase la Literature Review and Natural Heritage Information System Request

A summary of findings is available in Sections 8.7 and 8.21 of the Application.

Big Bend Wind Project

PHASE IA

CULTURAL RESOURCE RECORDS SEARCH

OF THE

BIG BEND WIND PROJECT

Cottonwood and Watonwan Counties, Minnesota

by

Jana Morehouse M.S.

Quality Services, Inc. Project #MN2120001

July 16, 2020

Jana Morehouse Principal Investigator

Quality Services, Inc.

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Quality Services, Inc. (QSI) conducted cultural resources records search at the Minnesota State Historic Preservation Office (SHPO) for the Big Bend Wind Project in Cottonwood and Watonwan Counties, Minnesota. The area evaluated included the project boundary, which is the direct area of potential effect (APE), along with the indirect APE, which extended 1.5 miles from the project boundary. A total of 95.566 acres was evaluated in the direct and indirect APEs.

Three field surveys were previously completed in the evaluated area between 1994 and 2011, all within the direct APE. There were no archeological sites *listed* on the National Register of Historic Places (NRHP) within the direct APE, and one in the indirect APE. No archeological sites *eligible* for listing were identified in the direct or in the indirect APE. One historic structure *listed* on or *eligible* for the NRHP was within the direct APE, and two are within the indirect APE. The researched area also contained one *unevaluated* archeological site in the direct APE and two in the indirect APE, as well as two *unevaluated* historic structures in the direct APE and 70 within the indirect APE. Most of these *unevaluated* structures in the indirect APE are within the towns of Mountain Lake and Delft.

Based on these findings, potential adverse effects to previously identified historic properties (i.e. archeological sites and historic structures that are *eligible* for or *listed* on the NRHP) can be eliminated by designing the facility to avoid direct disturbance of protected sites and implementing appropriate setbacks for turbines and other tall structures associated with the Project. Consideration or further evaluation of unevaluated sites may be warranted if avoidance cannot be accommodated through project design.

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Introduction

Quality Services, Inc. (QSI) completed cultural resources record search within the proposed Big Bend Wind Project (Project) in Cottonwood and Watonwan Counties, Minnesota. The proposed Project footprint is within a 43,518 acre area (see Figure 1). The purpose of the record search was to identify previous cultural surveys completed within the Project area and 1.5 mile buffer and to identify all previously recorded cultural resources that could be affected by the proposed Project as outlined in the Minnesota Department of Commerce's Application Guidance for Site Permitting of Large Wind Energy Conversion Systems in Minnesota.

Study Area

Based on consultation with the SHPO Review and Compliance Specialist Kelly Gragg-Johnson and National Register Archeologist David Mather on January 17, 2018 for the initial project consultation, *QSI* archaeologists conducted a site file search of the Project area (direct APE) and a 1.5-mile buffer (indirect APE) surrounding the Project area. The combined direct and indirect APEs, hereafter referred to as the "Study Area", includes 95,566 acres located in Cottonwood and Watonwan counties (see Table 1 and Figure 1).

The study area is in the following USGS 7.5' topographic quadrangles:

Butterfield, MN 1970 Comfrey, MN 1967 Darfur, MN 1967 Mountain Lake, MN 1970, Photoinspected 1977 Mountain Lake SE, MN 1970 Sanborn SE, MN 1967

Table 1. Legal locations for the Project and study area.

County	Township	Range	Sections
	105N	34W	1-11
		35W	1-4; 9-12
Cottonwood	106N	34W	1-36
Collollwood		35W	1-36
	107N	34W	13-36
		35W	1-17; 20-36
	105N	33W	4-6
Watonwan	106N	33W	1-36
	107N	33W	26-36

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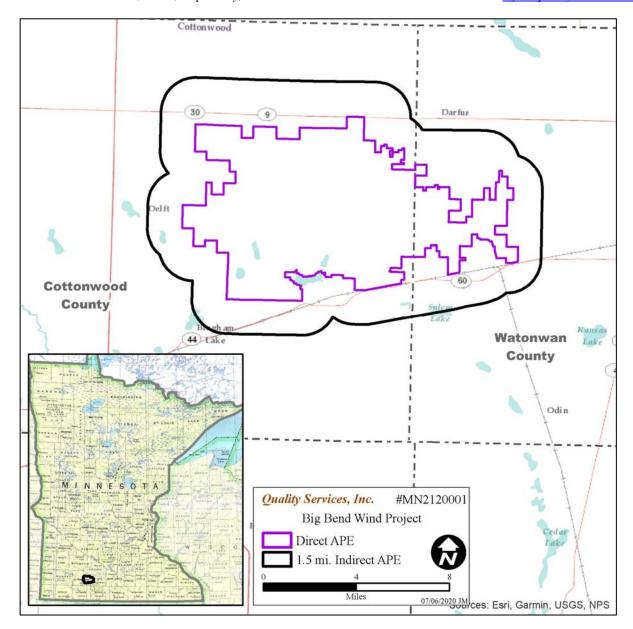


