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February 10, 2023

Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, N.E., Room 1A
Washington, D.C. 20426

Re: WBI Energy Transmission, Inc.
Wahpeton Expansion Project
Docket No. CP22-466-000
FERC/EIS-0325D

Dear Ms. Bose:

WBI Energy Transmission, Inc. (WBI Energy), herewith offers its response to certain comments submitted to the Federal Energy Regulatory Commission regarding the November 2022 Draft Environmental Impact Statement for the Wahpeton Expansion Project in the above referenced docket.

Pursuant to 18 CFR § 385.2010 of the Commission's regulations, copies of responses are being served to each person whose name appears on the official service list for this proceeding.

Any questions regarding this filing should be addressed to the undersigned at (701) 530-1563.

Sincerely,

/s/ Lori Myerchin

Lori Myerchin
Director, Regulatory Affairs and
Transportation Services

Attachments

cc: via email
David Hanobic, FERC Project Manager
Dawn Ramsey, FERC
Douglas Mooneyhan, Stantec
Lavinia DiSanto, Stantec
Official Service List

CERTIFICATE OF SERVICE

I hereby certify that I have this day served the foregoing document upon each person designated on the official service list compiled by the Secretary in this proceeding.

Dated this 10th day of February 2023.

By /s/ Lori Myerchin
Lori Myerchin
Director, Regulatory Affairs and
Transportation Services
WBI Energy Transmission, Inc.
1250 West Century Avenue
Bismarck, ND 58503
Telephone: (701) 530-1563

WBI Energy Transmission, Inc.
Wahpeton Expansion Project
Docket No. CP22-466-000

Responses to Comments on the Draft Environmental Impact Statement

The Federal Energy Regulatory Commission (FERC) received comments on the Draft Environmental Impact Statement (Draft EIS) issued on November 3, 2022 from Jolene/Kelly/Brady Miller, the North Dakota Department of Water Resources (ND DWR), and the U.S. Environmental Protection Agency (USEPA). WBI Energy is responding to certain comments to provide additional information or clarity that may help FERC staff in developing the Final Environmental Impact Statement.

Miller – Pipeline Burial Depth

The Department of Transportation – Pipeline and Hazardous Materials Safety Administration's safety regulations (49 CFR 192.327) require pipelines located in Class I areas to have 30 inches of cover over the pipeline. Resource Report 8 states that in agricultural areas "the proposed pipeline will be installed with a minimum depth of cover of 48 inches to allow for continued agricultural use." WBI Energy will continue to work with landowners to consider requested alternate pipeline burial depths.

ND DWR – Floodplain Permitting

WBI Energy identified floodplain permits that would be needed from Mapleton Township and Normanna Township as shown in Table 1.8-1, Environmental Permits, Approvals and Consultations in Resource Report 1 and supplemental filing updates of this table. WBI Energy plans to work with local zoning departments/floodplain administrators to obtain applicable floodplain approvals, where needed, prior to construction.

ND DWR – Sheyenne River, Red River, and Bois De Sioux River Permitting

WBI Energy identified in section 2.2.1 of Resource Report 2 that crossing the Sheyenne River will require a Navigable Water Crossing Permit and included this permit in Table 1.8-1, Environmental Permits, Approvals and Consultations in Resource Report 1 and supplemental filing updates of this table. The Project does not cross the Red River or Bois De Sioux River, and therefore does not require a Navigable Water Crossing Permit for these waterbodies. WBI Energy plans to submit the necessary Navigable Water Crossing application to gain the necessary permit associated with the Sheyenne River prior to construction.

ND DWR – Wetlands and Surface Drainage Permit

WBI Energy has submitted a Pre-Construction Notification to the USACE for verification of coverage under Nationwide Permit 12 (NWP 12) for Oil or Natural Gas Pipeline Activities under Section 404 of the Clean Water Act associated with wetland/waterbody impacts. The Project has been designed to avoid and minimize wetland/waterbody impacts to the maximum extent practicable. Temporary wetland impacts would consist of approximately 11.09 acres that will be rehabilitated post-construction. Less than 0.1 acre of two forested wetland areas would be permanently converted to herbaceous wetlands and less than 0.01 acre of permanent wetland fill (wetland wria003e) is proposed to widen a permanent access road. Based on the temporary fill, small amount of permanent fill necessary, and the use of trench plugs,

as necessary, to prevent the inadvertent draining of wetlands, it is not anticipated that a surface draining permit would be applicable.

ND DWR – Water Appropriation Permit

As discussed in Section 2.2.4 of Resource Report 2, surface water withdrawals for construction related activities (i.e. dust suppression, hydrostatic testing, drilling mud) will be needed for the Project. WBI Energy identified a Temporary Water Appropriation Permit would be needed in Table 1.8-1, Environmental Permits, Approvals and Consultations in Resource Report 1 and supplemental filing updates of this table. WBI Energy plans to obtain the necessary Temporary Water Appropriation Permit for the use of water prior to construction.

USEPA – Emissions by Construction Phase

Unlike construction of compressor stations, liquefied natural gas facilities, or other non-linear facilities, Resource Report 1 explains that construction of pipelines involves a series of discrete activities conducted in a linear sequence. These include survey and staking; right-of-way clearing and grading; pipe stringing, bending, and welding; trenching; lowering-in and backfilling; hydrostatic testing; final tie-in; commissioning; and right-of-way cleanup and restoration. As such, individual construction crews may be located in any individual location along the pipeline for just a few days or less. Consistent with FERC's minimum filing requirements, FERC's Guidance Manual for Environmental Report Preparation, and other natural gas projects reviewed by FERC, WBI Energy provided detailed construction emission estimates broken down by county and facility type and used EPA's MOVES model to estimate emissions and determined emissions would not be significant across the 60.5-mile long pipeline project. Further breakdown of the emissions estimates will not provide additional clarity of the potential extent of air quality impacts that could be expected from construction of the Project.

USEPA – Emissions from Mapleton Compressor Station

The Mapleton Compressor Station is an existing facility that was previously reviewed and authorized by FERC as part of the Valley Expansion Project under Docket No. CP17-257-000. Section 1.1.2.2 of Resource Report 1 explains that the Project begins at the existing Mapleton Compressor Station and will include minor modifications to allow for the tie-in of the Project pipeline to WBI Energy's existing transmission system within the compressor station boundaries. Section 9.1.4 of Resource Report 9 states that the Project does not include any new emission sources at the compressor station and therefore results in no change to the overall potential emissions or existing air permitting of the station. Since the Project results in no changes to operating emissions at the compressor station, none were presented in the environmental report for the Project.

USEPA – Dispersion Modeling

WBI Energy clarifies that the reference to performing dispersion modeling in Resource Report 9 was in error. No dispersion modeling was required or has been performed associated with the Project and WBI Energy agrees with the USEPA that FERC should delete references to dispersion modeling in the Final EIS.

USEPA – Guided Bore Contingency

WBI Energy provided a Guided Bore Drilling Fluid Monitoring and Operations Plan as Appendix 1F-2 to Resource Report 1. This plan includes WBI Energy's response methods in the event of an inadvertent return and contingency measures in the event a drill fails, including selection of a new drill path or considering alternate crossing measures. WBI Energy's plan explains that abandonment procedures and alternative crossing measures will be discussed with appropriate permitting and regulatory agencies and required approvals will be obtained prior to implementing alternative crossing measures.

USEPA – Waterbody Crossing Methodology

On December 22, 2022, WBI Energy provided updated information on waterbody crossings based on additional field surveys performed in 2022 and adopted minor project workspace adjustments and a reroute included in the Draft EIS. While performing consistency checks with revised alignment sheets requested in FERC's Environmental Information Request issued on January 20, 2023, WBI Energy identified an inconsistency in crossing method for two waterbodies in Table 2.2-2 – Waterbodies Crossed by the Project. Waterbodies srie006i and srie005i at milepost 34.5 will be crossed via a guided bore. These errors are corrected in the revised Table 2.2-2 below.

Of the 19 waterbodies crossed by the Project pipeline, 18 will be bored. One waterbody (srid001e) runs parallel and within the edge of the Project construction workspace but is not crossed by the pipeline. The guided bore method will avoid most direct and indirect impacts on aquatic resources and adjacent habitats. The one minor waterbody (srid001e) within the edge of construction workspace is a roadside ditch that does not support high quality aquatic habitat or resources. Regardless, per Section V.B.7.a of FERC's *Wetland and Waterbody Construction and Mitigation Procedures* (Procedures), all instream construction activities will be completed within 24 hours and waterbody banks will be stabilized and temporary sediment barriers installed within 24 hours of completing instream construction. If the waterbodies are dry at the time of crossing, stream bed and bank stabilization will be completed before returning flow to the waterbody channel.

As identified in in Table 1.8-1, Environmental Permits, Approvals and Consultations in Resource Report 1 and supplemental filing updates of this table, WBI Energy has submitted a Pre-Construction Notification to the USACE for verification of coverage under Nationwide Permit 12 (NWP 12) for Oil or Natural Gas Pipeline Activities under Section 404 of the Clean Water Act associated with wetland/waterbody impacts and will apply with applicable provisions of the NWP 12.

To prevent or minimize the potential impact on wetlands and waterbodies from spills/leaks, Section 2.1.2 of WBI Energy's Spill Prevention, Control, and Countermeasure Plan (provided as appendix 1F-1 to Resource Report 1), states that all machinery will arrive on the right-of-way in a clean, washed condition and free of fluid leaks. WBI Energy's *Aquatic Nuisance Species Prevention Plan* (provided as appendix 3B to Resource Report 3) and *Noxious Weed management Plan* (provided as appendix 3C to Resource Report 3), include additional measures for inspection and cleaning of construction equipment.

TABLE 2.2-2

Wahpeton Expansion Project
Waterbodies Crossed by the Project [a]

MP	Unique ID	Waterbody Name [b]	North Dakota Water Quality Classification [c]	Flow Regime [d]	Crossing width (feet) [e]	Pipeline Crossing Method [f]
HUC 12 Watershed 090202050704						
1.2	scad001p	Maple River	Class II	PN	79	Bore
HUC 12 Watershed 090202050603						
3.9	scaa002e	Unnamed tributary to the Maple River	Class III	E	13	Bore
5.9	scaa003e	Roadside ditch	Class III	E	<10	Bore
HUC 12 Watershed 090202040605						
10.7	scab001e	Roadside ditch	Class III	E	<10	Bore
10.7	scae002i	Roadside ditch	Class III	I	<10	Bore
15.7	scae004e	Roadside ditch	Class III	E	<10	Bore
HUC 12 Watershed 090202040604						
19.7	scab005e	Roadside ditch	Class III	E	<10	Bore
23.3	scae003e	Roadside ditch	Class III	E	<10	Bore
HUC 12 Watershed 090201051005						
24.1	scab006p	Sheyenne River	Class IA	PN	42	Bore
HUC 12 Watershed 090201051005						
29.3	sria001e	Roadside ditch	Class III	E	<10	Bore
34.5	srie006i	Roadside ditch	Class III	I	<10	Bore
34.5	srie005i	Roadside ditch	Class III	I	<10	Bore
HUC 12 Watershed 090201051004						
39.9	sria002e	Unnamed ditch	Class III	E	<10	Bore
41.0	sric002p	Unnamed tributary to Wild Rice River	Class III	PN	23	Bore
HUC 12 Watershed 090201051001						
45.0	srid002p	Pitcairn Creek	Class III	PN	15	Bore
47.4	srid001e	Roadside ditch	Class III	E	<10	NA[g]
HUC 12 Watershed 090201050907						
50.9	srie004p	Antelope Creek	Class II	PN	27	Bore
HUC 12 Watershed 090201050805						
51.1	srid003p	Wild Rice River	Class II	PN	297	Bore
HUC 12 Watershed 090201050805						
58.0	srie001e	Roadside ditch	Class III	E	<10	Bore
Access Roads						
HUC 12 Watershed 090202040605						
8.8	scaa004e	Roadside ditch	Class III	E	<10	NA
HUC 12 Watershed 090202040604						

TABLE 2.2-2

Wahpeton Expansion Project
Waterbodies Crossed by the Project [a]

19.7	scab005e	Roadside ditch	Class III	E	<10	NA
HUC 12 Watershed 090201051005						
29.3	sria001e	Roadside ditch	Class III	E	<10	NA
HUC 12 Watershed 090201051001						
47.3	srid001e	Roadside ditch	Class III	E	<10	NA
Facilities						
Wahpeton City Yard						
HUC 12 Watershed 090201040401						
60.5	srie003e	Roadside ditch	Class III	E	<10	NA

[a] Based on the data from Project field surveys to date, USGS mapping, National Hydrography Dataset data, the North Dakota State Water Commission's geographic information system data viewer, and review of aerial photographs.
[b] Waterbody names are based on USGS topographic maps.
[c] See section 2.2.2 below for category definitions (NDDEQ, 2020e). None of the Class III streams are specifically identified in the Stream Classifications Table located in Appendix I of the NDDEQ Standards of Quality for Waters of the State and are classified as Class III as a default based on specifications included in that appendix.
[d] Based on field surveys, National Hydrography Dataset designations, and/or aerial photography interpretation for unmapped streams:
PN = Perennial
E = Ephemeral
NA = Not applicable (USACE, 2012).
[e] Approximate width based on field surveys and/or estimated from aerial photography. Where National Hydrography Dataset data have been used to supplement areas where surveys are not complete an assumed less than 10-feet-wide has been used for all intermittent National Hydrography Dataset features.
[f] Refer to Resource Report 1, section 1.3.2.1, for detailed descriptions of each crossing method.
[g] Waterbody in workspace, but not crossed by centerline.

USEPA – Wetland Surveys

WBI Energy completed additional field surveys in 2022 covering portions of the Project workspace that had not been surveyed in 2021 and covering the adopted minor project workspace adjustments and reroute identified in WBI Energy's December 22, 2022 Supplemental Information filing. WBI Energy has now surveyed 100 percent of the project workspaces. An Addendum Wetland and Waterbody delineation report was provided to USACE and is included as Attachment 1 to this comment response filing.

USEPA – Wetland Crossings via Guided Bore

On December 22, 2022, WBI Energy provided updated information on wetland crossings based on additional field surveys performed in 2022 and adopted minor project workspace adjustments and a reroute included in the Draft EIS. While performing consistency checks with revised alignment sheets requested in FERC's Environmental Information Request issued on January 20, 2023, WBI Energy identified an inconsistency in crossing method for three wetlands in Table 2E - Wetlands Crossed or

Otherwise Affected by the Project. Wetlands wca001e and wca006e were identified as open cut and will be crossed via guided bore, and wetland wcaa005e was identified as guided bore and will be crossed via open cut. These errors are corrected in the revised Appendix 2E table below. Acreages of impact reported are not affected by these labeling errors.

Based on the updated wetland crossing information, the Project pipeline will now cross 22 wetlands via guided bore, 20 wetlands via open cut, and 1 wetland is partially crossed via guided bore and partially crossed via open cut (see the revised Appendix 2E table below).

The Project has been designed to avoid and minimize impacts to wetlands, streams, and other waterbodies to the extent practicable. In addition, wetlands and water resource open cut crossings have been designed to meet NWP 12 permit conditions and WBI Energy will minimize impacts on wetlands by implementing measures identified in the FERC Procedures which are designed to effectively minimize and mitigate impacts on wetlands.

USEPA assumes that constraints exist necessitating open cut crossing of some wetlands. Instead, other constraints exist along the pipeline route (e.g. road crossings) supporting WBI Energy's selection of the guided bore method. In feasible instances where wetlands are adjacent to the guided bore crossing of another feature, the guided bore was beneficially extended to also encompass the wetland crossing. Use of the open cut construction method while implementing the measures identified in the FERC Procedures is an acceptable and reasonable method of crossing Project wetlands.

The majority of wetlands identified within the Project workspace consist of low-quality PEM communities. The PEM wetlands will be restored to their original grade and re-seeded per the requirements in the FERC Procedures.

The Project will cross two forested wetlands (wrib020f and wrib014f), which provide a more useful source of wildlife habitat than the PEM wetlands. Wetland wrib014f is a relatively low-quality forested wetland and tree clearing will be limited to what is necessary to access the workspace, and no stump removal will occur outside of the trench. The majority of wetland wrib020f is outside of the permanent right-of-way and will not be permanently converted to a PEM wetland as a result of pipeline installation.

APPENDIX 2E
Wahpeton Expansion Project
Wetlands Crossed or Otherwise Affected by the Project [a, b]

Wetland ID	Cowardin Classification	Milepost	Centerline Distance Crossed (feet)	Construction Impact (acres)	Operation Impact [c] (acres)	Proposed Crossing Method
PIPELINE FACILITIES						
wcaa002e	PEM	4.9	54.1	0.09	0.00	Guided Bore
wcaa010e	PEM	5.1	11.6	0.01	0.00	Guided Bore
wcaa011e	PEM	5.2	10.5	0.01	0.00	Guided Bore
wcaa003e	PEM	5.9	32.0	0.04	0.00	Guided Bore
wcaa004e	PEM	6.0	24.0	0.04	0.00	Guided Bore
wcaa001e	PEM	6.6	14.7	0.02	0.00	Guided Bore
wcaa005e	PEM	8.9	48.4	0.08	0.00	Open Cut
wcaa006e	PEM	10.0	88.4	0.11	0.0	Guided Bore

APPENDIX 2E
Wahpeton Expansion Project
Wetlands Crossed or Otherwise Affected by the Project [a, b]

Wetland ID	Cowardin Classification	Milepost	Centerline Distance Crossed (feet)	Construction Impact (acres)	Operation Impact [c] (acres)	Proposed Crossing Method
wcab001e	PEM	13.7	0.0	<0.01	0.00	Open Cut
wcab003e	PEM	13.7	0.0	0.07	0.00	Guided Bore
wcab002e	PEM	13.9	0.0	<0.01	0.00	Guided Bore
wcae006e	PEM	14.7	58.6	0.06	0.00	Guided Bore
wcab004e	PEM	14.7	21.5	0.06	0.00	Guided Bore
wcab005e	PEM	15.7	12.0	0.02	0.00	Guided Bore
wcab008e	PEM	18.8	29.1	0.05	0.00	Guided Bore
wrie009e	PEM	27.6	9.4	0.02	0.00	Guided Bore
wria002e	PEM	28.3	17.2	0.05	0.00	Guided Bore
wria003e	PEM	31.3	11.4	0.05	0.00	Guided Bore
wria004e	PEM	31.4	14.6	0.02	0.0	Guided Bore
wrib001e	PEM	32.1	164.8	0.31	0.00	Open Cut
wrae002e	PEM	32.6	0.0	0.14	0.00	Open Cut
wrib003e	PEM	32.6	385.6	0.62	0.00	Open Cut
wrib005e	PEM	32.9	88.1	0.13	0.00	Open Cut
wrib006e	PEM	33.2	38.2	0.06	0.00	Open Cut
wrib007e	PEM	33.5	376.9	0.88	0.00	Open Cut
wrib013e	PEM	34.1	103.3	0.21	0.00	Open Cut
wrib014f	PFO	34.2	178.3	0.25	<0.10[d]	Open Cut
wrib014e	PEM	34.3	214.7	0.38	0.00	Open Cut
wrib021e	PEM	34.5	821.3	1.62	0.00	Open Cut
wrib015e	PEM	35.6	14.4	0.02	0.00	Guided Bore
wrib016e	PEM	35.6	22.7	0.04	0.00	Guided Bore
wrib017e	PEM	35.7	368.0	0.67	0.00	Open Cut
wrib018e	PEM	35.8	245.1	0.36	0.00	Open Cut
wrib020f	PFO	36.0	0.0	0.10	<0.10[d]	Open Cut
wrib020e	PEM	36.0	96.3	0.09	0.00	Open Cut
wrib019e	PEM	36.0	586.2	1.18	0.00	Guided Bore/Open Cut
wria006e	PEM	36.3	463.4	0.81	0.00	Open Cut
wria005e	PEM	37.8	12.4	0.02	0.00	Open Cut
wria009e	PEM	42.4	10.8	0.02	0.00	Guided Bore
wria008e	PEM	42.4	15.7	0.03	0.00	Guided Bore
wrid004e	PEM	51.9	23.3	0.04	0.00	Guided Bore
wrie010e	PEM	55.8	30.7	0.05	0.00	Open Cut
wrie008e	PEM	60.2	0.0	0.09	0.00	Open Cut
	SUBTOTAL			**8.94**	**<0.10**	
ACCESS ROADS						
wcaa009e (TAR 005)	PEM	5.1	NA	0.11	0.00	NA
wcae008e (TAR 012)	PEM	8.8	NA	<0.01	0.00	NA

APPENDIX 2E
Wahpeton Expansion Project
Wetlands Crossed or Otherwise Affected by the Project [a, b]

Wetland ID	Cowardin Classification	Milepost	Centerline Distance Crossed (feet)	Construction Impact (acres)	Operation Impact [c] (acres)	Proposed Crossing Method
wcab003e (TAR 018)	PEM	13.7	NA	0.01	0.00	NA
wcab004e (TAR 019)	PEM	14.7	NA	0.01	0.00	NA
wcae003e (TAR 020)	PEM	16.2	NA	<0.01	0.00	NA
wcae004e (TAR 024.1)	PEM	20.1	NA	<0.01	0.00	NA
wria003e (PAR 034)	PEM	31.3	NA	<0.01	<0.01	NA
wrib021e (TAR 038)	PEM	34.5	NA	0.26	0.00	NA
wrae005e (TAR 046)	PEM	43.4	NA	<0.01	0.00	NA
wria010e (TAR 046)	PEM	43.4	NA	<0.01	0.00	NA
wria014e (TAR 046.1)	PEM	44.2	NA	<0.01	0.00	NA
wrae006e (TAR 047)	PEM	44.9	NA	<0.01	0.00	NA
wrae007e (TAR 048)	PEM	45.0	NA	<0.01	0.00	NA
wrid001e (TAR 049)	PEM	46.3	NA	<0.01	0.00	NA
wrid003e (TAR 051)	PEM	47.3	NA	<0.01	0.00	NA
	SUBTOTAL			**0.46**	**<0.01**	
PIPE YARDS						
COMSTOCK YARD						
wrib026e	PEM	NA	NA	0.04	0.00	NA
KOST YARD						
wcab010e	PEM	NA	NA	1.65	0.00	NA
	SUBTOTAL			**1.69**	**<0.10**	
	TOTAL			**11.09**	**<0.10**	

[a] This table is based on field survey delineation data. Operational impact acreages are based on permanent impact from fill or conversion of wetlands. This table (and other tables from Resource Report 2) is not comparable to Resource Report 3 – vegetation tables which are based on land use categorizations to identify the vegetation types that exist within the construction and operational footprint of the Project.
Also, the numbers in this table have been rounded for presentation purposes. As a result, the subtotals and totals may not reflect the exact sum of the addends in all cases.

[b] NA = not applicable
PEM = Palustrine emergent wetland
PFO = Palustrine forested wetland
PSS = Palustrine scrub shrub wetland

[c] All PEM wetlands, with the exception of wria003e, will be restored to their herbaceous state.

[d] Permanent woody vegetation removal in PFO will occur in the 10-foot wide permanent pipeline easement. The permanent removal of woody vegetation will constitute a wetland conversion of PFO to PEM wetland.

USEPA – Wetland Monitoring

WBI Energy will comply with section VI.D. of the FERC Procedures which includes requirements to monitor and record the success of wetland revegetation annually until successful and to file a report with FERC identifying the status of wetland revegetation efforts and documenting the success.

USEPA – Ryegrass and Wetland Stabilization

Table 2.3-1 of Resource Report 2 states that PEM wetlands will be reseeded with a native emergent seed mix after construction. WBI Energy's stated that "disturbed areas within wetlands will be temporarily stabilized with a cover species such as annual ryegrass" in section 1.3.2.3 of Resource Report 1. The reference to ryegrass is an example of a temporary cover species but not a commitment to use that specific species. Throughout the Resource Reports, WBI Energy states that it will use seed mixes for the Project based on its consultation with the Natural Resources Conservation Service (NRCS).

USEPA – Compensatory Mitigation

WBI Energy included agency correspondence as Appendix 2F to Resource Report 2. This correspondence included meeting notes from a Pre-Permit Meeting between WBI Energy and USACE held on March 24, 2022. During this meeting, the USACE stated that compensatory mitigation is not likely to be required because the proposed permanent wetland conversion is less than 0.1 acre.

Attachment 1

Addendum Wetland and Waterbody Delineation Report

WBI Energy Transmission, Inc.

