

**BEAVER LODGE LOOP PROJECT  
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Exhibit D.1

McCain Report

Not available at time of filing

EPND will supplement filing upon receipt of this report

***Berthold Station Wetland Delineation  
And Rare Plant Survey Report***

***Berthold, North Dakota***

***Prepared for  
Enbridge Energy Company***

***October 2009***



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# Berthold Station Wetland Delineation And Rare Plant Survey Report

October 2009

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## 1.0 Introduction

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Berthold Station is an Enbridge Energy Company, Inc. facility along a transnational crude oil pipeline. The station is located northwest of Berthold, North Dakota, in NE/NE Section 20, T156N R86W Ward County (Figure 1) immediately adjacent to, and southwest of, the intersection of Highway 2 and 296<sup>th</sup> Street Northwest. The station is approximately 14 acres and includes a single tank facility and associated buildings and service roads. Barr Engineering Company was retained to conduct a wetland delineation and rare plant survey at the station in September 2009. This report documents results of the delineation and botanical survey.

## 2.0 Methods

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The wetland delineation and botanical survey were conducted by Daniel DeJoode, Senior Scientist, Barr Engineering on September 23, 2009. Wetland delineation data sheets were reviewed by Cheryl Feigum, Senior Scientist, Barr Engineering, North Dakota Professional Soil Classifier #63.

### 2.1 Wetland Delineation

Background information for the project area was compiled in an ArcMap Geographic Information System (GIS). The location was superimposed on National Wetlands Inventory (NWI) maps, county soil survey maps, US Geological Survey (USGS) topographic quad maps, and aerial photographs. The aerial photographs used were 2008 Farm Service Agency photographs. County hydric soil lists were obtained from the Soil Data Mart of the Natural Resources Conservation Service (<http://soildatamart.nrcs.usda.gov/>).

The wetland delineation was conducted according to the Routine On-Site Determination Method specified in the 1987 Army Corps of Engineers Wetlands Delineation Manual (US Army Corps of Engineers 1987) and the interim regional wetland delineation manual for the Great Plains (US Army Corps of Engineers 2008). Sample sites were established in wetlands and uplands. Representative soil samples from each site were examined for hydric soil indicators. Soil colors were determined with the aid of a Munsell® soil color chart. Hydrologic conditions were evaluated at each soil boring. Plant species at each sample location were identified, and percent aerial cover was estimated in a 2 m diameter circle. Dominant species were determined by use of the 50/20 rule. The corresponding wetland indicator status of each plant species was recorded, and a determination of hydrophytic vegetation status was made using both the dominance test and prevalence index. Wetland boundaries were marked with pin flags and recorded with a Trimble GeoXT GPS unit with sub-meter accuracy.

Connection of wetlands in the project area to navigable waters was assessed through use of topographic maps, aerial photographs, and field reconnaissance. Wetlands were classified using both the U.S. Fish and Wildlife Service Cowardin System (Cowardin et al., 1979) and the U.S. Fish and Wildlife Service Circular 39 System (Shaw and Fredine, 1971).

### 2.1 Rare Plant Survey

Botanical survey of the project area followed a random-intuitive method were used to search for species likely to occur in the region and to evaluate the potential for listed species to occur in observed habitats (Nelson 1985). This type of search pattern is essentially a meandering traverse of

the study area, focusing on the specific habitats and plant associations of listed species. Target species for this botanical survey included federally-listed threatened species, as well as species of concern enumerated by the North Dakota Natural Heritage Program (Dirk 2006). Special attention was paid to search for species of concern known from Ward County, but the botanical search targets included all species on the state list.

Plant communities on the project area were documented, and an attempt was made to identify all vascular plant species present. Because the facility is mowed, some plants could not be identified. Plant species are reported using the nomenclature of the Flora of the Great Plains (Great Plains Flora Association 1986).

### 3.1 Wetlands

#### 3.1.1 Background Information

##### 3.1.1.1 Landform and Topography

The station is located northwest of Berthold, North Dakota, in NE/NE Section 20, T156N R86W Ward County (Figure 1) on soils derived from glacial till or alluvium from glacial till. Slopes are gentle, between 0 and 9 percent. The site is at approximately 2080 to 2090 feet elevation (Figure 2). Land use is currently industrial, and surrounding land is agricultural supporting grain and forage crops. It is likely that the station property was also cultivated prior to its current use.

