Fredrikson

Fredrikson & Byron, P.A.
Attorneys and Advisors

60 South Sixth Street, Suite 1500
Minneapolis, MN 55402-4400
Main: 612.492.7000
fredlaw.com

April 9, 2025

VIA E-MAIL AND FEDERAL EXPRESS

Mr. Steven Kahl
Executive Secretary
North Dakota Public Service Commission
600 E. Boulevard, Dept. 408
Bismarck, ND 58505-0480

RE: Badger Wind, LLC
Amend – Badger Wind Project – McIntosh & Logan Counties
Siting Application
Case No. PU-24-087

Dear Mr. Kahl:

Enclosed for filing in connection with the above-referenced matter are an original and four (4) copies of this letter and the following documents, submitted by Badger Wind, LLC:

1. Certification of Melissa Peterson, with accompanying Exhibits:
2. Certification Exhibit A – Comparison Map;
3. Certification Exhibit B – Current Project Layout Map;
4. Certification Exhibit C – Sound Assessment Update Tech Memorandum;
5. Certification Exhibit D – Class III Archaeological Survey Report (Addendum Fall 2024 Fieldwork) (dated December 10, 2024) (public version only);
6. Certification Exhibit D-1 – State Historical Society of North Dakota Acceptance Letters;
7. Certification Exhibit E – Fall 2024 Wetland and Waterbody Delineation Report (dated March 31, 2025); and
8. Certificate of Service.

An unredacted, nonpublic version of Exhibit D – Class III Archaeological Survey Report (Addendum Fall 2024 Fieldwork) (dated December 10, 2024) will be provided under separate cover with an Application for Protection of Information.

Electronic copies of the above-referenced documents and this letter were filed with the Commission today via e-mail, with hard copies and a USB flash drive containing GIS data for the current layout sent to the Commission via Federal Express.

If you have any questions, please let me know.

Sincerely,

MOLLIE M. SMITH

MMS/bad/85865995

Enclosures

cc: Rob Frank (w/ encls., via e-mail)
Kevin Pranis (w/ encls., via e-mail)
Andrew Krieger (w/ encls., via e-mail)

STATE OF NORTH DAKOTA

PUBLIC SERVICE COMMISSION

Badger Wind, LLC **Case No. PU-24-87**
Badger Wind Project – Logan & McIntosh Counties
Siting Application

CERTIFICATION OF MELISSA PETERSON

STATE OF VIRGINIA)
) ss.
COUNTY OF ALBEMARLE)

Melissa Peterson, being first duly sworn upon oath, states and alleges as follows:

1. I am an authorized officer and Senior Vice President of Orsted Onshore North America, LLC, a Delaware limited liability company (the "Company"), which Company is the direct parent company of Badger Wind, LLC ("Badger Wind") with authority to bind Badger Wind with respect to the certifications made herein.

2. I provide this Certification pursuant to Provision No. 38 of the Certification Relating to Order Provisions – Wind Energy Conversion Facility Siting, which is part of the Commission's Findings of Fact, Conclusions of Law and Order, dated September 11, 2024 ("Order"), in the above-referenced docket.

3. Since the Order was issued, Badger Wind made minor modifications to the Badger Wind Project ("Project") layout. A figure comparing the layout as depicted in Figure 2 of Hearing Exhibit No. 3 to the current Project layout is attached hereto as **Exhibit A**. The current Project layout is attached hereto as **Exhibit B**.

4. The layout modifications include the following:

   a. Ten turbine locations were designated as alternate turbine locations and are not anticipated to be constructed, and the remaining 92 primary turbine locations were finalized. No other turbine adjustments were made.

b. Three meteorological ("MET") tower locations were removed, and the remaining two primary MET tower locations were finalized. No other MET tower adjustments were made.

c. A site was selected for the aircraft detection lighting system ("ADLS") tower and associated cables and access road.

d. A minor adjustment to the location of the substation was made to shift the substation approximately 50 feet to the east based on further site analysis, optimization, and constructability.

e. A minor adjustment to the location of the operations and maintenance ("O&M") facility was made to shift the O&M facility approximately 30 feet to the east and expand the footprint approximately 50 feet to the east, 25 feet to the south, and 15 feet to the north based on further site analysis, optimization, and constructability.

f. Minor access road adjustments were made to optimize access road routes after selecting the primary turbine locations.

g. New driveway entrances were added for the substation, O&M facility, laydown yard, and marshalling yard based on further site analysis, optimization, and constructability.

h. Collection system adjustments were made to optimize the design based on the current turbine array.

i. Crane path adjustments were made based on further site analysis and optimization for the current turbine array.

j. The marshalling yard location was shifted to reduce traffic congestion during deliveries.

k. One laydown yard was selected and the location modified based on further site analysis.

l. Temporary road improvements (such as turning radii) locations have been finalized.

5. The Project layout complies with all applicable setback requirements and all requirements set forth in the Commission's Order.

6. In accordance with Order Paragraph No. 6, an updated noise analysis was conducted for the 92 primary turbine locations and the adjustment to the substation (main power transformers), and a Sound Assessment Update Tech Memorandum is attached as **Exhibit C**. As indicated in the report, the Project complies with the Commission's Avoidance Area Sound Requirement. As indicated in the report, the Project complies with the Commission's Avoidance Area Sound Requirement.

7. Some of the modifications are covered by the Class III Archaeological Survey Report (Addendum Fall 2024 Fieldwork) (dated December 10, 2024), attached hereto as **Exhibit D** (public version). The State Historical Society of North Dakota ("SHSND") issued acceptance letters for this report (included as **Exhibit D-1**). The remaining Project modifications are covered by the following: Addendum Class III Archaeology Survey Report, dated May 24, 2024 (Exhibit No. 8) and associated SHSND acceptance letter, dated June 24, 2024 (Exhibit No. 9); Archaeological Reconnaissance Survey Report, dated January 24, 2024 (Appendix L to Exhibit No. 1) and associated SHSND acceptance letter, dated April 11, 2024 (Exhibit No. 9); Updated Class III Cultural Resources Inventory Report, dated June 27, 2022 (Late-Filed Exhibit No. 33-A in Docket No. PU-22-086) and associated SHSND acceptance letter, dated July 26, 2022 (Late-Filed Exhibit No. 33-B in Docket No. PU-22-086); Supplemental 2022 Intensive Cultural Resources Inventory, dated June 27, 2022 (Late-Filed Exhibit No. 33-C in Docket No. PU-22-086)

and associated SHSND acceptance letter, dated July 26, 2022 (Late-Filed Exhibit No. 33-D in Docket No. PU-22-086); and Intensive Cultural Resource Inventory of Collection Line Reroute, dated August 2, 2022 (Late-Filed Exhibit No. 33-E in Docket No. PU-22-086) and associated SHSND acceptance letter, dated August 29, 2022 (filed on February 16, 2024 in Docket No. PU-22-086). The Project layout modifications depicted in **Exhibit A** will not impact any National Register of Historic Places ("NRHP") eligible, potentially eligible, or unevaluated cultural resource sites.

8. Some of the modifications are covered by the Fall 2024 Wetland and Waterbody Delineation Report, dated March 31, 2025, attached hereto as **Exhibit E**. The remaining Project modifications are covered by the following: Wetland and Waterbody Delineation Report Technical Memorandum, dated June 19, 2024 (Exhibit No. 13); Wetland and Waterbodies Assessment, dated January 31, 2024 (Appendix N to Exhibit No. 1); Aquatic Resources Delineation Report, dated June 7, 2022 (Exhibit No. 15-A in Docket No. PU-22-086); and Aquatic Resources Report, dated January 3, 2022 (Exhibit No. 15-B in Docket No. PU-22-086). The Project layout modifications depicted in **Exhibit A** will not result in any permanent impacts to wetlands or waterbodies.

9. The Project layout modifications and associated construction activities will not affect any known exclusion or avoidance areas within the designated Project site.

10. With respect to the Project, including the layout modifications, Badger Wind will comply with the Commission's Order, including applicable laws and rules designating the site.

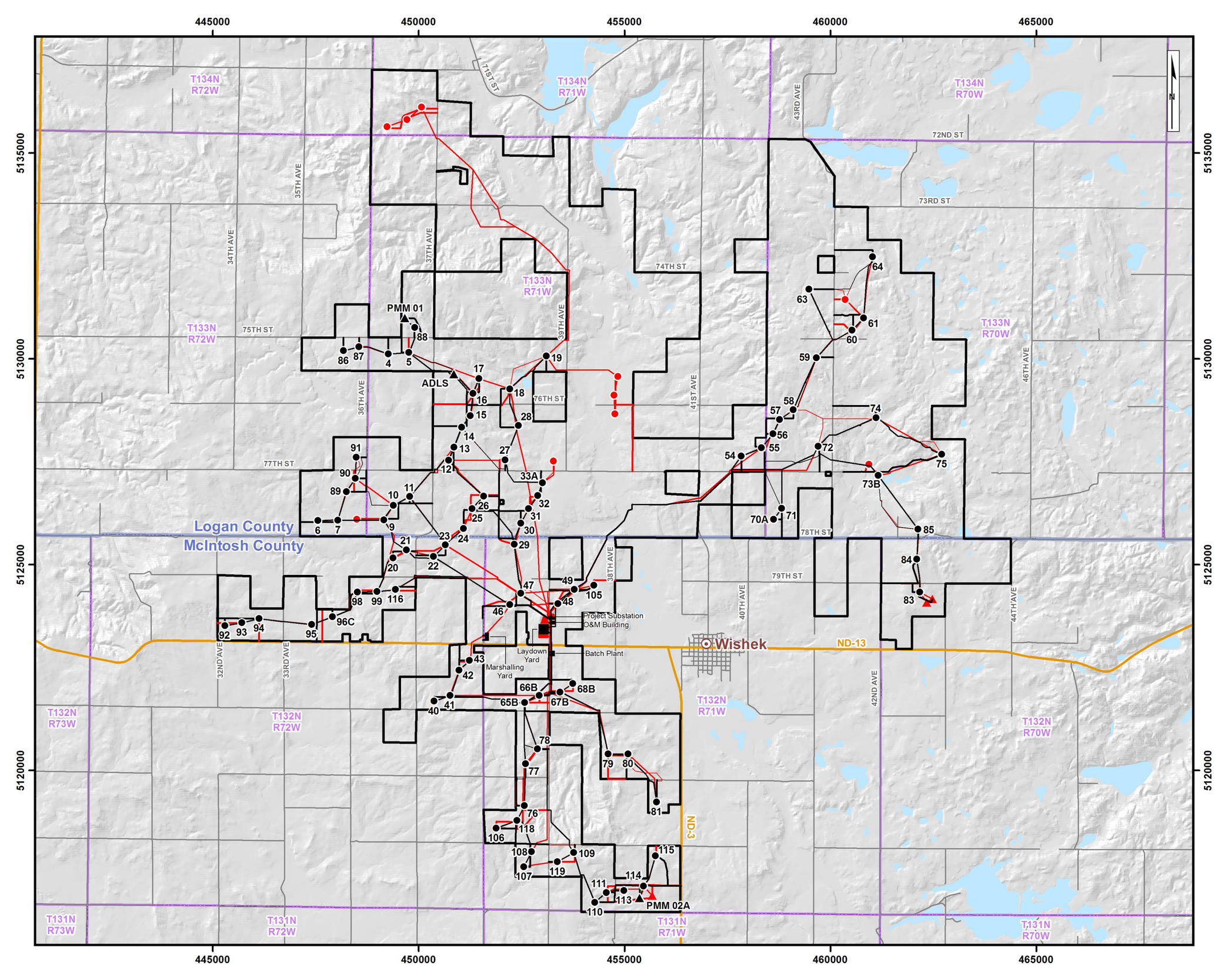
FURTHER AFFIANT SAYETH NOT.

Melissa Peterson

Subscribed and sworn to before me
this 13 day of March, 2025.

Notary Public

EXHIBIT A



Legend

- Current Layout (April 2025)
- Layout Approved by PSC (September 2024)
- Project Area
- County
- Township (PLSS)
- State Road
- County/Township Road

0 1 2 Miles

Ørsted

Badger Wind, LLC

Figure 2:
COMPARISON FIGURE

DNV

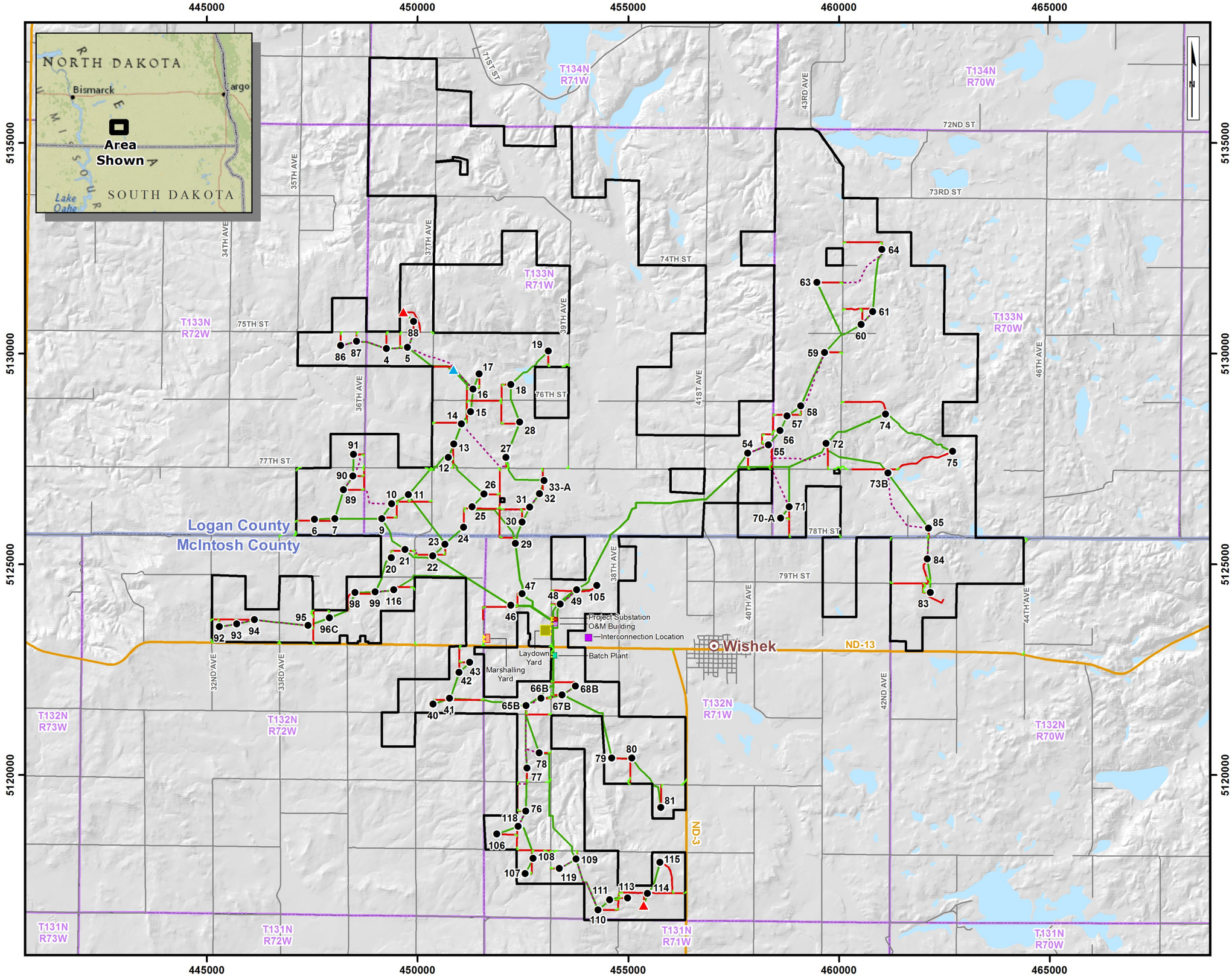
10455420-250404-PV

April 4, 2025

Projection: NAD83 UTM14

Sources: ESRI, USGS

EXHIBIT B



Legend

(symbols not to scale)

- Project Area
- Turbine Location
- Permanent MET Tower
- ADLS Tower
- Access Road
- Underground Collection
- Crane Path
- Temporary Intersection Improvement
- Facility Entrance
- Project Substation
- Batch Plant
- Laydown Yard
- Marshalling Yard
- O&M Building
- County Boundary
- Township Boundary

0 1 2 Miles

Ørsted

Badger Wind, LLC

Figure 1:
PROJECT LAYOUT

DNV

10455420-250404-PV

April 4, 2025

Projection: NAD83 UTM14

Sources: ESRI, TIGER, USGS

EXHIBIT C

Technical Memorandum – Sound Assessment Update
Badger Wind Farm
Badger Wind, LLC
401 N Michigan Ave, Suite 501
Chicago, IL 60611

DNV Energy USA Inc.
621 SW Morrison St Ste 500,
Portland, OR 97205, USA
Phone: +1 302 463 9018
Enterprise No.: 23-2625724
www.dnv.com

Confidentiality classification:
Customer's Discretion

Date:	DNV reference:	Customer reference:
2025-01-16	Proposal Ref.: 315673-HOU-P-01-C Document No.: 10455420-HOU-M-06 Issue: A	Andrew Krieger

Subject: Receptor Noise Compliance – Sound Assessment Update

Badger Wind, LLC ("Badger" or the "Customer") retained DNV Energy USA Inc.("DNV"), to revise the noise analysis for the proposed Badger Wind Farm located in Logan County and McIntosh County, North Dakota (the "Project"). The purpose of this technical memorandum is to ensure compliance with the North Dakota Administrative Code Section 69-06-08-0 with the updates to the substation location.

The Project currently consists of 92 wind turbine generator locations (WTGs) and two step-up transformers within the proposed substation. There are no neighboring wind farms or solar farms near the Project. All the 92 wind turbines have been modeled with LNTE (low noise trailing edge) blades. The coordinates of the two transformers and gravel pad within the proposed substation have been updated to match construction plans.

As per the North Dakota Administrative Code Section 69-06-08-0, the sound emanating from the Project is subject to a 45 dBA limit within one hundred feet of an inhabited residence or a community building.

The sound pressure level (SPL) at each receptor for the aggregate of all WTGs and transformers was calculated based on the ISO 9613-2 method.

As a result of the updated substation coordinates, and all 92 wind turbines utilizing LNTE blades, it has been determined that all receptors will achieve noise compliance in accordance with the North Dakota Administrative Code Section 69-06-08-0.

Please see the noise contour map below and Table 1 Receptor Results for more information.

I hope this memorandum is consistent with your expectations. Please contact David De Caro if you have any questions.