Figure 1. Big Bend Wind Project location and Area of Potential Effect (APE)

Methods

QSI submitted an initial data request to SHPO November 17, 2017, to attain information on known cultural resources within the direct and indirect APEs for an initial area of interest including parts of Cottonwood, Watonwan, Martin, and Jackson Counties. In addition to the list of archeological sites and historic structures provided by SHPO on November 17, 2017, *QSI* also reviewed the National Register of Historic Places (NRHP) and the National Historic Landmark online databases for additional information. To obtain more detailed information on each archeological site, historic structures, and previously conducted archeological inventories, *QSI* staff visited the SHPO office January 16th and 17th, 2018. Other visits for more information on structures and inventories was collected in July 2018 and May 2019.

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The Project boundary was later revised to the current boundary. A records search request was sent to the SHPO office in March 2020, and a subsequent records search was conducted at that time.

Results

Results of the records searches are in the tables below. Review of SHPO documentation indicated that three field surveys were previously completed within the Survey Area between 1994 and 2011, all of which were located within the direct APE (see Table 2).

Table 2. Previous inventories conducted in the direct and indirect APE.

Thora II Thin the III the control of			
SHPO#	Author(s)	Year	Title
CO-11-02	Stemper, C.	2011	Phase IA Archeological Resources Assessment of Cottonwood County, MN.
	Woodward-		Report on Phase I Cultural Resources of Proposed Re-Channeling of
CO-94-01	Clyde	1994	Watonwan River & Bridge 1499 Replacement on Township Rd. 62 over
	Consultants		Watonwan River, Cottonwood County
CO-97-01 Skarr, K.		1 1997	Preliminary Project Report MNDNR Public Water Access Site Eagle Lake,
			Cottonwood County

SHPO data indicated that nine previously recorded architectural and one archeological cultural resources were within the direct APE, while 91 architectural and three archeological cultural resources were within the indirect APE. Of these cultural resources, two are *listed* on the NRHP, but none are within the direct APE. Two cultural resources are identified as *eligible* for the NRHP, one of which is within the direct APE. Seventy-five cultural resources are identified as *unevaluated* for the NRHP, three of which are within the direct APE. Finally, 25 cultural resources are *not eligible* for the NRHP or are no longer considered cultural resources by SHPO, six of these are in the direct APE (see Table 3 below).

Table 3. Cultural resources previously recorded in the direct and indirect APE

SHPO#	Resource Type/Info	NRHP	Relation to APE
21CO0001	Mountain Lake	Listed	In Indirect APE
21CO0039	Bingham Lake Access Site	Unevaluated	In Indirect APE
21CO0042	Fast Burial	Unevaluated	In Direct APE
21WW0015	Lithic Scatter	Unevaluated	In Indirect APE
CO-CAR-004	Carson Mennonite Brethren Church	Unevaluated	In Indirect APE
CO-CAR-005	House	Unevaluated	In Indirect APE
CO-CAR-006	Bridge No. L6513	Not Eligible	In Direct APE
CO-CAR-008	89506	Not Eligible	In Indirect APE
CO-CAR-009	89528	Not Eligible	In Direct APE
CO-CAR-010	L9178	Not Eligible	In Direct APE
CO-DLT-001	Delton Township Hall	Unevaluated	In Indirect APE
CO-DLT-003	17512	Not Eligible	In Direct APE
CO-LKS-009	Farmstead	Not Eligible	In Indirect APE
CO-LKS-012	Farmstead	Not Eligible	In Indirect APE
CO-LKS-013	Farmstead	Not Eligible	In Indirect APE
CO-LKS-014	Farmstead	Not Eligible	In Indirect APE
CO-MID-001	Bridge No. 3278	Not Eligible	In Direct APE
CO-MID-002	Bridge No. 89504	Not Eligible	In Direct APE