Wahpeton Expansion Project

Wetland and Waterbody Delineation Report

October 2022

The business of sustainability

ERM

Date	1 October 2022
Document details	The details entered below are automatically shown on the cover and the main page footer. PLEASE NOTE: This table must NOT be removed from this document.
Document title	Wahpeton Expansion Project
Document subtitle	Wetland and Waterbody Delineation Report
Project No.	0611161
Date	October 2022
Version	1.0
Author	ERM-West, Inc.
Client Name	WBI Energy Transmission, Inc.

CONTENTS

Attachments

List of Tables (in text)

Acronyms and Abbreviations

Name	Definition
ERM	ERM-West, Inc.
GPS	Global Positioning System
NHD	National Hydrography Dataset
NRCS	Natural Resource Conservation Service
NWI	National Wetlands Inventory
OHWM	ordinary high water mark
PEM	palustrine emergent wetland class
PFO	palustrine forested wetland class
Project	Wahpeton Expansion Project
PSS	palustrine scrub-shrub wetland class
USACE	US Army Corps of Engineers
USGS	US Geological Survey
WBI Energy	WBI Energy Transmission, Inc.

1. INTRODUCTION

WBI Energy Transmission, Inc. (WBI Energy), proposes to construct and operate the Wahpeton Expansion Project (Project) in Cass and Richland counties, North Dakota. The Project will consist of approximately 60.5 miles of new natural gas pipeline, minor modifications to the Mapleton Compressor Station, new delivery stations near Kindred and Wahpeton, block valve settings, and pig launcher/receiver settings. The Project may also include newly constructed lateral taps along the pipeline route, the locations of which have yet to be determined. ERM on behalf of WBI Energy, originally completed delineations and assessment of wetlands and waterbodies within the proposed pipeline construction corridor and other work areas during fall of 2021. During two separate mobilizations, one in June and a second in August 2022, ERM completed additional field assessments and delineations of wetlands and waterbodies along several route adjustments of the Project in Cass and Richland counties, North Dakota.

This report is an addendum to the original February 2022 report and it will be used to support permitting efforts for impacts to jurisdictional features regulated by the US Army Corps of Engineers (USACE) under Section 404 of the Clean Water Act. This report provides a description and summary of wetlands and waterbodies documented along the reroutes described above. In this addendum report, these newly surveyed reroute segments will be referred to as the Survey Area, which was generally 300 feet wide when following the pipeline reroute segments.

For a description of the physiography, geology, geomorphology, hydrology, and soil data crossed by the Project please refer to the original report dated February 2022, which also included Figures that illustrated desktop resources evaluated, including the National Hydrography Dataset (NHD) and National Wetlands Inventory (NWI), as well a map set that illustrates Natural Resource Conservation Service (NRCS) soil mapping units. This report includes an updated version of the aerial photo base maps that includes Project route and workspace, delineated wetlands and waterbodies, as well as NHD and NWI polygons utilized as reference during field surveys.

2. METHODS

Wetlands and waters were identified and delineated within Survey Area segments that covered the route adjustment segments that required survey during summer 2022. The Survey Area included a 300-foot-wide corridor typically centered on the proposed pipeline centerline, as well as the footprint of all aboveground facilities, access roads, and contractor yards.

Additional details that outline the desktop and field components of the delineation methods followed are described in the following sections.

2.1 Desktop Review

Prior to conducting field surveys, ERM completed a desktop review, including a broad overview of the environmental setting of the Survey Area, as well as a desktop evaluation of potential wetland and water features within the Survey Area to allow for further targeted assessment during field survey. The following data sources were reviewed in ArcGIS to identify areas that should be targeted in the field: high-resolution aerial photography, US Fish and Wildlife Service NWI data, US Geological Survey (USGS) NHD, NRCS Web Soil Survey data, and USGS topographic maps.

ERM reviewed high-resolution aerial photography and land cover data sets to identify areas with possible wetland signatures, and recent disturbances on the landscape that could influence the presence and extent of wetlands. For agricultural fields with potential farmed wetlands, the desktop review included reviewing the current year of aerial photography, as well as historic aerial photographs taken during notable wet years. Visual signatures noted during review included surface water, varying color changes in

vegetation, and isolated areas within farmland that were not successfully farmed due to poor drainage. In addition to areas identified on the aerial imagery, the field assessment also targeted features mapped by NWI and NHD, and any areas of hydric or partially hydric soils. Results of the desktop assessment were utilized to verify potential water resources either were or were not wetlands or waterbodies during field survey.

2.2 Field Survey

The field delineation was conducted from June 6 through 10 and August 15 through 17, 2022. A field team visited probable wetlands and waterbodies identified during the desktop review using resources outlined in section 2.1. Where wetlands or waterbodies were not present at these locations in the field, staff documented “non-water” points, including observations and photographs at these locations. Wetland boundaries, waterbody thalweg or banks, data collection points, open waterbody boundaries, and non-water points were recorded using a Trimble® R1 model GPS unit.

Each wetland or water feature documented within the survey limits was assigned a Project-specific unique identifier (Unique ID). Specific naming conventions were followed during field surveys in order to catalog each wetland and waterbody documented. Table 2-1 describes each part of the naming convention utilized to assign Unique IDs during field surveys.

Table 2-1: Wetland and Water Resource Naming Protocol for Unique IDs

Water Resource	Type	County	Field Crew Letter	Feature Number Example	Special Designation
Wetland	w = wetland	County initials (Cass = ca, Richland = ra)	Crew letter (e.g., a, b, c)	001, 002, 003, …	f = PFO [a] e = PEM [a] s = PSS [a] u = Upland point
Waterbody	s = stream o = open waterbody	County initials (Cass = ca, Richland = ri)	Crew letter (e.g., a, b, c)	001, 002, 003, …	Perennial [b] Intermittent [b] Ephemeral [b]
Non-water Point	no = non-water or non-wetland feature	County initials (Cass = ca, Richland = ri)	Crew letter (e.g., a, b, c)	001, 002, 003, …	Not applicable

[a] Wetland Classification / acronym based on Classification of Wetlands and Deepwater Habitats of the United States (Cowardin et al. 1979): PEM = Palustrine emergent; PFO = Palustrine forested; PSS = Palustrine scrub-shrub.

[b] Flow regime was determined in accordance with 33 Code of Federal Regulations (CFR) 330.

2.2.1 Wetlands

Wetlands were delineated using the USACE 1987 Manual (USACE 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region (Version 2.0)* (USACE 2012a). The field team completed wetland determination datasheets at sample points within each wetland community type making up the wetland or wetland complex, along with a minimum of one corresponding upland community sample point. A shared upland sample point was used for wetlands that were within close proximity to one another and had the same upland community type.

At each wetland or upland community sample point delineators documented the physical location of the sample point using the GPS, and documented observations of hydrology, soils, and vegetation at the sample point. Primary and secondary indicators of hydrology were documented according to the Regional Supplement. Soil profiles were documented to a depth to determine presence or absence of hydric soils at each sample point. Hydric soil indicators utilized to determine hydric soil presence included hydric soil

indicators described in *Field Indicators of Hydric Soils in the United States*, Version 8.2 (USDA-NRCS 2018). Observations of vegetation species and visual cover percentages were documented at each sample point. Hydrophytic vegetation indicator status was assigned using the *2020 National Wetland Plant List* (USACE 2020), and following the requirements of the Regional Supplement.

Wetland and water features were also classified using the *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et. al. 1979; referred to as the "Cowardin classification"). The following Cowardin classification types were assigned: palustrine emergent (PEM), palustrine scrub-shrub wetland (PSS), and palustrine forested (PFO).

2.2.2 Waterbodies

Waterbodies documented during field surveys were categorized according to their hydrology regimes. All waterbody data was documented on waterbody data sheets developed to document key physical and functional characteristics of waterbodies.

Linear or flowing waterbodies were identified as channelized landscape features possessing a bed and a bank in a concave landscape position where water flow resulted in a feature that possesses an ordinary high watermark (OHWM). Based on indicators of flow regime observed at the time of survey, linear waterbodies were spatially recorded with channel width and OHWM location according to the definitions provided by the USACE in the *Regulatory Guidance Letter No. 05-05: Ordinary High Water Mark Identification* (USACE 2005), and assigned a hydrology regime of perennial, intermittent, or ephemeral.

Similarly, non-flowing, open waterbody features were assigned one of the four Cowardin hydrology regime modifiers based on evidence of inundation/saturation recorded at the time of survey: permanently flooded, semi-permanently flooded, seasonally flooded, or temporarily flooded.

2.2.3 Non-Water Points

The field team documented non-water points to record NHD or NWI-mapped features that did not meet the required criteria of wetlands or waterbodies when assessed in the field (i.e., upland habitat). Non-water points were also used to document areas that were investigated as potentially meeting wetland criteria based on signatures observed during the desktop assessment, but were ultimately determined to be non-wetland areas during the field investigation. Delineators recorded observations, took photographs, and collected a GPS point at each non-water point to document that wetland biologists visited the point and determined that a wetland or waterbody was not present. USACE wetland delineation forms and waterbody data sheets were used to record information for non-water points.

3. RESULTS

ERM delineated and recorded 16 wetlands and 9 waterbodies within the Survey Area along route change segments. These wetlands and waterbodies are illustrated on Figure Set "Aquatic Resources Delineation Map" in Appendix A and listed in Tables B-1 and B-2 in Appendix B, including useful summary data: Project-specific Unique ID, location (latitude/longitude), acreage (wetlands), linear feet (waterbodies) within the Survey Area, and Cowardin classification or hydrology regime. Data forms and photographs of wetlands or waterbodies documented during the June and August 2022 fieldwork are provided in Appendix C. Photos and datasheets for non-water points can be provided upon request but are not currently included in Appendix C. During the survey, field conditions were "Normal" according to USACE's Antecedent Precipitation Tool (Deters. 2022).

3.1 Wetlands

A total of 16 wetland features (approximately 1.20 acres) were documented within the Survey Area, with all classified as palustrine emergent (herbaceous) wetlands (Table 2, Appendix B). Some of these wetlands are associated with intermittent and perennial steams, but the majority are found in depressions within agricultural fields or along roadside ditches and edges of agricultural fields. Dominant herbaceous wetland vegetation found in the Survey Area includes meadow cattail (*Alopecurus pratensis*), curly dock *(Rumex crispus*), and reed canary grass (*Phalaris arundinacea*).

3.2 Waterbodies

The acreage and characteristics of waterbodies surveyed within the Survey Area are summarized in Table 3, Appendix B. A total of 9 waterbody features (1.76 acres, 12,355 linear feet) were identified within the Survey Area, consisting of 3 intermittent and 5 ephemeral ditches, which primarily served as roadside or agricultural field drainage. One perennial waterway, Antelope Creek, was also identified. None of the waterbodies crossed by the Project are considered a Section 10 navigable water under the Rivers and Harbors Act (USACE 2012b).

4. CONCLUSIONS

During summer 2022, wetland and waterbody delineations for the Project were completed on newly added portions of the Project due to route changes. This report presents the results of these surveys documenting 16 wetlands and 9 waterbodies.

5. REFERENCES

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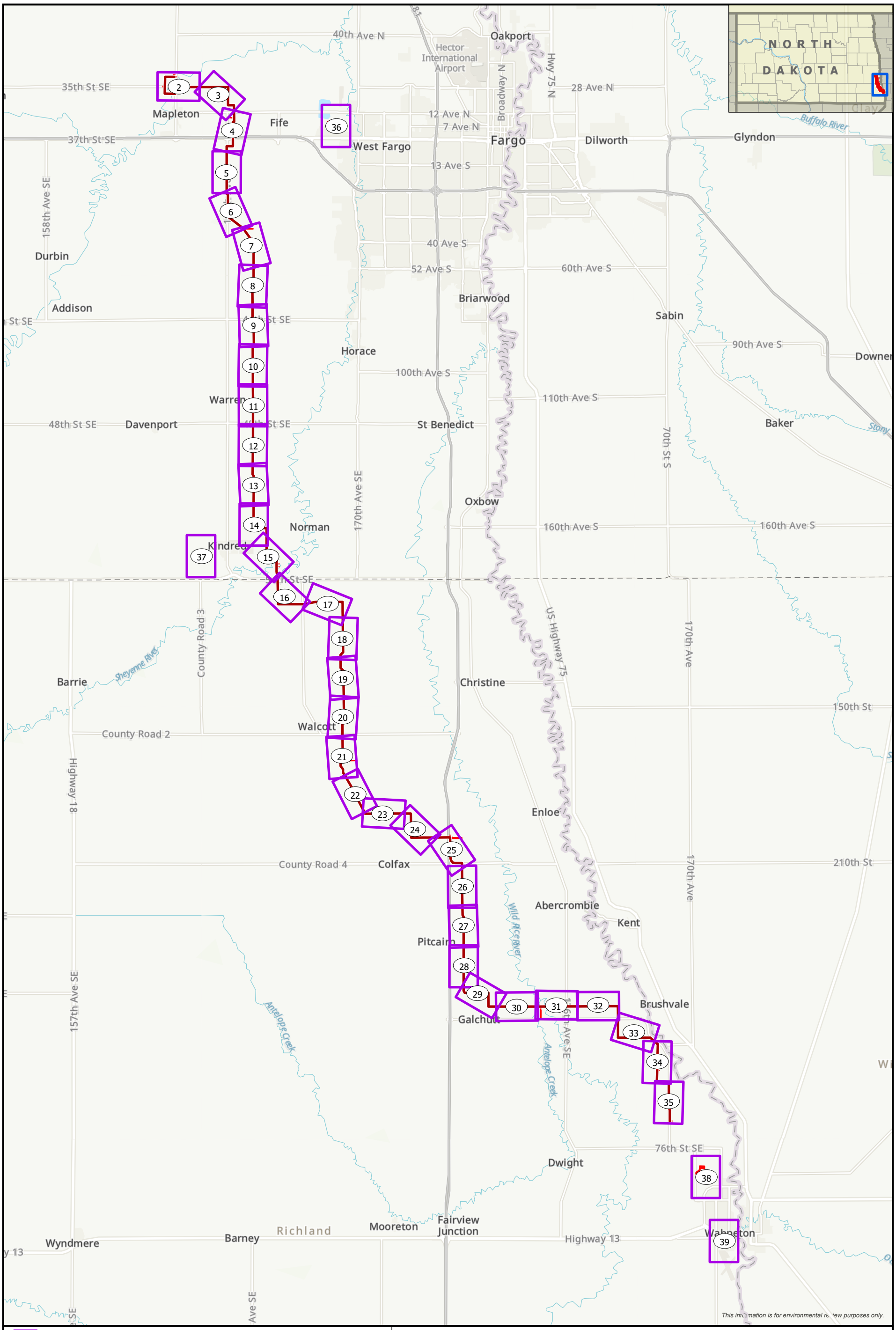
APPENDIX A AERIAL MAP SET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Davenport
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Baker
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Oxbow
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Walcott
Enloe
Colfax
Abercrombie
Kent
Pitcairn
Galchutt
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Richland
Mooreton
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Broadway N
Hwy 75 N
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Sheyenne River
Antelope Creek
Wild Rice River
Stony
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Page 1 of 39
Aquatic Resources Delineation Map
Wahpeton Expansion Project
WBI Energy Transmission, Inc.
Cass and Richland County, North Dakota
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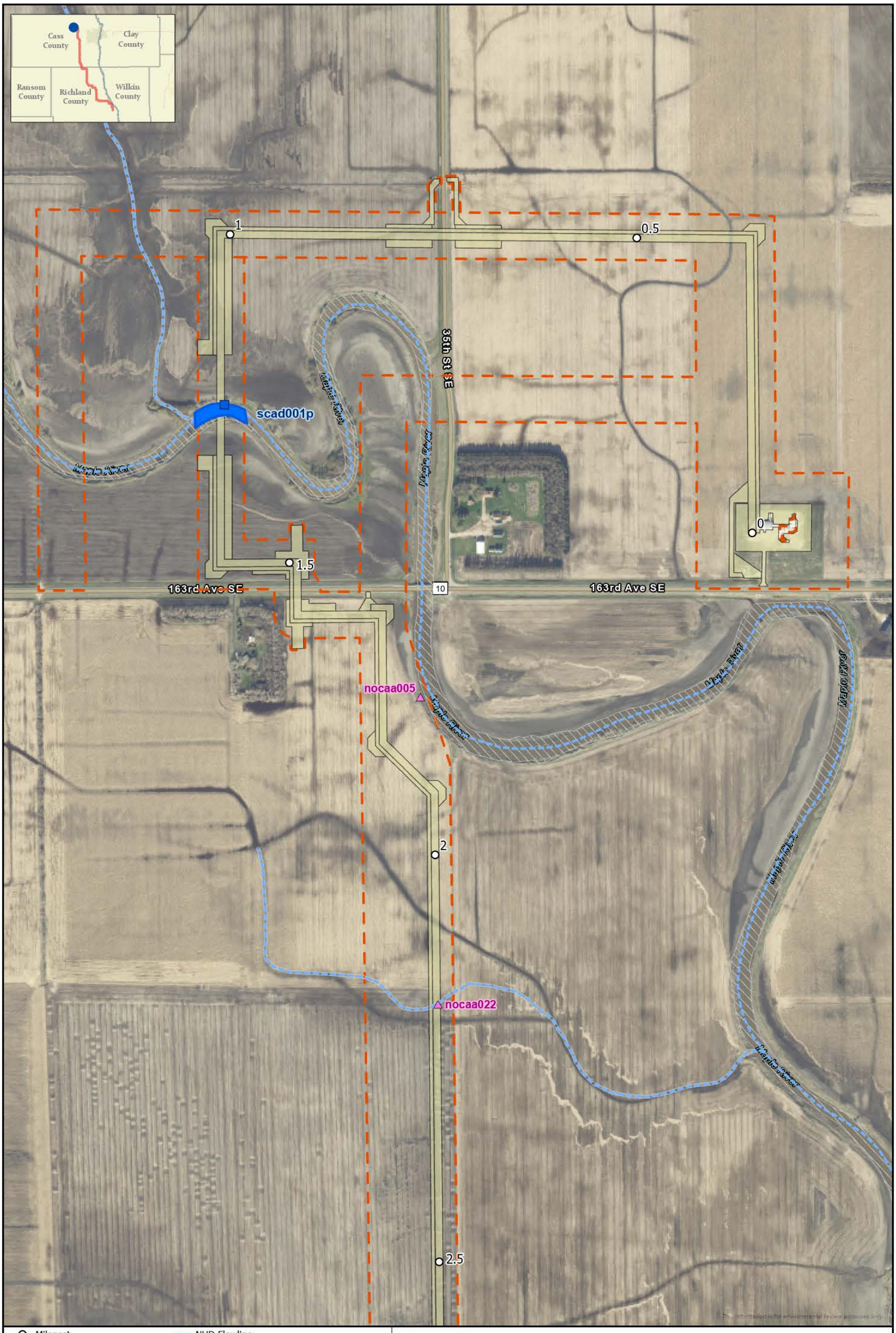

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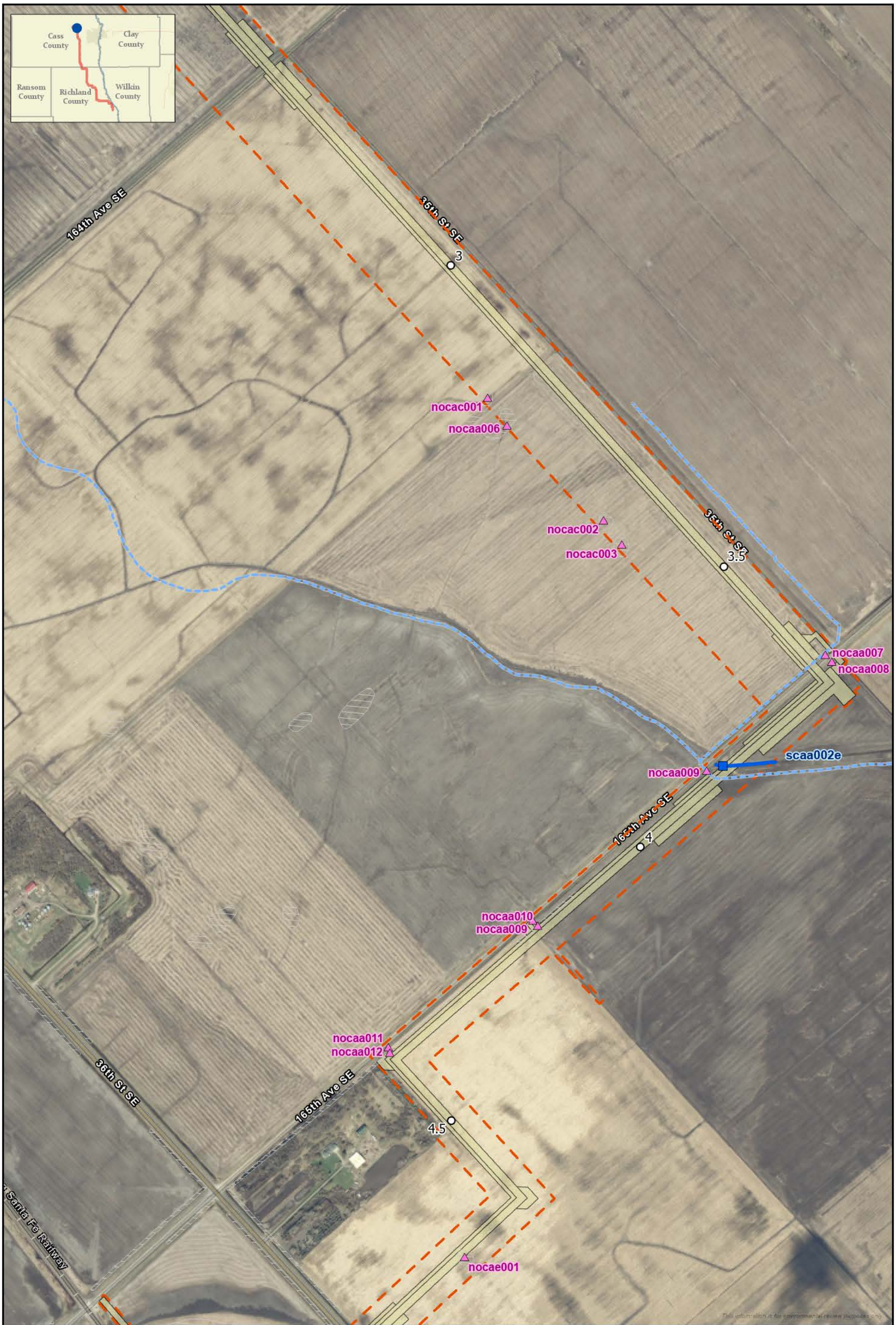
Aquatic Resources Delineation Map
Wahpeton Expansion Project
WBI Energy Transmission, Inc.
Cass County, North Dakota



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Cass County, North Dakota

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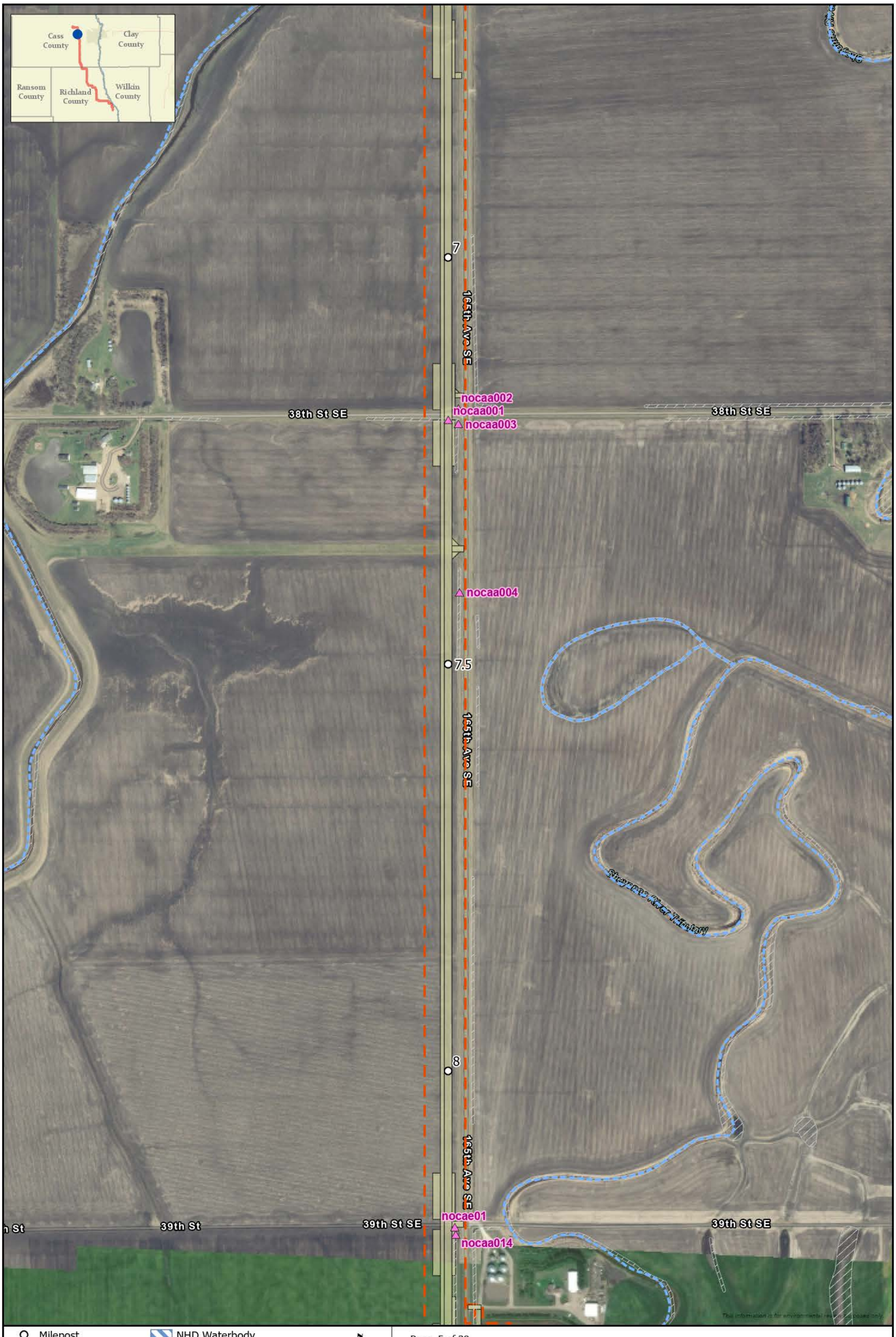