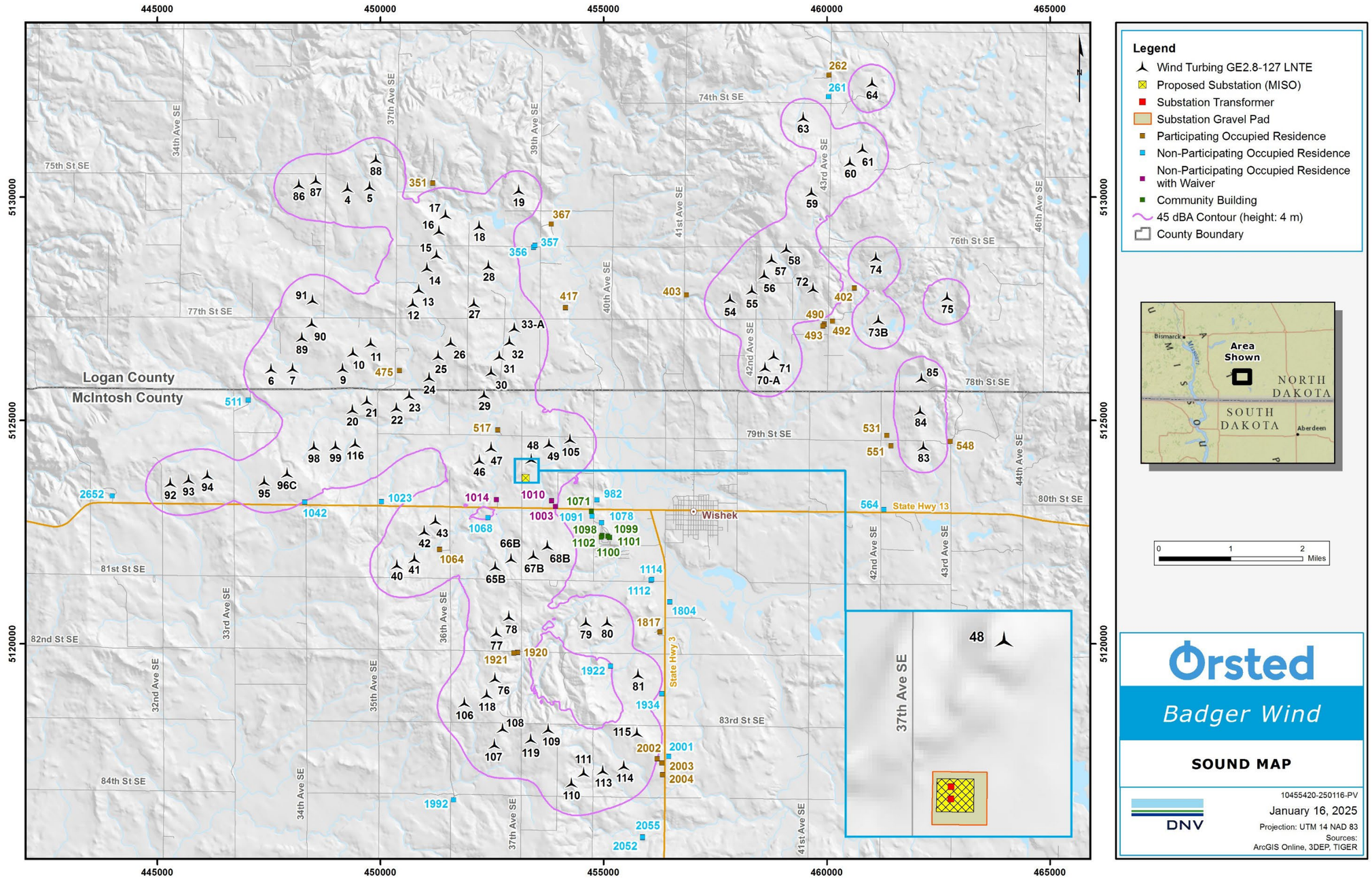


Figure 1-1 Sound Map

DNV

Table 1 Receptor Results

Receptor ID	UTM Coordinates Zone 14, NAD 83 Datum		Nearest Sound Source [ID]	Distance to Nearest Sound Source [feet]	Sound Pressure Level at Receptor [dBA]	Participant Status / Waiver Status[1]
	Easting [m]	Northing [m]				
261	460040	5132243	T63	2589	42.7	NP
262	460052	5132724	T64	3285	40.4	P
351	451171	5130311	T17	2764	44.0	P
356	453428	5128874	T28	3684	42.4	NP
357	453463	5128918	T28	3852	42.2	NP
367	453827	5129394	T19	3244	39.1	P
402	460620	5127961	T74	2541	44.6	P
403	456860	5127809	T54	3248	40.8	P
417	454147	5127522	T33-A	4142	40.7	P
475	450426	5126113	T23	2209	49.0	P
490	459950	5127152	T72	2497	43.9	P
492	460131	5127219	T72	2565	43.9	P
493	459917	5127112	T72	2589	43.7	P
511	447037	5125452	T6	2632	43.6	NP
517	452631	5124788	T47	1658	48.5	P
531	461350	5124665	T84	2884	42.6	P
548	462767	5124527	T83	2072	44.0	P
551	461444	5124433	T83	2391	43.1	P
564	461281	5123004	T83	5239	34.3	NP
982	454849	5123219	T105	4621	40.7	NP
1003	453922	5123072	TR2	2988	45.1	NP Waiver Obtained
1010	453837	5123201	TR2	2498	47.0	NP Waiver Obtained
1014	452598	5123225	TR2	2649	45.5	NP Waiver Obtained
1023	450024	5123180	T42	3988	43.5	NP
1042	448303	5123172	T96-C	2250	44.8	NP
1064	451329	5122110	T42	1553	49.3	P
1068	452406	5122819	T66-B	3697	44.9	NP
1071	454729	5122962	T68-B	4266	41.2	NP
1078	454738	5122856	T68-B	4072	41.2	NP
1091	454957	5122712	T68-B	4438	40.3	NP
1098	454969	5122422	T68-B	4145	40.6	NP
1099	455092	5122408	T68-B	4527	40.0	NP
1100	455124	5122382	T68-B	4613	39.9	NP
1101	455138	5122382	T68-B	4658	39.9	NP
1102	454951	5122389	T68-B	4062	40.7	NP
1112	456064	5121418	T80	4638	38.4	NP
1114	456081	5121438	T80	4724	38.2	NP
1804	456482	5120937	T80	4916	37.7	NP
1817	456265	5120265	T81	3754	40.5	P
1920	453076	5119807	T77	1956	47.2	P
1921	452989	5119794	T77	1764	47.7	P
1922	455159	5119498	T81	2203	44.9	NP
1934	456308	5118878	T81	2097	44.0	NP
1992	451637	5116504	T107	4845	38.2	NP
2001	456463	5117481	T115	2760	42.6	NP
2002	456205	5117426	T115	2220	44.9	P
2003	456305	5117334	T115	2665	43.6	P
2004	456317	5117069	T114	2845	42.6	P
2052	455875	5115654	T114	5215	38.0	NP
2055	455871	5115671	T114	5158	38.1	NP
2652	443993	5123311	T92	4319	36.9	NP

[1] P – Participating Landowner with lease agreement that includes a sound waiver; NP – Non-Participating Landowner

DNV

Table 2 Sound Source Locations

ID	UTM Coordinates Zone 14, NAD 83 Datum		Broadband Sound Power Level [dBA]
	Easting [m]	Northing [m]	
T-004	449261	5130117	110.5
T-005	449759	5130151	110.5
T-006	447551	5126068	110.5
T-007	448036	5126079	110.5
T-009	449155	5126083	110.5
T-010	449387	5126437	110.5
T-011	449782	5126651	110.5
T-012	450729	5127536	110.5
T-013	450861	5127852	110.5
T-014	451042	5128332	110.5
T-015	451257	5128619	110.5
T-016	451316	5129159	110.5
T-017	451461	5129520	110.5
T-018	452211	5129269	110.5
T-019	453100	5130064	110.5
T-020	449377	5125159	110.5
T-021	449700	5125355	110.5
T-022	450360	5125199	110.5
T-023	450647	5125477	110.5
T-024	451092	5125878	110.5
T-025	451296	5126362	110.5
T-026	451578	5126665	110.5
T-027	452098	5127540	110.5
T-028	452422	5128375	110.5
T-029	452324	5125494	110.5
T-030	452480	5126003	110.5
T-031	452665	5126360	110.5
T-032	452895	5126679	110.5
T-033A	453004	5126986	110.5
T-040	450371	5121681	110.5
T-041	450761	5121821	110.5
T-042	450983	5122433	110.5
T-043	451236	5122675	110.5
T-046	452217	5124026	110.5
T-047	452482	5124305	110.5
T-048	453382	5124053	110.5
T-049	453779	5124394	110.5
T-054	457835	5127637	110.5
T-055	458326	5127834	110.5
T-056	458602	5128174	110.5
T-057	458766	5128524	110.5
T-058	459095	5128758	110.5
T-059	459657	5130025	110.5
T-060	460524	5130694	110.5
T-061	460804	5130993	110.5
T-063	459475	5131692	110.5
T-064	461021	5132472	110.5
T-065B	452575	5121645	110.5
T-066B	452929	5121821	110.5
T-067B	453432	5121898	110.5
T-068B	453744	5122113	110.5
T-070A	458620	5126098	110.5
T-071	458817	5126366	110.5
T-072	459698	5127870	110.5
T-073B	461160	5127166	110.5
T-074	461105	5128565	110.5
T-075	462700	5127678	110.5
T-076	452566	5119146	110.5
T-077	452597	5120162	110.5
T-078	452883	5120525	110.5
T-079	454605	5120399	110.5
T-080	455083	5120400	110.5
T-081	455775	5119231	110.5
T-083	462166	5124333	110.5
T-084	462096	5125130	110.5
T-085	462126	5125861	110.5
T-086	448175	5130195	110.5
T-087	448553	5130290	110.5
T-088	449902	5130761	110.5
T-089	448244	5126772	110.5
T-090	448462	5127093	110.5
T-091	448483	5127609	110.5
T-092	445293	5123519	110.5
T-093	445706	5123589	110.5
T-094	446126	5123689	110.5
T-095	447399	5123548	110.5
T-096C	447910	5123734	110.5
T-098	448513	5124332	110.5
T-099	448992	5124343	110.5
T-105	454253	5124495	110.5
T-106	451881	5118600	110.5
T-107	452556	5117660	110.5
T-108	452741	5118024	110.5
T-109	453763	5118007	110.5
T-110	454280	5116797	110.5
T-111	454558	5117035	110.5
T-113	454982	5117082	110.5
T-114	455458	5117188	110.5
T-115	455749	5117926	110.5
T-116	449434	5124397	110.5
T-118	452385	5118783	110.5
T-119	453367	5117785	110.5
TR1	453257	5123722	108.7
TR2	453256	5123693	108.7

A REPORT FOR CLASS III ARCHAEOLOGICAL SURVEY

Badger Wind Project – 2023 Expansion Areas (Addendum Fall 2024 Fieldwork)

Logan and McIntosh Counties, North Dakota

DECEMBER 10, 2024
SHPO REFERENCE NO. 22-0020 (ADDENDUM)

PREPARED FOR:
Ørsted

PREPARED BY:
Westwood

Westwood

Class III Archaeological Survey

Badger Wind Project – 2023 Expansion Areas (Addendum Fall 2024 Fieldwork)

Logan and McIntosh Counties, North Dakota

Prepared For:
Badger Wind, LLC.
401 North Michigan Avenue, Suite 501
Chicago, Illinois 60611

Prepared By:
Rigden Glaab – Senior Archaeological Principal Investigator
Westwood Professional Services, Inc.
12701 Whitewater Drive, Suite 300
Minnetonka, MN 55343
(952) 937-5150

Project Number: R0031120.00
Date: December 10, 2024
SHPO Reference No.: 22-0020 (Addendum)

Abstract

Ørsted Onshore North America, LLC (Ørsted) retained Westwood Professional Services, Inc. (Westwood), to conduct an archaeological survey in support of developing the Badger Wind Project (Project or Project Area) in Logan and McIntosh counties, North Dakota. This report is being provided to Ørsted as an addendum to previous work conducted by Westwood in 2023 and 2024 (Glaab 2024a, 2024b) and considers most recent revisions to Project design. The work performed by Westwood is an expansion of the Project, which also supplements previous surveys performed by Atwell, LLC, and Cultural Resource Analysts, Inc., in 2022 (Ferriman and Thurman 2022; Thurman and Weston 2022; Wilk et al. 2022). It is assumed the Project is being conducted at a state-level review due to anticipated requirements of the Public Service Commission (PSC) as part of the Certificate of Site Compatibility (Site Permit) required under the North Dakota Energy Conversion and Transmission Facility Siting Act (North Dakota Century Code Chapter 49-22).

The North Dakota State Historic Preservation Office (SHPO) requires that cultural resource investigations be conducted by qualified archaeologists who meets the Secretary of the Interior's qualifications as outlined in 36 Code of Federal Regulations (C.F.R.) 61. Westwood archaeologist Rigden Glaab, Master of Arts (MA), Register of Professional Archaeologists (RPA), meets these qualifications and directly oversaw all cultural resource work. Ryan Grohnke, Bachelor of Arts (BA), Registered Archaeologist (RA), served as Cultural Resource Manager for the Project facilitating client interactions and budget management. Mr. Glaab and Mr. Grohnke are permitted to conduct archaeological investigations in North Dakota.

Fieldwork for the Project was carried out October 11, 12, and 17, and November 10 through 13, 2024, over the course of three field mobilizations. Fieldwork was conducted by Westwood Principal Investigator Rigden Glaab, MA, RPA, and Westwood archaeologist William Christensen. Westwood archeologists utilized pedestrian survey to examine the Area of Potential Effect (APE), which are locations of proposed ground disturbance. The APE currently consists of expanded locations for access roads/utility lines and portions of a marshalling area. The APE surveyed by Westwood in the fall of 2024 is 263 acres.

No new or previously recorded cultural resources were identified in the current APE. No further avoidance measures are recommended on behalf of Ørsted by Westwood. Should any proposed Project design be located outside of previously constructed or previously surveyed areas, that aspect of the design should first be surveyed for unrecorded cultural resources.

Table of Contents

Tables

Exhibits

Appendices

1.0 Introduction

Ørsted Onshore North America, LLC (Ørsted) contracted Westwood Professional Services, Inc. (Westwood), to perform a Class III Archaeological Survey of the Badger Wind Project in Logan and McIntosh counties, North Dakota (Project or Project Area; **Exhibits 1** and **2**; **Appendix A**). The current inventory is an addendum to previous archaeological inventories conducted by Westwood in 2023 and 2024 (Glaab 2024a, 2024b). The content of this document reflects the Project based on client layout in KMZs dated to October and November 2024.

The Project's proposed 250 megawatts (MW) generating capacity is conceptually placed on 35,227 acres of leased land. In October and November 2024, Westwood conducted a Class III Archaeological Survey of the Area of Potential Effects (APE), which is for additional expansion areas of the Project encompassing 263 acres. This 263-acre APE currently covers aspects of Project developments including access roads/utility lines and a marshaling area. The current inventory completed by Westwood in the fall of 2024 is an expansion of the Project, which is a continuation previous surveys performed by Atwell, LLC, and Cultural Resource Analysts, Inc., in 2022 (Ferriman and Thurman 2022; Thurman and Weston 2022; Wilk et al. 2022). In addition, this work supports Westwood's surveys in 2023 and 2024 (Glaab 2024a, 2024b). This report is being provided to Ørsted to discuss the results of Westwood's October 2024 survey. The Project is being conducted at a state-level review due to anticipated requirements of the Public Service Commission (PSC) as part of the Certificate of Site Compatibility (Site Permit) required under the North Dakota Energy Conversion and Transmission Facility Siting Act (North Dakota Century Code Chapter 49-22).

The Project surrounds the town of Wishek, North Dakota, in Logan and McIntosh counties. The legal location of the Project is listed in **Table 1** below.

Table 1: Legal Location of the Badger Project (Fall 2024 Survey Areas)

County	Township	Range	Sections	Study Unit
McIntosh	132 N	70 W	5, 6	SM
McIntosh	132 N	71 W	1, 6-8, 17-21, 28, 30-33	SM
McIntosh	132 N	72 W	1, 2, 9-13, 15	SM
Logan	133 N	70 W	8, 17-20, 28-34	SM
Logan	133 N	71 W	18-21, 25, 29-33	SM
Logan	133 N	72 W	24, 25, 35, 36	SM
Logan	134 N	71 W	31	SM

The North Dakota State Historic Preservation Office (SHPO) requires that archaeological investigations be conducted by a qualified archaeologist who meets the Secretary of the Interior's qualifications as outlined in 36 Code of Federal Regulations (C.F.R.) 61. The North Dakota SHPO also outlines standards and guidelines for conducting work in the state. Rigden Glaab, Master of Arts (MA), Register of Professional Archaeologists (RPA), of Westwood meets the Secretary of Interior's Professional Standards for Archaeology, as stipulated in 36 C.F.R. Part 61, and served as Principal Investigator for the archaeological survey. Mr. Glaab resides in North Dakota and has performed cultural resource inventories in the state since 2011. Westwood's Cultural Resources Manager, Ryan Grohnke, provided administrative oversight in schedule development and client

communication. Mr. Glaab and Mr. Grohnke are licensed archaeologists permitted to work in the state of North Dakota.

2.0 Scope of Work

A Class III Archaeological Survey was conducted to determine whether any undocumented, significant archaeological resources are present within the proposed Project's APE and to define vertical and horizontal boundaries of identified sites. If new sites are identified, archaeologists assess proposed construction impacts and provide recommendations on avoidance or additional work. The APE for this Project is any location where ground disturbance could occur, including the entire 263-acre APE surveyed by Westwood in October of 2024 (**Exhibits 1** and **2**). This APE surveyed by Westwood excludes all areas previously surveyed.

3.0 Survey Methods

Project survey methods included background research, a literature review, and field investigations in the form of pedestrian survey. Environmental background and historic contexts were used to assess site probability and determine site types most likely to be encountered in the area. A catalog of previously identified and recorded cultural resources for the area was compiled from the records maintained at the North Dakota SHPO. The data collected from these sources includes the state archaeological site files, historic property files, the North Dakota National Register inventory, and archival collections of published and unpublished reports of previous cultural resource investigations. (See **Section 5: Literature Review**.)

The Class III Archaeological Survey of the Project consisted of reviewing minor changes to the design layout previously surveyed by Cultural Resource Analysts, Inc., and Westwood (Ferriman and Thurman 2022; Glaab 2024a, 2024b; Thurman and Weston 2022). Standard areas surveyed during these mobilizations included proposed turbines (250-foot radius), access roads (100 feet wide), collection lines/crane walks (75 feet wide), and turning radii (150-foot buffer). Crane walks were assumed to be along same corridors as collection lines. No shovel testing was performed during the current inventory due to the excellent ground surface visibility (GSV) across the project (e.g., 75–95 percent). Potential locations excluded from survey were wetlands, terrain with a significant slope (greater than 20 percent), and obviously disturbed areas. GPS equipment was utilized for project mapping. The APE for this Fall 2024 addendum reviewed Project design consisting of access roads/utility lines and a marshaling area.

4.0 Results of Background Investigations

4.1 Environmental Background

The Project is located in a sparsely populated agricultural region of south-central North Dakota in Logan and McIntosh counties surrounding the town of Wishek (**Exhibits 1** and **2**). The entirety of the Project is located on agricultural land with corn, wheat, hay, and soybeans being the dominant crops. Rocky fields unsuitable for cultivation are also commonly used for livestock pasture. GSV throughout the Project ranged from 60 percent to 95 percent.

4.1.1 Landscape and Climate

The Project is located in the Southern Missouri River Study Unit as defined by the North Dakota SHPO in Logan and McIntosh counties (Gregg et al. 2021:5.6). This study unit is located in the Glaciated Missouri Plateau Subsection of the Missouri Plateau Section of the Great Plains physiographic province (Bluemle 2016). The Project region broadly encompasses aspects of the Missouri Coteau and Coteau Slope east of the Missouri River Trench. The Coteau region was formed by glacial dead-ice moraines and ice-disintegration features, which also includes potholes and sloughs. Beaver Creek is the largest drainage in the Project Area, which is located north and northwest of the Project (Gregg et al. 2021:5.7).

The climate of the Project Area is characterized as a semiarid continental type with significant seasonal fluctuation in temperatures. For example, the mean temperature in January is 9° Fahrenheit (F), while the mean temperature in July is 72° F (Gregg et al. 2021:5.7). The Project Area receives an average of 14 to 17 inches (in) per year (Gregg et al. 2021:5.7). Temperatures during Westwood's October 2024 fieldwork ranged from 35° F to 75° F. No snow was present across the Project. Westwood field measurements in 2024 were taken using weather applications, such as WeatherBug.

4.1.2 Flora and Fauna

Prior to European settlement in the region, grasses would have dominated a Prairie Grassland Biome. Forested areas in the region tend to be concentrated along the major drainages (e.g., Beaver Creek, Missouri River). Common native trees in these locations include cottonwoods (*Populus* sp.), bur oak (*Quercus* sp.), willow (*Salix* sp.), box elder (*Acer negundo*), and green ash (*Fraxinus lanceolate*; Gregg et al. 2021:5.9). Endemic prairie grasses are green needlegrass (*Stipa viridula*), blue grama (*Bouteloua gracilis*), and western wheatgrass (*Agropyron smithii*). Prairie turnip (*Psoralea esculenta*) was an important vegetal food source for Native Americans in the past.

Common large mammals historically in the Project Area were white-tailed deer (*Odocoileus virginianus*), mule deer (*Odocoileus hemionus*), bison (*Bison bison*), elk (*Cervus elaphus*), and antelope (*Antilocapra americana*). Predators include wolf (*Canis lupis*), coyote (*Canis latrans*), and fox (*Vulpes* sp.). Catfish (*Ictalurus* sp.) was a common fish that would have been available to Native Americans in the Project Area. Various turtles and mussels would have been procured along drainages. Eagles, hawks, owls, pelicans, and a diverse assortment of waterfowl are also present seasonally across the Project today.

4.1.3 Soils

Westwood, and Thurman and Weston (2022) reviewed the Project Area in the Web Soil Survey database, which is maintained by the Natural Resources Conservation Service (NRCS 2024). The Project Area is characterized by loams overlaying horizons of clay loams that cover a substrate of gravely and sandy loams. Common soil series across the Project are Typic Calciustolls, Typic Pachic Argiustolls, and Typic Pachic Haplustolls (NRCS 2024). Soils of these types develop in very deep, well-drained contexts of till and alluvium on glacial plains and moraines (Thurman and Weston 2022).