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SHPO#	Resource Type/Info	NRHP	Relation to APE
CO-MID-003	Bridge No. 89526	Unevaluated	In Direct APE
CO-MLC-001	House	Unevaluated	In Indirect APE
CO-MLC-002	House	Unevaluated	In Indirect APE
CO-MLC-003	Trinity Lutheran Church	Unevaluated	In Indirect APE
CO-MLC-004	House	Unevaluated	In Indirect APE
CO-MLC-005	Grants House	Unevaluated	In Indirect APE
CO-MLC-006	Gospel Mennonite Church	Unevaluated	In Indirect APE
CO-MLC-007	Christian Reformed Church	Unevaluated	In Indirect APE
CO-MLC-008	Nickel Farmhouse	Unevaluated	In Indirect APE
CO-MLC-009	House	Unevaluated	In Indirect APE
CO-MLC-010	School	Unevaluated	In Indirect APE
CO-MLC-011	House	Unevaluated	In Indirect APE
CO-MLC-012	House	Unevaluated	In Indirect APE
CO-MLC-013	House	Unevaluated	In Indirect APE
CO-MLC-013	House	Unevaluated	In Indirect APE
CO-MLC-014	House	Unevaluated	In Indirect APE
CO-MLC-015	House	Unevaluated	In Indirect APE
CO-MLC-016	House	Unevaluated	In Indirect APE
CO-MLC-017	Isaac I. Bargen House	Listed	In Indirect APE
CO-MLC-019	House	Unevaluated	In Indirect APE
CO-MLC-021	House	Unevaluated	In Indirect APE
CO-MLC-022	House	Unevaluated	In Indirect APE
CO-MLC-023	Ross Cleaners and Tailors	Unevaluated	In Indirect APE
CO-MLC-024	Land O' Lakes Creamery	Unevaluated	In Indirect APE
CO-MLC-025	House	Unevaluated	In Indirect APE
CO-MLC-026	House	Unevaluated	In Indirect APE
CO-MLC-027	House	Unevaluated	In Indirect APE
CO-MLC-028	Bethel Mennonite Church	Unevaluated	In Indirect APE
CO-MLC-030	Mountain Lake High School	Unevaluated	In Indirect APE
CO-MLC-031	Gazebo	Unevaluated	In Indirect APE
CO-MLC-032	House	Unevaluated	In Indirect APE
CO-MLC-033	House	Unevaluated	In Indirect APE
CO-MLC-034	House	Unevaluated	In Indirect APE
CO-MLC-037	House	Unevaluated	In Indirect APE
CO-MLC-038	Grain Elevators	Not Eligible	In Indirect APE
CO-MLC-039	House	Unevaluated	In Indirect APE
CO-MLC-040	Radke Welding	Unevaluated	In Indirect APE
CO-MLC-042	Ewert and Goertz Lumber	Unevaluated	In Indirect APE
CO-MLC-044	Mountain Lake City Hall	Unevaluated	In Indirect APE
CO-MLC-046	Power Plant	Unevaluated	In Indirect APE
CO-MLC-047	House	Unevaluated	In Indirect APE
CO-MLC-048	House	Unevaluated	In Indirect APE
CO-MLC-049	House	Unevaluated	In Indirect APE
CO-MLC-051	House	Unevaluated	In Indirect APE
CO-MLC-052	House	Unevaluated	In Indirect APE
CO-MLC-053	House	Unevaluated	In Indirect APE

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SHPO#	Resource Type/Info	NRHP	Relation to APE
CO-MLC-055	House	Unevaluated	In Indirect APE
CO-MLC-057	House	Unevaluated	In Indirect APE
CO-MLC-058	House	Unevaluated	In Indirect APE
CO-MLC-059	House	Unevaluated	In Indirect APE
CO-MLC-060	House	Unevaluated	In Indirect APE
CO-MLC-062	Jacob Harder House	Unevaluated	In Indirect APE
CO-MLC-065	First National Bank	Unevaluated	In Indirect APE
CO-MLC-066	North Star Telephone Building (Farmers State Bank)	Unevaluated	In Indirect APE
CO-MLC-067	Commercial Building	Not Eligible	In Indirect APE
CO-MLC-068	House	Unevaluated	In Indirect APE
CO-MLC-069	House	Unevaluated	In Indirect APE
CO-MLC-070	House	Not Eligible	In Indirect APE
CO-MLC-071	Bandshell	Unevaluated	In Indirect APE
CO-MLC-072	House	Unevaluated	In Indirect APE
CO-MLC-073	House	Unevaluated	In Indirect APE
CO-MLC-074	House	Not Eligible	In Indirect APE
CO-MLC-075	Hotel Basinger	Unevaluated	In Indirect APE
CO-MLC-076	Commercial Building	Unevaluated	In Indirect APE
CO-MLC-077	Heritage Village	Eligible	In Indirect APE
CO-MLT-003	Farmstead	Not Eligible	In Indirect APE
CO-MLT-004	Farmstead	Not Eligible	In Indirect APE
CO-MLT-005	Moore, Glasman, Eitzen, Franz-Neufeld House	Not Eligible	In Indirect APE
CO-MWS-001	Farmstead	Not Eligible	In Indirect APE
CO-MWS-002	Farmstead	Not Eligible	In Indirect APE
CO-MWS-003	Farmstead	Not Eligible	In Indirect APE
CO-SLM-001	Bridge 17504	Not Eligible	In Indirect APE
WW-BTT-003	Farmstead	Not Eligible	In Indirect APE
WW-BTT-004	farmstead	Unevaluated	In Indirect APE
WW-BTT-005	farmstead	Unevaluated	In Indirect APE
WW-BTT-006	farmstead	Unevaluated	In Indirect APE
WW-BTT-008	Farmstead	Unevaluated	In Direct APE
WW-BTT-009	Farmstead	Unevaluated	In Indirect APE
WW-BTT-010	Farmstead	Unevaluated	In Indirect APE
WW-BTT-011	Old Trunk Highway 10	Unevaluated	In Indirect APE
WW-BTT-012	Farmstead	Unevaluated	In Indirect APE
WW-BTT-013	Farmstead	Unevaluated	In Indirect APE
WW-BTT-014	Farmstead	Unevaluated	In Indirect APE
WW-BTT-016	Farmstead	Not Eligible	In Indirect APE
WW-BTT-017	Farmstead	Not Eligible	In Indirect APE
XX-RRD-003	St. Paul & North. Pacific NP/BN	Eligible	In Direct APE