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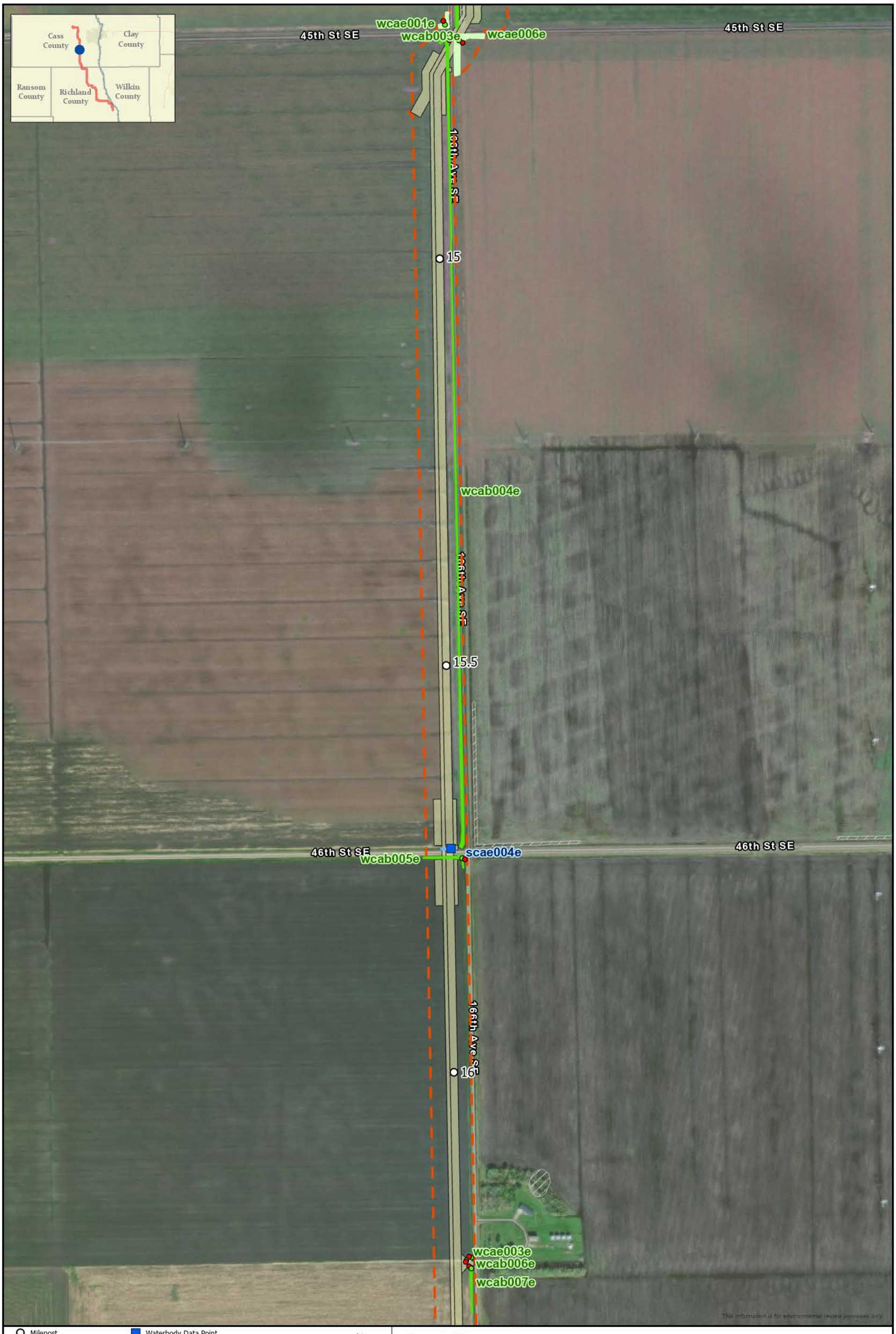

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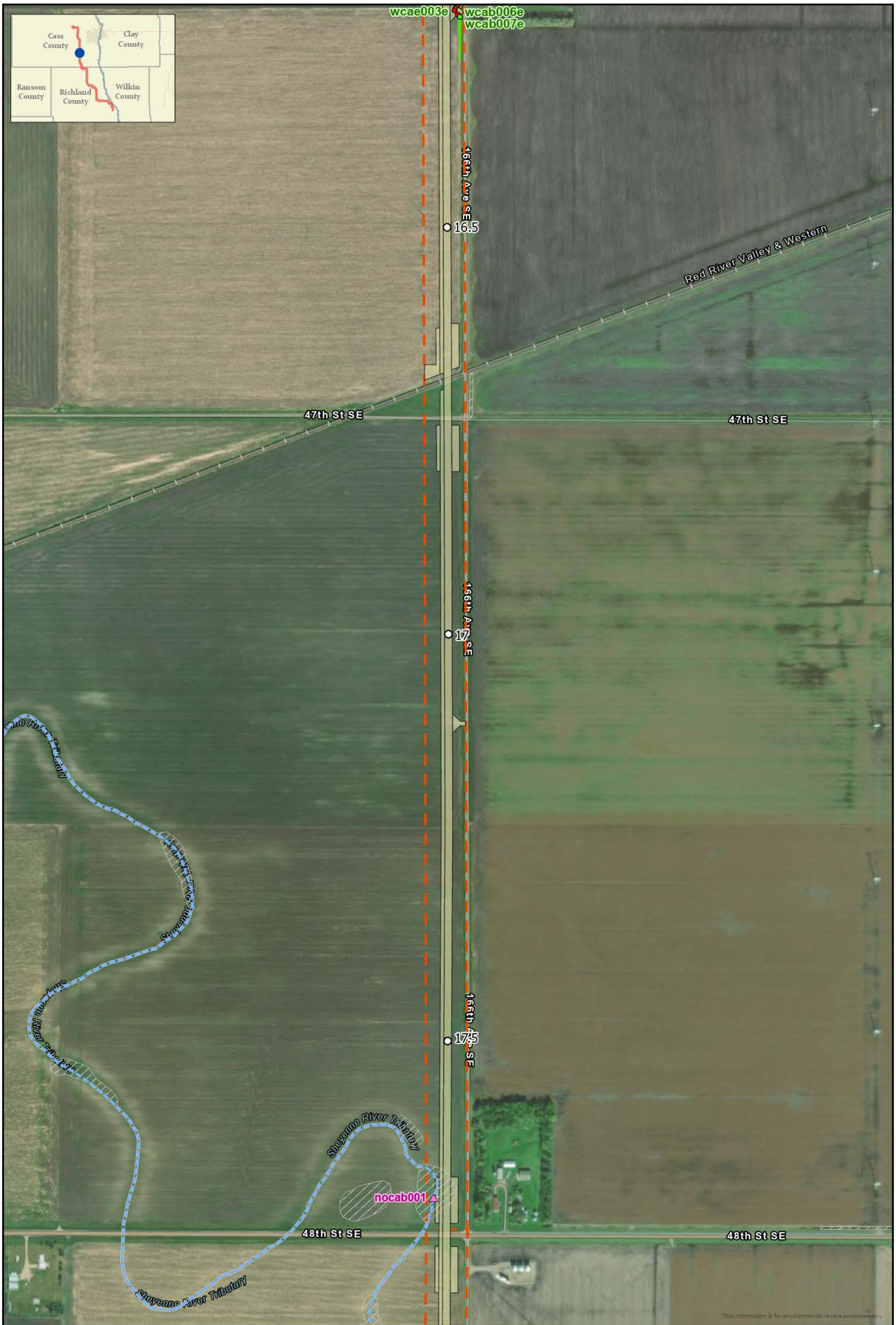

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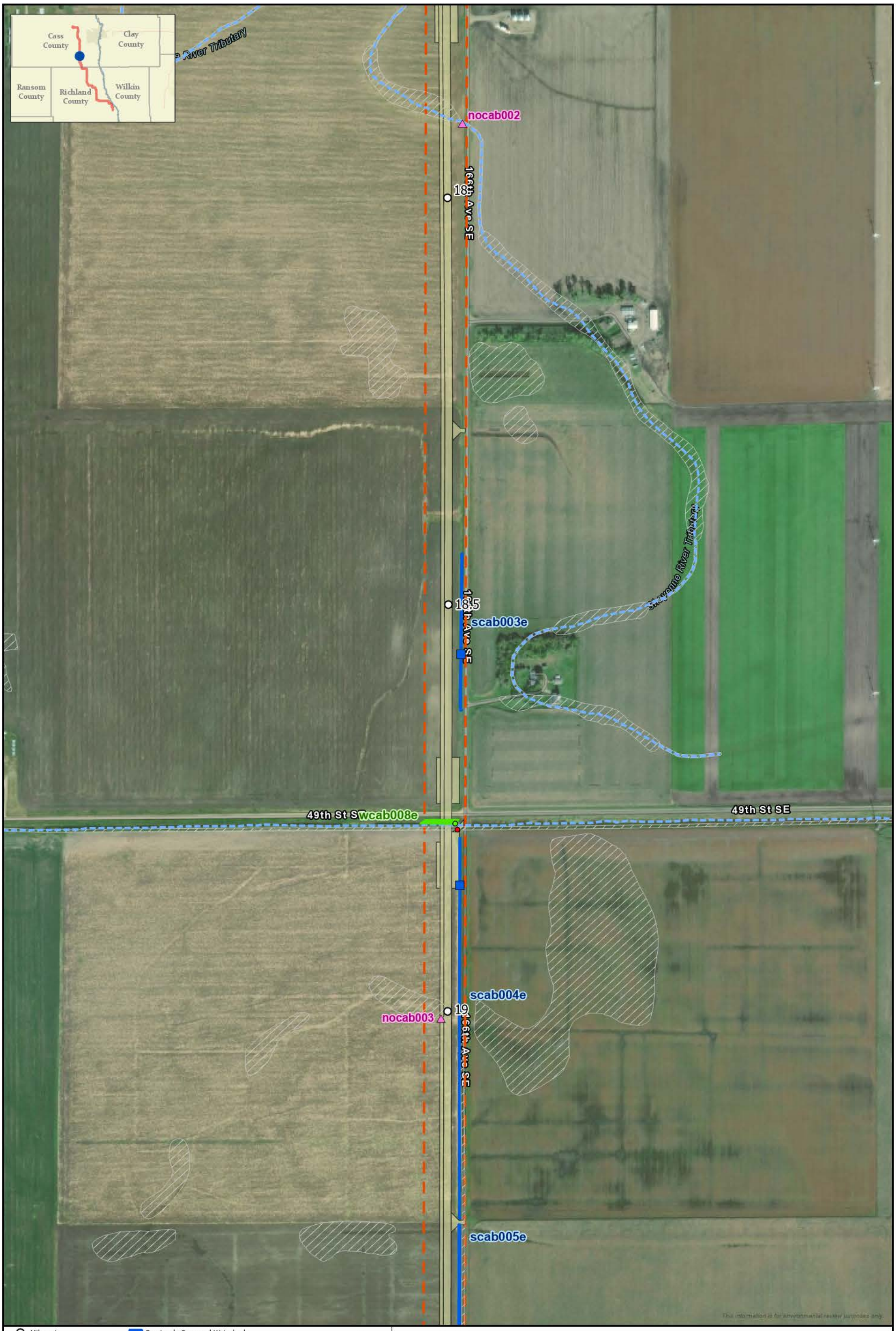

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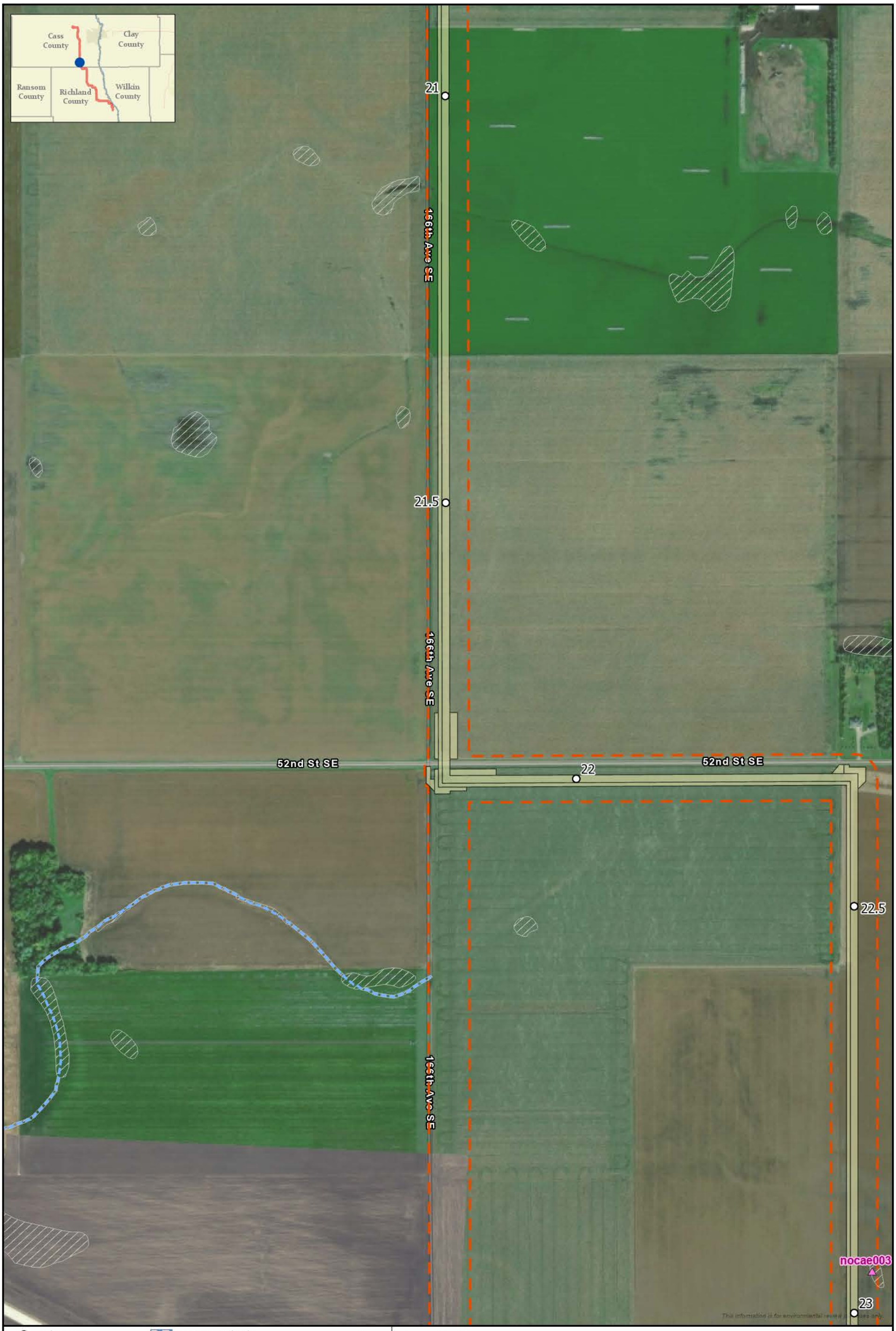

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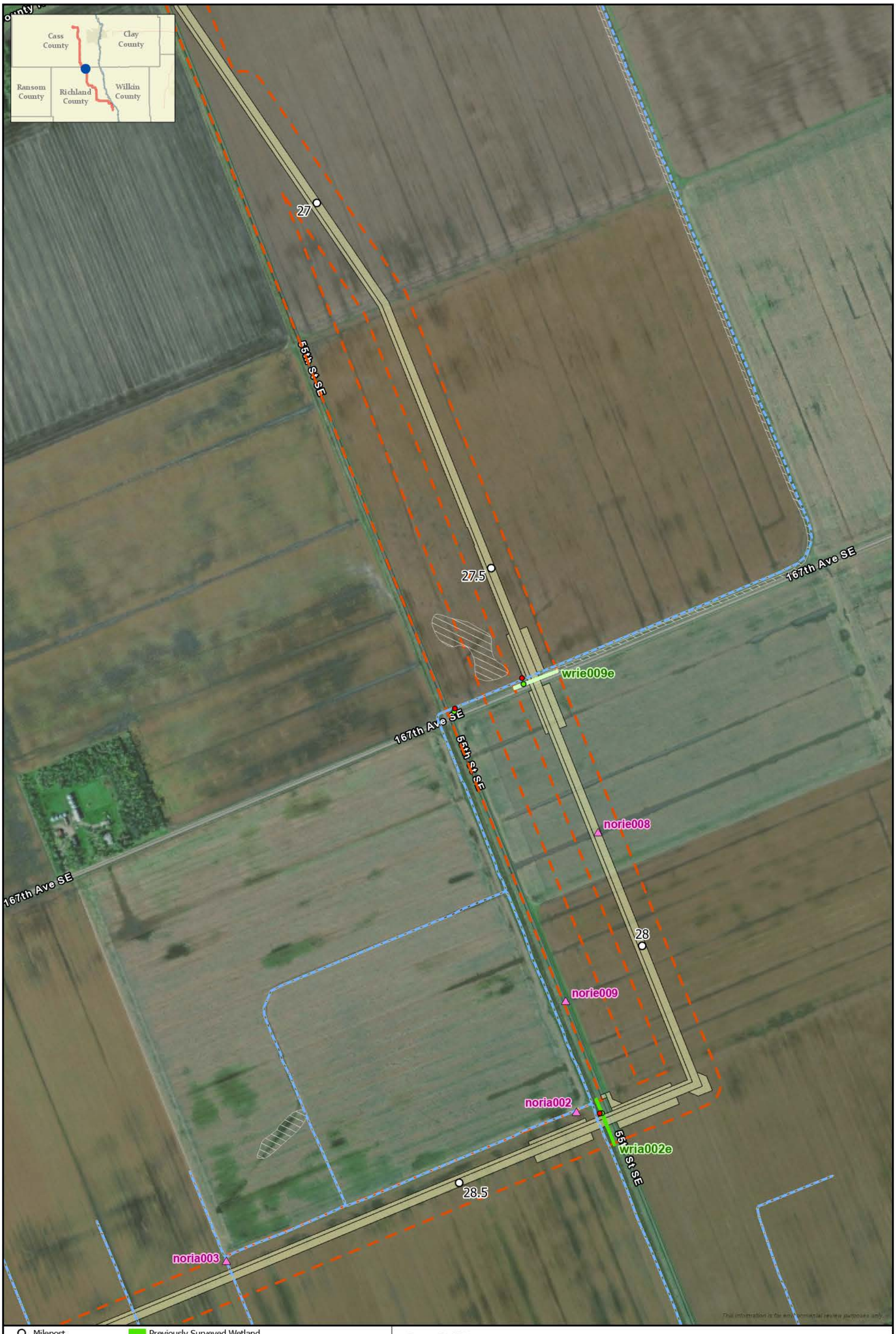

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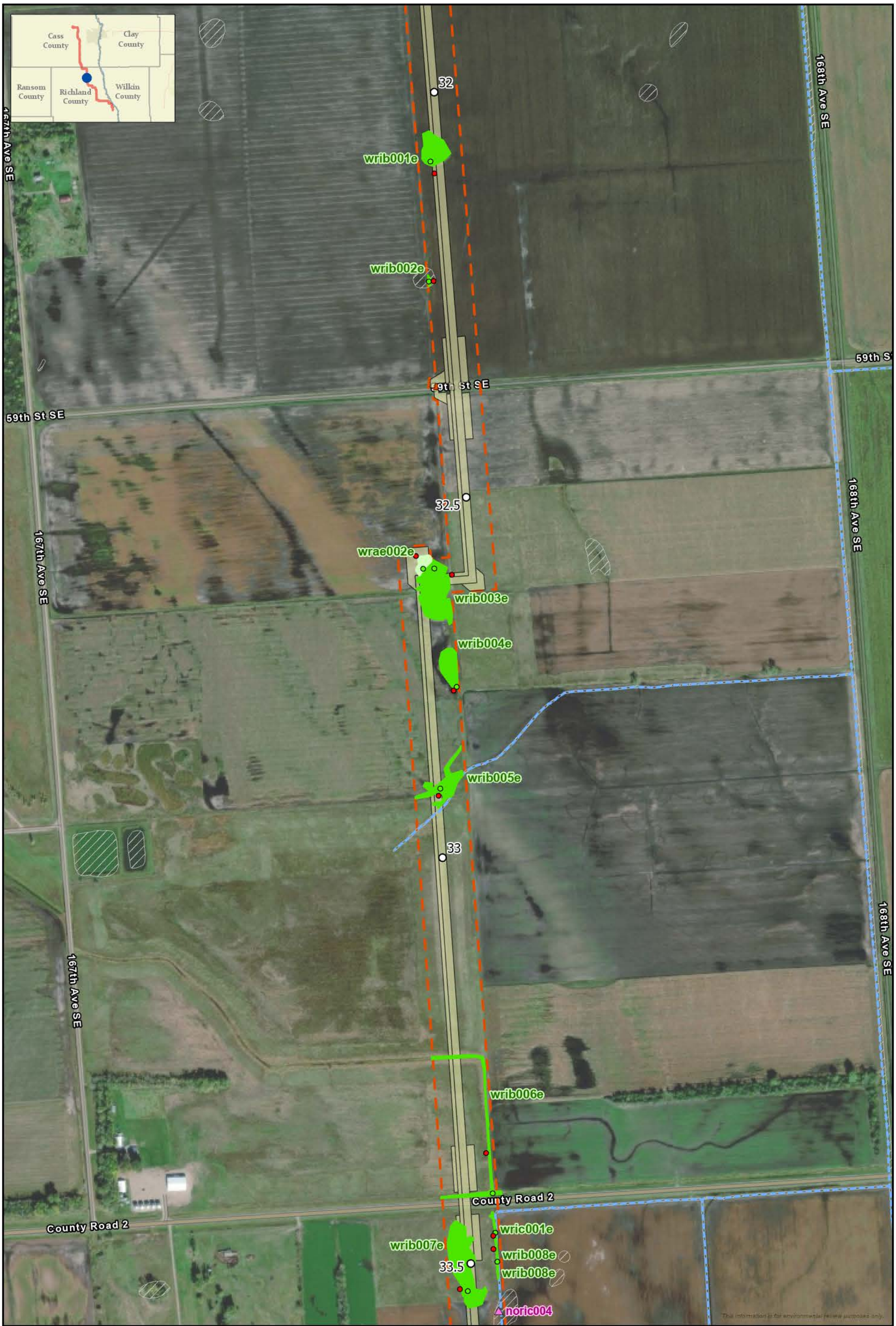