4.1.4 Geology and Geomorphology

According to macrostrat.org (2024), the bedrock geology of the Project Area is comprised of the Hell Creek Formation and Fox Hills Formation, which are Late Cretaceous-age (100.5–66 million years ago) stratigraphic units. Pierre Formation shales are also present. The major lithology of the Hell Creek Formation is sandstone, siltstone, and claystone, while the Fox Hills Formation is made up of principally shale. These layers formed during the retreat of the Western Interior Seaway. The geomorphology of the Project Area surface is comprised of rolling hills with interspersed pothole lakes and wetlands (Wilk et al. 2022:4–5). Glacial deposits from the Pleistocene cover the region and consist of sand and gravel outwash ranging in thickness from 0 to 50 feet (Wilk et al. 2022:4–5).

4.2 Cultural History

In general, there are five major archaeological traditions in North Dakota that consist of the Paleoindian, Plains Archaic, Plains Woodland, Plains Village, and the Contact and Post-Contact periods (Gregg et al. 2021). These traditions represent varying degrees of cultural adaptations to changing environmental conditions, endemic population growth, and the movement of Native American and Euroamerican groups in the past. The following cultural context presents a brief interpretation of this history based on current archaeological research and broadly accepted models for Pre-Contact and Post-Contact social lifeways. Gregg et al. (2021) have synthesized this work in the *Southern Missouri River Study Unit* of the *North Dakota Comprehensive Plan for Historic Preservation: Archaeological Component*.

4.2.1 Paleoindian Period (13,000 to 9000 Before Present [B.P.])

The Paleoindian Period represents the earliest evidence of human occupation in North Dakota. This is typically separated into an Early Paleoindian (13,000–12,500 B.P.) and Late Paleoindian (12,500–9000 B.P.) periods (Frison 1998; Gregg et al. 2021). Spear technology is important during this time frame, as opposed to the emphasis on atlatl and bow and arrow lithic technology seen during later periods. This reflects a subsistence strategy focused on large game hunting and high mobility (Gregg et al. 2021:5.61).

Clovis culture is commonly regarded as the earliest occupation in North Dakota during the Early Paleoindian Period. Its signature implement, the Clovis projectile point, is made from high quality lithic materials, and has a central channel flake that extends part way up the proximal shaft of the tool (Frison 1998). Folsom is another technology that temporally follows Clovis during the Paleoindian Period. Its projectile point is typically also made from high quality materials; however, the central channel flake extends the entire length of the implement to the distal tip (Hofman 1995).

The Late Paleoindian Period in North Dakota is characterized by an unfluted variety of projectile points similar to earlier lanceolate forms that are associated with the Plano Complex (Dobbs 1990). Agate Basin, Eden, Hell Gap, and Scottsbluff are varieties of projectile points found during this time, which are often associated with bison kill sites (Gregg et al. 2021:5.62).

4.2.2 Plains Archaic Period (9000 to 2500 B.P.)

Approximately 9000 B.P., a new mode of subsistence strategy began to emerge in the archaeological record across North America (Emerson et al. 2011). The general pattern of this

change is the replacement of lanceolate spear points used during the Paleoindian Period, and the adoption of atlatl technology with the presence of some ground stone implements. This represents a fundamental difference from earlier forager behavior with a diversification of economy that incorporated more plants into the diets of Native Americans (Gregg et al. 2021:5.62–5.63).

Xeric environmental conditions began around 9000 B.P. with the spread of prairie grassland across much of North Dakota and western Minnesota (Anfinson 1997). Many of the lakes that had been created as a product of Pleistocene glaciation started to dry during this time leading to a reduction in game (e.g., bison, fish, birds, etc.) dependent on these resources. These environmental transformations promoted a diversification in hunting strategies, which differed dramatically from the Paleoindian Period (Gregg et al. 2021:5.62–5.63). The Plains Archaic Period is found across North Dakota and western parts of Minnesota representing an adaption to grassland environments.

4.2.3 Plains Woodland Tradition (3000 B.P. to 950 B.P.)

Substantial cultural changes began to occur in North Dakota approximately 2,500 to 3,000 years ago with Native American adaptations mirroring broader trends across the southern and eastern US (Arzigian 2008). This timeframe, known as the Woodland Period, is marked by the presence of burial mounds, pottery, bow and arrow technology (ca. 1450 B.P.), and intensive plant cultivation. Archaeological settlement patterns show Native American groups beginning to aggregate into larger populations along lakes, rivers, and associated drainages. The “Three Sisters” of squash, beans, and corn were grown in small garden plots, which were further supplemented with other resources, such as fish and aquatic mammals (Gregg et al. 2021:5.70–5.71).

Woodland archaeological sites are often broken into one of a classic tripartite temporal division of Early Woodland (3000–2150 B.P.), Middle Woodland (2150–1450 B.P.), and Late Woodland (1450–950 B.P.) periods (Emerson et al. 2008). Traditionally, variations in the Woodland Period across time and space are argued to derive from broader influences that shaped significant trends in cultural practices. These interaction spheres include the Adena (Early Woodland Period), Hopewell (Middle Woodland Period), and Mississippian (Late Woodland Period) cultures (Anfinson 1997; Gibbon 2012; Gregg et al. 2021).

4.2.4 Plains Village Period (950 B.P. to European Contact)

The Woodland Period ends throughout most of North Dakota and surrounding regions around 950 B.P. (Arzigian 2008; Gibbon 2012). The dominant major regional influence was the site of Cahokia in the American Bottom near the modern city of St. Louis, Missouri, on the Mississippi River (Pauketat 2009). A widespread cultural complex called Oneota to the east of North Dakota is concurrent with the regional influences of Cahokia lasting from approximately 950 B.P. until the time of French contact (Gibbon 2012). These mobile groups shared Middle Mississippian traits that included corn horticulture and shell-tempered ceramics (e.g., globular vessels with high rims), but lacked permanent structures such as burial mounds (Gregg et al. 2021:5.77–5.79).

Plains Village groups from the region of the Missouri River in the Dakotas began to interact with the Oneota in western Minnesota after 950 B.P. (Anfinson 1997; Ahler and Kay 2007). These groups hunted bison and practiced corn horticulture and lived within earth-lodges protected within palisaded forts. Globular-shaped ceramic jars with crushed rock temper are a hallmark

technology of this period. Psinomani groups are believed to be the ancestors of the modern Dakota people who lived in east-central Minnesota (Gibbon 2012).

4.2.5 Contact Period and Post-Contact (A.D. 1700 to Present)

The introduction of the horse had a profound effect on Native American lifeways beginning in the early-1700s in North Dakota (Gregg et al. 2021:5.82). This period is also referred to as protohistoric, a time when the indigenous people were coming into contact with and being influenced by European culture (Gregg et al. 2021:5.82). This contact was not always direct interaction between Native and Euro-American peoples, but sometimes through contact with items of Euro-American cultural material being traded throughout the area (Gregg et al. 2021:5.82).

Later in the 1800s, Euro-Americans pushed westward and increasingly settled in the Dakotas. Although North and South Dakota were initially within the Missouri Territory, the Dakota Territory was eventually established in 1861 and encompassed North Dakota, South Dakota, and much of Montana and Wyoming (North Dakota History-American Settlement 2024). Dakota Territory was opened to homesteaders in 1862 (North Dakota History-American Settlement 2024). Following the opening of the Dakota Territory several railroads that served the territory, including the Dakota Southern and Manitoba (known later as the Great Northern) Railways, were built, and the Gold Rush of 1876 began (North Dakota History-Statehood 2024). These events led to massive Euro-American settlement of the Dakota Territory between 1872 and 1887 (North Dakota History-Statehood 2024). This period is known as the Great Dakota Boom; a severe drought brought the Boom to an end between 1886 and 1887 (North Dakota History-Statehood 2024).

In 1889 North and South Dakota were admitted to the Union as the 39th and 40th states, in no particular order (North Dakota History-Statehood 2024). The states were the leading producers of wheat until the drought and Great Depression in the 1930s, and railroads continued to expand and run until the collapse of the farming industry in the 1980s (North Dakota History-Postwar Economics and Politics 2024). Significant events witnessed by residents of North and South Dakota throughout the twentieth century included discovering oil in 1927 and 1951, enduring record blizzards, creating numerous military bases and nuclear missile silos, and constructing dams (North Dakota History-Postwar Economics and Politics 2024).

5.0 Literature Review

The Project Area has been subject to several cultural resource literature reviews from 2020 to present on behalf of Ørsted (Bring and Freshwater 2021; Ferriman and Thurman 2022; Thurman and Weston 2022; Wilk et al. 2022). These reviews led to Project-related archaeological fieldwork during three separate surveys (Ferriman and Thurman 2022; Thurman and Weston 2022; Wilk et al. 2022). Westwood has utilized this information perform two additional surveys (Glaab 2024a, 2024b). The archaeological work conducted by CRA, over the summer of 2022 reflects the Project layout closest to Westwood's 2023–2024 inventories (Ferriman and Thurman 2022; Glaab 2024a, 2024b; Thurman and Weston 2022).

The Class I Literature Review performed by Atwell, LLC (Atwell), encompassed a broad study area (57,413 acres), which generally overlaps all iterations of Project layout later surveyed by Atwell,

CRA, and Westwood (Bring and Freshwater 2021; Wilk et al. 2022). Previously recorded resources identified by this literature review consist of nine historic architectural sites, 11 historic archaeological sites, one prehistoric archaeological site, and 36 previous cultural resource inventories in the Project Area. In addition, Atwell's Class III Archaeological Survey that followed documented seven historic archaeological sites, one site historic cemetery site lead, and two prehistoric isolated finds (Wilk et al. 2022).

A cultural resource literature of the Project Area was performed by CRA in May and July of 2022, which included archaeological surveys that summer (Ferriman and Thurman 2022; Thurman and Weston 2022). The larger, May 2022 search identified 18 previous inventories, one isolated find, 20 archaeological sites, and one site lead. In addition, a related literature review cataloged 578 architectural resources principally concentrated in the town of Wishek, North Dakota (see Dickerson and Ball 2022). The 2022 inventories by CRA recorded two new historic sites, one historic isolated find, and three prehistoric isolated finds.

A search of Bureau of Land Management (BLM) General Land Office (GLO) records was conducted by Thurman and Weston (2022) to assess the potential for historic resources to be present in earlier configurations of the Project. Westwood performed a GLO search specific to the Project area that was surveyed in 2023 and 2024 and is overlapped by CRA's study (BLM GLO 2023). GLO maps published from 1868 to 1902 have been digitized by the North Dakota Department of Water Resources (NDDWR) and were viewed in ArcPro GIS software (NDDWR 2024). There are several small and intermittent unnamed streams crossing the Project, but the GLO maps do not show indications of settlement or land claims. Bluffs are indicated along many of the creek beds. One road is depicted in T 133, R 71 on the Logan County map: it runs along a southeasterly route through sections (from the northwest corner) 18, 17, 20, 29, 28, 33, and 34. The road begins five miles northwest of the Project where it runs southeast from an east-west route along the south side of Beaver Creek. The road does not continue south onto the McIntosh County (T 132) map. The roadway is not depicted in later maps such as the 1916 Logan County atlas and topographic maps published since 1953 (USGS 2023). By 1916, the county atlas shows the Minneapolis, St. Paul & Sault Ste. Marie railroad corridor had been laid through the center of T (s) 132 and 133, Range 71 along a northerly track (Ogle 1916).

Ørsted has used these data discussed above to aid in creating the current Project layout, which avoids all known cultural resources in relation to the APE (**Exhibits 1** and **2**). Out of due diligence, Mr. Glaab performed a check of the North Dakota SHPO records in Bismarck on October 23, 2023. No additional cultural resources have been documented in the current APE since the 2022 review by CRA. No previously recorded resources were present in the APE surveyed by Westwood in 2024. The previous literature reviews and surveys indicated the Project's potential for architectural (e.g., houses, farmstead structures, sheds), prehistoric archaeological (e.g., stone features, lithic scatters, isolated tools), and historic archaeological (e.g., trash scatters [older than 50 years], foundations, collapsed structures) sites to be present. The locations of the Fall 2024 survey areas fall within the boundary of the larger, earlier file searches. There are no previously recorded archaeological sites present in the Fall 2024 areas reviewed for the Project.

Westwood previously performed fieldwork for the Project from October 23 through November 22, 2023, over the course of three field sessions, and also on May 8 and 9, 2024 (Glaab 2024a, 2024b). Westwood archaeologists identified a total of one new historic site (32LO174) and one new prehistoric isolated find (32LOX76) in the Project APE. Site 32LO174 is a historic farmstead

consisting of three structure foundations and associated trash from the 1940s through 1970s. Isolated Find 32LOX76 is a prehistoric utilized flake made from Knife River flint (KRF). A second piece of KRF shatter was identified to the northwest of the utilized flake. These resources were recommended *not eligible* for inclusion in the National Register of Historic Places (NRHP). No further avoidance measures were recommended on behalf of Ørsted. Westwood received a concurrence letter for the site and isolated find recommendations from the North Dakota SHPO on April 11, 2024 (Reference No. 22-0020).

6.0 Field Investigations

Fall 2024 fieldwork on the Project was conducted October 11, 12, and 17, and November 10 through 13, 2024, by Westwood Principal Investigator Rigden Glaab, MA, RPA, and Westwood archaeologist William Christensen (**Exhibit 1** and **Exhibit 2**; **Appendix A**). Pedestrian survey was utilized to examine the APE, which are locations of proposed ground disturbance. As noted above, the APE consists of the latest wind development layout as of October 2024 and excludes locations previously surveyed. No cultural resources were identified during the course of the current survey. The surface visibility of the areas examined in the Fall 2024 survey areas was excellent typically exceeding 80% GSV. There was no snow on the ground at the time of the inventory.

7.0 Summary and Recommendations

Westwood did not identify any cultural resources during the addendum survey of Project design changes for the Badger Wind Project. Fieldwork was conducted of 263 acres over the course of October 11, 12, and 17, and November 10 through 13, 2024. No further work is recommended on behalf of Ørsted. Westwood stresses that if construction plans are altered to include areas not previously surveyed, those locations must be examined for cultural resources. Although an archaeological survey was completed, the possibility of unidentified resources remains. If unrecorded archaeological sites are discovered during construction, all ground-disturbing activities in the area should stop and archaeologists should be contacted. Further, if human remains are encountered during construction activities, all ground-disturbing activity must cease, and local law enforcement along with professional archaeologists, must be notified.

8.0 References Cited

Ahler, S., and M. Kay
2007 *Plains Village Archaeology: Bison-hunting Farmers in the Central and Northern Plains*. The University of Utah Press, Salt Lake City.

Anfinson, S.
1997 Southwestern Minnesota Archaeology: 12,000 Years in the Prairie Lake Region. Minnesota Historical Society, St. Paul.

Arzigian, C.
2008 *Minnesota State Multiple Property Documentation Form for the Woodland Tradition*. Submitted to the Minnesota Department of Transportation (MnDOT). Mississippi Valley Archaeology Center, University of Wisconsin-La Crosse (Report No. 735).

BLM GLO
2023 Bureau of Land Management General Land Office Records. Electronic application, https://glorecords.blm.gov/, accessed December 2023.

Bluemle, J.
2016 *North Dakota's Geologic Legacy: Our Land and How it Formed*. North Dakota State University Press, Fargo, North Dakota.

Bring, J., and J. Freshwater
2021 *Badger Wind Project Class I Archaeological Literature Search*. Memorandum on file at Atwell, LLC, Boulder, Colorado.

Dickerson, J., and R. Ball
2022 Class I Literature Review and Class II Architectural Reconnaissance Inventory for the Proposed Badger Wind Project in Logan and McIntosh Counties, North Dakota. Report on file at Cultural Resource Analysts, Inc., Sheridan, Wyoming.

Dobbs, C.
1990 Outline of Historic Contexts for the Prehistoric Period (CA. 12,00B.P.-A.D. 1700): A Document in the Series Minnesota History in Sites and Structures: A Comprehensive Planning Series. Institute for Minnesota Archaeology Reports of Investigations Number 37, Minneapolis.

Emerson, T., D. McElrath, and A. Fortier (editors)
2008 Late Woodland Societies: Tradition and Transformation across the Midcontinent. University of Nebraska Press, Lincoln.

2011 Archaic Societies: Diversity and Complexity across the Midcontinent. State University of New York Press, Albany.

Ferriman, C., and M. Thurman
2022 Intensive Cultural Resource Inventory of Collection Line Reroutes Associated with the Ørsted North America, Inc., Badger Wind Project in Logan County, North Dakota. Report on file at Cultural Resource Analysts, Inc., Sheridan, Wyoming.

Frison, G.
1998 Paleoindian Large Mammal Hunters on the Plains of North America. *Proceedings of the National Academy of Sciences of the United States of America* 95 (24):14576–14583.

Gibbon, G.
2012 *Archaeology of Minnesota: The Prehistory of the Upper Mississippi River Region*. University of Minnesota Press, Minneapolis.

Glaab, R.
2024a Class III Archaeological Survey for the Badger Wind Project 2023 Expansion Areas. Report on file at the North Dakota State Historic Preservation Office, Bismarck.

2024b Class III Archaeological Survey for the Badger Wind Project 2023 Expansion Areas (Addendum Spring 2024 Fieldwork). Report on file at the North Dakota State Historic Preservation Office, Bismarck.

Gregg, M., A. Bleier, and F. Swenson
2021 *The Southern Missouri River Study Unit*. Electronic document, https://www.history.nd.gov/hp/PDFinfo/5_SouthernMissouriRiverStudyUnit.pdf, accessed December 13, 2023.

Hofman, J.
1995 Dating Folsom Occupations on the Southern Plains: The Lipscomb and Waugh Sites. *Journal of Field Archaeology* 22(4):421–437.

Macrostrat.org
2024 Review of the Badger Wind Project Area. Electronic application, https://macrostrat.org/map/layers#x=-99.5378&y=46.378&z=9.2&show=bedrock, accessed October 15, 2024.

Natural Resources Conservation Service (NRCS)
2024 Web Soil Survey. Electronic application, https://websoilsurvey.nrcs.usda.gov/app/, accessed October 15, 2024.

North Dakota Century Code
2022 Chapter 49-22 Energy Conversion and Transmission Facility Siting Act. Electronic document, https://www.ndlegis.gov/cencode/T49C22.pdf, accessed December 2023.

North Dakota Department of Water Resources (NDDWR)
2023 General Land Office (GLO) Plats of North Dakota, 1868–1902. Originally created and maintained by the Bureau of Land Management. Digitized and hosted online by NDDWR. Electronic application, https://www.arcgis.com/home/item.html?id=c7accd0ce06a47edb7a97beef2cb4cb7, accessed December 2023.

North Dakota History-American Settlement
2024 Summary of North Dakota History: American Settlement. Electronic document, https://www.history.nd.gov/ndhistory/settlement.html, accessed January 3, 2024.

North Dakota History-Postwar Economics and Politics
2024 Summary of North Dakota History: Postwar Economics and Politics. Electronic document, https://www.history.nd.gov/ndhistory/postwar.html, accessed January 3, 2024.

North Dakota History-Statehood
2024 Summary of North Dakota History: Statehood. Electronic document, https://www.history.nd.gov/ndhistory/statehood.html, accessed January 3, 2024.