##### 3.1.1.2 Soils

Two soil series are mapped on the site (Figure 3). Bowbells loam is well to moderately well drained with moderate permeability in the upper profile and moderately slow to slow permeability below. This soil is found in upland locations. Colvin silty clay loam is poorly to very poorly drained with moderate to slow permeability. This soil is found in swales and depressions, and is considered to be a hydric soil series by the Natural Resources Conservation Service (<http://soildatamart.nrcs.usda.gov/>).

##### 3.1.1.3 National Wetlands Inventory

The National Wetlands Inventory mapped three wetland polygons on or adjacent to the site (Figure 4). Two are shallow marsh wetlands, classified as PEMC (palustrine, emergent, seasonally flooded). The remaining wetland is an herbaceous wetland classified as PEMA (palustrine, emergent, temporarily flooded).

#### 3.1.2 Wetland Delineation

Three wetlands were identified during the onsite wetland delineation (Figure 5).

##### 3.1.2.1 Wetland A

Wetland A is a shallow marsh wetland (Type 3, PEMC) in an isolated, concave depression. Most of the wetland area is outside the project boundary, east of the project site. A county road (296<sup>th</sup> Street NW) bisects the wetland, and no culvert or surface water connections between the east and west portions of the wetland were found. The east side of the wetland is a farmed depression. No outlet was observed. High water can only apparently escape to the east through an upland saddle in an agricultural field. Wetland A is an isolated, closed depression, entirely surrounded by uplands, and with no direct connection to other wetlands or Waters of the US (Figures 2-7).

The west portion of wetland A has no apparent outlet because the road impounds water to the west. The wetland is dominated by cattails (*Typha* spp.) and common reed (*Phragmites australis*). It appears that both narrow leaf and hybrid cattails (*T. angustifolia* and *T. x glauca*) are present. The upper elevation of the wetland is dominated by quackgrass (*Agropyron repens*), and upland species are present (e.g., Canada thistle (*Cirsium arvense*) and prickly lettuce (*Lactuca serriola*)). Evidence of wetland hydrology included saturated soil, water stained leaves, inundation apparent on aerial photographs, drift deposits, cracked soil surface, a closed depressional geomorphic position, and the FAC-neutral test. A layer of light-colored soil was found on top the soil profile and is interpreted as sediment deposition from upland runoff, likely when surrounding uplands were cultivated. Beneath this layer of sediment, dark colors and redoximorphic features were observed, consistent with hydric soils. Three delineation sample points were documented here (A1-A3; Figure 5, Appendix). Only a small portion of the upper edge of the wetland is found within the project boundary (0.014 acres).

### 3.1.2.2 Wetland B

Wetland A is a shallow marsh wetland (Type 3, PEMC) and wet meadow (Type 2, PEMB = palustrine, emergent, saturated) in an isolated, concave depression. The wetland has a culvert outlet under a service road at the east end of the wetland. The culvert discharges to a swale and ditch which, in turn, discharge to an upland agricultural field east of the site. Although sufficient flow has occurred to create a small ditch, flow must be uncommon and intermittent, because the ditch flattens and discharges to an upland field. The field drains via sheet flow towards Wetland A. However, the field is upland, and there is no discernible bed and bank draining to Wetland A. Wetland B is an isolated, closed depression, entirely surrounded by uplands, with no direct connection to other wetlands or Waters of the US (Figures 2-5, 8).

The shallow marsh portion of the wetland comprises approximately 2/3 of the wetland area. It is dominated by cattails (*Typha* spp.) and water knotweed (*Polygonum amphibium*). Portions of the wetland were unvegetated mud flats, indicating inundation for a significant portion of the growing season. Evidence of wetland hydrology included saturated soil, water stained leaves, inundation apparent on aerial photographs, thin muck on the soil surface, a sparsely vegetated concave surface, a closed depressional geomorphic position, and the FAC-neutral test. Soils were heavy and dark with a mucky surface layer and significant clay content.

The upper elevation of the wetland is an old field wet meadow dominated by quackgrass (*Agropyron repens*) with wetland species such as reed canarygrass (*Phalaris arundinacea*) and water knotweed. Upland species include Canada thistle, prickly lettuce, and white prairie aster (*Aster falcatus*). Three

delineation sample points were documented here (B1-B3; Figure 5, Appendix). The wetland is 1.42 acres.