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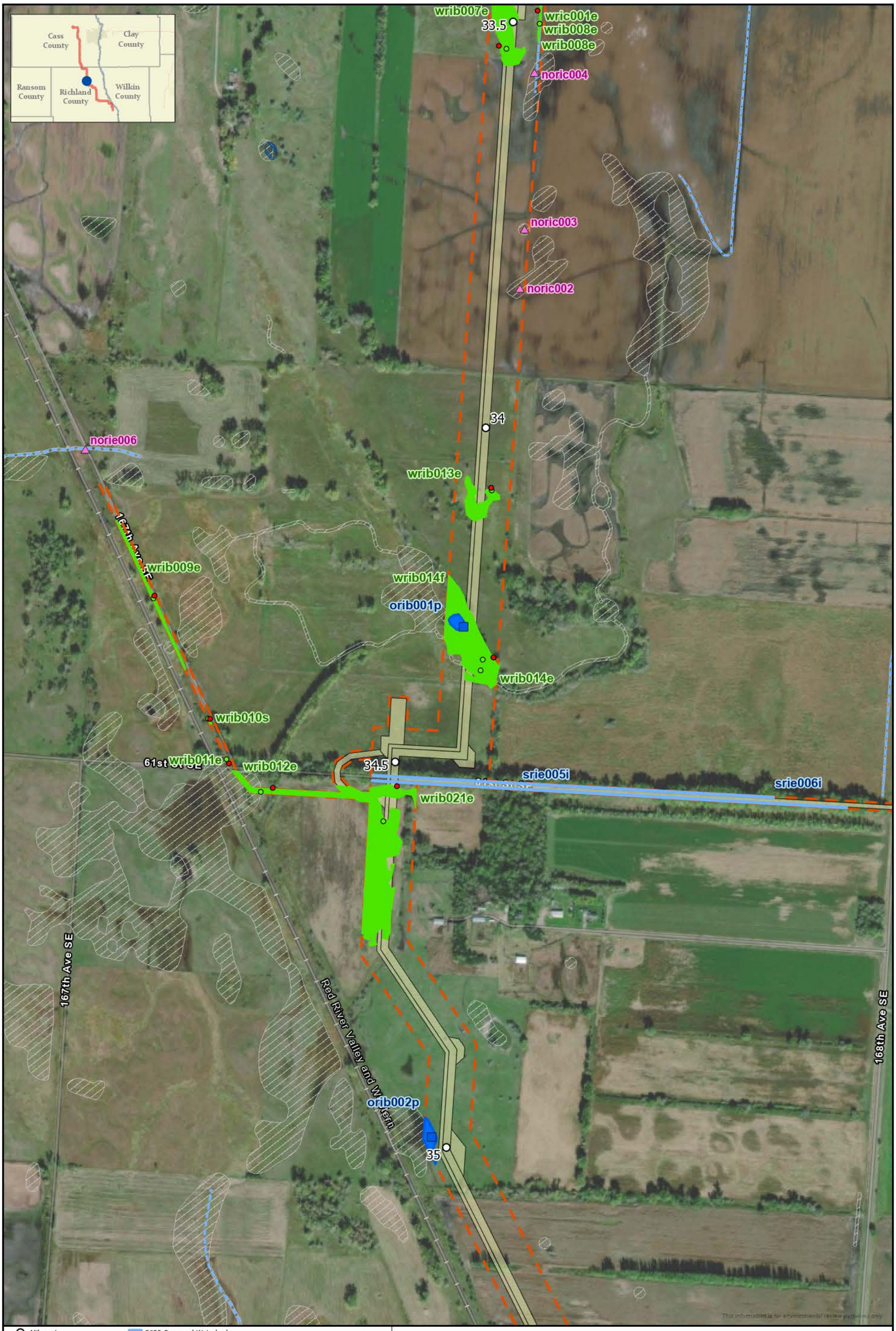

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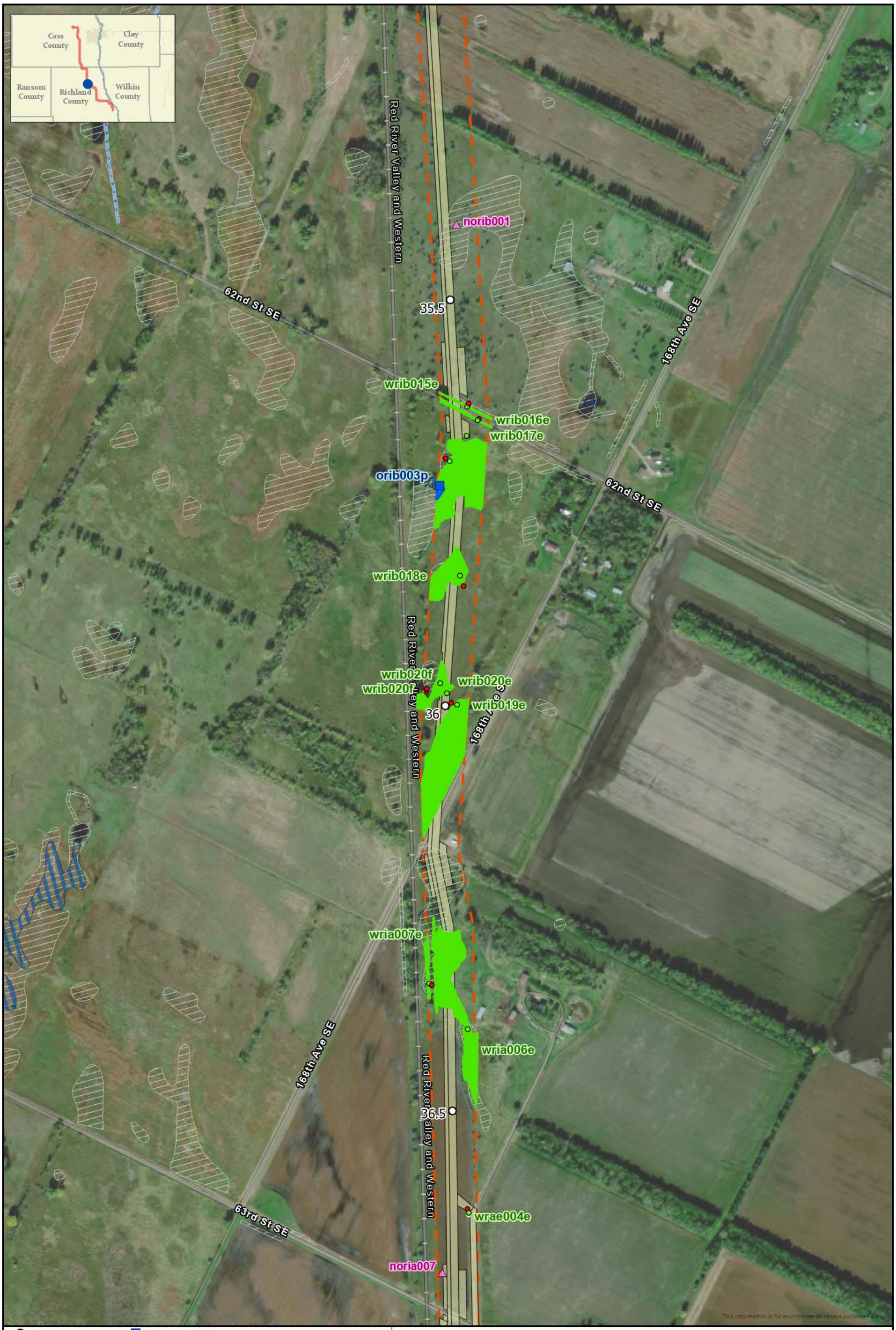

Aquatic Resources Delineation Map
Wahpeton Expansion Project
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Richland County, North Dakota

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Previously Surveyed Wetland
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Aquatic Resources Delineation Map
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WBI ENERGY TRANSMISSION

ERM

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Survey Boundary - Complete

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WBI ENERGY TRANSMISSION

ERM

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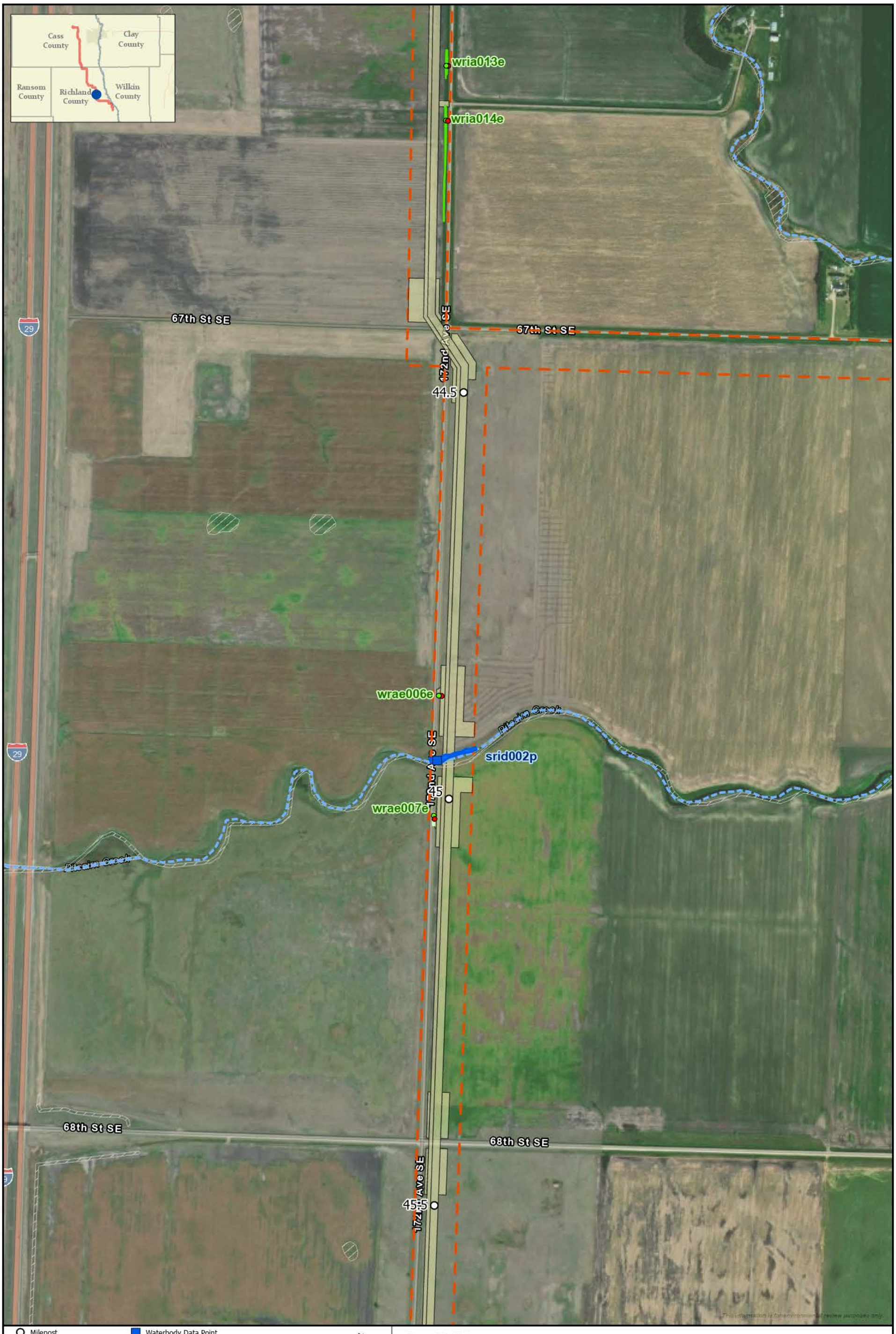
Aquatic Resources Delineation Map
Wahpeton Expansion Project
WBI Energy Transmission, Inc.
Richland County, North Dakota



Milepost
Proposed Workspace
Non-Water Data Point
Upland Data Point
Wetland Data Point
2022 Surveyed Wetland
Previously Surveyed Wetland
Waterbody Data Point
Previously Surveyed Waterbody
NHD Flowline
NHD Waterbody
NWI Wetland
Survey Boundary - Complete

1:7,000

0 500 1,000 Feet

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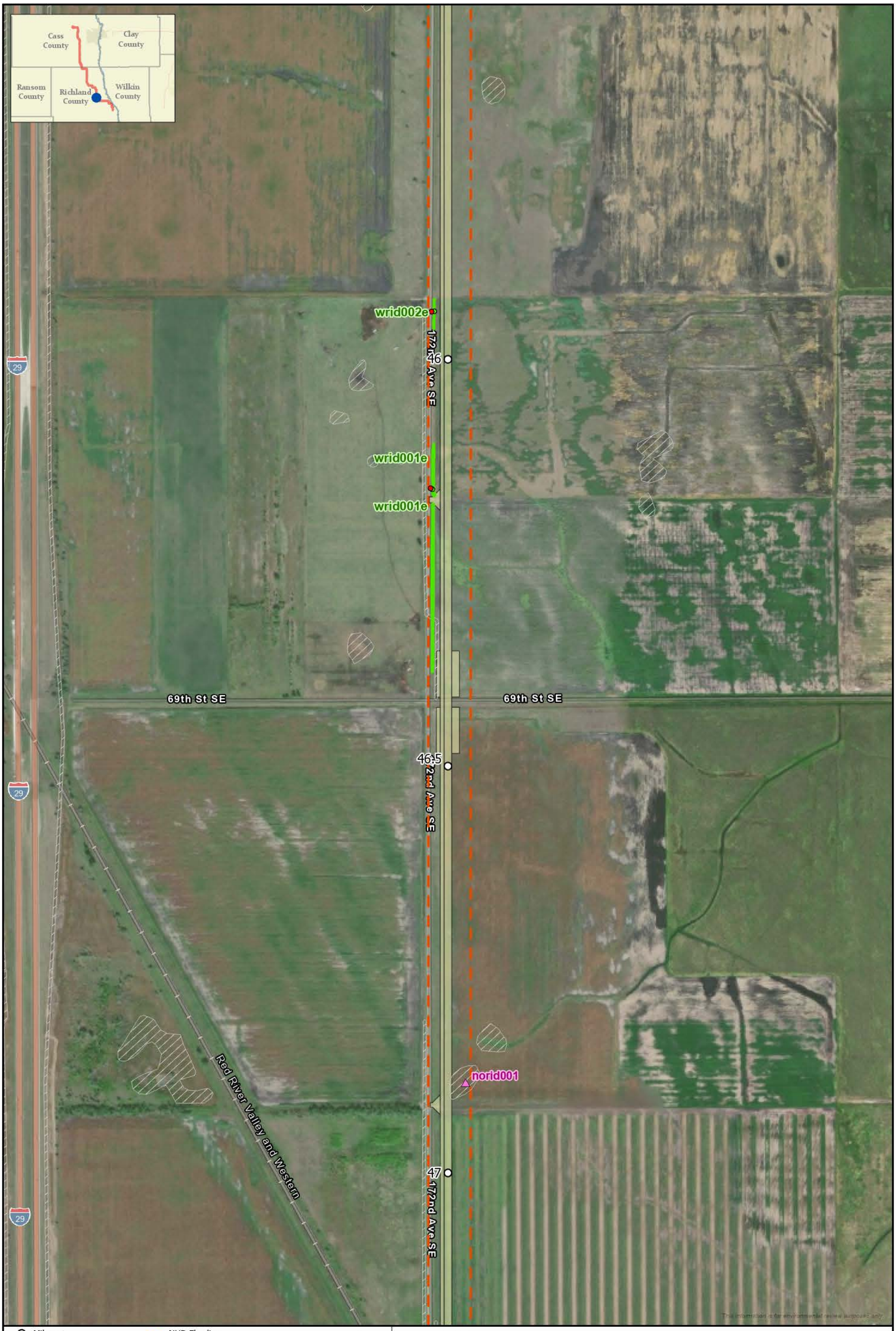

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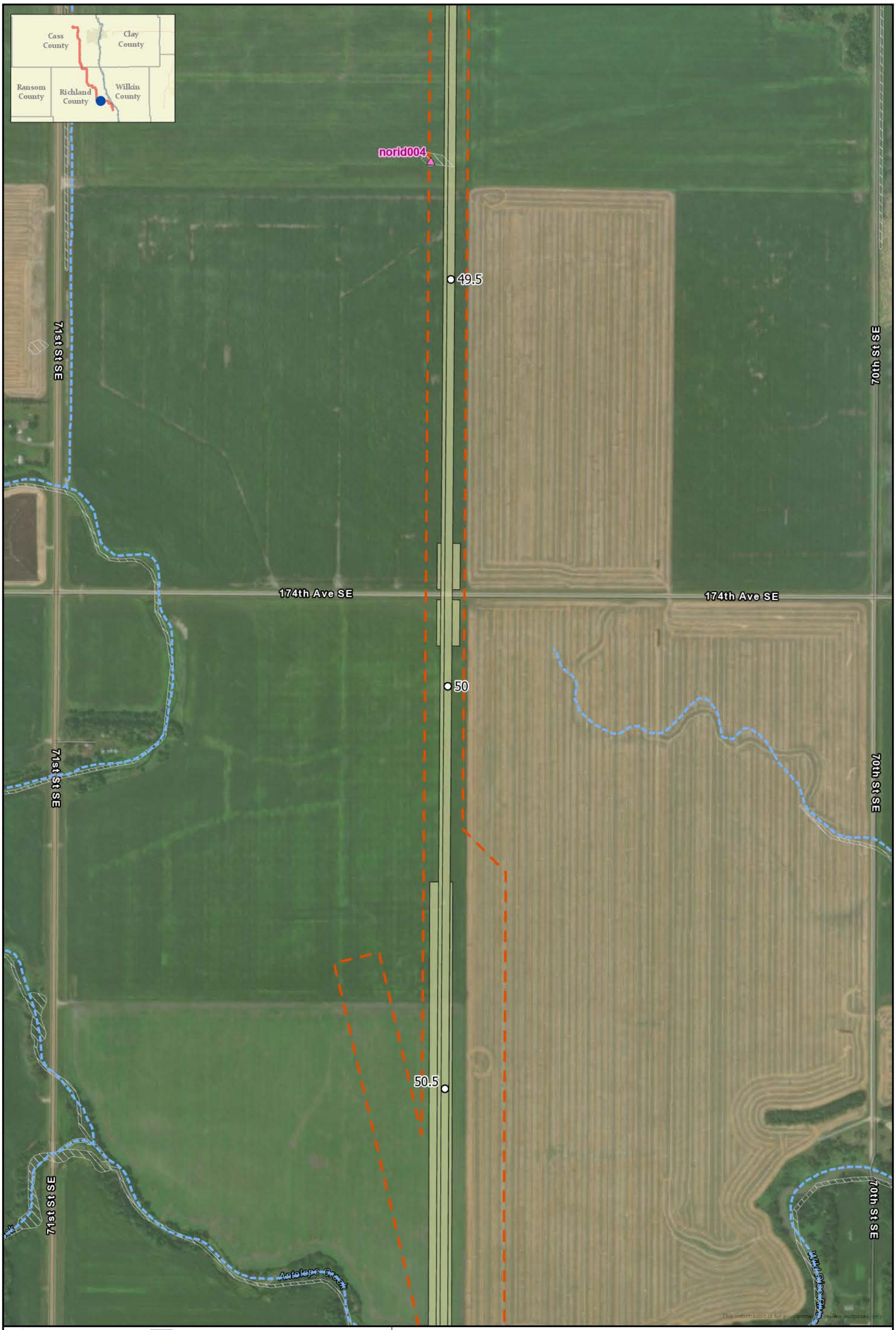

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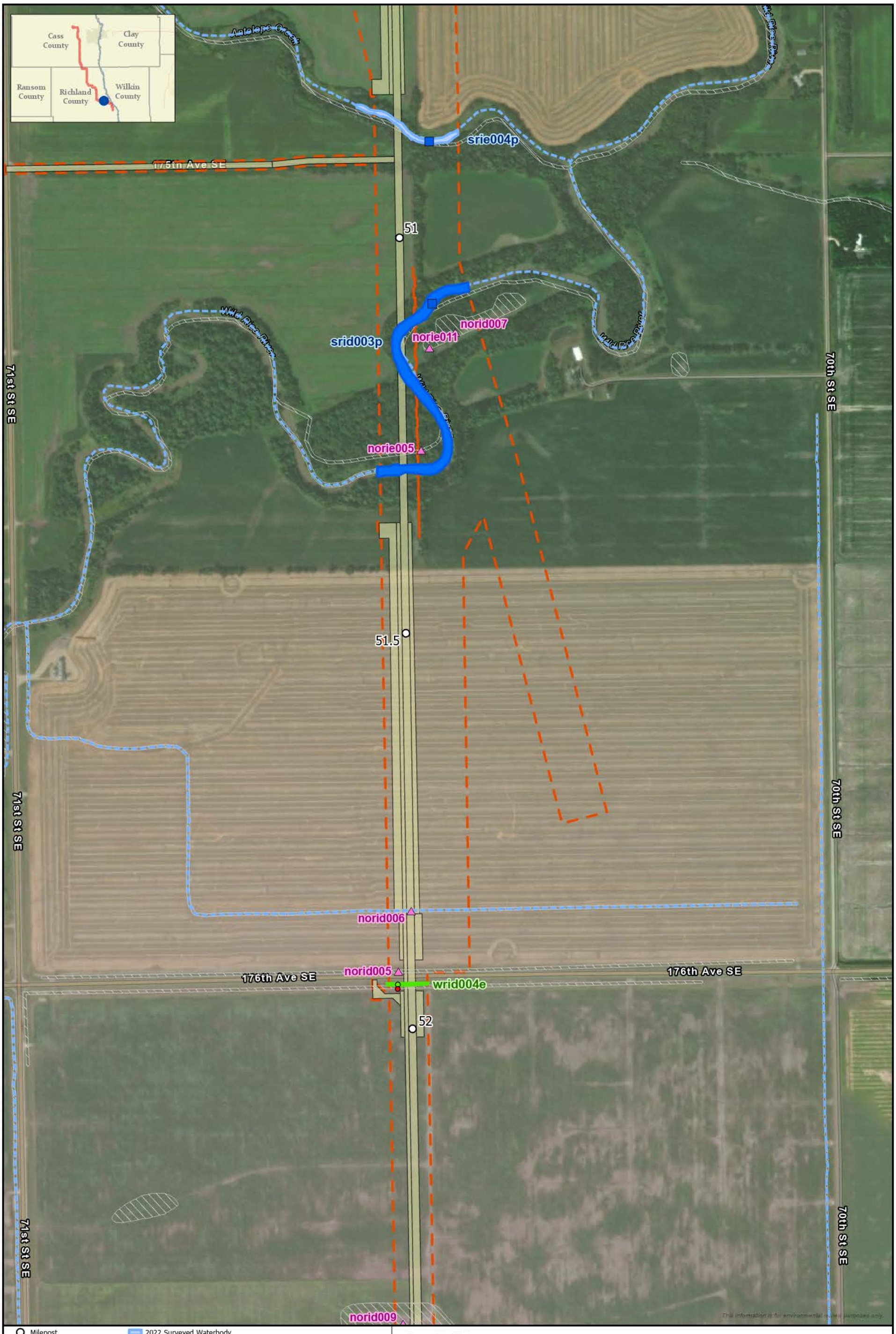