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[NONPUBLIC DATA HAS BEEN EXCISED...



...NONPUBLIC DATA HAS BEEN EXCISED]

Figure 2. Eligible, Unevaluated, and Not Eligible Cultural Resources within the direct and indirect APE of the proposed Big Bend Wind Project 1:24000 scale map provided as pdf file.

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Conclusions

The record search work for this project indicated that 104 cultural resources have been previously recorded within the direct and indirect APEs. One of these (CO-MLC-038) is no longer extant per information in SHPO files.

The following recommendations are based on SHPO guidance, as well as requirements contained within the Minnesota Department of Commerce's *Application Guidance for Site Permitting of Large Wind Energy Conservation Systems in Minnesota*. Requirements for attaining a site permit include identifying all historic and archeological sites potentially affected by the project, as well as describing how impacts to these resources will be modified to reduce or eliminate potential affects.

Of the 104 recorded cultural resources, four (one archeological site and three historic structures) are *eligible* for or *listed* on the State/NRHPs, one of which, the railroad, occurs in the direct APE. Eligible/listed cultural sites will either be avoided or further assessed as agreed upon with SHPO.

Seventy-five recorded cultural resources (three archeological sites and 72 historic structures) are *unevaluated* for the NRHP, three of which are in the direct APE. SHPO requirements regarding historic properties (Archeological Manual p. 33, 40 and 46; Historic and Architectural Manual p. 14, point 8) state all historic structures and archeological sites within the direct APE must be evaluated for the State/NRHP to assess potential effects of proposed projects to their NRHP status. Currently, all *unevaluated* sites and structures will be avoided by the proposed turbine layout. Should any connector lines or access corridor routes fall within the boundary of sites 21CO0042, CO-MID-003, or WW0BTT-008, they must be fully recorded and evaluated for the NRHP.

The remaining 25 cultural resources have already been determined to be *not eligible* for the NRHP. These resources do not need to be avoided and no further work is necessary at their locations to ensure regulatory compliance.

Additional Phase I cultural resources inventories are planned in areas of planned surface disturbance that have been identified to have a high probability of cultural resources, as previously determined acceptable by SHPO.