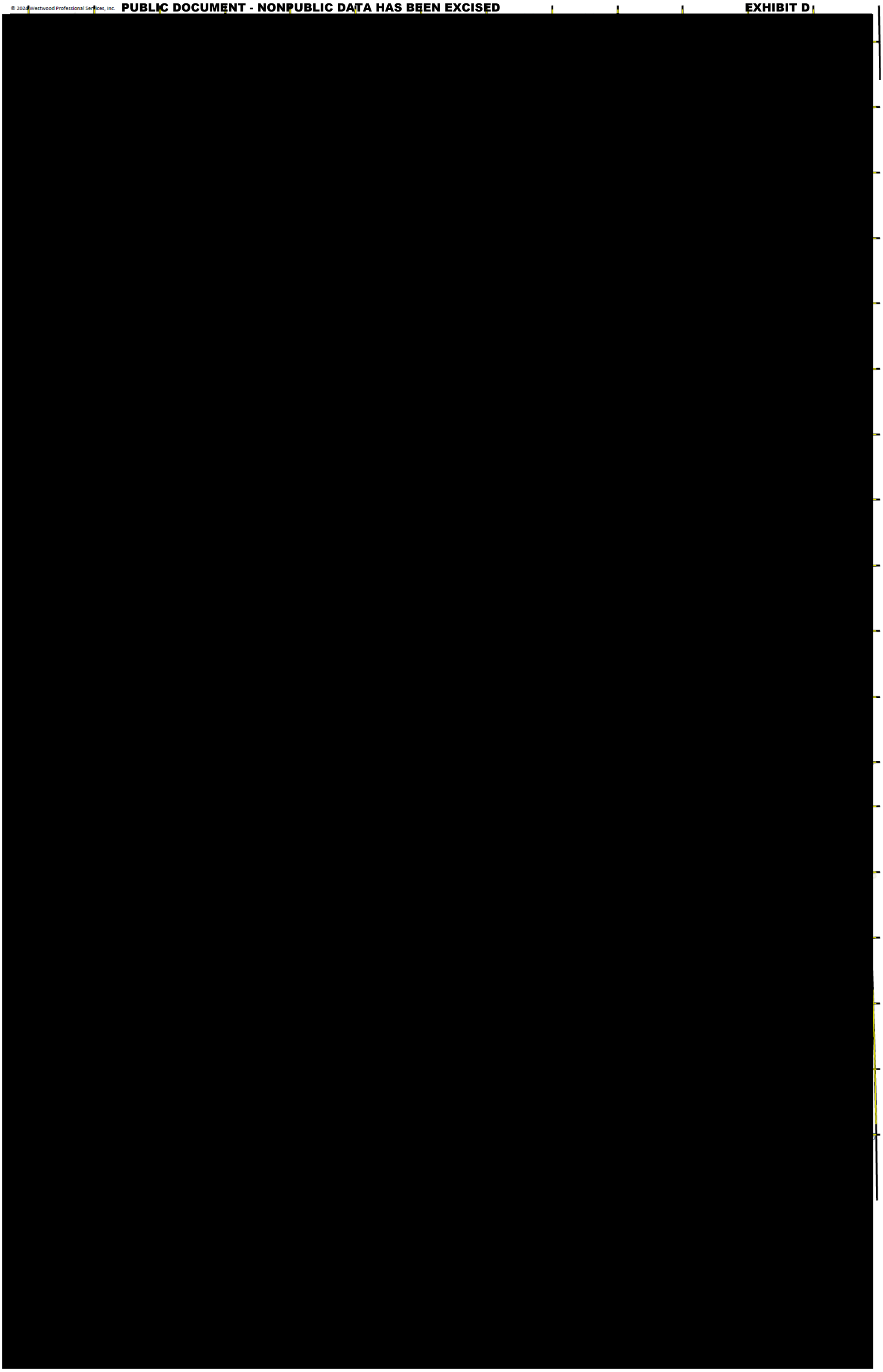
Ogle, G. A. & Co.
1916 Standard Atlas of Logan County, North Dakota. Chicago: G.A. Ogle & Co. Electronic document, https://historicmapworks.com/Atlas.php?cat=Maps&c=US&a=16921, accessed December 2023.

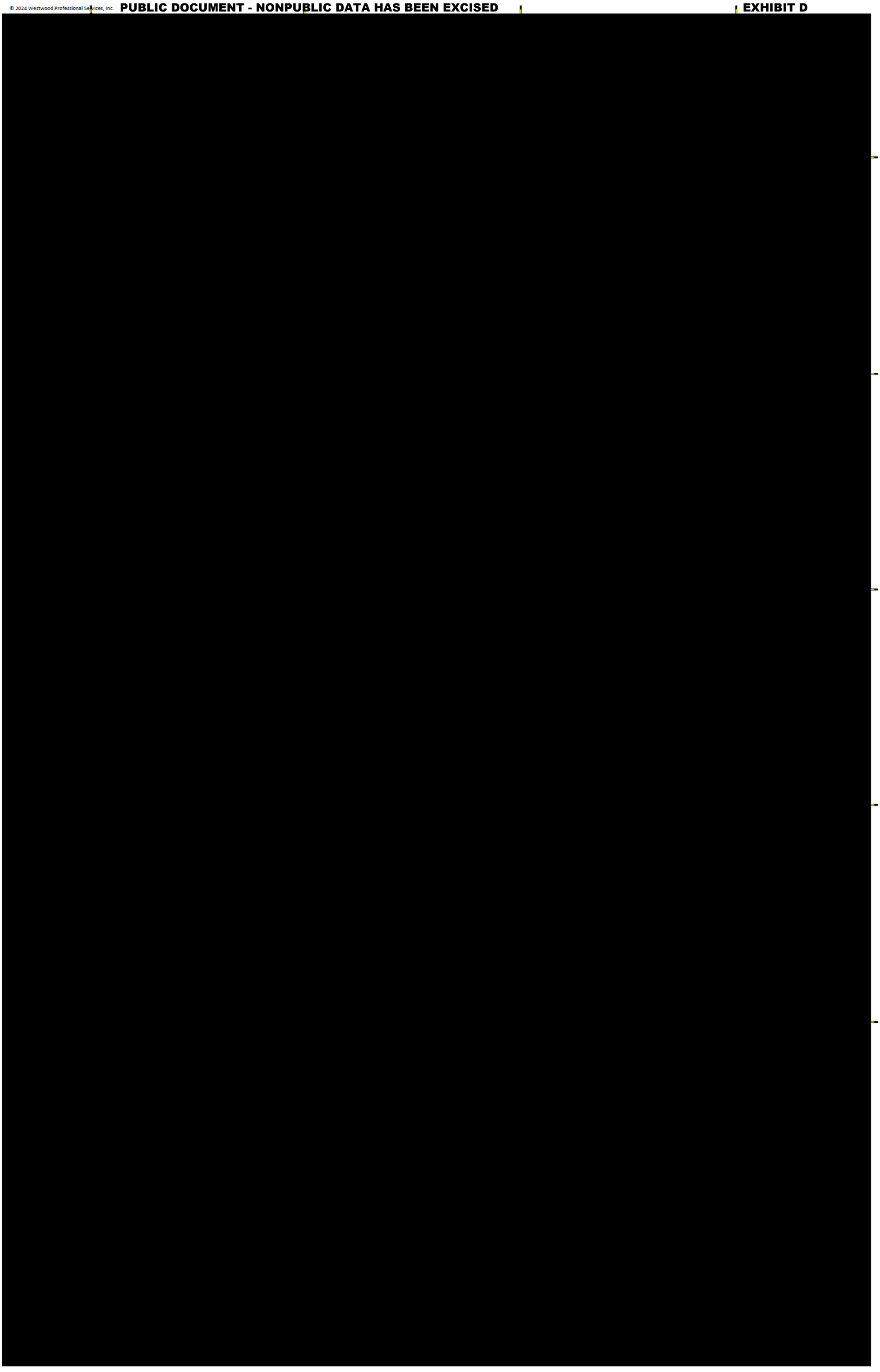
Pauketat, T.
2009 Cahokia: Ancient America's Great City on the Mississippi. Penguin Books, London, England.

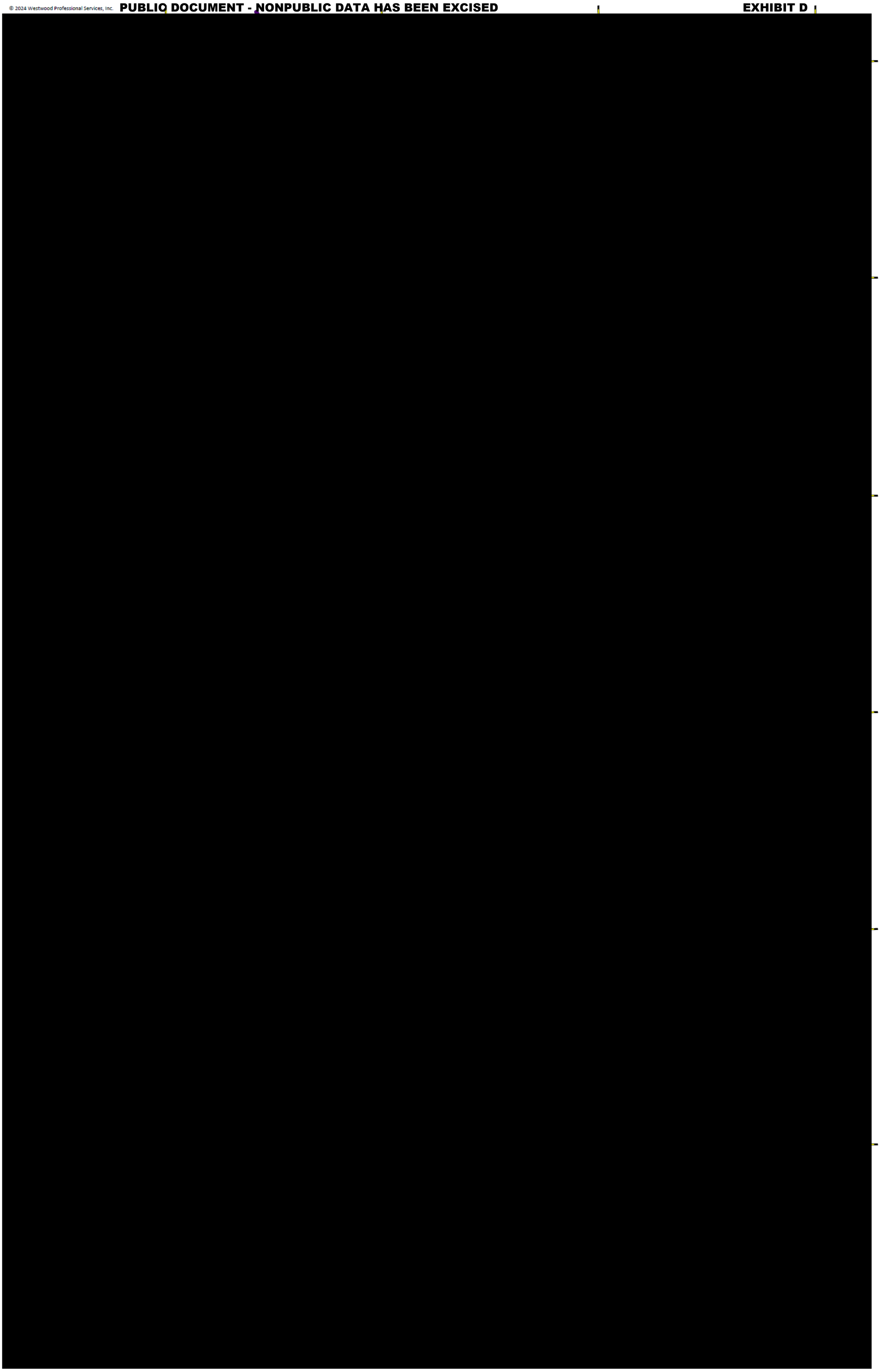
Thurman, M., and J. Weston
2022 Intensive Cultural Resource Inventory of Targeted Components of the Ørsted North America, Inc., Badger Wind Project, Logan and McIntosh Counties, North Dakota. Report on file at Cultural Resource Analysts, Inc., Sheridan, Wyoming.

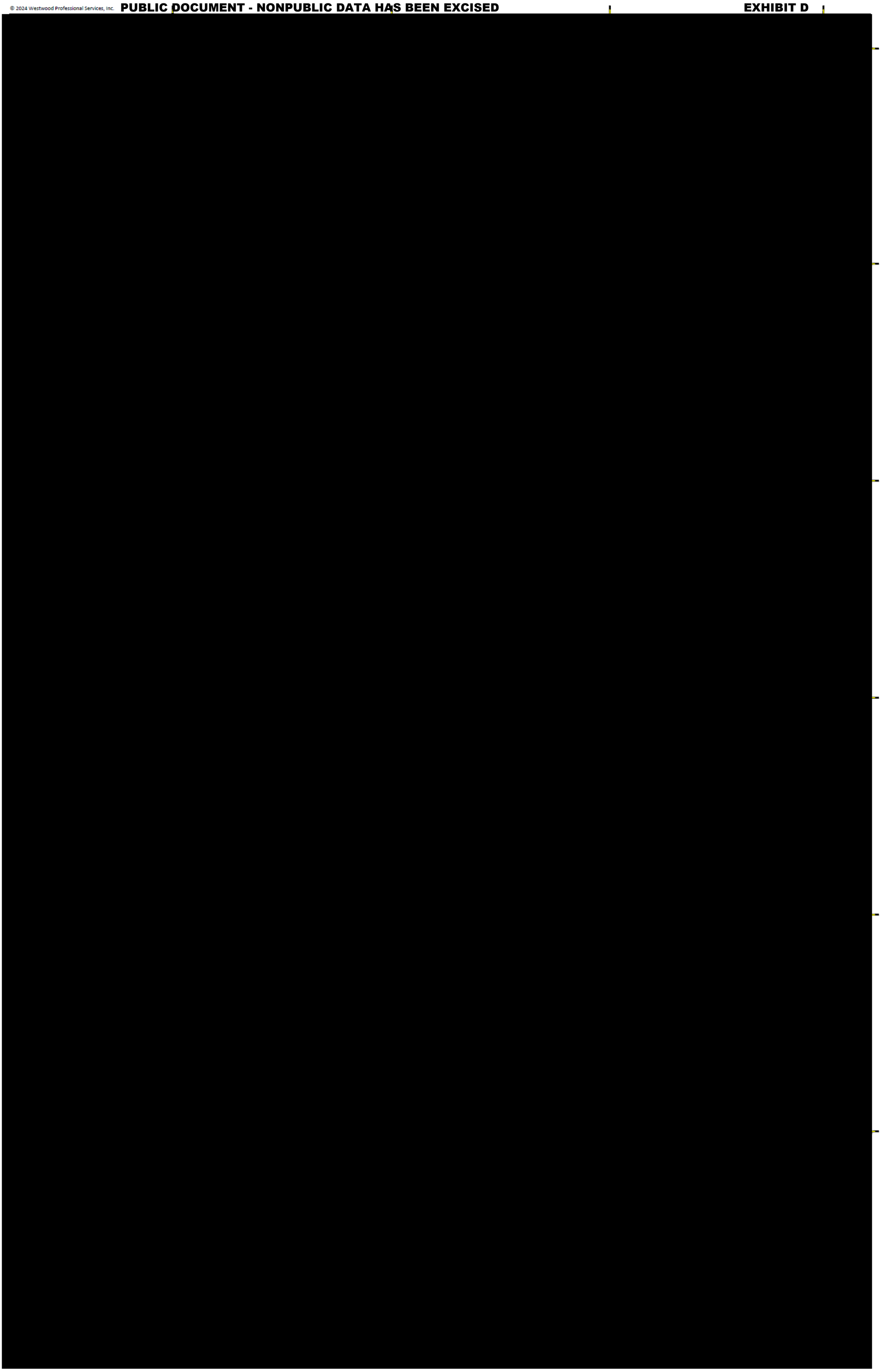
United States Geological Survey (USGS)
2023 Topoview USGS Topographic Maps interactive mapping viewer. Washington, DC: USGS. Electronic application, https://ngmdb.usgs.gov/topoview/, accessed December 2023.

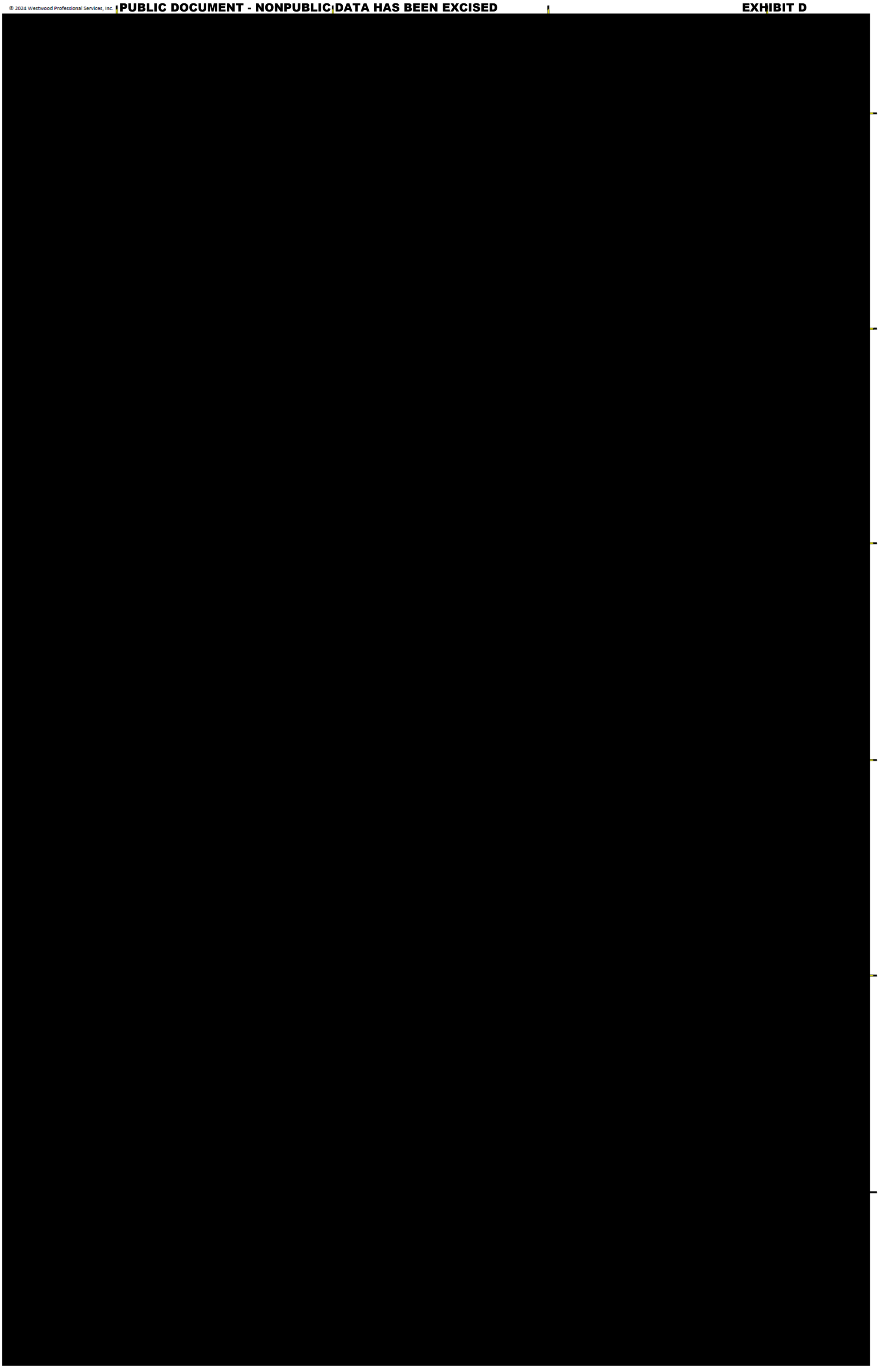
Wilk, E., P. Barber, J. Bring, and T. Johnson
2022 A Class III Cultural Resources Inventory for the Badger Wind Project, Logan and McIntosh Counties, North Dakota. Report on file at Atwell, LLC, Boulder, Colorado.

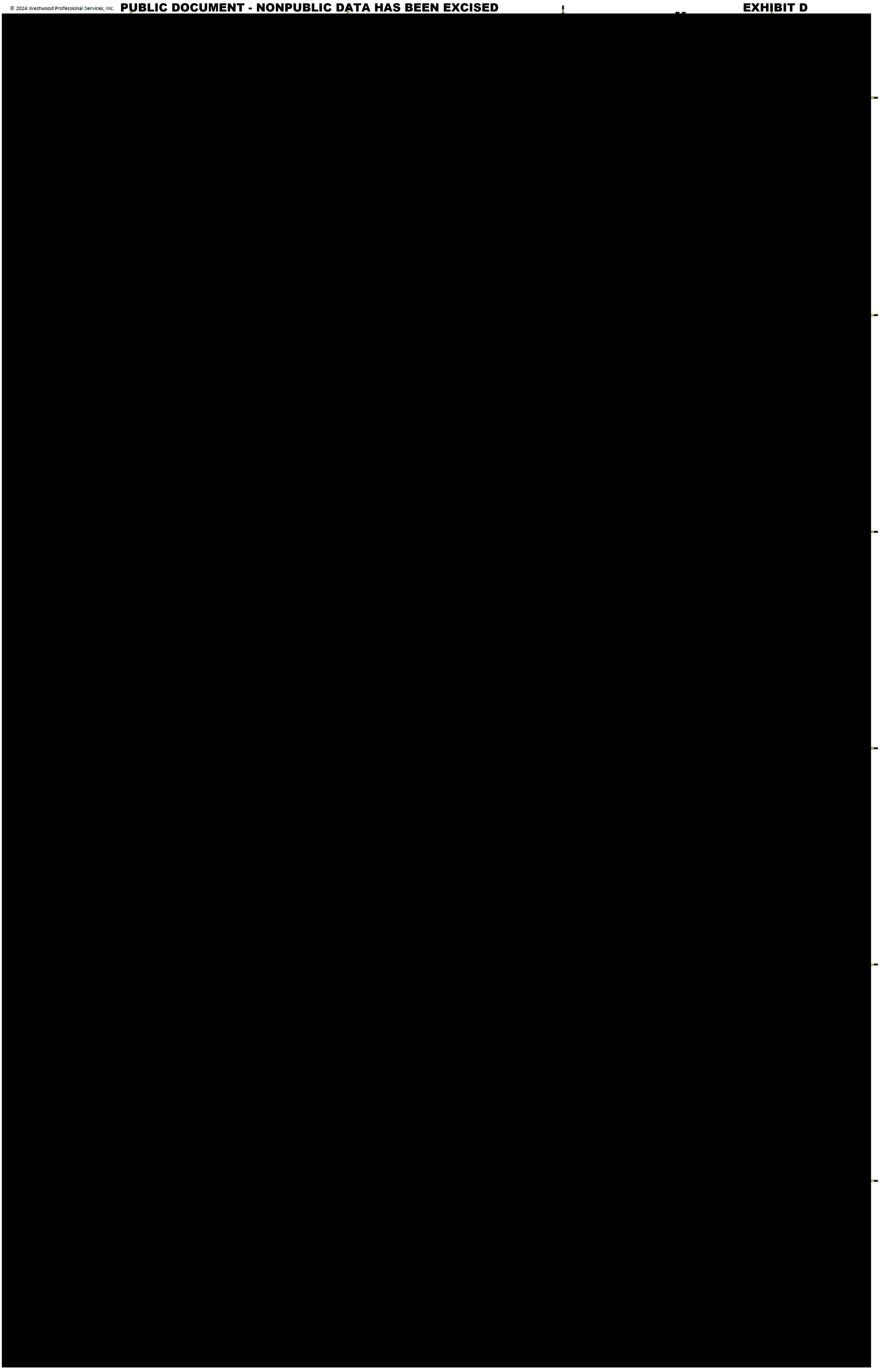












APPENDIX A

Representative Photos of the Project Area

Badger Wind Project – Fall 2024 Expansion Areas

Logan and McIntosh Counties, North Dakota

Photo 1: Overview of the northwest Project Area, facing northwest.