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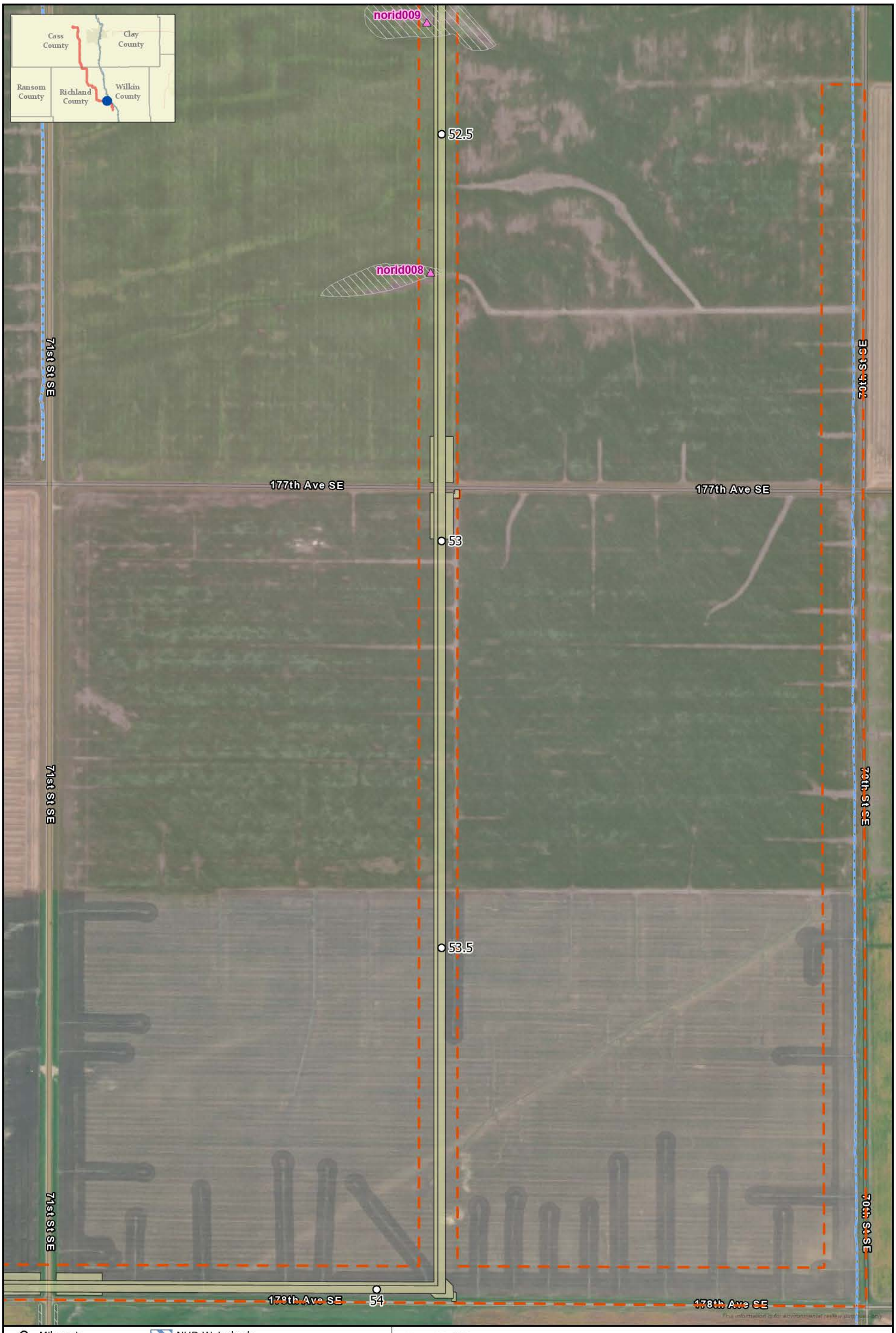

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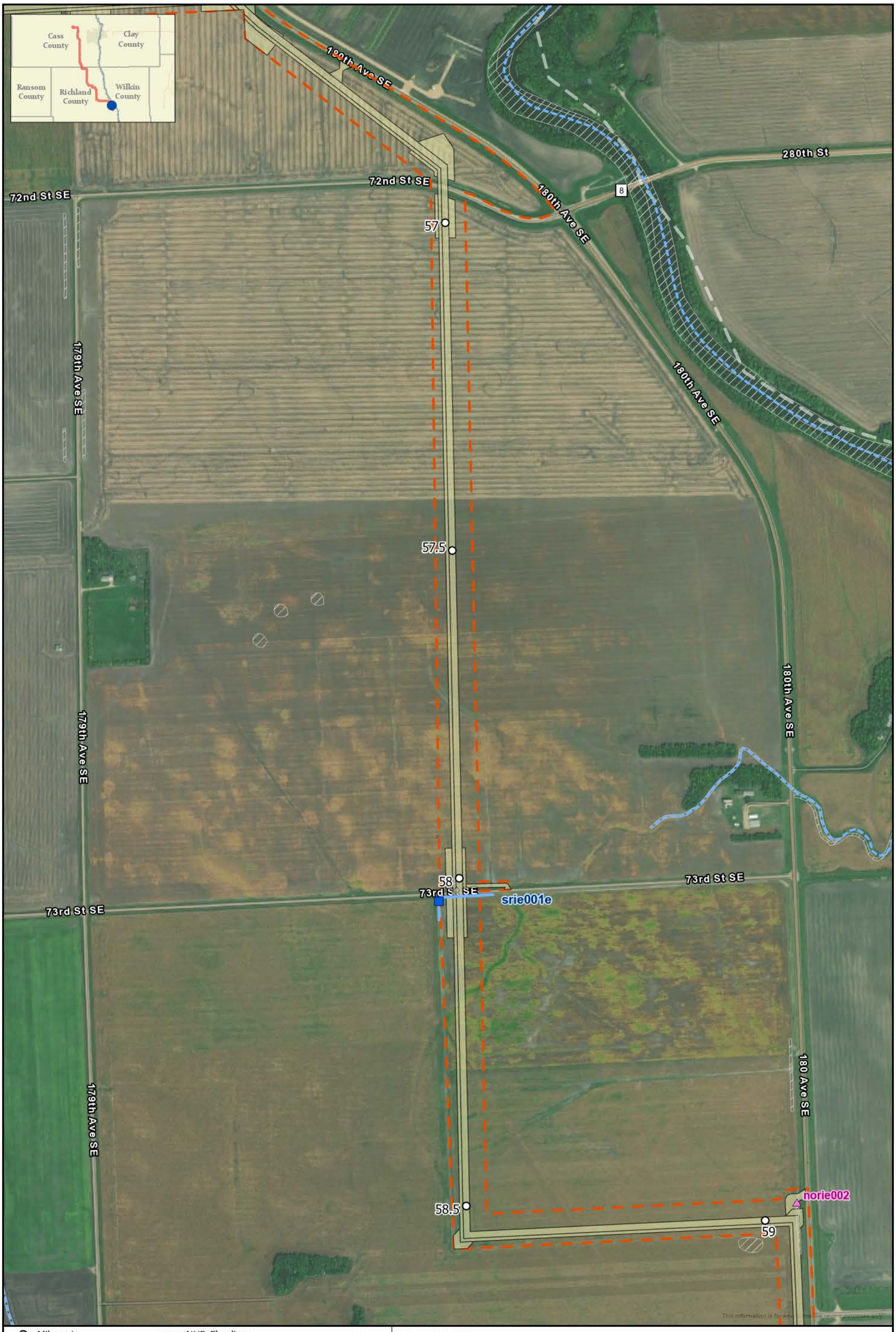

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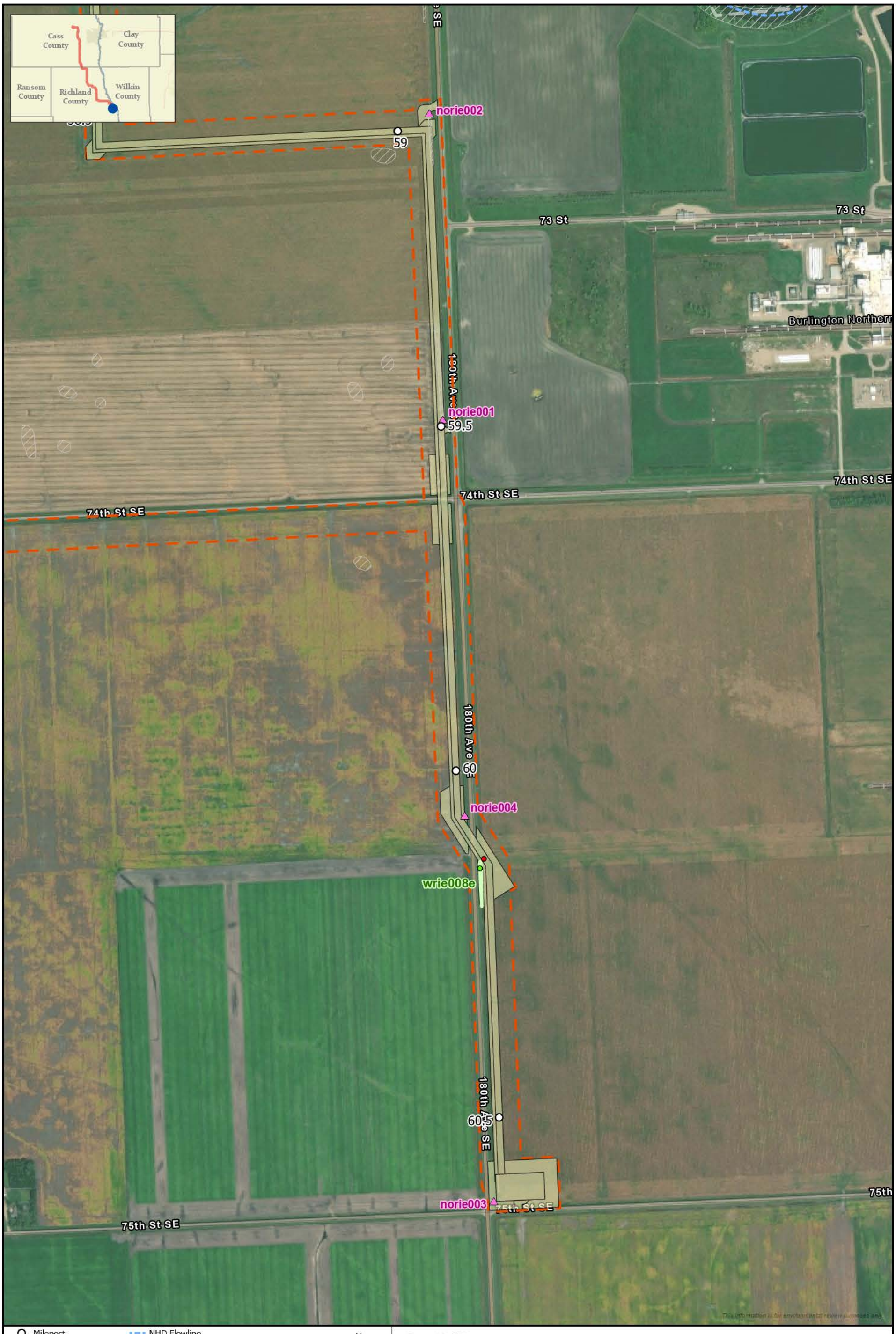

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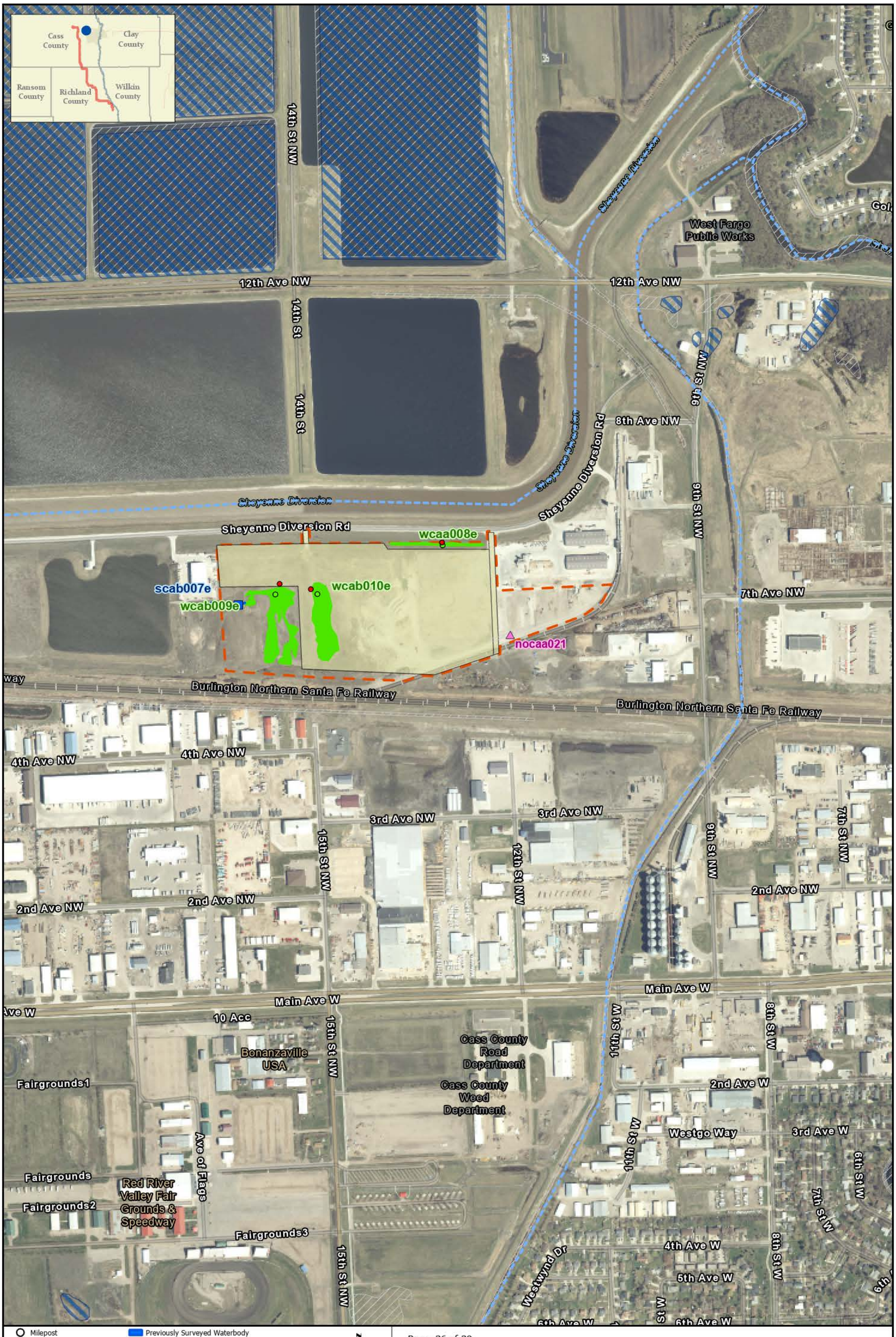

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NHD Waterbody
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Survey Boundary - Complete

N

1:8,000

0 500 1,000 Feet

Aquatic Resources Delineation Map
Wahpeton Expansion Project
WBI Energy Transmission, Inc.
Cass County, North Dakota

WBI ENERGY TRANSMISSION

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Aquatic Resources Delineation Map
Wahpeton Expansion Project
WBI Energy Transmission, Inc.
Cass County, North Dakota

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Survey Boundary - Complete

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1:8,000

0 500 1,000 Feet

Aquatic Resources Delineation Map
Wahpeton Expansion Project

WBI Energy Transmission, Inc.
Richland County, North Dakota

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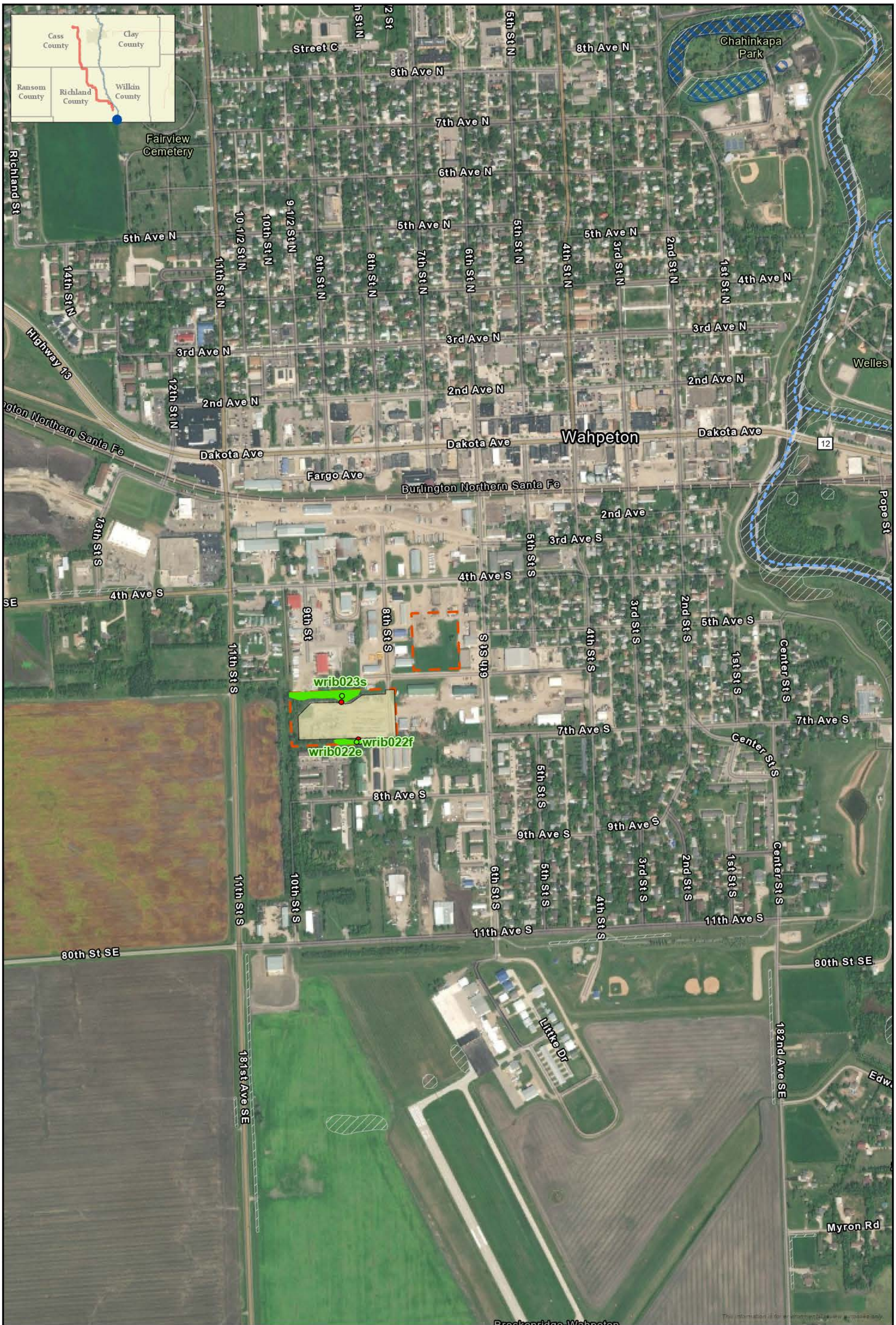

Aquatic Resources Delineation Map
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WBI Energy Transmission, Inc.
Richland County, North Dakota

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APPENDIX B TABLES

Table B-1: Additional Wetlands Delineated in 2022 within the Project Survey Area

Wetland ID	Cowardin Classification [a]	Data Point Coordinates		Acreage Within the Survey Area (acres)	Milepost	Page Number in Appendix A (Map Book)
		Latitude	Longitude			
wcae007e	PEM	46.87215	-97.00607	0.21	6.3	4
wcae008e	PEM	46.84052	-97.01074	<0.01	8.8	6
wcae002e	PEM	46.82514	-97.00340	0.04	9.9	6
wcae001e	PEM	46.76122	-96.98980	0.05	14.7	10
wcae006e	PEM	46.76076	-96.98938	0.25	14.7	10
wcae003e	PEM	46.73920	-96.98965	<0.01	16.2	10
wcae004e	PEM	46.68454	-96.98953	<0.01	20.1	13
wrie009e	PEM	46.61734	-96.92823	0.07	27.6	17
wrae001e	PEM	46.60136	-96.91753	<0.01	29.3	18
wrae002e	PEM	46.55471	-96.91713	0.15	32.6	20
wrae004e	PEM	46.50160	-96.90024	0.01	36.6	22
wrae005e	PEM	46.45645	-96.82009	0.01	43.4	26
wrae006e	PEM	46.43538	-96.81946	<0.01	44.9	27
wrae007e	PEM	46.43324	-96.81952	<0.01	45.0	27
wrie010e[b]	PEM	46.37324	-96.68075	0.21	55.8	33
wrie008e	PEM	46.33316	-96.65299	0.10	60.2	35

[a] Based on Cowardin Classification of Wetlands and Deepwater Habitats, PEM= palustrine emergent
[b] Feature was changed from an ephemeral stream to a PEM wetland after the completion of fieldwork. No USACE wetland data point is available for this feature.

Table B-2: Additional Waterbodies Surveyed in 2022 within the Project Survey Area

Unique ID (Waterbody Name)	Feature Type	Waterbody Regime [a]	Data Point Coordinates		Acreage Within the Survey Area [b] (acres)	Bank Length Within Survey Area (feet, single bank)	Milepost	Page Number in Appendix A (Map Book)
			Latitude	Longitude				
scaa004e	Ditch	E	46.84052	-97.01074	0.01	16	8.8	6
scae002i	Ditch	I	46.80494	-96.98979	0.49	5,340	10.7	7
scae004e	Ditch	E	46.74653	-96.98985	0.01	87	15.7	10
scae003e	Ditch	E	46.64481	-96.97867	0.03	299	23.3	7
srie005i	Stream	I	46.52846	-96.91682	0.35	3,081	34.5	15
srie006i	Stream	I	46.52874	-96.91386	0.30	2,609	34.5	15
srie004p (Antelope Creek)	River	P	46.39178	-96.75741	0.48	760	50.9	31
srie001e	Ditch	E	46.35492	-96.66334	0.05	560	58.0	34
srie003e	Ditch	E	46.29548	-96.62180	0.04	450	N/A	38

[a] Waterbody Regime: E = Ephemeral, I = Intermittent, P = Perennial
[b] Acreage values represent the entire 300-foot-wide survey corridor, and do not represent the area impacted by the Project

APPENDIX C WETLAND AND WATERBODY DATASHEETS AND PHOTOS

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: WBI M2W City/County: Cass County Sampling Date: 2022-08-17

Applicant/Owner: WBI State: North Dakota Sampling Point: wcae001_u

Investigator(s): Mike Eldridge, Valerie Blamer Section, Township, Range: sec 16 T138N R050W

Landform (hillslope, terrace, etc.): Other Local relief (concave, convex, none): None Slope (%): 0-2

Subregion (LRR): LRR F, MLRA 56 Lat: 46.761261 Long: -96.989856 Datum: NAD83

Soil Map Unit Name: Fargo-Hegne silty clays, 0 to 1 percent slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation ✓, Soil ✓, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:
Sample plot is located within a roadside ditch

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 3)			
1. *Zea mays*	0	N	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 0 (A)

Total Number of Dominant Species Across All Strata: 0 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0.00	x 1 =	0.00
FACW species	0.00	x 2 =	0.00
FAC species	0.00	x 3 =	0.00
FACU species	0.00	x 4 =	0.00
UPL species	0.00	x 5 =	0.00
Column Totals:	0.00 (A)		0.00 (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:
Site visit was conducted after crop harvest. Remnants of Zea mays is strewn across the sample plot.

SOIL

Sampling Point: wcae001_u

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 2/1	100					SIC	
8-15	10YR 3/3	90	10YR 2/1	10	C	M	SIL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Compacted soil

Depth (inches): 15

Hydric Soil Present? Yes ____ No ✓

Remarks:

Site visit was conducted after crops had been harvested. The soil has been upturned during the harvesting process.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes ____ No ✓ Depth (inches): ____

Water Table Present? Yes ____ No ✓ Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ____ No ✓ Depth (inches): ____

Wetland Hydrology Present? Yes ____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Site visit was conducted after crop harvest. Hydrology has been affected due to the use of heavy machinery.

wcae001e_u, looking southwest

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: WBI M2W City/County: Cass County Sampling Date: 2022-08-17

Applicant/Owner: WBI State: North Dakota Sampling Point: wcae001e_w

Investigator(s): Mike Eldridge, Valerie Blamer Section, Township, Range: sec 16 T138N R050W

Landform (hillslope, terrace, etc.): Other Local relief (concave, convex, none): Concave Slope (%): 0-2

Subregion (LRR): LRR F, MLRA 56 Lat: 46.761193 Long: -96.989813 Datum: NAD83

Soil Map Unit Name: Fargo silty clay, 0 to 1 percent slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓ No _____	
Wetland Hydrology Present?	Yes ✓ No _____	

Remarks:
Sample plot is located within a roadside ditch

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 3)			
1. *Phalaris arundinacea*	10	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	10 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0.00	x 1 =	0.00
FACW species	10.00	x 2 =	20.00
FAC species	0.00	x 3 =	0.00
FACU species	0.00	x 4 =	0.00
UPL species	0.00	x 5 =	0.00
Column Totals:	10.00 (A)		20.00 (B)

Prevalence Index = B/A = 2.0

Hydrophytic Vegetation Indicators:

✓ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: wcae001e_w

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
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- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
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- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
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- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** ___

Remarks:

The soils were not sampled due to the location of the wetland within a roadside ditch; assuming hydric soils.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ✓ Saturation Visible on Aerial Imagery (C9)
- ✓ Geomorphic Position (D2)
- ✓ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes ✓ No ___ Depth (inches): 2

Water Table Present? Yes ✓ No ___ Depth (inches): 0

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 0

Wetland Hydrology Present? **Yes** ✓ **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

wcae001e_w, looking southwest

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: WBI M2W City/County: Cass County Sampling Date: 2022-06-07

Applicant/Owner: WBI State: North Dakota Sampling Point: wcae002_u

Investigator(s): Mike Eldridge, Valerie Blamer Section, Township, Range: sec 28 T139N R050W

Landform (hillslope, terrace, etc.): Other Local relief (concave, convex, none): None Slope (%): 0-2

Subregion (LRR): LRR F, MLRA 56 Lat: 46.8251766 Long: -97.0033116 Datum: NAD83

Soil Map Unit Name: Overly-Bearden silt loams, 0 to 2 percent slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation ✓, Soil ✓, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No ✓	**Is the Sampled Area within a Wetland?** Yes ____ No ✓
Hydric Soil Present?	Yes ____	No ✓	
Wetland Hydrology Present?	Yes ____	No ✓	

Remarks:
Sample plot is located within a roadside ditch

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 3)			
1. *Zea mays*	10	Y	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	10 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0.00	x 1 =	0.00
FACW species	0.00	x 2 =	0.00
FAC species	0.00	x 3 =	0.00
FACU species	0.00	x 4 =	0.00
UPL species	10.00	x 5 =	50.00
Column Totals:	10.00 (A)		50.00 (B)

Prevalence Index = B/A = 5.0

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No ✓

Remarks:
Site visit was conducted after crop harvest. Remnants of Zea mays is strewn across the sample plot.