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References Cited

Historic Preservation Department

2017 Historic and Architectural Survey Manual, Minnesota Historical Society, Minneapolis

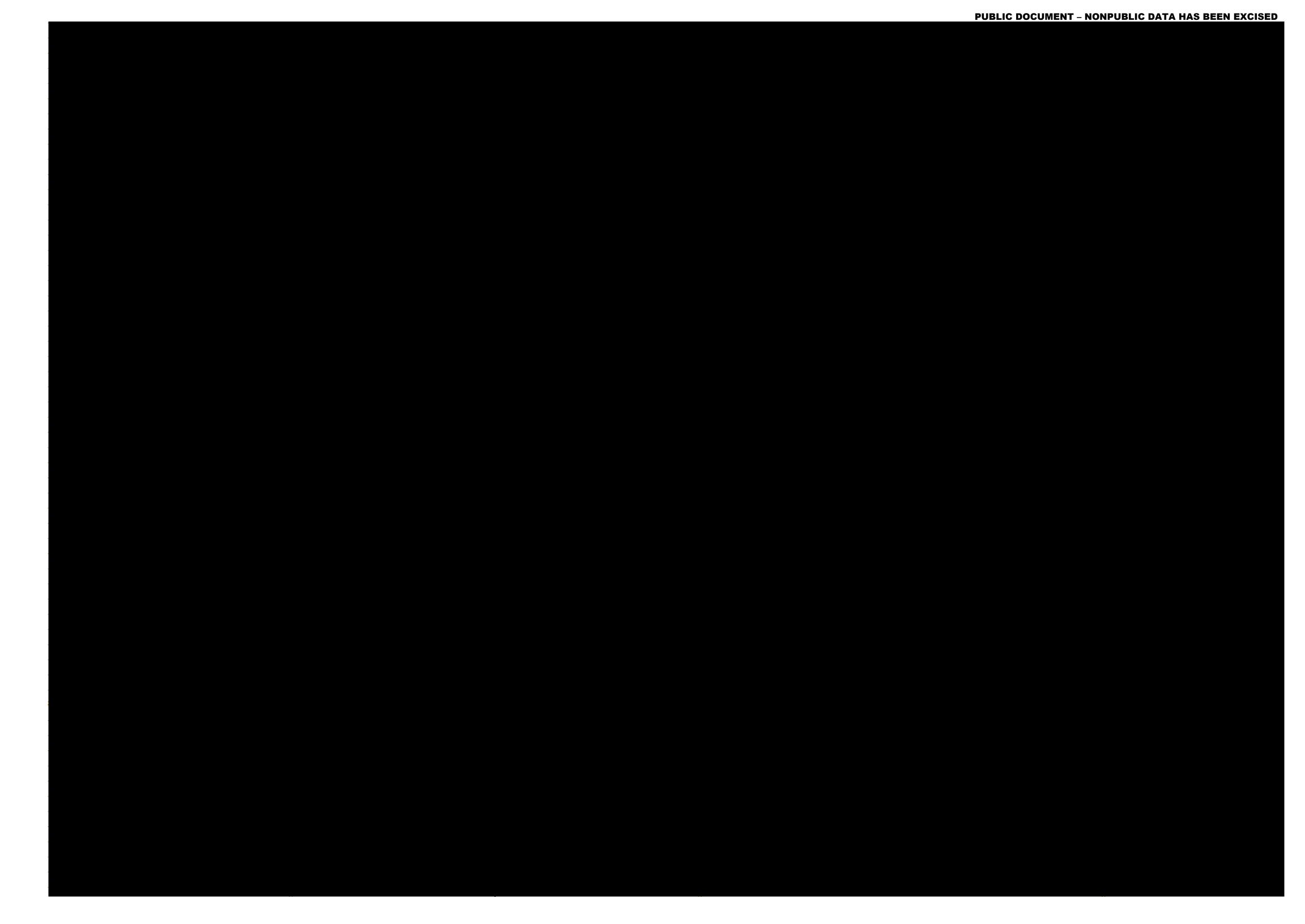
Stemper, C.

1990 Cultural Resource Survey for the Proposed Wellner-Hageman Dam and Park Project Along Mound Creek; Brown County, Minnesota, Stemper and Associates, North Mankato, MN.