### **3.1.2.3 Wetland C**

Wetland C is a temporarily flooded basin (Type 1, PEMA) in an isolated, concave depression. The wetland is a small basin in a swale that has ephemeral inundation. Overflow discharges to the swale and into an upland. Wetland C is an isolated, closed depression, entirely surrounded by uplands, with no direct connection to other wetlands or Waters of the US (Figures 2-5, 9).

The entire wetland is mowed, and the lowest portion of the wetland is unvegetated. The short-mown vegetation made it difficult to identify species present, but reed canarygrass and kochia (*Kochia scoparia*) were present. Wetland hydrology was evident from cracked soil, a sparsely vegetated concave surface, and the geomorphic position as an enclosed depression. Soils were dark silty clay loam overlaying clay. Two delineation sample points were documented here (C1-C2; Figure 5, Appendix). The wetland is 0.024 acres.

## **3.2 Rare Plant Survey**

### **3.2.1 Federal and State Listed Species**

One federally protected plant species occurs in North Dakota, western prairie fringed orchid (*Platanthera praeclera*). This threatened species is known from native tallgrass prairies predominantly in the Sheyenne National Grasslands in two southeastern North Dakota counties.

Four plant species of concern, as designated by the North Dakota Natural Heritage Program, are known from Ward County (Dirk 2006). Chamomile grapefern (*Botrychium matricariifolium*) occurs in moist forests and woodlands. It is designated S1S2, to indicate that the species is imperiled to critically imperiled in the state. Sedge mousetail (*Myosurus aristatus*) occurs in moist habitats and vernal wetlands in mixed grass prairies. It is designated S1 to indicate that the species is critically imperiled in the state. White-stemmed pondweed (*Potamogeton praelongus*) is an aquatic plant found in cool, deep lakes. It is designated S1 to indicate that the species is critically imperiled in the state. Southern watermeal (*Wolffia columbiana*) is an aquatic plant found in quiet water. It is designated S2 to indicate that the species is imperiled in the state.

### **3.2.2 Field Survey Results**

The entire site is highly altered relative to pre-settlement conditions. There is evidence that the site was used for cultivated agriculture prior to being a pipeline facility. Native plant communities are

largely absent, with the possible exception of some wetland vegetation (Figures 6, 8, 9). Even though native species are present in wetlands, many exotic species are also present, and the upper edges of the wetlands were likely historically tilled for agriculture. Uplands were likely cultivated, and are now industrial facilities or are seeded to turf grasses (Figure 10). Plant species found at the site are listed in Table 1.

**Table 1 Plant Species Observed**

| Species                        | Common Name         | Wetland Indicator Status |
|--------------------------------|---------------------|--------------------------|
| <i>Aster falcatus</i>          | White prairie aster | FACU                     |
| <i>Agropyron repens</i>        | Quackgrass          | FAC                      |
| <i>Cirsium arvense</i>         | Canada thistle      | FACU                     |
| <i>Conyza canadensis</i>       | Horseweed           | FACU                     |
| <i>Hordeum jubatum</i>         | Foxtail barley      | FACW                     |
| <i>Kochia scoparia</i>         | Kochia              | FAC                      |
| <i>Lactuca serriola</i>        | Prickly lettuce     | FACU                     |
| <i>Panicum dichotomiflorum</i> | Fall panicum        | FAC                      |
| <i>Phalaris arundinacea</i>    | Reed canarygrass    | FACW                     |
| <i>Phragmites australis</i>    | Common reed         | FACW                     |
| <i>Polygonum amphibium</i>     | Water knotweed      | OBL                      |
| <i>Scirpus validus</i>         | Soft-stem bulrush   | OBL                      |
| <i>Typha angustifolia</i>      | Narrowleaf cattail  | OBL                      |
| <i>Typha x glauca</i>          | Hybrid cattail      | OBL                      |

Western prairie fringed orchid was not present at the site, nor was appropriate habitat found.

Chamomile grapefern not present at the site, nor was appropriate habitat found. Although September is past the optimum season to find this species, the herbaceous wetlands and mowed uplands do not provide habitat. Therefore, this species is considered to not be present.