SOIL

Sampling Point: wcae002_u

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 2/1	90	10YR 5/2	10	C	M	SIL	Distinct redox.
4-16	10YR 2/2	100					SIL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Compacted soil

Depth (inches): 16

Hydric Soil Present? Yes ____ No ✓

Remarks:

Site visit was conducted after crops had been harvested. The soil has been upturned during the harvesting process.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes ____ No ✓ Depth (inches): ____

Water Table Present? Yes ____ No ✓ Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ____ No ✓ Depth (inches): ____

Wetland Hydrology Present? Yes ____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Site visit was conducted after crop harvest. Hydrology has been affected due to the use of heavy machinery.


W
NW
N
NE
240
270
300
330
0
30
46.825118°, -97.003364°
WBI M2W
ERM
wcae002_u
07 Jun 2022, 10:58:51

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: WBI M2W City/County: Cass County Sampling Date: 2022-06-07

Applicant/Owner: WBI State: North Dakota Sampling Point: wcae002e_w

Investigator(s): Mike Eldridge, Valerie Blamer Section, Township, Range: sec 28 T139N R050W

Landform (hillslope, terrace, etc.): Other Local relief (concave, convex, none): Concave Slope (%): 0-2

Subregion (LRR): LRR F, MLRA 56 Lat: 46.8251504 Long: -97.0033284 Datum: NAD83

Soil Map Unit Name: Overly-Bearden silt loams, 0 to 2 percent slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil ✓, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓ No _____	
Wetland Hydrology Present?	Yes ✓ No _____	

Remarks:
Sample plot is located within a roadside ditch

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 3)			
1. *Phalaris arundinacea*	90	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	90 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0.00	x 1 =	0.00
FACW species	90.00	x 2 =	180.00
FAC species	0.00	x 3 =	0.00
FACU species	0.00	x 4 =	0.00
UPL species	0.00	x 5 =	0.00
Column Totals:	90.00 (A)		180.00 (B)

Prevalence Index = B/A = 2.0

Hydrophytic Vegetation Indicators:

✓ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: wcae002e_w

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 2/1	75	10YR 5/2	25	C	M	SIL	Distinct redox.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ✓ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ **No** _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ✓ Saturation Visible on Aerial Imagery (C9)
- ✓ Geomorphic Position (D2)
- ✓ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ✓ No _____ Depth (inches): 3

Wetland Hydrology Present? Yes ✓ **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:


NE
E
SE
S
30
60
90
120
150
180
46.825187°, -97.003456°
WBI M2W
ERM
wcae002e_w
07 Jun 2022, 10:51:22

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: WBI M2W City/County: Cass County Sampling Date: 2022-06-07

Applicant/Owner: WBI State: North Dakota Sampling Point: wcae003_u

Investigator(s): Mike Eldridge, Valerie Blamer Section, Township, Range: sec 08 T137N R050W

Landform (hillslope, terrace, etc.): Other Local relief (concave, convex, none): None Slope (%): 0-2

Subregion (LRR): LRR F, MLRA 56 Lat: 46.739177 Long: -96.9896956 Datum: NAD83

Soil Map Unit Name: Fargo silty clay, 0 to 1 percent slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation ✓, Soil ✓, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:
Sample plot is located within a roadside ditch

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 3)			
1. *Malva neglecta*	75	Y	NI
2. *Taraxacum officinale*	15	N	FACU
3. *Ellisia nyctelea*	10	N	FACU
4. *Rumex crispus*	5	N	FAC
5. *Phalaris arundinacea*	2	N	FACW
6.			
7.			
8.			
9.			
10.			
	107 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0.00	x 1 =	0.00
FACW species	2.00	x 2 =	4.00
FAC species	5.00	x 3 =	15.00
FACU species	25.00	x 4 =	100.00
UPL species	0.00	x 5 =	0.00
Column Totals:	32.00 (A)		119.00 (B)

Prevalence Index = B/A = 3.72

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

SOIL

Sampling Point: wcae003_u

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-12	10YR 2/1	100					SIC	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Compacted fill material

Depth (inches): 12

Hydric Soil Present? Yes _____ No ✓

Remarks:

Site visit was conducted after crops had been harvested. The soil has been upturned during the harvesting process.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ✓ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Site visit was conducted after crop harvest. Hydrology has been affected due to the use of heavy machinery.


E
90
SE
120
150
S
180
210
SW
240
46.739176°, -96.989699°
WBI M2W
ERM
wcae003_u
07 Jun 2022, 12:20:27

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: WBI M2W City/County: Cass County Sampling Date: 2022-06-07

Applicant/Owner: WBI State: North Dakota Sampling Point: wcae003e_w

Investigator(s): Mike Eldridge, Valerie Blamer Section, Township, Range: sec 28 T138N R050W

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-2

Subregion (LRR): LRR F, MLRA 56 Lat: 46.7392023 Long: -96.9896804 Datum: NAD83

Soil Map Unit Name: Fargo silty clay, 0 to 1 percent slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil ✓, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓ No _____	
Wetland Hydrology Present?	Yes ✓ No _____	

Remarks:
Sample plot is located within a roadside ditch

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	105 = Total Cover		
Herb Stratum (Plot size: 3)			
1. *Phalaris arundinacea*	95	Y	FACW
2. *Poa pratensis*	10	N	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	90 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0.00	x 1 =	0.00
FACW species	95.00	x 2 =	190.00
FAC species	0.00	x 3 =	0.00
FACU species	10.00	x 4 =	40.00
UPL species	0.00	x 5 =	0.00
Column Totals:	105.00 (A)		230.00 (B)

Prevalence Index = B/A = 2.19

Hydrophytic Vegetation Indicators:

✓ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: wcae003e_w

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 2/1						SIL	
2-6	10YR 2/1	95	10YR 3/1	5	C	PL	SIL	Faint redox.
6-20	10YR 2/1	100					SIL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ✓ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✓ Geomorphic Position (D2)
- ✓ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): _____

Water Table Present? Yes ___ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:


N
NE
E
SE
0
30
60
90
120
150
46.739187°, -96.989705°
WBI M2W
ERM
wcae003e_w
07 Jun 2022, 12:11:06

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: WBI M2W City/County: Cass County Sampling Date: 2022-06-07

Applicant/Owner: WBI State: North Dakota Sampling Point: wcae004_u

Investigator(s): Mike Eldridge, Valerie Blamer Section, Township, Range: sec 05 T137N R050W

Landform (hillslope, terrace, etc.): Other Local relief (concave, convex, none): None Slope (%): 0-2

Subregion (LRR): LRR F, MLRA 56 Lat: 46.6845715 Long: -96.9894784 Datum: NAD83

Soil Map Unit Name: Fargo silty clay, 0 to 1 percent slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation ✓, Soil ✓, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No ✓	**Is the Sampled Area within a Wetland?** Yes ____ No ✓
Hydric Soil Present?	Yes ____	No ✓	
Wetland Hydrology Present?	Yes ____	No ✓	

Remarks:
Sample plot is located within a roadside ditch

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 3)			
1. *Phalaris arundinacea*	25	Y	FACW
2. *Sonchus oleraceus*	20	Y	UPL
3. *Poa pratensis*	10	N	FACU
4. *Rumex crispus*	5	N	FAC
5.			
6.			
7.			
8.			
9.			
10.			
	50 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
	10 = Total Cover		

% Bare Ground in Herb Stratum ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0.00	x 1 =	0.00
FACW species	25.00	x 2 =	50.00
FAC species	5.00	x 3 =	15.00
FACU species	10.00	x 4 =	40.00
UPL species	20.00	x 5 =	100.00
Column Totals:	60.00 (A)		205.00 (B)

Prevalence Index = B/A = 3.42

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No ✓

Remarks:

SOIL

Sampling Point: wcae004_u

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-12	10YR 2/1	100					SIC	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Compacted fill material

Depth (inches): 12

Hydric Soil Present? Yes ____ No ✓

Remarks:

Site visit was conducted after crops had been harvested. The soil has been upturned during the harvesting process.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ✓ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes ____ No ✓ Depth (inches): ____

Water Table Present? Yes ____ No ✓ Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ____ No ✓ Depth (inches): ____

Wetland Hydrology Present? Yes ____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Site visit was conducted after crop harvest. Hydrology has been affected due to the use of heavy machinery.


NE
30
60
120
150
SE
46.684512°, -96.989485°
WBI M2W
ERM
wcae004_u
07 Jun 2022, 12:58:30

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: WBI M2W City/County: Cass County Sampling Date: 2022-06-07

Applicant/Owner: WBI State: North Dakota Sampling Point: wcae004e_w

Investigator(s): Mike Eldridge, Valerie Blamer Section, Township, Range: sec 16 T137N R050W

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-2

Subregion (LRR): LRR F, MLRA 56 Lat: 46.6845411 Long: -96.9895406 Datum: NAD83

Soil Map Unit Name: Bearden-Kindred silty clay loams, 0 to 2 percent slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil ✓, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes _____ No ✓	
Wetland Hydrology Present?	Yes ✓ No _____	

Remarks:
Sample plot is located within a roadside ditch.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 3)			
1. *Phalaris arundinacea*	95	Y	FACW
2. *Poa pratensis*	10	N	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	105 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0.00	x 1 =	0.00
FACW species	95.00	x 2 =	190.00
FAC species	0.00	x 3 =	0.00
FACU species	10.00	x 4 =	40.00
UPL species	0.00	x 5 =	0.00
Column Totals:	105.00 (A)		230.00 (B)

Prevalence Index = B/A = 2.19

Hydrophytic Vegetation Indicators:

✓ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: wcae004e_w

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 2/1	100					SIL	
8-13	10YR 5/1	50	10YR 2/1	50	D	M	SIL	Distinct redox.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✓ Geomorphic Position (D2)
- ✓ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ✓ No _____ Depth (inches): 1

Wetland Hydrology Present? **Yes** ✓ **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:


NW
N
NE
E
300
330
0
30
60
90
46.684543°, -96.989546°
WBI M2W
ERM
wcae004e_w
07 Jun 2022, 12:56:29

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: WBI M2W City/County: Cass County Sampling Date: 2022-08-17

Applicant/Owner: WBI State: North Dakota Sampling Point: wcae006e_u

Investigator(s): Mike Eldridge, Valerie Blamer Section, Township, Range: sec 22 T138N R050W

Landform (hillslope, terrace, etc.): Other Local relief (concave, convex, none): None Slope (%): 0-2

Subregion (LRR): LRR F, MLRA 56 Lat: 46.760829 Long: -96.989399 Datum: NAD83

Soil Map Unit Name: Fargo silty clay, depressional, 0 to 1 percent slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation ✓, Soil ✓, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 5)			
1. *Poa pratensis*	75	Y	FACU
2. *Ambrosia artemisiifolia*	25	Y	FACU
3. *Xanthium strumarium*	25	Y	FAC
4. *Hibiscus sp.*	20	N	Ni
5. *Zea mays*	10	N	UPL
6.			
7.			
8.			
9.			
10.			
	155 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.33 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0.00	x 1 =	0.00
FACW species	0.00	x 2 =	0.00
FAC species	25.00	x 3 =	75.00
FACU species	100.00	x 4 =	400.00
UPL species	10.00	x 5 =	50.00
Column Totals:	135.00 (A)		525.00 (B)

Prevalence Index = B/A = 3.89

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

SOIL

Sampling Point: wcae006e_u

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-20	10YR 2/1	100					SIC	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

wace006e_u, looking south.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: WBI M2W City/County: Cass County Sampling Date: 2022-08-17

Applicant/Owner: WBI State: North Dakota Sampling Point: wcae006e_w

Investigator(s): Mike Eldridge, Valerie Blamer Section, Township, Range: sec 16 T138N R050W

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): None Slope (%): 0-2

Subregion (LRR): LRR F, MLRA 56 Lat: 46.7607623 Long: -96.9893853 Datum: NAD83

Soil Map Unit Name: Fargo silty clay, depressional, 0 to 1 percent slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation ✓, Soil ✓, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓ No _____	
Wetland Hydrology Present?	Yes ✓ No _____	

Remarks:
Sample plot is location within a roadside ditch.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 5)			
1. *Alopecurus pratensis*	75	Y	FACW
2. *Phalaris arundinacea*	20	N	FACW
3. *Poa pratensis*	10	N	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	105 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0.00	x 1 =	0.00
FACW species	95.00	x 2 =	190.00
FAC species	0.00	x 3 =	0.00
FACU species	10.00	x 4 =	40.00
UPL species	0.00	x 5 =	0.00
Column Totals:	105.00 (A)		230.00 (B)

Prevalence Index = B/A = 2.19

Hydrophytic Vegetation Indicators:

✓ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:
Roadside ditch has been recently mowed/maintained. Some vegetation cannot be identified.

SOIL

Sampling Point: wcae006e_w

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** _____

Remarks:

Due to the presence of surface water, no soil sample was obtained; assuming hydric soils.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ✓ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✓ Geomorphic Position (D2)
- ✓ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes ✓ No ____ Depth (inches): 2

Water Table Present? Yes ✓ No ____ Depth (inches): 0

Saturation Present? (includes capillary fringe) Yes ✓ No ____ Depth (inches): 0

Wetland Hydrology Present? **Yes** ✓ **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Plot is located in the centerline of a roadside ditch.

wace006e_w, looking northeast.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: WBI M2W City/County: Cass County Sampling Date: 2022-08-17

Applicant/Owner: WBI State: North Dakota Sampling Point: wcae007e_u

Investigator(s): Mike Eldridge, Valerie Blamer Section, Township, Range: sec 09 T139N R050W

Landform (hillslope, terrace, etc.): Other Local relief (concave, convex, none): None Slope (%): 0-2

Subregion (LRR): LRR F, MLRA 56 Lat: 46.872242 Long: -97.006296 Datum: NAD83

Soil Map Unit Name: Dovray silty clay, 0 to 1 percent slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation ✓, Soil ✓, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 5)			
1. *Bromus inermis*	50	Y	UPL
2. *Ambrosia artemisiifolia*	40	Y	FACU
3. *Urtica dioica*	20	N	FAC
4. *Persicaria pensylvanica*	15	N	FACW
5.			
6.			
7.			
8.			
9.			
10.			
	125 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0.00	x 1 =	0.00
FACW species	15.00	x 2 =	30.00
FAC species	20.00	x 3 =	60.00
FACU species	40.00	x 4 =	160.00
UPL species	50.00	x 5 =	250.00
Column Totals:	125.00 (A)		500.00 (B)

Prevalence Index = B/A = 4.0

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

SOIL

Sampling Point: wcae007e_u

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 2/1						SIC	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Compacted soils

Depth (inches): 16

Hydric Soil Present? Yes _____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

wcae007e_u, looking northeast.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: WBI M2W City/County: Cass County Sampling Date: 2022-08-17

Applicant/Owner: WBI State: North Dakota Sampling Point: wcae007e_w

Investigator(s): Mike Eldridge, Valerie Blamer Section, Township, Range: sec 09 T139N R050W

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): None Slope (%): 0-2

Subregion (LRR): LRR F, MLRA 56 Lat: 46.8721583 Long: -97.0060790 Datum: NAD83

Soil Map Unit Name: Dovray silty clay, 0 to 1 percent slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil ✓, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓ No _____	
Wetland Hydrology Present?	Yes ✓ No _____	

Remarks:
Sample plot is location within a roadside ditch.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 5)			
1. *Persicaria pensylvanica*	75	Y	FACW
2. *Trichophorum sp.*	25	N	OBL
3. *Ambrosia artemisiifolia*	25	N	FACU
4. *Phalaris arundinacea*	20	N	FACW
5.			
6.			
7.			
8.			
9.			
10.			
	145 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	25.00	x 1 =	25.00
FACW species	95.00	x 2 =	190.00
FAC species	0.00	x 3 =	0.00
FACU species	25.00	x 4 =	100.00
UPL species	0.00	x 5 =	0.00
Column Totals:	145.00 (A)		315.00 (B)

Prevalence Index = B/A = 2.17

Hydrophytic Vegetation Indicators:

✓ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:
Plot is located in the centerline of a waterway.

SOIL

Sampling Point: wcae007e_w

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** _____

Remarks:

Due to the presence of surface water, no soil sample was obtained; assuming hydric soils.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ✓ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✓ Geomorphic Position (D2)
- ✓ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes ✓ No ____ Depth (inches): 6

Water Table Present? Yes ✓ No ____ Depth (inches): 0

Saturation Present? (includes capillary fringe) Yes ✓ No ____ Depth (inches): 0

Wetland Hydrology Present? **Yes** ✓ **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Plot is located in the centerline of a waterway.

wcae007e_w, looking northeast.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: WBI M2W City/County: Cass County Sampling Date: 2022-06-07

Applicant/Owner: WBI State: North Dakota Sampling Point: wcae008_u

Investigator(s): Mike Eldridge, Valerie Blamer Section, Township, Range: sec 21 T139N R050W

Landform (hillslope, terrace, etc.): Other Local relief (concave, convex, none): None Slope (%): 0-2

Subregion (LRR): LRR F, MLRA 56 Lat: 46.8404578 Long: -97.0106265 Datum: NAD83

Soil Map Unit Name: Fargo-Hegne silty clays, 0 to 1 percent slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation ✓, Soil ✓, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:
Sample plot is located within a roadside ditch

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 3)			
1. *Zea mays*	0	N	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 0 (A)

Total Number of Dominant Species Across All Strata: 0 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0.00	x 1 =	0.00
FACW species	0.00	x 2 =	0.00
FAC species	0.00	x 3 =	0.00
FACU species	0.00	x 4 =	0.00
UPL species	0.00	x 5 =	0.00
Column Totals:	0.00 (A)		0.00 (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:
Site visit was conducted after crop harvest. Remnants of Zea mays is strewn across the sample plot.

SOIL

Sampling Point: wcae008_u

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 2/1	100					SIC	
8-15	10YR 3/3	90	10YR 2/1	10	C	M	SIL	Distinct redox.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Compacted soil

Depth (inches): 15

Hydric Soil Present? Yes ____ No ✓

Remarks:

Site visit was conducted after crops had been harvested. The soil has been upturned during the harvesting process.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes ____ No ✓ Depth (inches): ____

Water Table Present? Yes ____ No ✓ Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ____ No ✓ Depth (inches): ____

Wetland Hydrology Present? Yes ____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Site visit was conducted after crop harvest. Hydrology has been affected due to the use of heavy machinery.


E
90
SE
120
150
S
180
210
SW
240
46.840453°, -97.010647°
WBI M2W
ERM
wcae008_u
07 Jun 2022, 10:18:52

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: WBI M2W City/County: Cass County Sampling Date: 2022-06-07

Applicant/Owner: WBI State: North Dakota Sampling Point: wcae008e_w

Investigator(s): Mike Eldridge, Valerie Blamer Section, Township, Range: sec 27 T139N R050W

Landform (hillslope, terrace, etc.): Other Local relief (concave, convex, none): Concave Slope (%): 0-2

Subregion (LRR): LRR F, MLRA 56 Lat: 46.8405209 Long: -97.0107426 Datum: NAD83

Soil Map Unit Name: Fargo silty clay, 0 to 1 percent slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓ No _____	
Wetland Hydrology Present?	Yes ✓ No _____	

Remarks:
Sample plot is located within a roadside ditch

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 3)			
1. *Phalaris arundinacea*	10	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	10 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0.00	x 1 =	0.00
FACW species	10.00	x 2 =	20.00
FAC species	0.00	x 3 =	0.00
FACU species	0.00	x 4 =	0.00
UPL species	0.00	x 5 =	0.00
Column Totals:	10.00 (A)		20.00 (B)

Prevalence Index = B/A = 2.0

Hydrophytic Vegetation Indicators:

✓ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: wcae008e_w

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** _____

Remarks:

The soils were not sampled due to the location of the wetland within a roadside ditch; assuming hydric soils.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ✓ Saturation Visible on Aerial Imagery (C9)
- ✓ Geomorphic Position (D2)
- ✓ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes ✓ No ___ Depth (inches): 2

Water Table Present? Yes ✓ No ___ Depth (inches): 0

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 0

Wetland Hydrology Present? **Yes** ✓ **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:


E
90
SE
120
150
S
180
210
SW
240
46.840526°, -97.010763°
WBI M2W
ERM
wcae008e_w
07 Jun 2022, 10:12:26

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: WBI M2W City/County: Cass County Sampling Date: 2022-06-07

Applicant/Owner: WBI State: North Dakota Sampling Point: wrae001_u

Investigator(s): Mike Eldridge, Valerie Blamer Section, Township, Range: sec 14 T137N R049W

Landform (hillslope, terrace, etc.): Other Local relief (concave, convex, none): None Slope (%): 0-2

Subregion (LRR): LRR F, MLRA 56 Lat: 46.6014035 Long: -96.9174832 Datum: NAD83

Soil Map Unit Name: Fargo silty clay, depressional, 0 to 1 percent slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation ✓, Soil ✓, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:
Sample plot is located within a roadside ditch

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 3)			
1. *Phalaris arundinacea*	2	N	FACW
2. *Zea mays*	0	N	UPL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	2 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 0 (A)

Total Number of Dominant Species Across All Strata: 0 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0.00	x 1 =	0.00
FACW species	2.00	x 2 =	4.00
FAC species	0.00	x 3 =	0.00
FACU species	0.00	x 4 =	0.00
UPL species	0.00	x 5 =	0.00
Column Totals:	2.00 (A)		4.00 (B)

Prevalence Index = B/A = 2.0

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:
Site visit was conducted after harvest of crops. Remnants of Zea mays can be found throughout the sample plot.

SOIL

Sampling Point: wrae001_u

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 2/2						SIC	
5-20	10YR 2/2	100					SIL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

Site visit was conducted after crops had been harvested. The soil has been upturned during the harvesting process.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ✓ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Site visit was conducted after crop harvest. Hydrology has been affected due to the use of heavy machinery.


W
NW
N
NE
270
300
330
0
30
60
46.60147°, -96.917345°
WBI M2W
ERM
wrae001_u
07 Jun 2022, 14:36:43

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: NextEra Fisher City/County: Richland County Sampling Date: 2022-06-07

Applicant/Owner: NextEra Energy State: North Dakota Sampling Point: wrae001e_w

Investigator(s): Mike Eldridge, Valerie Blamer Section, Township, Range: sec 12 T136N R050W

Landform (hillslope, terrace, etc.): Dip Local relief (concave, convex, none): Concave Slope (%): 0-2

Subregion (LRR): LRR F, MLRA 56 Lat: 46.6013689 Long: -96.9175317 Datum: NAD83

Soil Map Unit Name: Fargo silty clay, 0 to 1 percent slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation ✓, Soil ✓, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____ No ✓	
Wetland Hydrology Present?	Yes ✓ No _____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 5)			
1. *Phalaris arundinacea*	25	Y	FACW
2. *Poa pratensis*	5	N	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	30 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0.00	x 1 =	0.00
FACW species	25.00	x 2 =	50.00
FAC species	0.00	x 3 =	0.00
FACU species	5.00	x 4 =	20.00
UPL species	0.00	x 5 =	0.00
Column Totals:	30.00 (A)		70.00 (B)

Prevalence Index = B/A = 2.33

Hydrophytic Vegetation Indicators:

✓ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: wrae001e_w

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-14	10YR 2/1	100					SIL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ✓ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✓ Geomorphic Position (D2)
- ✓ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): _____

Water Table Present? Yes ✓ No ___ Depth (inches): 16

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 2

Wetland Hydrology Present? **Yes** ✓ **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:


NE
E
SE
S
30
60
90
120
150
180
46.60139°, -96.917429°
WBI M2W
ERM
wrae001e_w
07 Jun 2022, 14:29:59

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: WBI M2W City/County: Richland County Sampling Date: 2022-06-08

Applicant/Owner: WBI State: North Dakota Sampling Point: wrae002_u

Investigator(s): Mike Eldridge, Valerie Blamer Section, Township, Range: sec 36 T136N R050W

Landform (hillslope, terrace, etc.): Other Local relief (concave, convex, none): None Slope (%): 0-2

Subregion (LRR): LRR F, MLRA 56 Lat: 46.5548548 Long: -96.9173103 Datum: NAD83

Soil Map Unit Name: Aberdeen-Ryan silty clay loams, 0 to 2 percent slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation ✓, Soil ✓, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:
Sample plot is located within a roadside ditch

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 3)			
1. *Ambrosia artemisiifolia*	25	Y	FACU
2. *Zea mays*	0	N	UPL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	25 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0.00	x 1 =	0.00
FACW species	0.00	x 2 =	0.00
FAC species	0.00	x 3 =	0.00
FACU species	25.00	x 4 =	100.00
UPL species	0.00	x 5 =	0.00
Column Totals:	25.00 (A)		100.00 (B)

Prevalence Index = B/A = 4.0

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:
Site visit was conducted after harvest of crops. Remnants of Zea mays can be found throughout the sample plot.