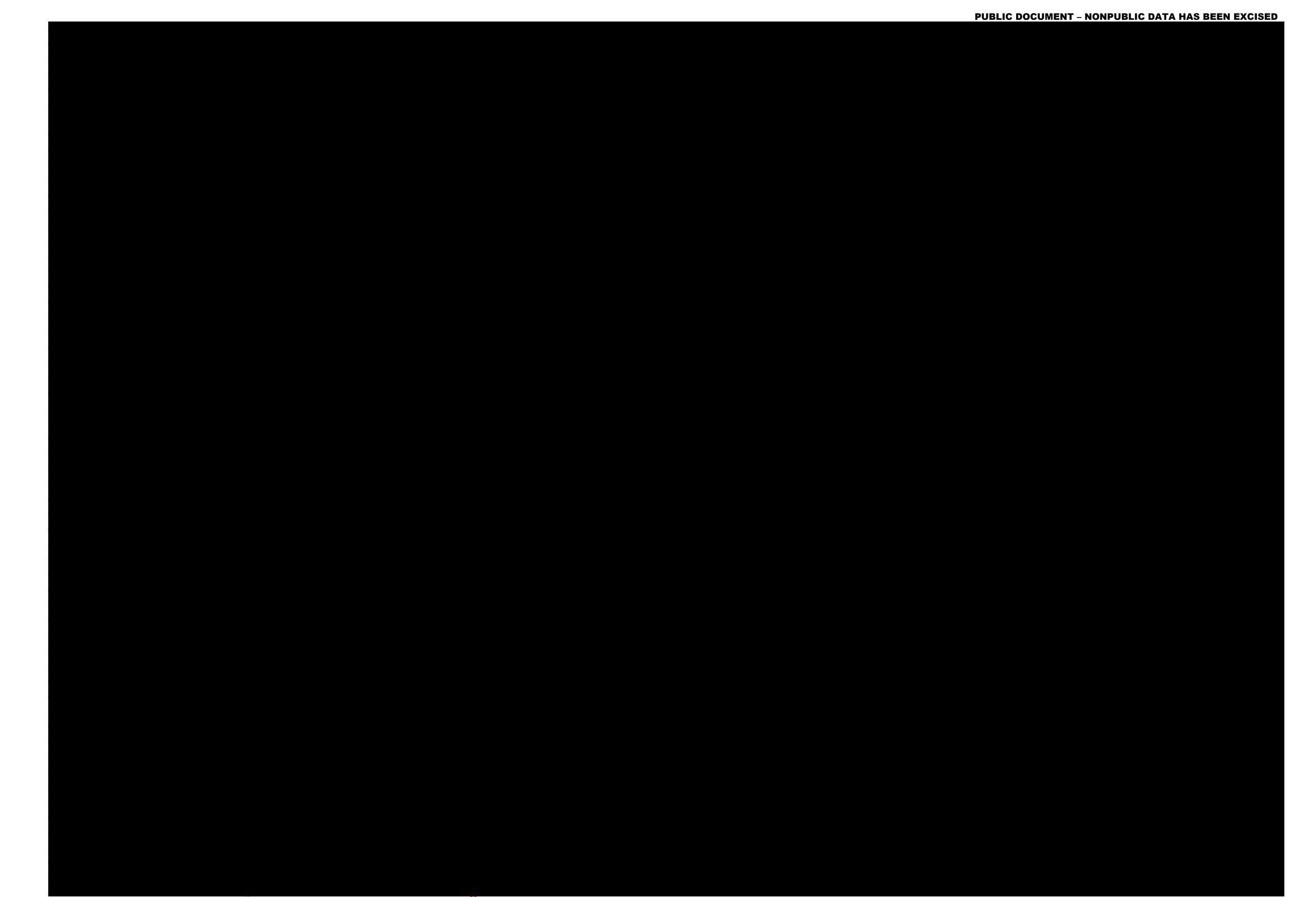
Appendix 1

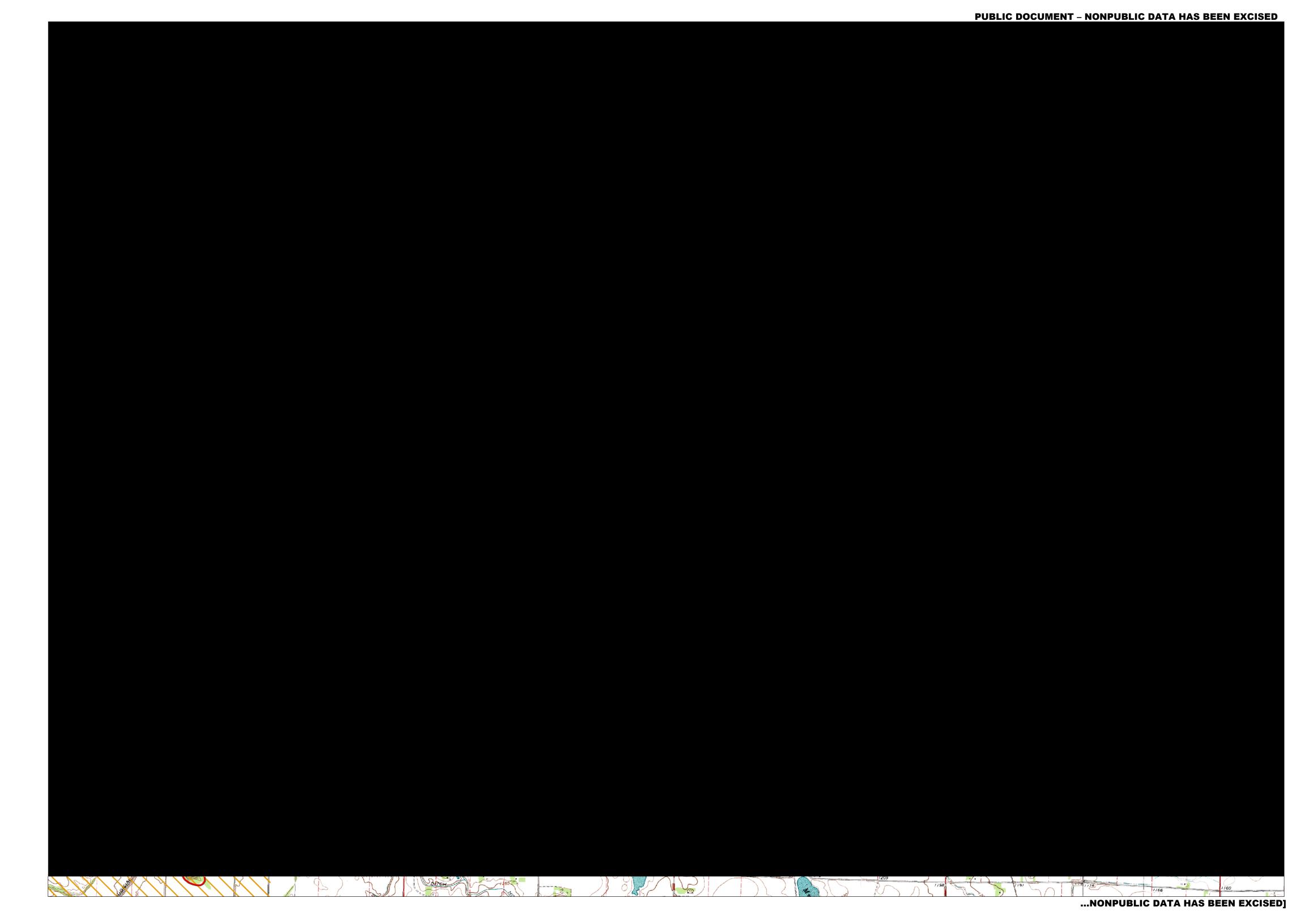
Project Map 1:24000 scale, 44 in. x 30 in. in size