Photo 2: Overview of the east Project Area, facing west.

Photo 3: Overview of the central Project Area, facing southeast.

Photo 4: Overview of the central Project Area, facing west (average GSV in cornfields 50–70%).

Photo 5: Overview of the southern Project Area, facing east.

Photo 6: Representative GSV (90%) in the Project Area, facing north.

January 3, 2025

Rigden Glaab
Westwood
12701 Whitewater Dr, Ste 300
Minnetonka, MN 55343

SHSND Ref.: 22-0020 Badger Wind, PU-22-086, PU-24-87 in portions Logan and McIntosh Counties, North Dakota

Dear Rigden,

We reviewed the report for SHSND Ref: 25-9005, titled "Class III Archaeological Survey for the Badger Wind Project 2023 Expansion Areas (Addendum Fall 2024 Fieldwork), Logan and McIntosh Counties, North Dakota" and find this Westwood report by Rigden Glaab acceptable. We will add it to our Manuscript Collection.

Thank you for the opportunity to review this report. Please be advised that acceptance of this report does not constitute concurrence with the determinations therein. If you have any questions, please Lorna Meidinger, Lead Historic Preservation Specialist, at (701) 328-2089 or lbmeidinger@nd.gov.

Sincerely,

for William D. Peterson, PhD
Director, State Historical Society of North Dakota

22-0020

January 3, 2025

Mark Crowl
Director, Development
Orsted
812 San Antonio St, Ste 500
Austin, TX 78701

SHSND Ref.: 22-0020 Badger Wind, PU-22-086, PU-24-87 in portions Logan and McIntosh Counties, North Dakota

Dear Mr. Crowl,

We reviewed the report titled "Class III Archaeological Survey for the Badger Wind Project 2023 Expansion Areas (Addendum Fall 2024 Fieldwork), Logan and McIntosh Counties, North Dakota" associated with the Badger Wind 2023 Expansion Areas in portions of: T132N R70W Sections 5-6, T132N R71W Sections 1, 6-8, 17-21, 28, 30-33, T132N R72W Sections 1-2, 9-13, 15, T133N R70W Sections 8, 17-20, 28-34, T133N R71W Sections 18-21, 25, 29-33, T133N R72W Sections 24-25, 35-36 and T134N R71W Section 31. It is our determination that there are no significant sites affected by this project in those 263 acres provided it takes place in the location and in the manner described in the documentation.

Thank you for the opportunity to review this project under North Dakota cultural resources consultation. This letter does not serve as federal agency consultation or SHPO consultation for compliance with Section 106 of the National Historic Preservation Act of 1966, as amended, (36 CFR Part 800), or the National Environmental Policy Act, as amended, (42 U.S.C. §§ 4321- 4347).

If you have any questions, please contact Lorna Meidinger, Lead Historic Preservation Specialist at lbmeidinger@nd.gov or (701) 328-2089.

Sincerely,

for William D. Peterson, PhD
Director, State Historical Society of North Dakota

Cc: ND PSC
Rigden Glaab

22-0020

TECHNICAL MEMORANDUM

Date: March 31, 2025

To: Andrew Krieger and Chris Farmer, Badger Wind, LLC

From: Kristen Chodachek, April Moulaert, and Tracy Brunner; Western EcoSystems Technology, Inc.

Subject: Fall 2024 Wetland and Waterbody Delineation Report – Badger Wind Project

INTRODUCTION

Badger Wind, LLC (Badger Wind), is developing the Badger Wind Project (Project), located approximately two miles west of Wishek, in Logan and McIntosh counties, North Dakota (Figure 1). To support development of the proposed Project, Badger Wind contracted Western EcoSystems Technology, Inc. (WEST) to conduct a wetland and waterbody survey (Figure 1) within the 2024 Fall Wetland Survey Area (Survey Area; Figure 1). The objectives of the 2024 fall fieldwork documented in this report include completing a desktop review, field delineations of wetlands (i.e., land with presence of hydric soils, hydrology, and hydrophytic vegetation) and waterbodies (i.e., any type of perennial, intermittent, or ephemeral waterway or catch basin where water flows, or could flow, or is held), and assigning an informal jurisdictional determination (determination) to delineated features within the Survey Area containing newly proposed Project infrastructure footprints, or modifications of previously delineated infrastructure footprints, and their associated survey buffers.

The following technical memorandum describes the methods and results of the wetland and waterbody delineations conducted during the fall 2024 to address changes/updates to the Project since spring 2024. Wetland and waterbody delineations and wetland mapping were previously completed for the Project in 2020, 2021, 2022 (Atwell 2022), 2023 (Chodachek and Welsch 2024), and spring 2024 (Chodachek and Hammer 2024).

Waters of the US

Section 404 of the Clean Water Act (CWA) is the primary federal statute regulating impacts (dredge and fill) to Waters of the US (WOTUS). Wetlands and waterbodies that are subject to federal jurisdiction under the CWA are referred to as WOTUS (USEPA 2023). Under the CWA, it is unlawful to discharge any pollutant into a WOTUS without a permit.

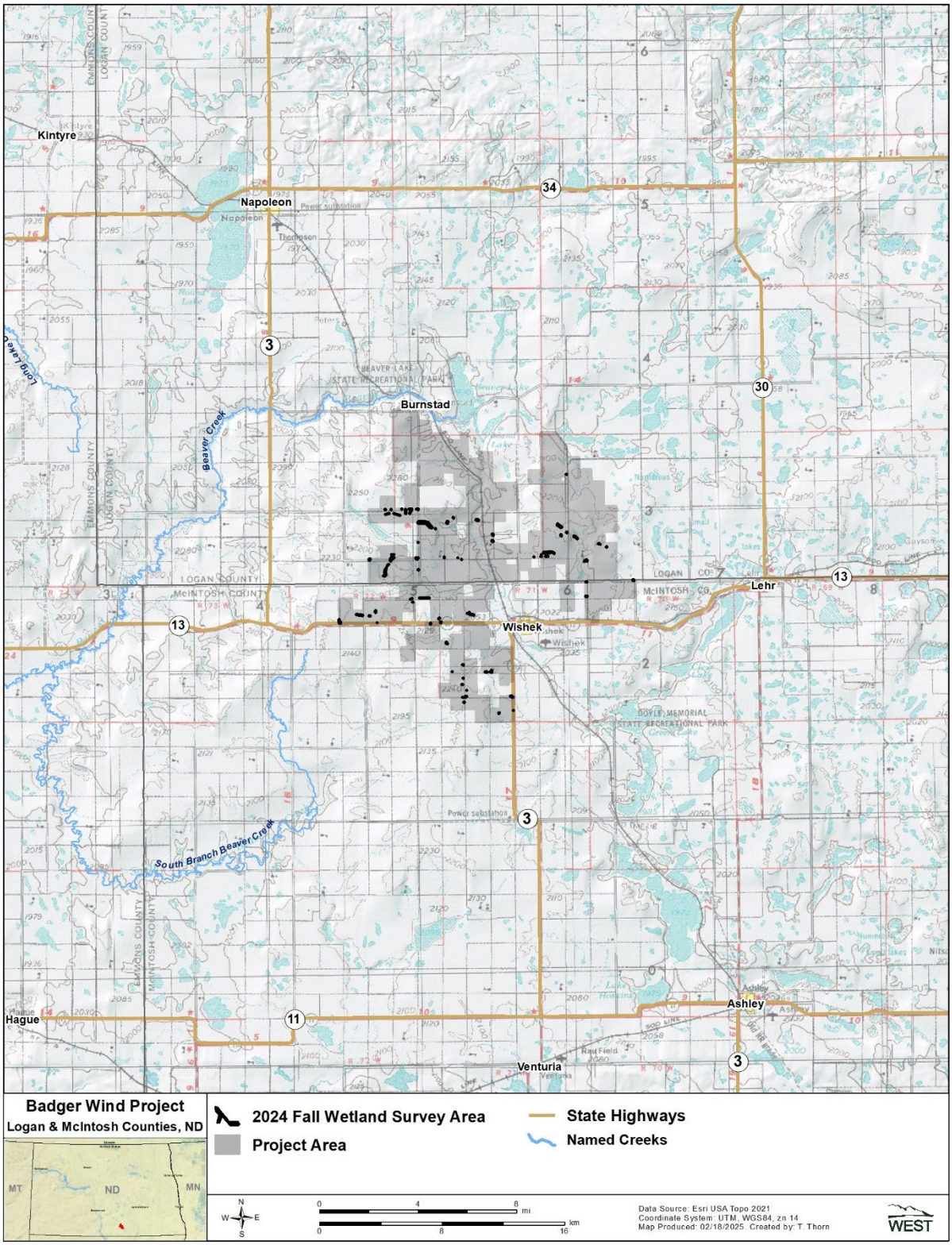


Figure 1. Location of the 2024 Fall Wetland Survey Area of the Badger Wind Project in Logan and McIntosh counties, North Dakota.

Waters that have consistently been considered jurisdictional WOTUS by the US Army Corps of Engineers (USACE) include traditional navigable waters (TNWs; Section 10 waters), interstate waters, territorial seas, and impoundments of these WOTUS. Jurisdictional status of tributaries to these categories of WOTUS and adjacent wetlands continue to be both challenged in courts and clarified by agencies. Due to ongoing litigation in North Dakota, the USEPA and USACE are interpreting the definition of WOTUS to be consistent with the pre-2015 regulatory regime and the May 2023 Supreme Court decision in Sackett v. USEPA (2023) until further notice. The Sackett decision established that adjacent wetlands require a 'continuous surface connection' to WOTUS to be considered jurisdictional (USEPA 2024). On March 12, 2025 the USEPA and USACE subsequently issued a joint memorandum to field staff regarding proper implementation of "continuous surface connection" under the definition of WOTUS (USEPA 2025). On March 24, 2025 the USEPA and USACE opened a comment period to request recommendations from stakeholders on implementation of the definition of WOTUS.

If discharge of dredge or fill to WOTUS are anticipated, coordination with the USACE regarding jurisdictional status of wetlands and waterbodies documented in this report is recommended to evaluate Section 404 permit requirements for the Project.

PROJECT AND SURVEY AREAS

The Project area is located within the Northwestern Glaciated Plains Level III Ecoregion, an ecoregion mainly composed of mixed-grass prairie (US Environmental Protection Agency [USEPA] 2013). Topography within the Project area ranges from relatively flat to rolling hills and elevations range from 2,020–2,200 feet (ft). Overall, the Project area drains to the southwest, into South Branch Beaver Creek, and to the northwest, into Beaver Creek, both of which are tributaries to the Missouri River. The Project area contains numerous unnamed drainages, a few of which may be intermittent or perennial waterbodies or wetlands (Figures 2 and 3). Primary land uses in the Project area include agriculture and livestock grazing.

The Survey Area consisted of newly proposed Project infrastructure footprints, or modifications of previously delineated infrastructure footprints, and their associated survey buffers (Figure 1). Proposed infrastructure survey corridors were provided by Badger Wind as a geospatial file in October 2024 and included:

- 250-ft radius centered around turbines
- 300-ft wide corridor for turbine access roads
- 100-ft wide corridor for underground collection lines
- 200-ft wide corridor for aircraft detection and lighting system tower, batch plant, crane walk paths, laydown yard, meteorological tower, operations and maintenance facility, marshaling yard, substation, transmission line, and turning radii locations.

The Survey Area encompassed 70.2 acres (ac) of the Project area.

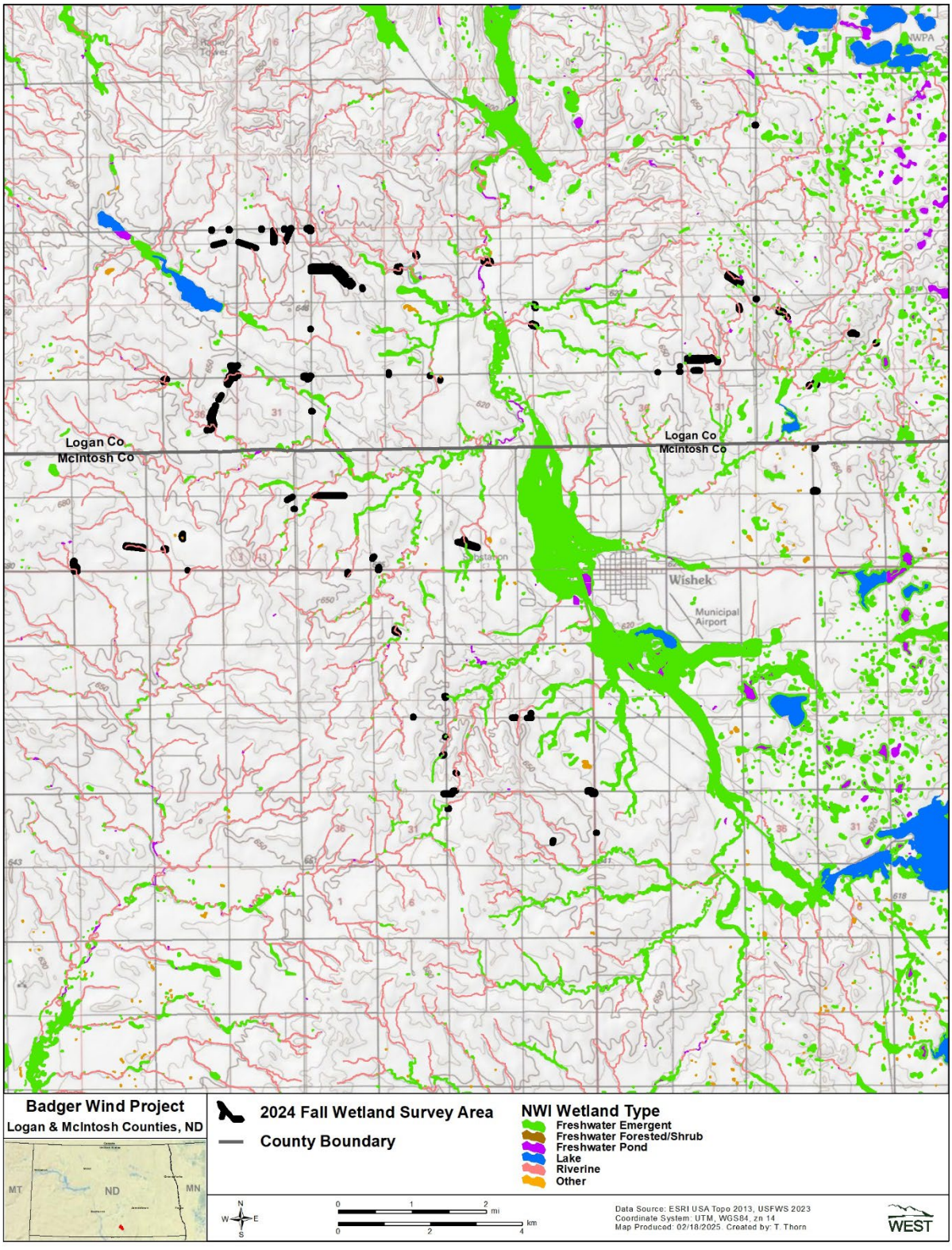


Figure 2. Mapped National Wetlands Inventory features within the 2024 Fall Wetland Survey Area at the Badger Wind Project in Logan and McIntosh counties, North Dakota.

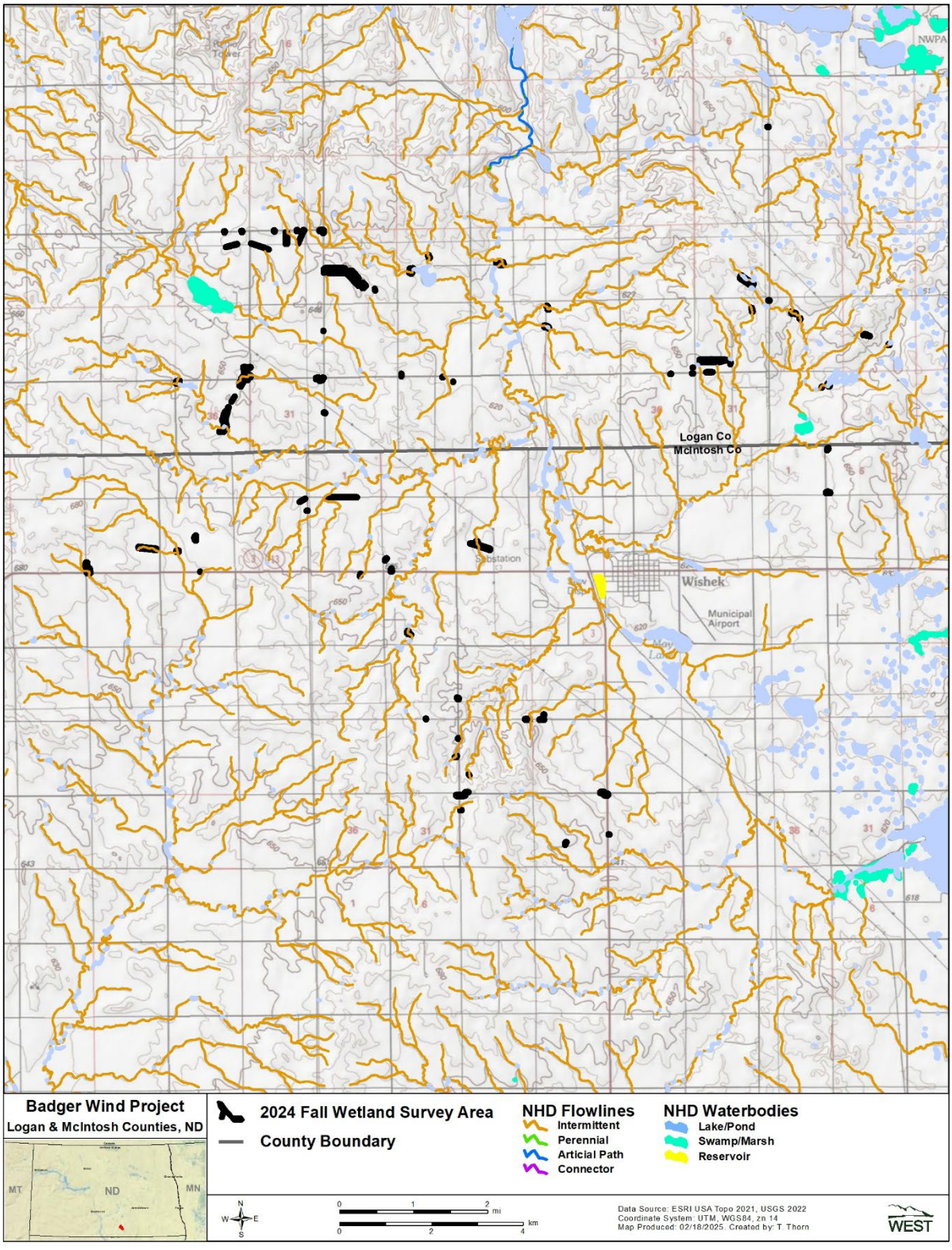


Figure 3. Mapped National Hydrography Dataset features within the 2024 Fall Wetland Survey Area at the Badger Wind Project in Logan and McIntosh counties, North Dakota.