Potentially appropriate habitat for sedge mousetail is present at the site in the wetlands with seasonal hydrology. Although this species would have flowered before the time of the survey, it was considered possible that it would be still be present in fruit or vegetatively. Nothing was found that resembled or could have been sedge mousetail. Again, consideration of past agriculture at this site suggests that appropriate habitat has been significantly altered. The least disturbed communities are the shallow marsh wetlands. Potential sedge mousetail habitat could exist in the upper portions of these wetlands, along the wetland edge or in moist uplands. These areas all show signs of past tillage,

and are currently dominated by species such as quackgrass, reed canarygrass, Canada thistle and prickly lettuce, all indicative of disturbance and an absence of native plant communities.

The aquatic species of concern, white-stemmed pondweed and southern watermeal were not found. Habitat for pondweed was not found. The wetlands at Berthold Station have ephemeral or seasonal hydrology, not the described cool, deep lake water habitat. Southern watermeal could potentially occur in the site's wetlands. No standing water was found in any of the wetlands, except a small area in Wetland A near a storm water discharge, and no aquatic vegetation was found there. The unvegetated mud flats in Wetland B were searched for possible stranded southern watermeal. However, no evidence of watermeal, or any related species of watermeal or duckweed in the Lemnaceae, was found.

No other species on the North Dakota list of plant species of concern were found at the site. No rare, threatened or endangered plant species were found at Berthold Station.

## **4.0 Discussion**

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### **4.1 Wetland Delineation**

Three wetlands were found on, or partially on, the Berthold Station property. All wetlands are isolated pothole depressions, surrounded by uplands, with no apparent surface water or wetland connection to other wetlands or Waters of the US. Therefore, all three wetlands should be considered outside of the jurisdiction of Section 404 of the Clean Water Act and the US Army Corps Engineers.

### **4.2 Rare Plant Survey**

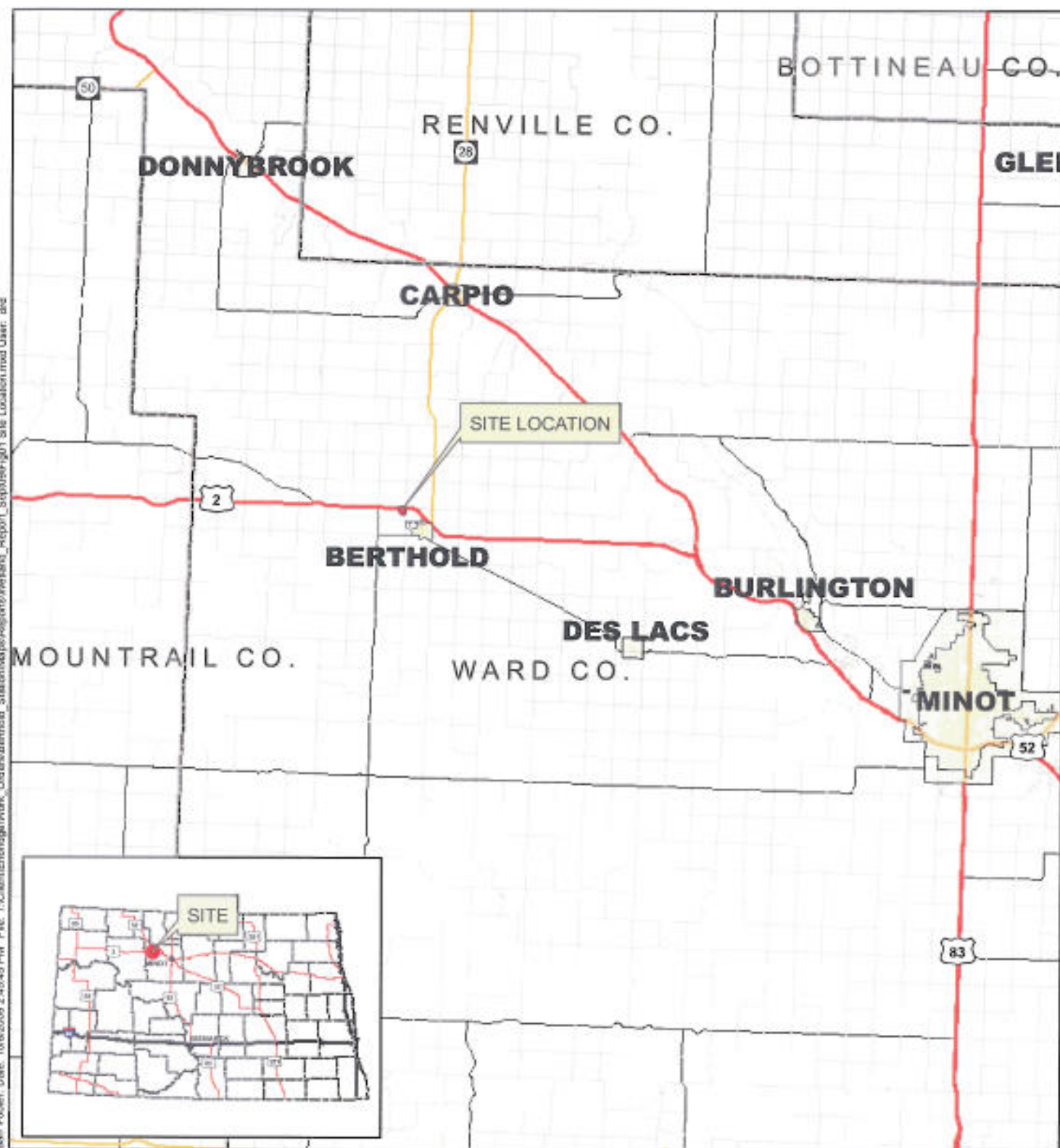
No rare or protected plant species were found. Land use history and alteration of plant communities has resulted in little habitat appropriate for rare species known to Ward County. No other species of concern were found.