SOIL

Sampling Point: wrae002_u

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 2/1	90	7.5YR 5/2	10	C	M	SIL	Prominent redox.
3-11	10YR 2/1	100					SIL	
11-17	10YR 3/2	75	10YR 2/1	25	C	M	SIL	Faint redox.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

Site visit was conducted after crops had been harvested. The soil has been upturned during the harvesting process.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ✓ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

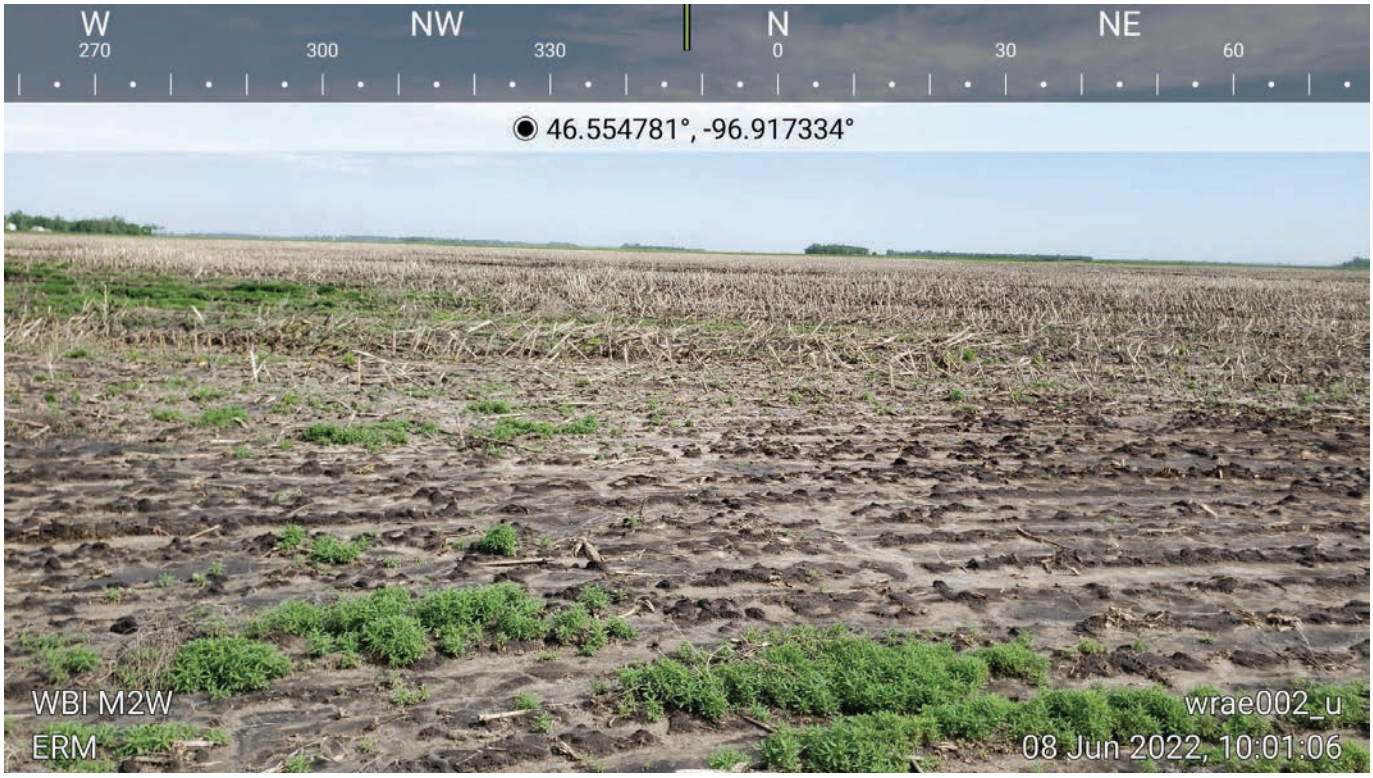
Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Site visit was conducted after crop harvest. Hydrology has been affected due to the use of heavy machinery.


W
270
NW
300
330
N
0
NE
30
60
46.554781°, -96.917334°
WBI M2W
ERM
wrae002_u
08 Jun 2022, 10:01:06

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: WBI M2W City/County: Richland County Sampling Date: 2022-06-08

Applicant/Owner: WBI State: North Dakota Sampling Point: wrae002e_w

Investigator(s): Mike Eldridge, Valerie Blamer Section, Township, Range: sec 36 T136N R050W

Landform (hillslope, terrace, etc.): Other Local relief (concave, convex, none): None Slope (%): 0-2

Subregion (LRR): LRR F, MLRA 56 Lat: 46.5547124 Long: -96.9171358 Datum: NAD83

Soil Map Unit Name: Fargo silty clay, 0 to 1 percent slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation ✓, Soil ✓, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes _____ No ✓	
Wetland Hydrology Present?	Yes ✓ No _____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 5)			
1. *Phalaris arundinacea*	40	Y	FACW
2. *Taraxacum officinale*	2	N	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	42 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0.00	x 1 =	0.00
FACW species	40.00	x 2 =	80.00
FAC species	0.00	x 3 =	0.00
FACU species	2.00	x 4 =	8.00
UPL species	0.00	x 5 =	0.00
Column Totals:	42.00 (A)		88.00 (B)

Prevalence Index = B/A = 2.1

Hydrophytic Vegetation Indicators:

✓ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: wrae002e_w

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-19	10YR 2/1	100					SIL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

Site visit was conducted after crops had been harvested. The soil has been upturned during the harvesting process.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ✓ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ✓ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes ✓ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Site visit was conducted after crops had been harvested. Farming equipment tracks and marks are found throughout the field, and has affected hydrology by creating ruts.


SE
150
S
180
210
SW
240
W
270
300
46.554588°, -96.916985°
WBI M2W
ERM
wrae002e_w
08 Jun 2022, 09:42:45

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: WBI M2W City/County: Richland County Sampling Date: 2022-06-08

Applicant/Owner: WBI State: North Dakota Sampling Point: wrae004_u

Investigator(s): Mike Eldridge, Valerie Blamer Section, Township, Range: sec 15 T135N R049W

Landform (hillslope, terrace, etc.): Other Local relief (concave, convex, none): None Slope (%): 0-2

Subregion (LRR): LRR F, MLRA 56 Lat: 46.5016689 Long: -96.9003262 Datum: NAD83

Soil Map Unit Name: Overly silty clay loam, 0 to 2 percent slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation ✓, Soil ✓, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No ____	**Is the Sampled Area within a Wetland?** Yes ____ No ✓
Hydric Soil Present?	Yes ____ No ✓	
Wetland Hydrology Present?	Yes ____ No ✓	

Remarks:
Sample plot is located within a roadside ditch

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 3)			
1. *Euphorbia cypressias*	25	Y	NI
2. *Phalaris arundinacea*	25	Y	FACW
3. *Equisetum hyemale*	15	Y	FACW
4. *Ambrosia artemisiifolia*	10	N	FACU
5.			
6.			
7.			
8.			
9.			
10.			
	75 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.67 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0.00	x 1 =	0.00
FACW species	40.00	x 2 =	80.00
FAC species	0.00	x 3 =	0.00
FACU species	10.00	x 4 =	40.00
UPL species	0.00	x 5 =	0.00
Column Totals:	50.00 (A)		120.00 (B)

Prevalence Index = B/A = 2.4

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks:

SOIL

Sampling Point: wrae004_u

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 3/1	100					SIL	
8-10	10YR 3/1	50	10YR 7/2	50	D	M	SIL	Prominent redox.
10-15	10YR 2/1	100					SIL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Compacted soil

Depth (inches): 15

Hydric Soil Present? Yes ____ No ✓

Remarks:

Site visit was conducted after crops had been harvested. The soil has been upturned during the harvesting process.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ✓ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes ____ No ✓ Depth (inches): ____

Water Table Present? Yes ____ No ✓ Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ____ No ✓ Depth (inches): ____

Wetland Hydrology Present? Yes ____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Site visit was conducted after crops had been harvested. Farming equipment tracks and marks are found throughout the field, and has affected hydrology by creating ruts.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: WBI M2W City/County: Richland County Sampling Date: 2022-06-08

Applicant/Owner: WBI State: North Dakota Sampling Point: wrae004e_w

Investigator(s): Mike Eldridge, Valerie Blamer Section, Township, Range: sec 18 T135N R049W

Landform (hillslope, terrace, etc.): Other Local relief (concave, convex, none): None Slope (%): 0-2

Subregion (LRR): LRR F, MLRA 56 Lat: 46.5016007 Long: -96.9002425 Datum: NAD83

Soil Map Unit Name: Mantador-Delamere-Elmville fine sandy loams, moderately saline, clayey substratum, 0 to 2 percent slopes NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation ✓, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓ No _____	
Wetland Hydrology Present?	Yes ✓ No _____	

Remarks:
Sample plot is location within a roadside ditch.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 5)			
1. *Phalaris arundinacea*	75	Y	FACW
2. *Taraxacum officinale*	5	N	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	80 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0.00	x 1 =	0.00
FACW species	75.00	x 2 =	150.00
FAC species	0.00	x 3 =	0.00
FACU species	5.00	x 4 =	20.00
UPL species	0.00	x 5 =	0.00
Column Totals:	80.00 (A)		170.00 (B)

Prevalence Index = B/A = 2.12

Hydrophytic Vegetation Indicators:

✓ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

✓ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: wrae004e_w

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** _____

Remarks:

Due to the presence of surface water, no soil sample was obtained; assuming hydric soils.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ✓ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✓ Geomorphic Position (D2)
- ✓ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes ✓ No _____ Depth (inches): 3

Water Table Present? Yes ✓ No _____ Depth (inches): 0

Saturation Present? (includes capillary fringe) Yes ✓ No _____ Depth (inches): 0

Wetland Hydrology Present? **Yes** ✓ **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:


NE
60
E
90
120
SE
150
S
180
210
46.501645°, -96.900279°
WBI M2W
ERM
wrae004e_w
08 Jun 2022, 11:34:51

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: WBI M2W City/County: Richland County Sampling Date: 2022-06-08

Applicant/Owner: WBI State: North Dakota Sampling Point: wrae005_u

Investigator(s): Mike Eldridge, Valerie Blamer Section, Township, Range: sec 34 T135N R049W

Landform (hillslope, terrace, etc.): Other Local relief (concave, convex, none): None Slope (%): 0-2

Subregion (LRR): LRR F, MLRA 56 Lat: 46.4564754 Long: -96.8201146 Datum: NAD83

Soil Map Unit Name: Ryan-Fargo silty clays, 0 to 1 percent slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation ✓, Soil ✓, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 3)			
1. *Phalaris arundinacea*	25	Y	FACW
2. *Poa pratensis*	15	Y	FACU
3. *Taraxacum officinale*	2	N	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	42 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0.00	x 1 =	0.00
FACW species	25.00	x 2 =	50.00
FAC species	0.00	x 3 =	0.00
FACU species	17.00	x 4 =	68.00
UPL species	0.00	x 5 =	0.00
Column Totals:	42.00 (A)		118.00 (B)

Prevalence Index = B/A = 2.81

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

SOIL

Sampling Point: wrae005_u

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-11	10YR 3/1	100					SIC	
11-17	10YR 2/1	75	10YR 4/1	25	C	M	CL	Faint redox.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

Site visit was conducted after crops had been harvested. The soil has been upturned during the harvesting process.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ✓ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? **Yes** ✓ **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Site visit was conducted after crops had been harvested. Farming equipment tracks and marks are found throughout the field, and has affected hydrology by creating ruts.


S
180
SW
210
240
W
270
300
NW
330
46.456487°, -96.820123°
WBI M2W
wrae005_u
08 Jun 2022, 13:08:46

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: WBI M2W City/County: Richland County Sampling Date: 2022-06-08

Applicant/Owner: WBI State: North Dakota Sampling Point: wrae005e_w

Investigator(s): Mike Eldridge, Valerie Blamer Section, Township, Range: sec 34 T135N R049W

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): None Slope (%): 0-2

Subregion (LRR): LRR F, MLRA 56 Lat: 46.4564593 Long: -96.8200955 Datum: NAD83

Soil Map Unit Name: Ryan-Fargo silty clays, 0 to 1 percent slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ✓ No _____ Hydric Soil Present? Yes ✓ No _____ Wetland Hydrology Present? Yes ✓ No _____	**Is the Sampled Area within a Wetland?** **Yes ✓ No _____**

Remarks:
Sample plot is location within a roadside ditch.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5)			
1. *Phalaris arundinacea*	50	Y	FACW
2. *Rumex crispus*	25	Y	FAC
3. *Taraxacum officinale*	2	N	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	77 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0.00	x 1 =	0.00
FACW species	50.00	x 2 =	100.00
FAC species	25.00	x 3 =	75.00
FACU species	2.00	x 4 =	8.00
UPL species	0.00	x 5 =	0.00
Column Totals:	77.00 (A)		183.00 (B)

Prevalence Index = B/A = 2.38

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ✓ No _____**

Remarks:

SOIL

Sampling Point: wrae005e_w

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 2/1	60	10YR 5/6	40	RM	M	SIL	Prominent redox.
4-15	10YR 2/1	50	10YR 5/2	50	C	M	SIL	Distinct redox.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ✓ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Compacted soil

Depth (inches): 15

Hydric Soil Present? **Yes** ✓ **No** ___

Remarks:

Due to the presence of surface water, no soil sample was obtained; assuming hydric soils.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ✓ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✓ Geomorphic Position (D2)
- ✓ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ___

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): ___

Wetland Hydrology Present? **Yes** ✓ **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:


N
NE
E
SE
0
30
60
90
120
150
46.456472°, -96.820091°
WBI M2W
wrae005e_w
08 Jun 2022, 12:58:36

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: WBI M2W City/County: Richland County Sampling Date: 2022-06-08

Applicant/Owner: WBI State: North Dakota Sampling Point: wrae006_u

Investigator(s): Mike Eldridge, Valerie Blamer Section, Township, Range: sec 10 T134N R049W

Landform (hillslope, terrace, etc.): Other Local relief (concave, convex, none): None Slope (%): 0-2

Subregion (LRR): LRR F, MLRA 56 Lat: 46.4353783 Long: -96.8193897 Datum: NAD83

Soil Map Unit Name: Orthents-Aquents-Urban Land, highway complex, 0 to 35 percent slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation ✓, Soil ✓, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 5)			
1. *Phalaris arundinacea*	25	Y	FACW
2. *Zea mays*	25	Y	UPL
3. *Poa pratensis*	15	Y	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	65 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.33 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0.00	x 1 =	0.00
FACW species	25.00	x 2 =	50.00
FAC species	0.00	x 3 =	0.00
FACU species	15.00	x 4 =	60.00
UPL species	25.00	x 5 =	125.00
Column Totals:	65.00 (A)		235.00 (B)

Prevalence Index = B/A = 3.62

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

SOIL

Sampling Point: wrae006_u

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1	10YR 3/2	90	10YR 5/4	10	C	M	SIC	Distinct redox.
1-13	10YR 3/1	75	10YR 3/2	25	C	M	SIL	Faint redox.
13-20	10YR 2/1	100					SIL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

Site visit was conducted after crops had been harvested. The soil has been upturned during the harvesting process.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ✓ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? **Yes** ✓ **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Site visit was conducted after crops had been harvested. Farming equipment tracks and marks are found throughout the field, and has affected hydrology by creating ruts.


SE
120
150
210
SW
240
46.435305°, -96.819423°
WBI M2W
ERM
wrae006_u
08 Jun 2022, 13:31:36

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: WBI M2W City/County: Richland County Sampling Date: 2022-06-08

Applicant/Owner: WBI State: North Dakota Sampling Point: wrae006e_w

Investigator(s): Mike Eldridge, Valerie Blamer Section, Township, Range: sec 11 T134N R049W

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): None Slope (%): 0-2

Subregion (LRR): LRR F, MLRA 56 Lat: 46.4353831 Long: -96.8194659 Datum: NAD83

Soil Map Unit Name: Aberdeen-Ryan silty clay loams, 0 to 2 percent slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓ No _____	
Wetland Hydrology Present?	Yes ✓ No _____	

Remarks:
Sample plot is location within a roadside ditch.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 5)			
1. *Phalaris arundinacea*	50	Y	FACW
2. *Alopecurus pratensis*	25	Y	FACW
3. *Symphoricarpos occidentalis*	25	Y	UPL
4. *Poa pratensis*	10	N	FACU
5.			
6.			
7.			
8.			
9.			
10.			
	110 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.67 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0.00	x 1 =	0.00
FACW species	75.00	x 2 =	150.00
FAC species	0.00	x 3 =	0.00
FACU species	10.00	x 4 =	40.00
UPL species	25.00	x 5 =	125.00
Column Totals:	110.00 (A)		315.00 (B)

Prevalence Index = B/A = 2.86

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: wrae006e_w

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 2/1	95	10YR 3/2	5	C	M	SIL	Faint redox.
8-14	10YR 4/2	90	10YR 6/4	10	C	M	SIL	Distinct redox.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** _____

Remarks:

Due to the presence of surface water, no soil sample was obtained; assuming hydric soils.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ✓ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✓ Geomorphic Position (D2)
- ✓ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? **Yes** ✓ **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:


E
90
SE
120
150
S
180
210
SW
240
46.435343°, -96.819428°
WBI M2W
ERM
wrae006e_w
08 Jun 2022, 13:22:02

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: WBI M2W City/County: Richland County Sampling Date: 2022-06-08

Applicant/Owner: WBI State: North Dakota Sampling Point: wrae007_u

Investigator(s): Mike Eldridge, Valerie Blamer Section, Township, Range: sec 14 T134N R049W

Landform (hillslope, terrace, etc.): Other Local relief (concave, convex, none): None Slope (%): 0-2

Subregion (LRR): LRR F, MLRA 56 Lat: 46.4331941 Long: -96.8194877 Datum: NAD83

Soil Map Unit Name: Aberdeen-Ryan silty clay loams, 0 to 2 percent slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation ✓, Soil ✓, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 5)			
1. *Phalaris arundinacea*	25	Y	FACW
2. *Zea mays*	25	Y	UPL
3. *Poa pratensis*	15	Y	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	65 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.33 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0.00	x 1 =	0.00
FACW species	25.00	x 2 =	50.00
FAC species	0.00	x 3 =	0.00
FACU species	15.00	x 4 =	60.00
UPL species	25.00	x 5 =	125.00
Column Totals:	65.00 (A)		235.00 (B)

Prevalence Index = B/A = 3.62

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

SOIL

Sampling Point: wrae007_u

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 2/1	95	10YR 4/1	5	C	M	SIL	Faint redox.
2-16	10YR 2/1	100					SIL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

Site visit was conducted after crops had been harvested. The soil has been upturned during the harvesting process.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ✓ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? **Yes** ✓ **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Site visit was conducted after crops had been harvested. Farming equipment tracks and marks are found throughout the field, and has affected hydrology by creating ruts.


NW
N
NE
E
300
330
0
30
60
90
46.433194°, -96.819487°
WBI M2W
ERM
wrae007_u
08 Jun 2022, 13:43:30

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: WBI M2W City/County: Richland County Sampling Date: 2022-06-08

Applicant/Owner: WBI State: North Dakota Sampling Point: wrae007e_w

Investigator(s): Mike Eldridge, Valerie Blamer Section, Township, Range: sec 11 T134N R049W

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): None Slope (%): 0-2

Subregion (LRR): LRR F, MLRA 56 Lat: 46.4332431 Long: -96.8195222 Datum: NAD83

Soil Map Unit Name: Overly silty clay loam, 0 to 2 percent slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓ No _____	
Wetland Hydrology Present?	Yes ✓ No _____	

Remarks:
Sample plot is location within a roadside ditch.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 5)			
1. *Phalaris arundinacea*	50	Y	FACW
2. *Alopecurus pratensis*	25	Y	FACW
3. *Symphoricarpos occidentalis*	25	Y	UPL
4. *Poa pratensis*	10	N	FACU
5.			
6.			
7.			
8.			
9.			
10.			
	110 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.67 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0.00	x 1 =	0.00
FACW species	75.00	x 2 =	150.00
FAC species	0.00	x 3 =	0.00
FACU species	10.00	x 4 =	40.00
UPL species	25.00	x 5 =	125.00
Column Totals:	110.00 (A)		315.00 (B)

Prevalence Index = B/A = 2.86

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: wrae007e_w

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-9	10YR 2/1	100					SIL	
9-15	10YR 4/2	90	10YR 2/1	10	C	M	SIC	Faint redox.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** _____

Remarks:

Due to the presence of surface water, no soil sample was obtained; assuming hydric soils.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ✓ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✓ Geomorphic Position (D2)
- ✓ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? **Yes** ✓ **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:


NW
N
NE
E
300
330
0
30
60
90
46.433279°, -96.819472°
WBI M2W
ERM
wrae007e_w
08 Jun 2022, 13:39:36

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: WBI M2W City/County: Richland County Sampling Date: 2022-08-16

Applicant/Owner: WBI State: North Dakota Sampling Point: wrie008e_u

Investigator(s): Mike Eldridge, Valerie Blamer Section, Township, Range: sec 22 T133N R049W

Landform (hillslope, terrace, etc.): Other Local relief (concave, convex, none): None Slope (%): 0-2

Subregion (LRR): LRR F, MLRA 56 Lat: 46.312314 Long: -96.830312 Datum: NAD83

Soil Map Unit Name: Orthents-Aquents-Urban Land, highway complex, 0 to 35 percent slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation ✓, Soil ✓, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No ✓	**Is the Sampled Area within a Wetland?** Yes ____ No ✓
Hydric Soil Present?	Yes ✓	No ____	
Wetland Hydrology Present?	Yes ____	No ✓	

Remarks:
Sample plot is location within a roadside ditch.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: 5)			
1. *Poa pratensis*	50	Y	FACU
2. *Ambrosia artemisiifolia*	30	Y	FACU
3. *Trifolium pratense*	10	N	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	90 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0.00	x 1 =	0.00
FACW species	0.00	x 2 =	0.00
FAC species	0.00	x 3 =	0.00
FACU species	90.00	x 4 =	360.00
UPL species	0.00	x 5 =	0.00
Column Totals:	90.00 (A)		360.00 (B)

Prevalence Index = B/A = 4.0

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No ✓

Remarks:

SOIL

Sampling Point: wrie008e_u

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 2/1	80	10YR 3/1	20	C	M	SIL	
4-16	10YR 2/1	95	10YR 5/2	5	C	M	SIL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Hardpan/gravel

Depth (inches): 16

Hydric Soil Present? **Yes** ✓ **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ___

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

wrie008e_u. looking south.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: WBI M2W City/County: Richland County Sampling Date: 2022-08-16

Applicant/Owner: WBI State: North Dakota Sampling Point: wrie008e_w

Investigator(s): Mike Eldridge, Valerie Blamer Section, Township, Range: sec 18 T133N R047W

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): None Slope (%): 0-2

Subregion (LRR): LRR F, MLRA 56 Lat: 46.333164 Long: -96.652991 Datum: NAD83

Soil Map Unit Name: Clearwater-Reis silty clays, loamy substratum, 0 to 1 percent slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation ✓, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓ No _____	
Wetland Hydrology Present?	Yes ✓ No _____	

Remarks:
Sample plot is location within a roadside ditch.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 5)			
1. *Alopecurus pratensis*	40	Y	FACW
2. *Ambrosia artemisiifolia*	25	Y	FACU
3. *Poa pratensis*	10	N	FACU
4. *Phalaris arundinacea*	5	N	FACW
5.			
6.			
7.			
8.			
9.			
10.			
	115 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0.00	x 1 =	0.00
FACW species	45.00	x 2 =	90.00
FAC species	0.00	x 3 =	0.00
FACU species	35.00	x 4 =	140.00
UPL species	0.00	x 5 =	0.00
Column Totals:	80.00 (A)		230.00 (B)

Prevalence Index = B/A = 2.88

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: wrie008e_w

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-9	10YR 2/1	100			C	M	SIL	
9-12	10YR 4/2	75	10YR 2/1	25	C	M	SIL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ✓ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Hardpan/gravel

Depth (inches): 12

Hydric Soil Present? Yes ✓ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ✓ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✓ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ___

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): ___

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Plot is located in the centerline of a roadside ditch.

wrie008e_u, looking south.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: WBI M2W City/County: Richland County Sampling Date: 2022-08-17

Applicant/Owner: WBI State: North Dakota Sampling Point: wrie009e_u

Investigator(s): Mike Eldridge, Valerie Blamer Section, Township, Range: sec 02 T136N R050W

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): None Slope (%): 0-2

Subregion (LRR): LRR F, MLRA 56 Lat: 46.617340 Long: -96.928239 Datum: NAD83

Soil Map Unit Name: Fargo silty clay, 0 to 1 percent slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation ✓, Soil ✓, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:
Sample plot is location within a roadside ditch.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 5)			
1. *Glycine max*	75	Y	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	75 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0.00	x 1 =	0.00
FACW species	0.00	x 2 =	0.00
FAC species	0.00	x 3 =	0.00
FACU species	0.00	x 4 =	0.00
UPL species	75.00	x 5 =	375.00
Column Totals:	75.00 (A)		375.00 (B)

Prevalence Index = B/A = 5.0

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

SOIL

Sampling Point: wrie009e_u

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 2/1	100					SIC	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ✓ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

wrie009e_w, looking west.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: WBI M2W City/County: Richland County Sampling Date: 2022-08-17

Applicant/Owner: WBI State: North Dakota Sampling Point: wrie009e w

Investigator(s): Mike Eldridge, Valerie Blamer Section, Township, Range: sec 02 T136N R050W

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): None Slope (%): 0-2

Subregion (LRR): LRR F, MLRA 56 Lat: 46.617340 Long: -96.928239 Datum: NAD83

Soil Map Unit Name: Fargo silty clay, 0 to 1 percent slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation ✓, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No _____	**Is the Sampled Area within a Wetland?** **Yes ✓ No _____**
Hydric Soil Present?	Yes ✓ No _____	
Wetland Hydrology Present?	Yes ✓ No _____	

Remarks:
Sample plot is location within a roadside ditch.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 5)			
1. *Phalaris arundinacea*	50	Y	FACW
2. *Poa pratensis*	5	N	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	55 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0.00	x 1 =	0.00
FACW species	50.00	x 2 =	100.00
FAC species	0.00	x 3 =	0.00
FACU species	5.00	x 4 =	20.00
UPL species	0.00	x 5 =	0.00
Column Totals:	55.00 (A)		120.00 (B)

Prevalence Index = B/A = 2.18

Hydrophytic Vegetation Indicators:

✓ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ✓ No _____**

Remarks:

SOIL

Sampling Point: wrie009e_w

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** _____

Remarks:

Due to the presence of surface water, no soil sample was obtained; assuming hydric soils.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ✓ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ✓ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✓ Geomorphic Position (D2)
- ✓ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes ✓ No ____ Depth (inches): 3

Water Table Present? Yes ✓ No ____ Depth (inches): 0

Saturation Present? (includes capillary fringe) Yes ✓ No ____ Depth (inches): 0

Wetland Hydrology Present? **Yes** ✓ **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Plot is located in the centerline of a roadside ditch.

wrie009e_w, looking northwest.