METHODS

Desktop Assessment

A desktop assessment of publicly available wetlands and waterbodies data in the Survey Area was completed using the US Department of Agriculture's (USDA's) National Agriculture Imagery Program (USDA Farm Production and Conservation Business Center 2023), US Fish and Wildlife Service's (USFWS National Wetlands Inventory (NWI) data (2024), and US Geological Survey's (USGS's) National Hydrography Dataset (NHD 2022). Based on the desktop review, areas identified as potentially being wetlands or waterbodies within the Survey Area were targeted during the fall 2024 delineation effort, while also evaluating the remainder of the Survey Area that did not have mapped features.

Using these public data sources, potential wetlands and waterbodies located within the Survey Area were identified and mapped in the desktop assessment using geographic information systems mapping software. Wetland and waterbody types (i.e., freshwater emergent wetland, freshwater pond, riverine, lake, freshwater forested/shrub wetlands, and rivers and streams) identified in Figure 2 are based on wetland nomenclature used by the USFWS NWI (2023; based on Cowardin et al. 1979 and USGS [2022]).

Wetland and Waterbody Delineation Fieldwork

Using results of the desktop assessment to identify where wetlands and waterbodies were likely to be present within the Survey Area, a field delineation was completed. Wetlands and waterbodies within the Survey Area that were observed during fieldwork but not identified during the initial desktop assessment were also mapped. Wetlands and waterbodies were mapped using a tablet with Collector for ArcGIS software (Esri 2024) coupled with an Arrow Lite Global Positioning System (GPS) receiver with submeter accuracy.

Shapefiles depicting the infrastructure footprint and associated buffers were loaded onto the tablet and used in the field to verify that boundaries of the Survey Area were accurately identified and that field delineations were completed. NWI and NHD features were also loaded onto the tablet to complete field-verification at each of these feature types, where present, within the Survey Area.

Photographs (photo) were recorded for wetlands identified within the Survey Area. Each delineated wetland was assigned a unique identification name consisting of an alphanumeric name in a series (e.g., WET1, WET2).

NWI polygons, NHD flowlines, and other desktop or field identified features that intersected the Survey Area, but clearly did not meet the definition of either a wetland or a waterbody, were photo documented and a non-WOTUS point was collected on the tablet. These non-WOTUS points were identified with a sequential alphanumeric name (e.g., 101U, 102U).

Wetland Delineation

Wetland delineations were conducted October 15-18 and November 18, 2024, in accordance with the 1987 *Corps of Engineers Wetlands Delineation Manual* (USACE 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains* (Version 2.0; USACE 2010). The 1987 manual outlines a 3-parameter approach, which requires presence of hydrophytic plants (dominant vegetative cover), hydric soils, and wetland hydrology. Unless otherwise carefully documented based on professional judgement, all three parameters must be present and meet the wetland criteria of each parameter for an area to be considered a wetland.

The delineated wetlands were classified according to the classification system outlined in *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al. 1979). Wetland plant indicator status was determined using the most recent version of the National Wetland Plant List (USACE 2023). Paired sample plots (wetland and upland) were established and USACE regional datasheets were completed for each potential wetland within the Survey Area. Wetland sample plots were located in areas that were representative of the wetland community that was present, utilizing an upland sample plot to characterize the adjoining upland community. A wetland boundary was then established between these points and the boundary was recorded based on the observations made at the paired sample points. Wetlands were typically categorized as one of three common types of wetlands, including:

- Palustrine emergent (PEM) wetlands are defined as inland freshwater areas dominated by hydrophytic vascular plants, such as rushes, sedges, forbs, and other herbaceous or grass-like plants.
- Palustrine scrub-shrub wetlands are defined as inland freshwater areas dominated by woody vegetation less than 20 ft tall, such as buttonbush, alders, and many kinds of woody saplings.
- Palustrine forested wetlands are defined as inland freshwater areas dominated by woody vegetation equal to or over 20 ft tall.

Waterbody Delineation

Flowing waterbodies and drainage features (e.g., streams, creeks, ditches) and other waterbodies (e.g., stock ponds) within the Survey Area, including those waterbodies identified in the NWI and NHD datasets (Figures 2 and 3), were examined to determine if each met the definition of a waterbody. The field assessment, used to determine the presence of a waterbody, was focused on the presence of a definable bed and bank, ordinary high water mark (OHWM), and evidence of flow. If present, the OHWM of each waterbody was recorded with a GPS. These features were mapped and documented in a similar manner as wetlands.

Informal Jurisdictional Determination

In addition to evaluating the Survey Area for features that met wetland and waterbody definitions, the professional judgment of the WEST delineator was used to make an informal jurisdictional determination (determination). The current definition of WOTUS was applied to assign a determination. The WOTUS definition further identifies features that are exempt from jurisdiction,

including prior converted croplands, waste treatment systems, certain ditches (including some roadside ditches), artificially irrigated areas, artificial lakes/ponds, artificial reflecting pools, waterfilled depressions, certain swales and erosional features. Certain features are jurisdictional and do not require further assessments (e.g., territorial seas, traditional navigable waters, interstate waters, and impoundments of these features). As previously noted in the Waters of the US section, there have recently been both regulatory guidance changes as well as court decisions that are influencing how the USACE determines jurisdiction of wetlands and waterbodies. WEST utilized the best available information from the agencies to evaluate the informal jurisdictional determinations.

The delineator assigned a likely, unlikely, or unknown jurisdictional status to the delineated wetlands and waterbodies based on these criteria. All wetland and waterbody determinations were informal as only the USACE can make a formal jurisdictional determination.

RESULTS

Wetland Delineations

Thirty wetlands, totaling 26.11 ac, were identified and delineated during the fall 2024 fieldwork (Table 1, Figure 4). Detailed maps of wetland locations are provided in Appendix A. Table 1 provides a summary of wetland classifications and acreages within the Survey Area. All 30 delineated wetlands were classified as PEM wetlands. Twenty-five of the wetlands occurred in drainages, and five in depressions. Wetlands delineated during fall 2024 fieldwork appeared to have a downstream connection to WOTUS and were, therefore, considered potentially or likely jurisdictional (Table 1). No waterbodies were delineated within the Survey Area. A total of 8 non-waters points were mapped (Appendix B). Wetland determination datasheets and representative photographs of wetlands, are provided in Appendices C and D.

Vegetation

The most common wetland species encountered in the 30 delineated wetlands within the Survey Area were prairie cordgrass (*Spartina pectinata*), broadleaf cattail (*Typha latifolia*), reed canary grass (*Phalaris arundinacea*), and foxtail barley (*Hordeum jubatum*; Appendix C).

Hydrology

Documented saturation and inundation visible on aerial imagery were the primary hydrologic indicators present for wetlands. Other hydrology indicators noted during the field investigation were saturation visible, geomorphic position, FAC-neutral test, and drainage patterns.

Soils

Soil colors were predominantly dark (e.g., 10 YR 3/1 and 3/2). The primary field hydric soil indicator used was redox dark surface, followed by depleted below dark surface (Appendix C). The majority of the soil was silt loam and loam (Appendix C).

Table 1. Summary of field delineated wetlands within the 2024 Fall Wetland Survey Area of the Badger Wind Project in Logan and McIntosh counties, North Dakota, October 15-18 and November 18, 2024.[1]

Feature Identification	Acres	Cowardin Classification[2]	Latitude/Longitude[3]	Landform	Informal Jurisdictional Determination[4]
WET021	0.14	PEM	46.31003/-99.52368	Drainage	Likely
WET024	0.22	PEM	46.29490/-99.50194	Depression	Likely
WET027	0.10	PEM	46.31961/-99.59574	Drainage	Likely
WET027b	0.99	PEM	46.31954/-99.59497	Drainage	Likely
WET028	0.18	PEM	46.32097/-99.61485	Drainage	Likely
WET029	1.53	PEM	46.31838/-99.61980	Drainage	Likely
WET031	0.31	PEM	46.23453/-99.60806	Drainage	Likely
WET205	0.42	PEM	46.30924/-99.51165	Drainage	Likely
WET206	0.06	PEM	46.30802/-99.51011	Drainage	Likely
WET210	0.42	PEM	46.30469/-99.49132	Depression	Likely
WET215	0.29	PEM	46.31104/-99.58174	Drainage	Likely
WET216	0.33	PEM	46.30714/-99.58165	Drainage	Likely
WET237	0.53	PEM	46.26421/-99.60146	Drainage	Likely
WET340	0.41	PEM	46.24748/-99.62200	Drainage	Likely
WET1005	0.01	PEM	46.30455/-99.49052	Depression	Likely
WET1006	0.09	PEM	46.30275/-99.48521	Depression	Likely
WET1008	0.04	PEM	46.29473/-99.50409	Drainage	Likely
WET1016	0.12	PEM	46.22313/-99.60843	Drainage	Likely
WET2000	0.22	PEM	46.26595/-99.68149	Depression	Likely
WET2001	0.10	PEM	46.25983/-99.71199	Drainage	Likely
WET2002	0.08	PEM	46.25987/-99.71230	Drainage	Likely
WET2003	0.40	PEM	46.29694/-99.68653	Drainage	Likely
WET2004	0.25	PEM	46.29793/-99.66585	Drainage	Likely
WET2005	0.02	PEM	46.29800/-99.66562	Drainage	Likely
WET2006	0.09	PEM	46.21576/-99.56697	Drainage	Likely
WET2007	0.14	PEM	46.21532/-99.56585	Drainage	Likely
WET2008	15.71	PEM	46.29857/-99.66697	Drainage	Likely
WET2009	1.72	PEM	46.28767/-99.67256	Drainage	Likely
WET2010	1.08	PEM	46.31582/-99.52511	Drainage	Likely
WET2011	0.10	PEM	46.31529/-99.52482	Drainage	Likely

1. Wetlands delineated in 2021, 2022, and spring 2024 are described in Flaig (2022), Atwell (2022), and Chodachek and Hammer (2024) reports.

2. PEM = Palustrine emergent wetland.

3. Location of wetland sample plot.

4. Informal determination based on Western EcoSystems Technology, Inc.'s professional judgement and subject to change based on US Army Corps of Engineers determination.

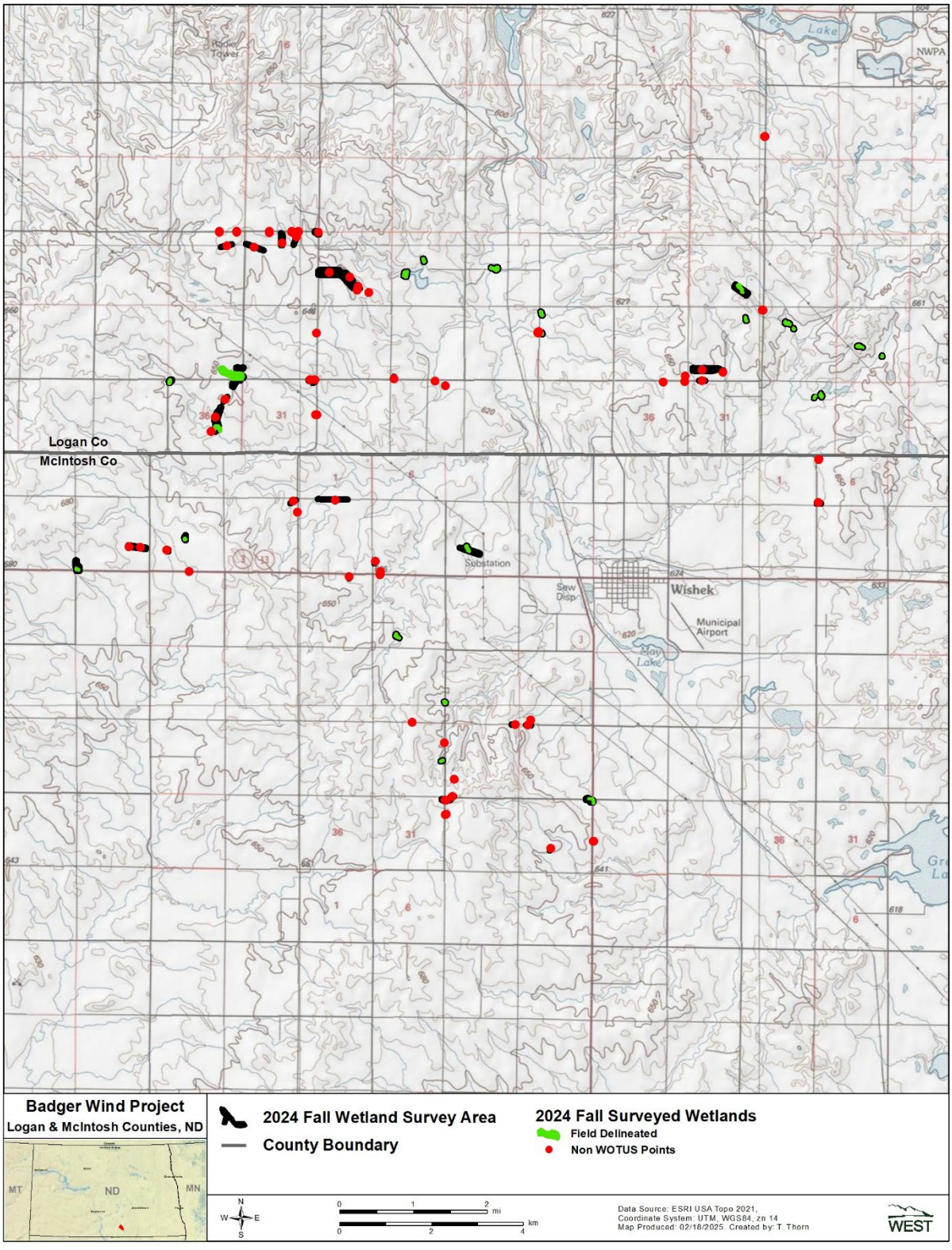


Figure 4. Field delineated wetlands and non-waters of the US points within the 2024 Fall Wetland Survey Area of the Badger Wind Project in Logan and McIntosh counties, North Dakota, October 15-18 and November 18, 2024.

SUMMARY

Wetland and waterbody delineations and wetland mapping were completed for the Project in the months of September 2020, October 2020, September 2021, May 2022, October 2023, November 2023, May 2024, October 2024, and November 2024. Over these combined field efforts, 253 wetlands were identified through field delineation within the Project area, comprising 326.75 ac. Additionally, four waterbody features were delineated, comprising 0.96 ac, and seven watercourses were identified, comprising a cumulative of 6.44 acres.

REFERENCES

Atwell, LLC. 2022. Aquatic Resources Delineation Report, Badger Wind, Logan and McIntosh Counties, North Dakota. Prepared for Badger Wind, LLC, Chicago, Illinois. Prepared by Atwell, LLC. June 7, 2022.

Chodachek, K. and W. Hammer. 2024. Wetland and Waterbody Delineation Report – Badger Wind Project. Prepared for Badger Wind, LLC, Chicago, Illinois. Prepared by Western EcoSystems Technology, Inc. (WEST), Bismarck, North Dakota. June 19, 2024.

Chodachek, K. and M. Welsch. 2024. Wetlands and Waterbodies Assessment, Badger Wind Project, Logan and McIntosh Counties, North Dakota. Report. Prepared for Badger Wind, LLC, Chicago, Illinois. Prepared by Western EcoSystems Technology, Inc. (WEST), Bismarck, North Dakota. January 31, 2024.

Cowardin, L. M., V. Carter, F. C. Golet, and E. T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. US Department of the Interior (USDOI) Fish and Wildlife Service, Office of Biological Services, Washington, D.C.

Esri. 2013. World Imagery and Aerial Photos (World Topo). ArcGIS Resource Center. Environmental Systems Research Institute (Esri), producers of ArcGIS software, Redlands, California. Accessed June 2024. Available online: https://www.arcgis.com/home/webmap/viewer.html?useExisting=1&layers=10df2279f9684e4a9f6a7f08febac2a9

Esri. 2021. World Imagery and Aerial Photos (World Topo). ArcGIS Resource Center. Environmental Systems Research Institute (Esri), producers of ArcGIS software, Redlands, California. Accessed January 2022. Available online: https://www.arcgis.com/home/webmap/viewer.html?useExisting=1&layers=10df2279f9684e4a9f6a7f08febac

Flaig, K. 2022. Aquatic Resources Inventory, Badger Wind Energy Project, McIntosh County, North Dakota. Prepared for Badger Wind, LLC, Chicago, Illinois. Prepared by Western EcoSystems Technology, Inc. (WEST), Cheyenne, Wyoming. November 24, 2021.

US Army Corps of Engineers (USACE). 1987. 1987 Corps of Engineers Wetlands Delineation Manual. Technical Report Y-87-1 (on-line edition). Wetlands Research Program. Prepared by Environmental Laboratory, USACE, Vicksburg, Mississippi. January 1987. Available online: https://usace.contentdm.oclc.org/digital/collection/p266001coll1/id/4532/

US Army Corps of Engineers (USACE). 2010. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region. (Version 2.0). ERDC/EL TR-10-1. Wetlands Regulatory Assistance Program, USACE, Vicksburg, Mississippi. March 2010. Available online: https://usace.contentdm.oclc.org/utils/getfile/collection/p266001coll1/id/7613

US Army Corps of Engineers (USACE). 2023. 2022 National Wetland Plant List, Version 3.6. US Army Engineer Research and Development Center, Vicksburg, Mississippi. Available online: http://wetland-plants.usace.army.mil/US Department of Agriculture (USDA), Farm Production and Conservation (FPAC) Business Center (BC). 2023. NAIP Maps and Data. National Agriculture Imagery Program (NAIP) data, Geospatial Enterprise Operations, USDA FPAC-BC, Washington, D.C. Accessed June 2024. Available online: https://www.fpacbc.usda.gov/geo/index.html

US Department of the Army and US Environmental Protection Agency (USEPA). 2025. Memorandum to the Field between the U.S. Department of the Army, U.S. Army Corps of Engineers and the U.S. Environmental Protection Agency Concerning the Proper Implementation of “Continuous Surface Connection” under the Definition of “Waters of the United States” under the Clean Water Act. March 12, 2025. 6 pp. Available online: https://www.epa.gov/system/files/documents/2025-03/2025cscguidance.pdf

US Environmental Protection Agency (USEPA). 2013. Level III and Level IV Ecoregions of the Continental United States. Ecosystems Research, USEPA. April 16, 2013. Accessed June 2024. Available online: https://www.epa.gov/eco-research/level-iii-and-iv-ecoregions-continental-united-states

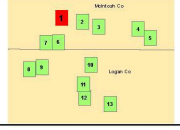
US Environmental Protection Agency (USEPA). 2023. Definition of "Waters of the United States": Rule Status and Litigation Update. Current Implementation of Waters of the United States. Last updated on May 12, 2023. Available online: https://www.epa.gov/wotus/definition-waters-united-states-rule-status-and-litigation-update

US Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI). 2023. Wetlands Mapper. USFWS NWI, Baileys Crossroads, Virginia. Accessed June 2024. Available online: https://www.fws.gov/program/national-wetlands-inventory/wetlands-mapper

US Geological Survey (USGS). 2022. The National Map. TNM Download V2.0. Topo Map data, 3DEP products, Lidar, IfSAR, NHD (Hydrography Dataset), NAIP Plus Imagery, National Structures Dataset. Accessed June 2024. Available online: https://apps.nationalmap.gov/downloader/#/

Appendix A. Field Delineated Wetlands within the 2024 Fall Wetland Survey Area of the Badger Wind Project in Logan and McIntosh Counties, North Dakota.