From: **Angela Durand** Joyal, Lisa (DNR) To:

Cc: jennie.geiger@apexcleanenergy.com; Brie Anderson

Subject: Big Bend Wind Farm Project - Natural Heritage Review Request

Date: Monday, September 28, 2020 8:11:00 PM

Attachments: Big Bend Wind Farm MnDNR Natural Heritage Review Request 09282020.pdf

image001.png Big Bend Wind Project Boundary.zip

Lisa,

On behalf of Big Bend Wind, LLC, Merjent submits the attached Natural Heritage Data Review for the proposed Big Bend Wind Project, for your review and concurrence. A shapefile of the Big Bend Wind Project Boundary is also attached to assist you with your review.

Please let me know if you have any questions regarding the attached request.

Sincerely,

Angela Durand

612.746.3666 direct 612.229.2933 mobile angela.durand@merjent.com



1 Main Street SE, Suite 300 Minneapolis, MN 55414 612.746.3660 www.merjent.com

Via Email

September 28, 2020

Ms. Lisa Joyal
Endangered Species Review Coordinator
NHIS Data Distribution Coordinator
Division of Ecological and Water Resources
Minnesota Department of Natural Resources
500 Lafayette Road, Box 25
St. Paul, MN 55155

Email: lisa.joyal@state.mn.us

Re: Natural Heritage Data Review of the Proposed Big Bend Wind Project Cottonwood and Watonwan Counties, Minnesota

Dear Ms. Joyal:

On behalf of Big Bend Wind, LLC (Big Bend), an affiliate of Apex Clean Energy Holdings, LLC (Apex), Merjent, Inc. (Merjent) queried the Minnesota Natural Heritage Information System (NHIS) to conduct a natural heritage data review for the proposed Big Bend Wind Project (Project).

Merjent holds a license agreement with the Minnesota Department of Natural Resources (MnDNR) to access electronic NHIS data. On April 22, 2020, Merjent requested from the MnDNR its annual NHIS data update per its license agreement which was provided on May 8, 2020. This updated MnDNR data was used for this Natural Heritage Data Review by a trained and experienced Merjent biologist. The following provides a brief background of the Project, results of the NHIS query, additional information, and an assessment of potential impacts to rare natural features and state-listed species. Based upon this information and review, Merjent respectfully requests that the MnDNR review and concur with this Natural Heritage Data Review for the Project.

Background

Big Bend initiated development of the Big Bend Wind Project in 2017 by reviewing a 390-square-mile Area of Interest that included eastern Cottonwood County, southern Brown County, western Watonwan County, and northwestern Martin County. This Area of Interest was reviewed to identify suitable areas for siting the Wind Project and routing a transmission line to interconnect with the existing 345 kV transmission line in northwestern Martin County. The Area of Interest was shaped by considering the available wind resource, proximity to the existing transmission system, Federal Aviation Admiration (FAA) airspace, military airspace, existing wind projects, and landowners interest in hosting Project facilities. In late 2017, Big Bend coordinated with the MnDNR to determine if any rare species or other significant

natural features are known to occur within the Area of Interest by submitting an NHIS request. MnDNR provided a response on December 18, 2017 (ERDB #20180221), indicating the Area of Interest included several rare species and significant natural features.