Waterbody Data Sheet

Description

Project Name:		Date:	Waterbody Survey ID:
Wahpeton Expansion		6/7/2022	scae002i
State: North Dakota	**County/Parish:** Cass		
Company: ERM	**Crew Member Initials:** ME, VB	**Latitude:** 46.811707	**Longitude:** -96.989673

Survey Type: *(check one)* ☑ Centerline ☐ Re-Route ☐Access Road ☐Facility ☐Other

Waterbody Type: *(check one)* ☐ River ☐ Stream ☑ Ditch ☐ Swale ☐ Canal ☐ Other

Water Appearance: *(check one)* ☐ No Water ☐ Clear ☐Turbid ☐Sheen on Surface ☐Surface Scum ☐Algal Mats ☐Other

Feature Quality[a]**:** *(check one)* ☐ High ☐ Moderate ☑ Low

Feature Description: *(check one)* ☐ Natural ☑ Artificial, man-made ☐ Manipulated

Flow Regime: *(check one)* ☐ Ephemeral ☑ Intermittent ☐ Perennial ☐ Connecting Swale

Sinuosity within Survey Corridor: *(check one)* ☑ Straight ☐ Meandering

Description Notes:
Mud substrate, no water. Vegetated waterbody bottom.

Measurements

Depth of Water: _____ ft. N/A☐ Unknown☐	Water Edge to Water Edge: 0 ft. N/A☐	OHWM Width: 4 ft.

OHWM Indicator: *(check all that apply)*
☑ Clear line on bank ☐Shelving ☐Wrested vegetation ☐Scouring ☐Water staining
☐Bent, matted, or missing vegetation ☐Wrack line ☐Litter and debris ☐Abrupt plant community change ☐Soil characteristic change

Dominant Substrate: *(check all that apply)* ☐ Bedrock ☐ Boulder ☐ Cobble ☐ Gravel ☐ Sand ☐ Silt/ clay ☑ Organic

Observations

Riparian Zone Present: *(check one)* ☐ Yes ☑ No

Vegetation Layers: *(check all that apply)* ☐ Trees ☐ Saplings/Shrubs ☑ Herbs

Dominant Bank Vegetation *(list)***:**
Reed canary grass

Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools, etc.)**:**

Aquatic Organisms Observed *(list)***:**

Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes)**:**

Observation Notes:
Roadside ditch

Downstream, looking south.

Waterbody Data Sheet

Description

Project Name:		Date:	Waterbody Survey ID:
Wahpeton Expansion		6/7/2022	scae003e
State: North Dakota	**County/Parish:** Cass		
Company: ERM	**Crew Member Initials:** ME, VB	**Latitude:** 46.644679	**Longitude:** -96.978598

Survey Type: *(check one)* ☑ Centerline ☐ Re-Route ☐Access Road ☐Facility ☐Other

Waterbody Type: *(check one)* ☐ River ☐ Stream ☑ Ditch ☐ Swale ☐ Canal ☐ Other

Water Appearance: *(check one)* ☐ No Water ☐ Clear ☐Turbid ☐Sheen on Surface ☐Surface Scum ☐Algal Mats ☐Other

Feature Quality[a]**:** *(check one)* ☐ High ☐ Moderate ☑ Low

Feature Description: *(check one)* ☐ Natural ☑ Artificial, man-made ☐ Manipulated

Flow Regime: *(check one)* ☐ Ephemeral ☑ Intermittent ☐ Perennial ☐ Connecting Swale

Sinuosity within Survey Corridor: *(check one)* ☑ Straight ☐ Meandering

Description Notes:

Mud substrate, no water. Vegetated waterbody bottom.

Measurements

Depth of Water: _____ ft. N/A☐ Unknown☐	Water Edge to Water Edge: 0 ft. N/A☐	OHWM Width: 4 ft.

OHWM Indicator: *(check all that apply)*
☑ Clear line on bank ☐Shelving ☐Wrested vegetation ☐Scouring ☐Water staining
☐Bent, matted, or missing vegetation ☐Wrack line ☐Litter and debris ☐Abrupt plant community change ☐Soil characteristic change

Dominant Substrate: *(check all that apply)* ☐ Bedrock ☐ Boulder ☐ Cobble ☐ Gravel ☐ Sand ☐ Silt/ clay ☑ Organic

Observations

Riparian Zone Present: *(check one)* ☐ Yes ☑ No

Vegetation Layers: *(check all that apply)* ☐ Trees ☐ Saplings/Shrubs ☑ Herbs

Dominant Bank Vegetation *(list)***:**
Reed canary grass

Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools, etc.)**:**

Aquatic Organisms Observed *(list)***:**

Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes)**:**

Observation Notes:
Roadside ditch

Downstream, looking southeast.

Waterbody Data Sheet

Description

Project Name:		Date:	Waterbody Survey ID:
Wahpeton Expansion		6/7/2022	scae004e
State: North Dakota	**County/Parish:** Cass		
Company: ERM	**Crew Member Initials:** ME, VB	**Latitude:** 46.74653	**Longitude:** -96.989855

Survey Type: *(check one)* ☑ Centerline ☐ Re-Route ☐Access Road ☐Facility ☐Other

Waterbody Type: *(check one)* ☐ River ☐ Stream ☑ Ditch ☐ Swale ☐ Canal ☐ Other

Water Appearance: *(check one)* ☐ No Water ☐ Clear ☐Turbid ☐Sheen on Surface ☐Surface Scum ☐Algal Mats ☐Other

Feature Quality[a]**:** *(check one)* ☐ High ☐ Moderate ☑ Low

Feature Description: *(check one)* ☐ Natural ☑ Artificial, man-made ☐ Manipulated

Flow Regime: *(check one)* ☐ Ephemeral ☑ Intermittent ☐ Perennial ☐ Connecting Swale

Sinuosity within Survey Corridor: *(check one)* ☑ Straight ☐ Meandering

Description Notes:
Mud substrate, no water. Vegetated waterbody bottom.

Measurements

Depth of Water: _____ ft. N/A☐ Unknown☐ | **Water Edge to Water Edge:** 0 ft. N/A☐ | **OHWM Width:** 4 ft.

OHWM Indicator: *(check all that apply)* ☑ Clear line on bank ☐Shelving ☐Wrested vegetation ☐Scouring ☐Water staining ☐Bent, matted, or missing vegetation ☐Wrack line ☐Litter and debris ☐Abrupt plant community change ☐Soil characteristic change

Dominant Substrate: *(check all that apply)* ☐ Bedrock ☐ Boulder ☐ Cobble ☐ Gravel ☐ Sand ☐ Silt/ clay ☑ Organic

Observations

Riparian Zone Present: *(check one)* ☐ Yes ☑ No

Vegetation Layers: *(check all that apply)* ☐ Trees ☐ Saplings/Shrubs ☑ Herbs

Dominant Bank Vegetation *(list)***:**
Reed canary grass

Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools, etc.)**:**

Aquatic Organisms Observed *(list)***:**

Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes)**:**

Observation Notes:
Roadside ditch

Downstream, looking west.

Waterbody Data Sheet

Description

Project Name:		Date:	Waterbody Survey ID:
Wahpeton Expansion		8/16/2022	scae004p
State: North Dakota	**County/Parish:** Cass		
Company: ERM	**Crew Member Initials:** ME, VB	**Latitude:** 46.39178	**Longitude:** -96.757418

Survey Type: *(check one)* ☑ Centerline ☐ Re-Route ☐Access Road ☐Facility ☐Other

Waterbody Type: *(check one)* ☑ River ☐ Stream ☐ Ditch ☐ Swale ☐ Canal ☐ Other

Water Appearance: *(check one)* ☐ No Water ☐ Clear ☑Turbid ☐Sheen on Surface ☐Surface Scum ☐Algal Mats ☐Other

Feature Quality [a]**:** *(check one)* ☑ High ☐ Moderate ☐ Low

Feature Description: *(check one)* ☑ Natural ☐ Artificial, man-made ☐ Manipulated

Flow Regime: *(check one)* ☐ Ephemeral ☐ Intermittent ☑ Perennial ☐ Connecting Swale

Sinuosity within Survey Corridor: *(check one)* ☐ Straight ☑ Meandering

Description Notes:

Mud substrate, flowing water (steady pace, slow), multiple fallen trees located inside channel.

Measurements

Depth of Water: 0.5 ft. N/A☐ Unknown☐ | **Water Edge to Water Edge:** 10 ft. N/A☐ | **OHWM Width:** 25 ft.

OHWM Indicator: *(check all that apply)*
☐ Clear line on bank ☑Shelving ☐Wrested vegetation ☑Scouring ☑Water staining
☑Bent, matted, or missing vegetation ☐Wrack line ☐Litter and debris ☑Abrupt plant community change ☑Soil characteristic change

Dominant Substrate: *(check all that apply)* ☐ Bedrock ☐ Boulder ☐ Cobble ☐ Gravel ☐ Sand ☐ Silt/ clay ☑ Organic

Observations

Riparian Zone Present: *(check one)* ☑ Yes ☐ No

Vegetation Layers: *(check all that apply)* ☐ Trees ☑ Saplings/Shrubs ☑ Herbs

Dominant Bank Vegetation *(list)***:**

Reed canary grass, annual ragweed, Canadian wood nettle, Pennsylvania knotweed

Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools, etc.)**:**

Aquatic Organisms Observed *(list)***:**

Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes)**:**

Observation Notes:

Antelope River

Downstream, looking northwest.

Waterbody Data Sheet

Description

Project Name:		Date:	Waterbody Survey ID:
Wahpeton Expansion		8/17/2022	scae005i
State: North Dakota	**County/Parish:** Richland		
Company: ERM	**Crew Member Initials:** ME, VB	**Latitude:** 46.528461	**Longitude:** -96.916825

Survey Type: *(check one)* ☑ Centerline ☐ Re-Route ☐Access Road ☐Facility ☐Other

Waterbody Type: *(check one)* ☐ River ☑ Stream ☐ Ditch ☐ Swale ☐ Canal ☐ Other

Water Appearance: *(check one)* ☑ No Water ☐ Clear ☐ Turbid ☐Sheen on Surface ☐Surface Scum ☐Algal Mats ☐Other

Feature Quality[a]**:** *(check one)* ☐ High ☑ Moderate ☐ Low

Feature Description: *(check one)* ☐ Natural ☑ Artificial, man-made ☐ Manipulated

Flow Regime: *(check one)* ☐ Ephemeral ☑ Intermittent ☐ Perennial ☐ Connecting Swale

Sinuosity within Survey Corridor: *(check one)* ☑ Straight ☐ Meandering

Description Notes:

Mud substrate, multiple fallen trees and trees growing inside channel.

Measurements

Depth of Water: _____ ft. N/A☑ Unknown☐ | **Water Edge to Water Edge:** _____ ft. N/A☑ | **OHWM Width:** 5 ft.

OHWM Indicator: *(check all that apply)* ☐ Clear line on bank ☐ Shelving ☐Wrested vegetation ☑Scouring ☑Water staining ☑Bent, matted, or missing vegetation ☐Wrack line ☐Litter and debris ☑Abrupt plant community change ☑Soil characteristic change

Dominant Substrate: *(check all that apply)* ☐ Bedrock ☐ Boulder ☐ Cobble ☐ Gravel ☐ Sand ☐ Silt/ clay ☑ Organic

Observations

Riparian Zone Present: *(check one)* ☑ Yes ☐ No

Vegetation Layers: *(check all that apply)* ☑ Trees ☑ Saplings/Shrubs ☐ Herbs

Dominant Bank Vegetation *(list)***:**

Eastern cottonwood, multiple oak species, reed canary grass, poison ivy

Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools, etc.)**:**

Aquatic Organisms Observed *(list)***:**

Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes)**:**

Observation Notes:

Upstream, looking west.

Waterbody Data Sheet

Description

Project Name:		Date:	Waterbody Survey ID:
Wahpeton Expansion		8/17/2022	scae006i
State: North Dakota	**County/Parish:** Richland		
Company: ERM	**Crew Member Initials:** ME, VB	**Latitude:** 46.528741	**Longitude:** -96.91386

Survey Type: *(check one)* ☑ Centerline ☐ Re-Route ☐Access Road ☐Facility ☐Other

Waterbody Type: *(check one)* ☐ River ☑ Stream ☐ Ditch ☐ Swale ☐ Canal ☐ Other

Water Appearance: *(check one)* ☑ No Water ☐ Clear ☐ Turbid ☐Sheen on Surface ☐Surface Scum ☐Algal Mats ☐Other

Feature Quality[a]**:** *(check one)* ☐ High ☑ Moderate ☐ Low

Feature Description: *(check one)* ☐ Natural ☑ Artificial, man-made ☐ Manipulated

Flow Regime: *(check one)* ☐ Ephemeral ☑ Intermittent ☐ Perennial ☐ Connecting Swale

Sinuosity within Survey Corridor: *(check one)* ☑ Straight ☐ Meandering

Description Notes:

Mud substrate, multiple fallen trees and trees growing inside channel.

Measurements

Depth of Water: _____ ft. N/A☑ Unknown☐ | **Water Edge to Water Edge:** _____ ft. N/A☑ | **OHWM Width:** 5 ft.

OHWM Indicator: *(check all that apply)* ☐ Clear line on bank ☐ Shelving ☐Wrested vegetation ☑Scouring ☑Water staining ☑Bent, matted, or missing vegetation ☐Wrack line ☐Litter and debris ☑Abrupt plant community change ☑Soil characteristic change

Dominant Substrate: *(check all that apply)* ☐ Bedrock ☐ Boulder ☐ Cobble ☐ Gravel ☐ Sand ☐ Silt/ clay ☑ Organic

Observations

Riparian Zone Present: *(check one)* ☑ Yes ☐ No

Vegetation Layers: *(check all that apply)* ☑ Trees ☑ Saplings/Shrubs ☐ Herbs

Dominant Bank Vegetation *(list)***:**

Eastern cottonwood, multiple oak species, reed canary grass, poison ivy

Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools, etc.)**:**

Aquatic Organisms Observed *(list)***:**

Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes)**:**

Observation Notes:

Upstream, looking west.

Waterbody Data Sheet

Description

Project Name:		Date:	Waterbody Survey ID:
Wahpeton Expansion		8/16/2022	srie001_e
State: North Dakota	**County/Parish:** Richland		
Company: ERM	**Crew Member Initials:** ME, VB	**Latitude:** 46.354927	**Longitude:** -96.663349

Survey Type: *(check one)* ☑ Centerline ☐ Re-Route ☐Access Road ☐Facility ☐Other

Waterbody Type: *(check one)* ☐ River ☐ Stream ☑ Ditch ☐ Swale ☐ Canal ☐ Other

Water Appearance: *(check one)* ☐ No Water ☐ Clear ☐Turbid ☐Sheen on Surface ☐Surface Scum ☐Algal Mats ☐Other

Feature Quality[a]**:** *(check one)* ☐ High ☐ Moderate ☑ Low

Feature Description: *(check one)* ☐ Natural ☑ Artificial, man-made ☐ Manipulated

Flow Regime: *(check one)* ☑ Ephemeral ☐ Intermittent ☐ Perennial ☐ Connecting Swale

Sinuosity within Survey Corridor: *(check one)* ☐ Straight ☑ Meandering

Description Notes:
Mud substrate, no water. Vegetated waterbody bottom.

Measurements

Depth of Water: _____ ft. N/A☐ Unknown☐ | **Water Edge to Water Edge:** 0 ft. N/A☐ | **OHWM Width:** 4 ft.

OHWM Indicator: *(check all that apply)* ☑ Clear line on bank ☐Shelving ☐Wrested vegetation ☐Scouring ☐Water staining ☑Bent, matted, or missing vegetation ☐Wrack line ☐Litter and debris ☑Abrupt plant community change ☐Soil characteristic change

Dominant Substrate: *(check all that apply)* ☐ Bedrock ☐ Boulder ☐ Cobble ☐ Gravel ☐ Sand ☐ Silt/ clay ☑ Organic

Observations

Riparian Zone Present: *(check one)* ☐ Yes ☑ No

Vegetation Layers: *(check all that apply)* ☐ Trees ☐ Saplings/Shrubs ☑ Herbs

Dominant Bank Vegetation *(list)***:**
Reed canary grass, Kentucky blue grass

Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools, etc.)**:**

Aquatic Organisms Observed *(list)***:**

Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes)**:**

Observation Notes:
Agricultural drainage ditch

Upstream, looking southeast.

Waterbody Data Sheet

Description

Project Name:		Date:	Waterbody Survey ID:
Wahpeton Expansion		8/16/2022	srie002_e
State: North Dakota	**County/Parish:** Richland		
Company: ERM	**Crew Member Initials:** ME, VB	**Latitude:** 46.373249	**Longitude:** -96.68075

Survey Type: *(check one)* ☑ Centerline ☐ Re-Route ☐Access Road ☐Facility ☐Other

Waterbody Type: *(check one)* ☐ River ☐ Stream ☐ Ditch ☑ Swale ☐ Canal ☐ Other

Water Appearance: *(check one)* ☐ No Water ☐ Clear ☐Turbid ☐Sheen on Surface ☐Surface Scum ☐Algal Mats ☐Other

Feature Quality[a]**:** *(check one)* ☐ High ☐ Moderate ☑ Low

Feature Description: *(check one)* ☐ Natural ☑ Artificial, man-made ☐ Manipulated

Flow Regime: *(check one)* ☑ Ephemeral ☐ Intermittent ☐ Perennial ☐ Connecting Swale

Sinuosity within Survey Corridor: *(check one)* ☐ Straight ☑ Meandering

Description Notes:

Mud substrate, no water. Vegetated waterbody bottom.

Measurements

Depth of Water:	Water Edge to Water Edge:	OHWM Width:
_____ ft. N/A☐ Unknown☐	0 ft. N/A☐	4 ft.

OHWM Indicator: *(check all that apply)*

☐ Clear line on bank ☐Shelving ☐Wrested vegetation ☐Scouring ☐Water staining

☑Bent, matted, or missing vegetation ☐Wrack line ☐Litter and debris ☑Abrupt plant community change ☐Soil characteristic change

Dominant Substrate: *(check all that apply)* ☐ Bedrock ☐ Boulder ☐ Cobble ☐ Gravel ☐ Sand ☐ Silt/ clay ☑ Organic

Observations

Riparian Zone Present: *(check one)* ☐ Yes ☑ No

Vegetation Layers: *(check all that apply)* ☐ Trees ☐ Saplings/Shrubs ☑ Herbs

Dominant Bank Vegetation *(list)***:**

Reed canary grass, Kentucky blue grass, annual ragweed.

Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools, etc.)**:**

Aquatic Organisms Observed *(list)***:**

Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes)**:**

Observation Notes:

Agricultural drainage ditch

Downstream, looking southeast.

Waterbody Data Sheet

Description

Project Name:		Date:	Waterbody Survey ID:
Wahpeton Expansion		8/16/2022	srie003e
State: North Dakota	**County/Parish:** Cass		
Company: ERM	**Crew Member Initials:** ME, VB	**Latitude:** 46.295485	**Longitude:** -96.621801

Survey Type: *(check one)* ☑ Centerline ☐ Re-Route ☐Access Road ☐Facility ☐Other

Waterbody Type: *(check one)* ☐ River ☐ Stream ☑ Ditch ☐ Swale ☐ Canal ☐ Other

Water Appearance: *(check one)* ☐ No Water ☐ Clear ☐Turbid ☐Sheen on Surface ☐Surface Scum ☐Algal Mats ☐Other

Feature Quality[a]**:** *(check one)* ☐ High ☐ Moderate ☑ Low

Feature Description: *(check one)* ☐ Natural ☑ Artificial, man-made ☐ Manipulated

Flow Regime: *(check one)* ☑ Ephemeral ☐ Intermittent ☐ Perennial ☐ Connecting Swale

Sinuosity within Survey Corridor: *(check one)* ☑ Straight ☐ Meandering

Description Notes:
Mud substrate, no water. Vegetated waterbody bottom.

Measurements

Depth of Water: _____ ft. N/A☐ Unknown☐ | **Water Edge to Water Edge:** 0 ft. N/A☐ | **OHWM Width:** 4 ft.

OHWM Indicator: *(check all that apply)* ☐ Clear line on bank ☐Shelving ☐Wrested vegetation ☐Scouring ☑Water staining ☑Bent, matted, or missing vegetation ☐Wrack line ☐Litter and debris ☑Abrupt plant community change ☐Soil characteristic change

Dominant Substrate: *(check all that apply)* ☐ Bedrock ☐ Boulder ☐ Cobble ☐ Gravel ☐ Sand ☐ Silt/ clay ☑ Organic

Observations

Riparian Zone Present: *(check one)* ☐ Yes ☑ No

Vegetation Layers: *(check all that apply)* ☐ Trees ☐ Saplings/Shrubs ☑ Herbs

Dominant Bank Vegetation *(list)***:**
Reed canary grass, foxtail meadow grass

Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools, etc.)**:**

Aquatic Organisms Observed *(list)***:**

Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes)**:**

Observation Notes:
Roadside ditch

Downstream, looking southeast.