Badger Wind Project
Logan & McIntosh Counties, ND



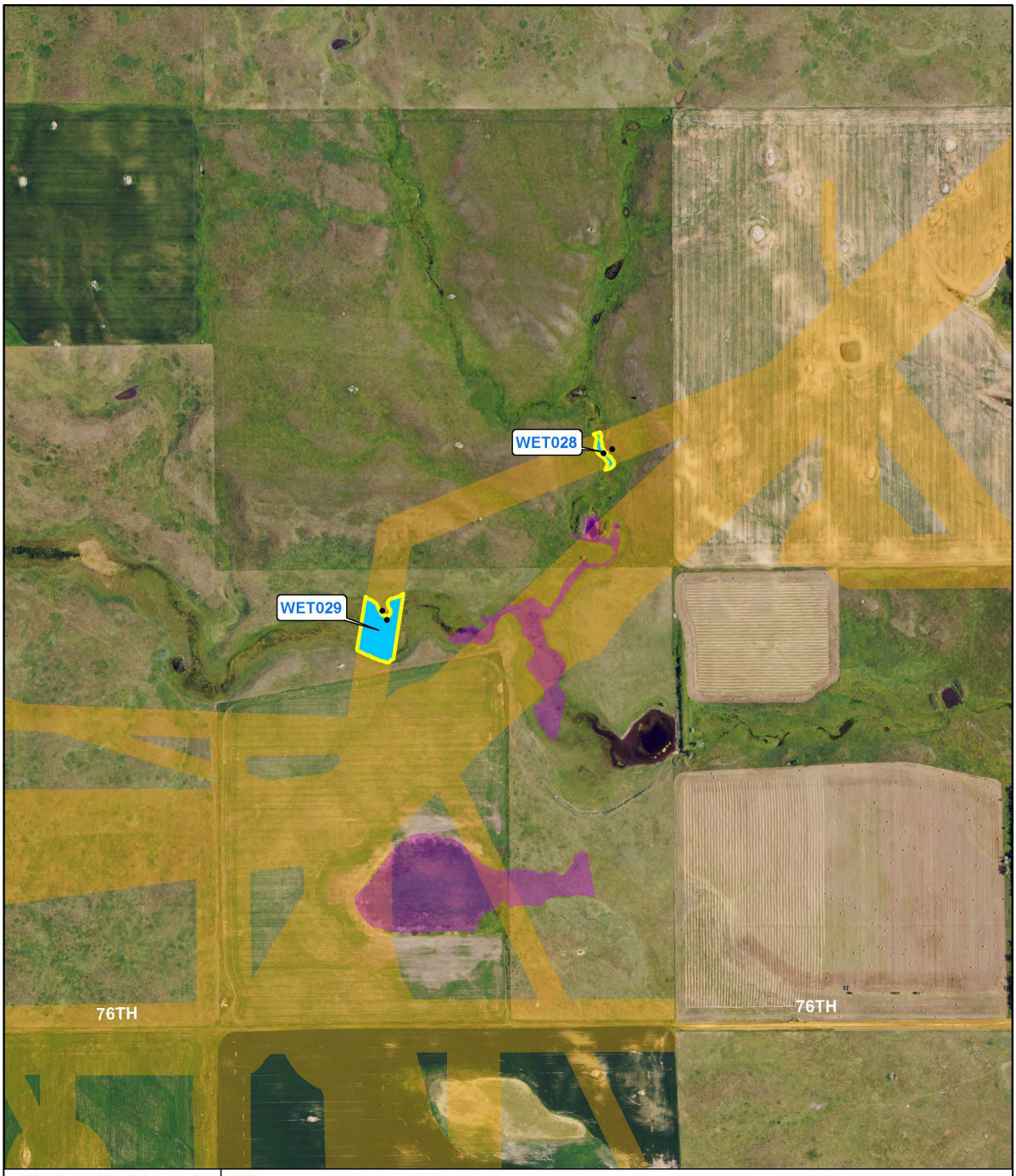
- Fall 2024 Wetland Survey Area
- Fall 2024 Delineated Wetlands
- Pre-Fall 2024 Wetland Survey Area
- Pre-Fall 2024 Surveyed Wetlands
- Fall 2024 Wetland/Upland Sample Points
- Fall 2024 Non WOTUS Points
- State Highway

N W E S

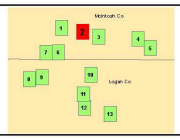
0 0.1 0.2 mi
0 0.2 0.4 km

Data Source: NAIP 2023
Coordinate System: UTM, WGS84, zn 14
Map Produced: 02/18/2025. Created by: T. Thorn

WEST



Badger Wind Project
Logan & McIntosh Counties, ND



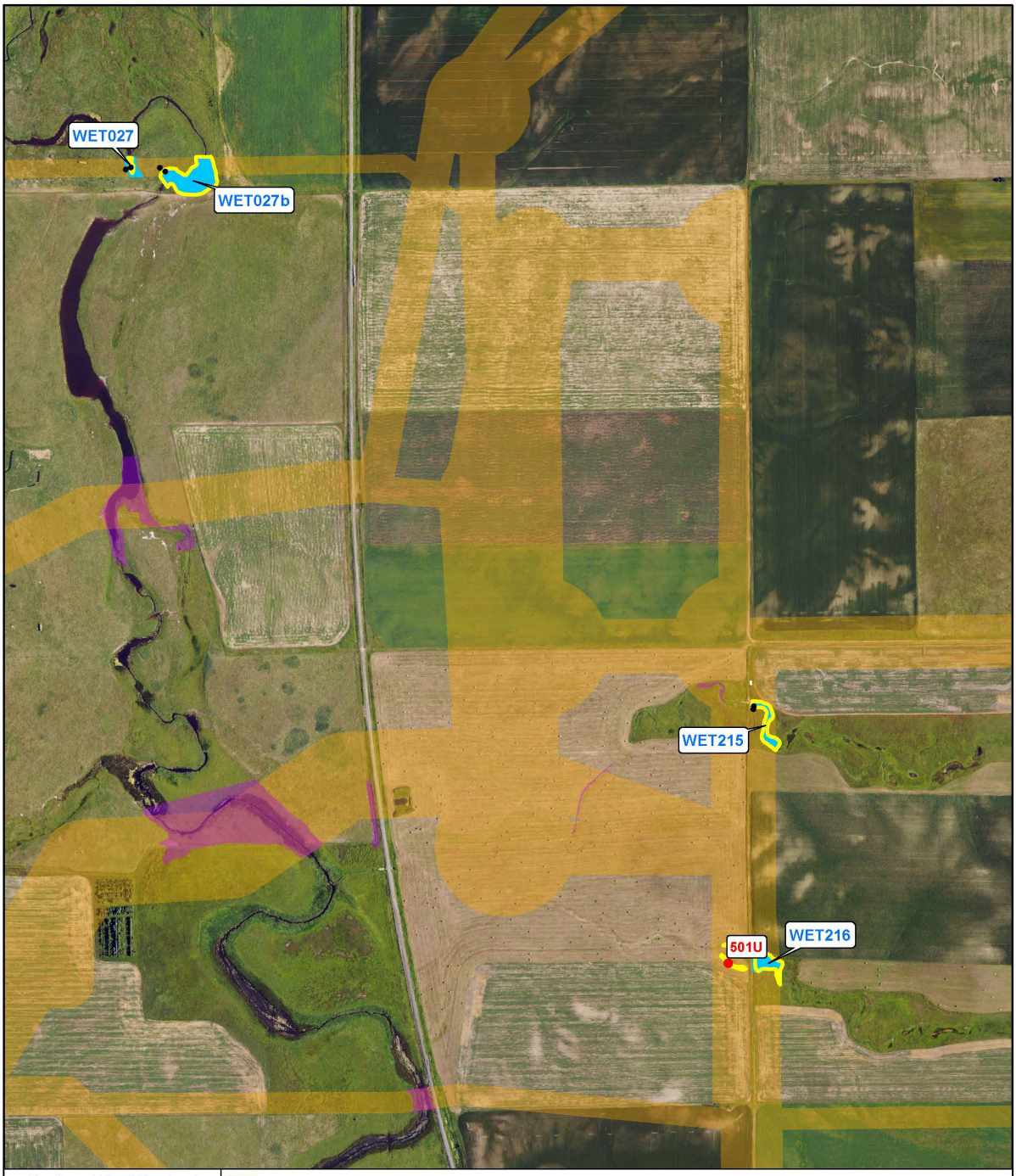
- Fall 2024 Wetland Survey Area
- Fall 2024 Delineated Wetlands
- Pre-Fall 2024 Wetland Survey Area
- Pre-Fall 2024 Surveyed Wetlands
- Fall 2024 Wetland/Upland Sample Points
- Fall 2024 Non WOTUS Points
- State Highway

N W E S

0 0.1 0.2 mi
0 0.2 0.4 km

Data Source: NAIP 2023
Coordinate System: UTM, WGS84, zn 14
Map Produced: 02/18/2025. Created by: T. Thorn

WEST



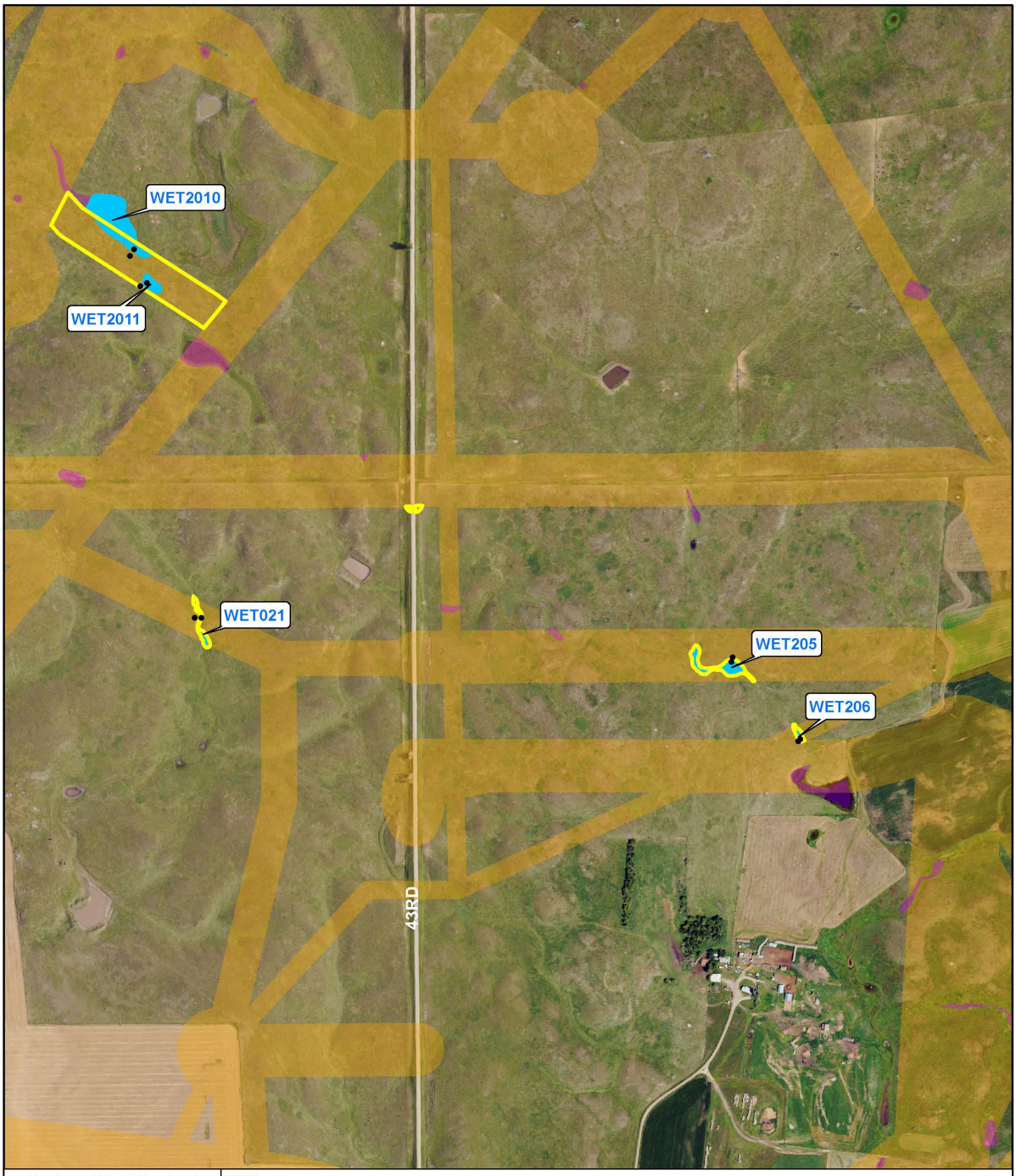
Badger Wind Project
Logan & McIntosh Counties, ND

Fall 2024 Wetland Survey Area
Fall 2024 Delineated Wetlands
Pre-Fall 2024 Wetland Survey Area
Pre-Fall 2024 Surveyed Wetlands
Fall 2024 Wetland/Upland Sample Points
Fall 2024 Non WOTUS Points
State Highway

0 0.1 0.2 mi
0 0.2 0.4 km

Data Source: NAIP 2023
Coordinate System: UTM, WGS84, zn 14
Map Produced: 02/18/2025. Created by: T. Thorn

WEST



Badger Wind Project
Logan & McIntosh Counties, ND

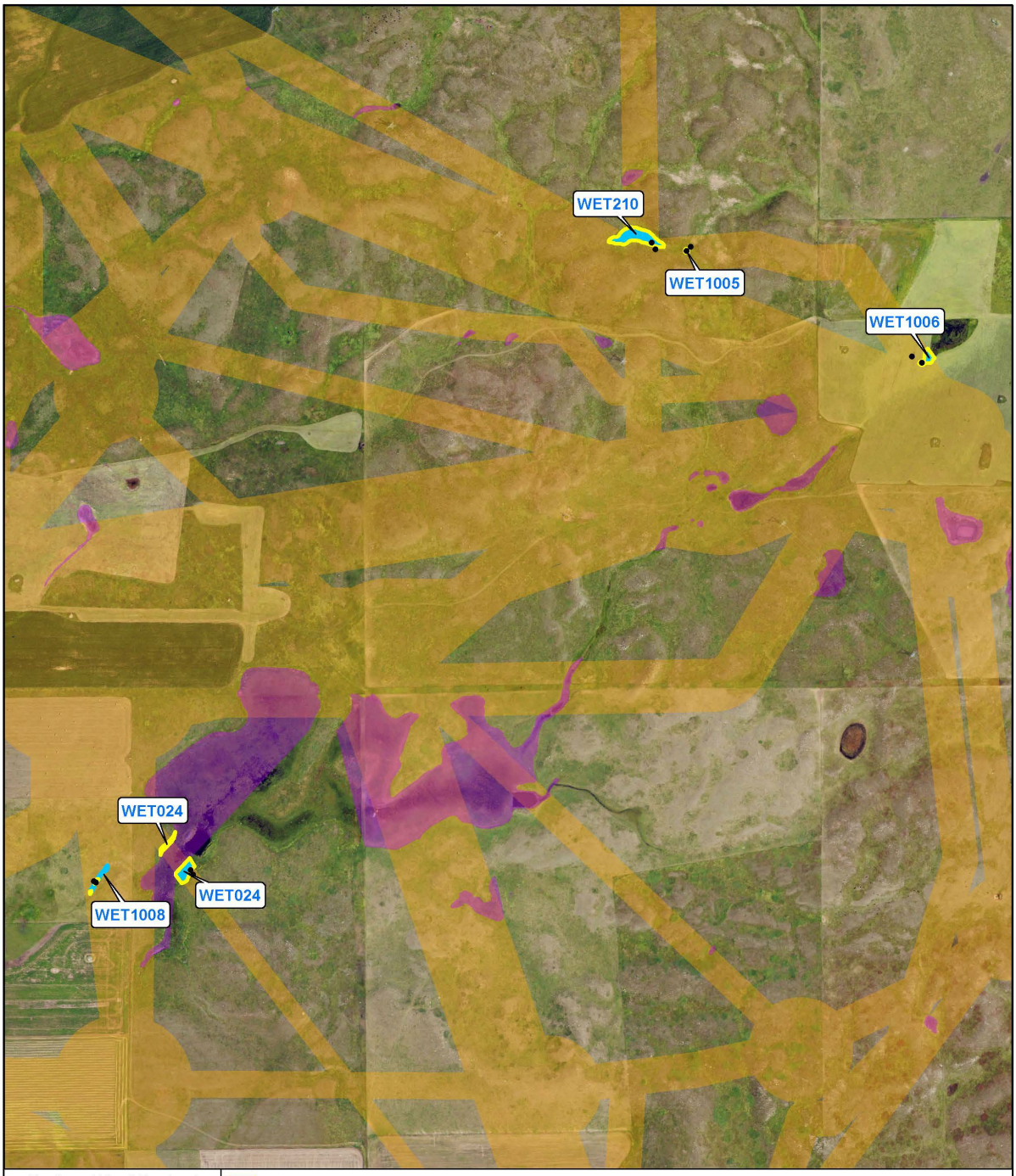
- Fall 2024 Wetland Survey Area
- Fall 2024 Delineated Wetlands
- Pre-Fall 2024 Wetland Survey Area
- Pre-Fall 2024 Surveyed Wetlands
- Fall 2024 Wetland/Upland Sample Points
- Fall 2024 Non WOTUS Points
- State Highway

N W E S

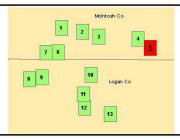
0 0.1 0.2 mi
0 0.2 0.4 km

Data Source: NAIP 2023
Coordinate System: UTM, WGS84, zn 14
Map Produced: 02/18/2025. Created by: T. Thorn

WEST



Badger Wind Project
Logan & McIntosh Counties, ND



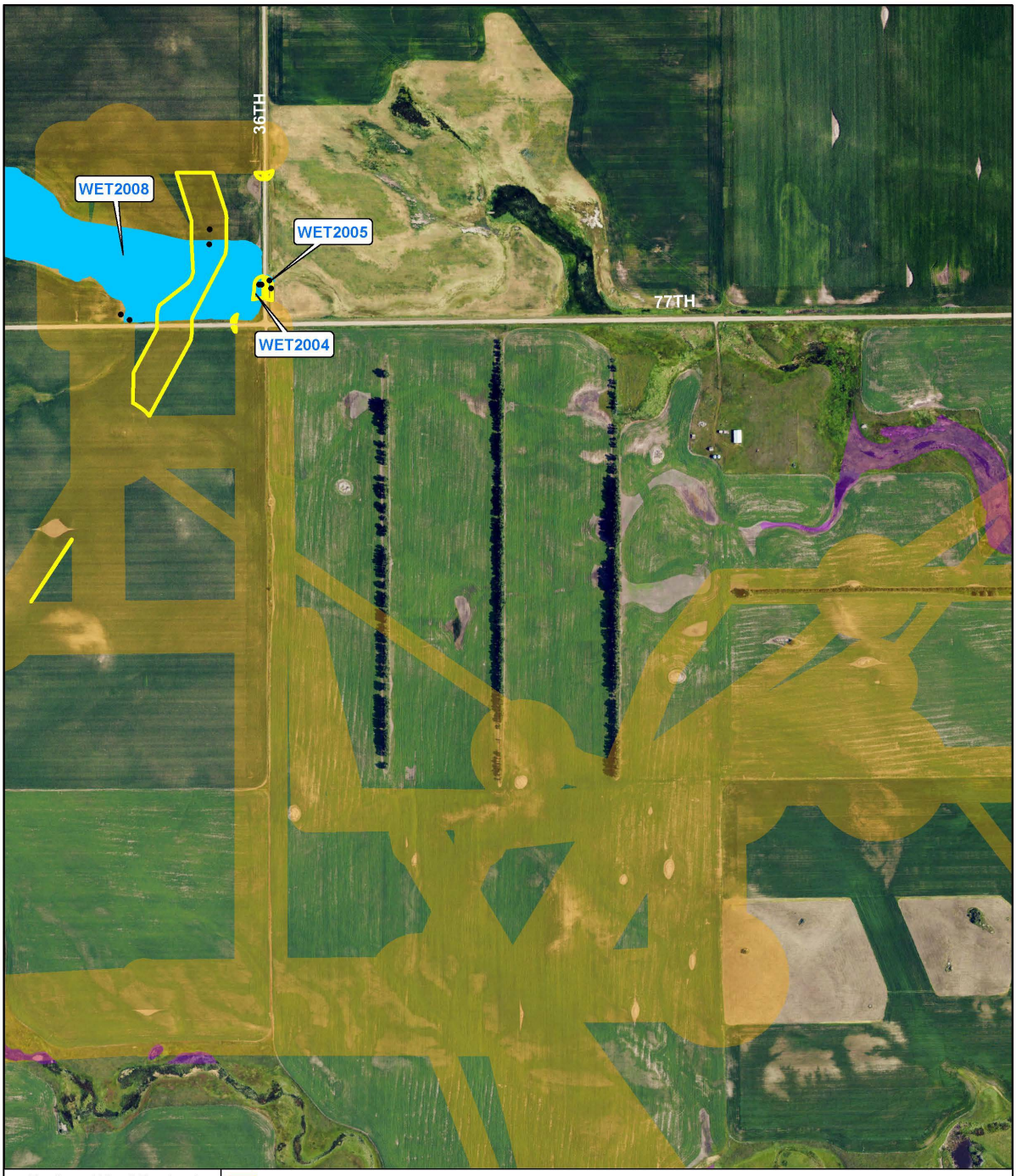
- Fall 2024 Wetland Survey Area
- Fall 2024 Delineated Wetlands
- Pre-Fall 2024 Wetland Survey Area
- Pre-Fall 2024 Surveyed Wetlands
- Fall 2024 Wetland/Upland Sample Points
- Fall 2024 Non WOTUS Points
- State Highway