The current Project Area, as included in this Natural Heritage Review, is the result of a comprehensive two-year siting approach that included stakeholder involvement from agencies, non-government units, and Native American tribes. Specific to natural resources and MnDNR comments, the Project Area avoids the Prairie Core Area and Prairie Corridors, Sites Of Biodiversity Significance (SOBS) ranked high or outstanding, and calcareous fens; minimizes SOBS ranked moderate or below and Native Plant Communities (NPCs), and is 96 percent cultivated crop/developed area, thereby limiting habitat for rare species.

More specifically, Big Bend has sited all turbines in cultivated cropland; the layout avoids permanent and temporary impacts from all Project components (e.g., turbines, access roads, permanent met towers, Wind Project Substation, O&M facility, collection lines, and crane paths) on NCPs and SOBS.

Project Description

The Project Area includes portions of four townships in eastern Cottonwood County and one township in Watonwan County. The boundary of the Project Area is identified in the enclosed Figure 1 (Project Location). Table 1 lists the counties, townships, ranges, and sections that are included in the Project Area.

Table 1 Project Location					
County Name	Township Name	Township	Range	Sections	
	Delton	107N	35W	25-28, 33-36	
C-14	Selma	107N	34W	27-29, 31-36	
Cottonwood	Carson	106N	35W	1-2, 10-16, 21-26, 35-36	
	Midway	106N	34W	1-32, 34-36	
Watonwan	Butterfield	106N	33W	3, 6-11, 15-23, 26, 28-29	

The Project Area boundary includes 43,523 acres. The Project's aboveground facilities will occupy less than one percent of the Project Area. A Project layout map is included as Figure 2.

The Project will have up to 314 MW of nameplate wind energy capacity. Big Bend is currently proposing three wind turbine models with rated nameplate capacity ranging from 5.5 MW to 5.7 MW, corresponding to a maximum number of wind turbines between 54 and 55. The Project's facilities will include:

- up to 55 wind turbines and related equipment;
- new gravel access roads and improvements to existing roads;
- underground and/or aboveground electrical collection and communication lines;
- operations and maintenance (O&M) facility;
- one Project substation;
- up to one permanent meteorological tower;
- Sonic Detection and Ranging (SoDAR) or Light Detection and Ranging (LiDAR) unit;
- one temporary laydown area;
- aboveground electrical feeder line;

- up to four Aircraft Detection Lighting Systems (ADLS) radars; and
- one temporary batch plant area, if needed, for construction of the Project.

Natural Heritage Review

As mentioned above, the Project layout (see Figure 2) avoids permanent and temporary impacts from all Project components (e.g., turbines, access roads, permanent met towers, Wind Project Substation, O&M facility, collection lines, and crane paths) on NCPs and SOBS.

Merjent reviewed the MnDNR NHIS for state-listed threatened and endangered species that are known to occur within 1 mile of the proposed Project. Table 2 summarizes the records found during the review of the NHIS data.

Table 2 State-Listed Species Impact Assessment					
Common Name Scientific Name	Habitat	Status	Potential Impacts		
Poweshiek skipperling Oarisma poweshiek	Remnants of native prairie	END	Not applicable – the Project will not impact suitable habitat for this species.		
A species of northern caddisfly Ironoquia punctatissima	Restricted to small cold water streams	THR	No cold water streams present within the Project boundary. Further, Project facilities have been designed to avoid impacts on surface waters to the extent practicable. Best management practices and erosion control devices will be utilized during construction to protect adjacent resources and to minimize soil erosion.		
Hair-like Beak Rush Rhynchospora capillacea	Calcareous fens (primary), Spring fens (secondary)	THR	Not applicable – the Project will not impact suitable habitat for this species.		
Sullivant's milkweed Asclepias sullivantii	Undisturbed wet and mesic tallgrass prairies.	THR	Not applicable – the Project will not impact suitable habitat for this species.		

As noted in Table 2 above, we believe the Project will not impact state-listed species. On behalf of Big Bend, Merjent respectfully requests that the MnDNR review and concur with this Natural Heritage Data Review for the Project within 30 days of receipt of this submittal.

Should you have any questions or comments regarding this matter, please contact me at 612-746-3666, or at angela.durand@merjent.com.

Sincerely,

Angela Durand

Senior Environmental Analyst

Merjent, Inc.

Enclosure: Figure 1 – Project Location Map

Figure 2 - Project Layout Map