N W E S

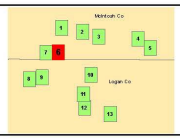
0 0.1 0.2 mi
0 0.2 0.4 km

Data Source: NAIP 2023
Coordinate System: UTM, WGS84, zn 14
Map Produced: 02/18/2025. Created by: T. Thorn

WEST



Badger Wind Project
Logan & McIntosh Counties, ND



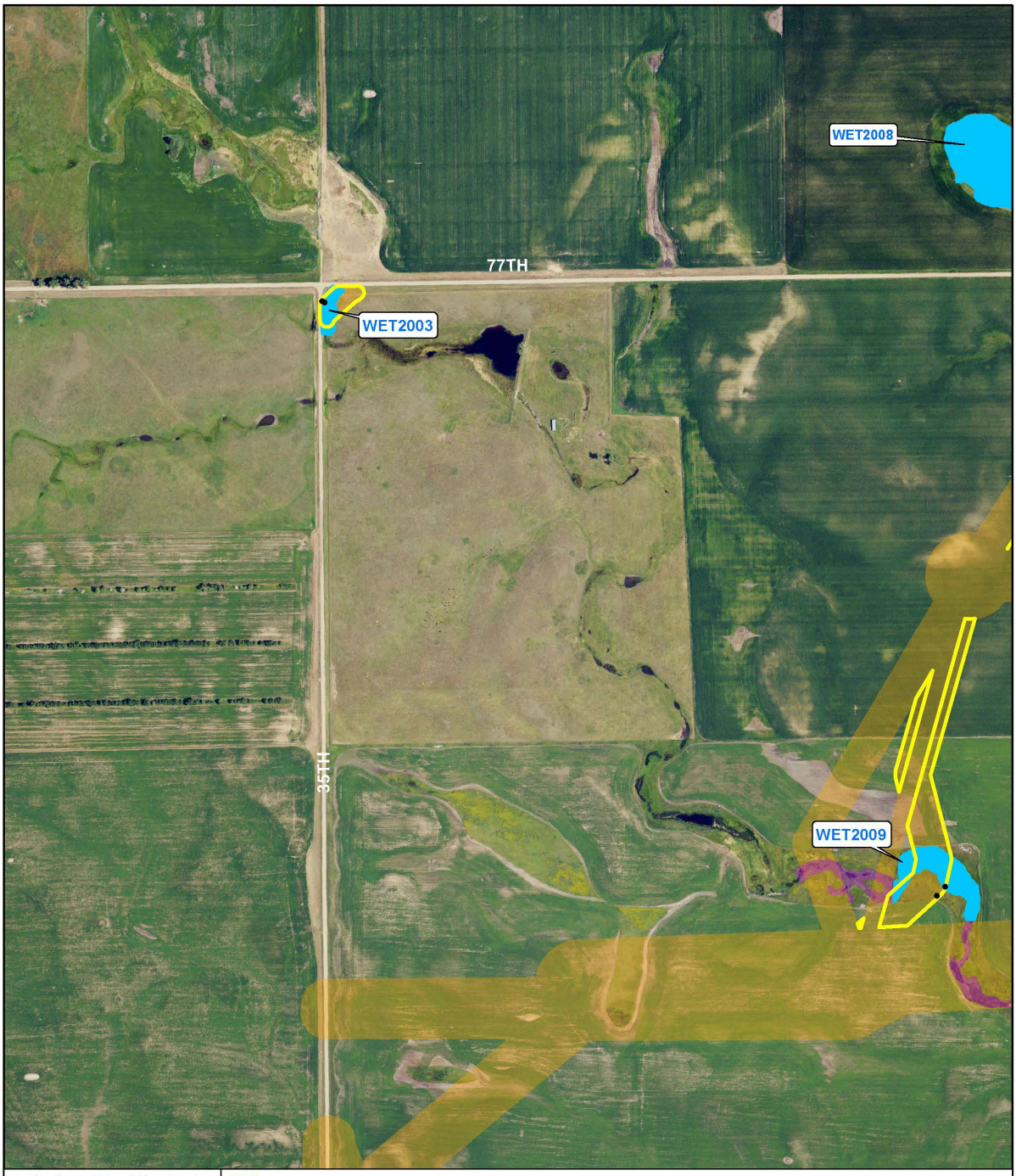
- Fall 2024 Wetland Survey Area
- Fall 2024 Delineated Wetlands
- Pre-Fall 2024 Wetland Survey Area
- Pre-Fall 2024 Surveyed Wetlands
- Fall 2024 Wetland/Upland Sample Points
- Fall 2024 Non WOTUS Points
- State Highway

N W E S

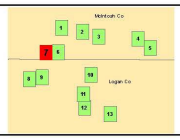
0 0.1 0.2 mi
0 0.2 0.4 km

Data Source: NAIP 2023
Coordinate System: UTM, WGS84, zn 14
Map Produced: 02/18/2025. Created by: T. Thorn

WEST



Badger Wind Project
Logan & McIntosh Counties, ND



- Fall 2024 Wetland Survey Area
- Fall 2024 Delineated Wetlands
- Pre-Fall 2024 Wetland Survey Area
- Pre-Fall 2024 Surveyed Wetlands
- Fall 2024 Wetland/Upland Sample Points
- Fall 2024 Non WOTUS Points
- State Highway

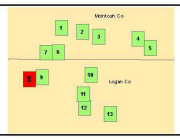
N W E S

0 0.1 0.2 mi
0 0.2 0.4 km

Data Source: NAIP 2023
Coordinate System: UTM, WGS84, zn 14
Map Produced: 02/18/2025. Created by: T. Thorn

WEST

Badger Wind Project
Logan & McIntosh Counties, ND



- Fall 2024 Wetland Survey Area
- Fall 2024 Delineated Wetlands
- Pre-Fall 2024 Wetland Survey Area
- Pre-Fall 2024 Surveyed Wetlands
- Fall 2024 Wetland/Upland Sample Points
- Fall 2024 Non WOTUS Points
- State Highway

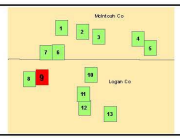
N W E S

0 0.1 0.2 mi
0 0.2 0.4 km

Data Source: NAIP 2023
Coordinate System: UTM, WGS84, zn 14
Map Produced: 02/18/2025. Created by: T. Thorn

WEST

Badger Wind Project
Logan & McIntosh Counties, ND



- Fall 2024 Wetland Survey Area
- Fall 2024 Delineated Wetlands
- Pre-Fall 2024 Wetland Survey Area
- Pre-Fall 2024 Surveyed Wetlands
- Fall 2024 Wetland/Upland Sample Points
- Fall 2024 Non WOTUS Points
- State Highway

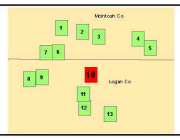
N W E S

0 0.1 0.2 mi
0 0.2 0.4 km

Data Source: NAIP 2023
Coordinate System: UTM, WGS84, zn 14
Map Produced: 02/18/2025. Created by: T. Thorn

WEST

Badger Wind Project
Logan & McIntosh Counties, ND



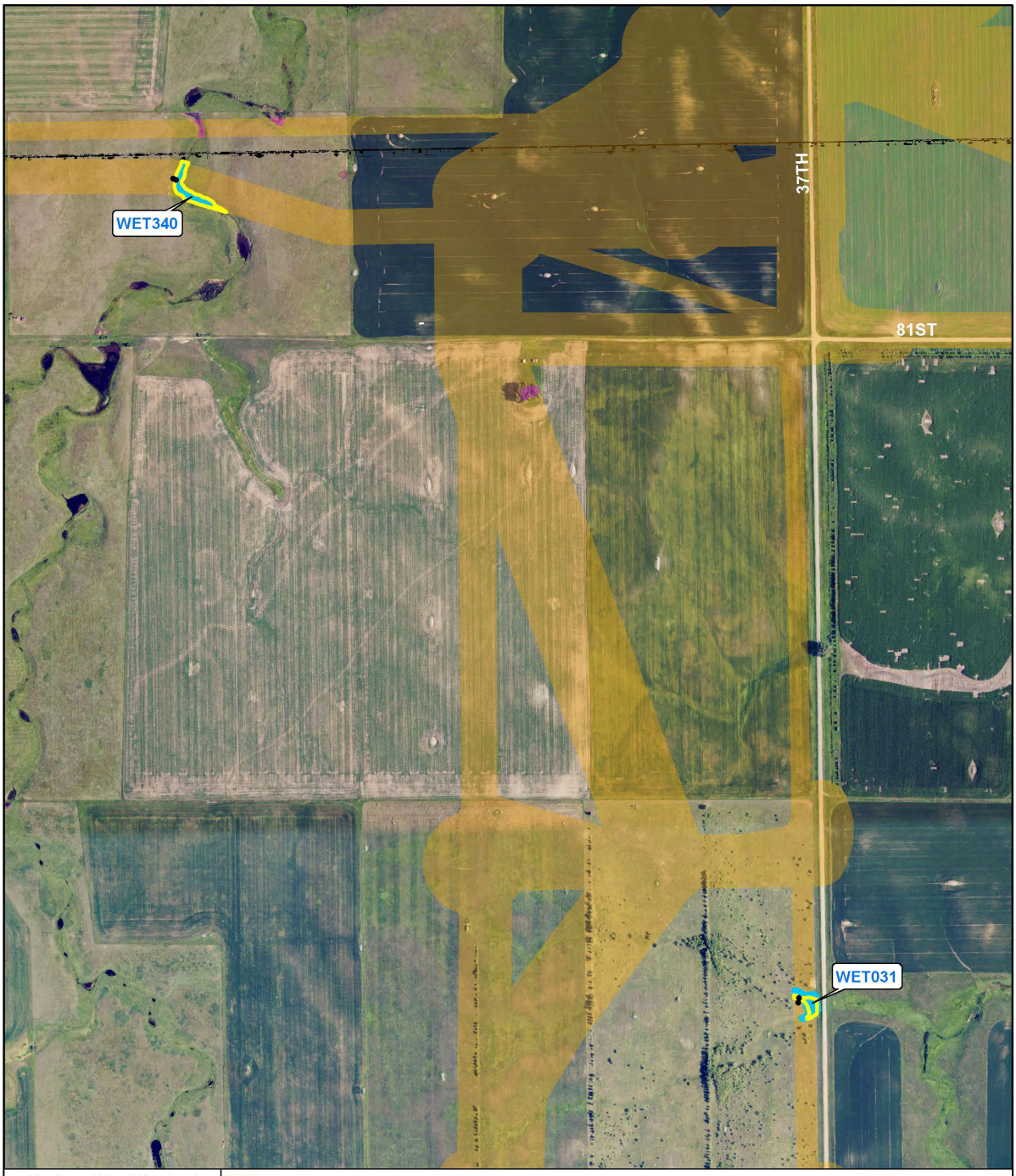
- Fall 2024 Wetland Survey Area
- Fall 2024 Delineated Wetlands
- Pre-Fall 2024 Wetland Survey Area
- Pre-Fall 2024 Surveyed Wetlands
- Fall 2024 Wetland/Upland Sample Points
- Fall 2024 Non WOTUS Points
- State Highway

N W E S

0 0.1 0.2 mi
0 0.2 0.4 km

Data Source: NAIP 2023
Coordinate System: UTM, WGS84, zn 14
Map Produced: 02/18/2025. Created by: T. Thorn

WEST



Badger Wind Project
Logan & McIntosh Counties, ND

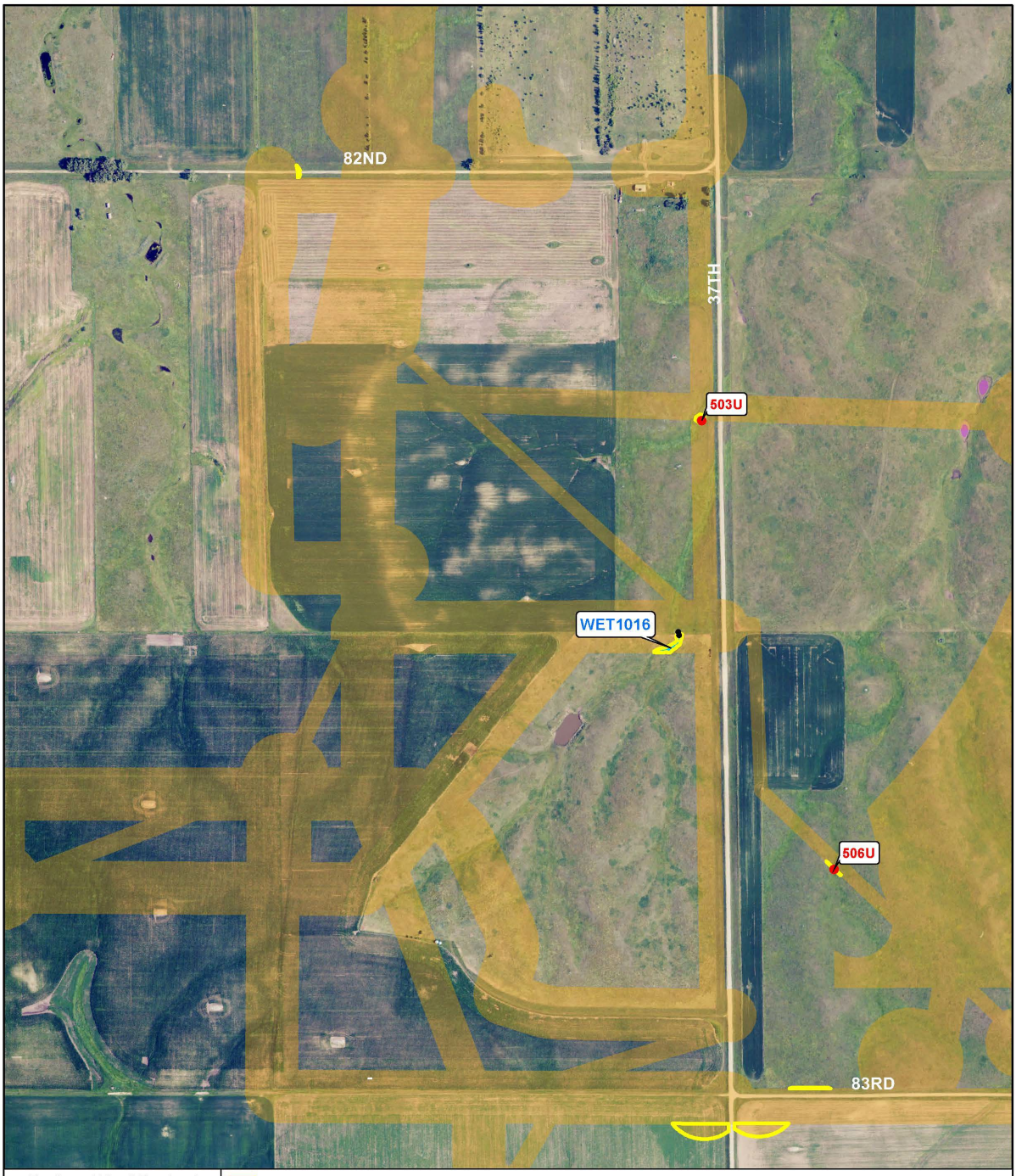
- Fall 2024 Wetland Survey Area
- Fall 2024 Delineated Wetlands
- Pre-Fall 2024 Wetland Survey Area
- Pre-Fall 2024 Surveyed Wetlands
- Fall 2024 Wetland/Upland Sample Points
- Fall 2024 Non WOTUS Points
- State Highway

N W E S

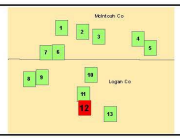
0 0.1 0.2 mi
0 0.2 0.4 km

Data Source: NAIP 2023
Coordinate System: UTM, WGS84, zn 14
Map Produced: 02/18/2025. Created by: T. Thorn

WEST



Badger Wind Project
Logan & McIntosh Counties, ND



- Fall 2024 Wetland Survey Area
- Fall 2024 Delineated Wetlands
- Pre-Fall 2024 Wetland Survey Area
- Fall 2024 Surveyed Wetlands
- Fall 2024 Wetland/Upland Sample Points
- Fall 2024 Non WOTUS Points
- State Highway

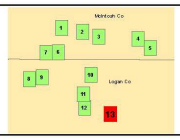
N W E S

0 0.1 0.2 mi
0 0.2 0.4 km

Data Source: NAIP 2023
Coordinate System: UTM, WGS84, zn 14
Map Produced: 02/18/2025. Created by: T. Thorn

WEST

Badger Wind Project
Logan & McIntosh Counties, ND



- Fall 2024 Wetland Survey Area
- Fall 2024 Delineated Wetlands
- Pre-Fall 2024 Wetland Survey Area
- Fall 2024 Surveyed Wetlands
- Fall 2024 Wetland/Upland Sample Points
- Fall 2024 Non WOTUS Points
- State Highway

N W E S

0 0.1 0.2 mi
0 0.2 0.4 km

Data Source: NAIP 2023
Coordinate System: UTM, WGS84, zn 14
Map Produced: 02/18/2025. Created by: T. Thorn

WEST

Appendix B. Summary of Non-waters of the US Points Recorded October 15–18 and November 18, 2024, within the 2024 Fall Wetland Survey Area of the Badger Wind Project in Logan and McIntosh Counties, North Dakota.

Appendix B. Summary of non-waters of the US[1] points recorded October 15-18 and November 18, 2024, within the 2024 Fall Wetland Survey Area of the Badger Wind Project in Logan and McIntosh counties, North Dakota[2].

Non-wetland Identification	Type	Latitude	Longitude
500U	non-wetland	46.307251	-99.582170
501U	non-wetland	46.307005	-99.582371
502U	non-wetland	46.263844	-99.686710
504U	non-wetland	46.264378	-99.694249
505U	non-wetland	46.264428	-99.697405
506U	non-wetland	46.219425	-99.604964
507U	non-wetland	46.324162	-99.654942
503U	non-wetland	46.226497	-99.607868

1. "Non-WOTUS" points that lacked wetland or waterbody characteristics and were composed of upland vegetation.

2. Wetlands delineated in 2020, 2021, 2022, and spring 2024 are presented in Atwell (2022), Flaig (2022), Chodachek and Welsch (2024), and Chodachek and Hammer (2024) reports.

Appendix C. US Army Corps of Engineers Great Plains Regional Datasheets for Wetland Delineations, October 15-18 and November 18, 2024, within the 2024 Fall Wetland Survey Area of the Badger Wind Project in Logan and McIntosh Counties, North Dakota.

[Data Sheets Omitted]

Appendix D. Select Wetland and Upland Point Photographs within the 2024 Fall Wetland Survey Area of the Badger Wind Project in Logan and McIntosh Counties, North Dakota.

Appendix D1. Wetland WET2009 facing north.

Appendix D2. Wetland WET2008 facing northeast.

Appendix D3. Upland point 206U facing east.

Appendix D4. Upland point 207U facing south.

STATE OF NORTH DAKOTA

PUBLIC SERVICE COMMISSION

BADGER WIND, LLC **Case No. PU-24-087**
AMEND – BADGER WIND PROJECT
SITING APPLICATION – MCINTOSH AND
LOGAN COUNTIES, NORTH DAKOTA

CERTIFICATE OF SERVICE

Alicia P. LaValla, being first duly sworn, does depose and state that on April 9, 2025, this Certificate of Service and true and correct copies of the following documents:

1. Filing Letter;
2. Certification of Melissa Peterson, with accompanying Exhibits:
3. Certification Exhibit A – Comparison Map;
4. Certification Exhibit B – Current Project Layout Map;
5. Certification Exhibit C – Sound Assessment Update Tech Memorandum;
6. Certification Exhibit D – Class III Archaeological Survey Report (Addendum Fall 2024 Fieldwork) (dated December 10, 2024) (public version only);
7. Certification Exhibit D-1 – State Historical Society of North Dakota Acceptance Letters; and
8. Certification Exhibit E – Fall 2024 Wetland and Waterbody Delineation Report (dated March 31, 2025)

were sent by e-mail to:

Steven Kahl
Executive Secretary
North Dakota Public Service Commission
600 E. Boulevard, Dept. 408
Bismarck, ND 58505-0480
ndpsc@nd.gov

Rob Frank
Utility Financial Analyst, Public Utilities Division
North Dakota Public Service Commission
600 E Boulevard Ave, Dept 408
Bismarck, ND 58505-0480
rfrank@nd.gov

Mr. Kevin Pranis
Marketing Manager
LIUNA Minnesota & North Dakota
81 E. Little Canada Road
St. Paul, MN 55117
kpranis@liunagroc.com

and were sent via Federal Express to:

Steven Kahl
Executive Secretary
North Dakota Public Service Commission
600 E. Boulevard, Dept. 408
Bismarck, ND 58505-0480
(an original and four (4) copies)

/s/ Alicia P. LaValla
Fredrikson & Byron, P.A.
60 South Sixth Street, Suite 1500
Minneapolis, MN 55402