## 5.0 References

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- Cowardin, L.M., V. Carter, F.C. Golet, R.T. LaRoc. 1979. Classification of Wetlands and Deepwater Habitats of the United States. FWS/OBS079/31. Department of the Interior. U.S. Fish and Wildlife Service. Washington, DC.
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- Nelson, J.R. 1985. Rare plant surveys: Techniques for impact assessment. *Natural Areas Journal* 5(3):18-30.
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- US Army Corps of Engineers. 2008. Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region. U.S. Army Engineer Research and Development Center. Vicksburg, MS.

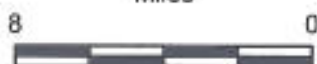
## Figures



 Project Boundary



Miles



Kilometers

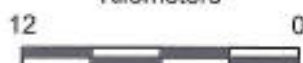


Figure 1

**SITE LOCATION**  
Berthold Station  
Enbridge Energy  
Berthold, ND



 Project Boundary

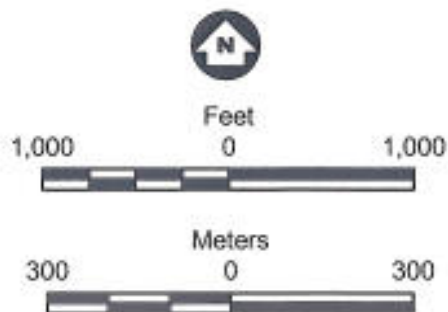


Figure 2  
TOPOGRAPHIC MAP  
Berthold Station  
Enbridge Energy  
Berthold, ND

 Project Boundary

 Non-Hydric  
 Hydric



Feet

500                      0                      500



Meters

150                      0                      150



SOIL SURVEY MAP  
Berthold Station  
Enbridge Energy  
Berthold, ND

Bar Footer: Date: 10/6/2009 1:08:49 PM File: I:\Client\Energy\Work\_Ontario\Berthold\_Station\Map\Reports\Wetland\_Report\_Sep09\fig04 National Wetland Inventory.mxd User: mbs2



Data Source: USFWS NWI Database  
Imagery Source: 2009 ESRI, i-cubed, GeoEye

-  Project Boundary
-  NWI Extent

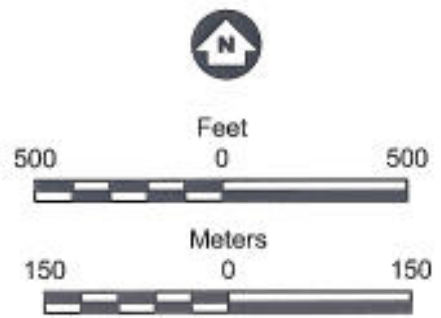


Figure 4  
NATIONAL WETLANDS  
INVENTORY MAP  
Berthold Station  
Enbridge Energy  
Berthold, ND

Barri Foster: Date: 10/6/2009 1:28:54 PM File: I:\Client\Enbridge\Work\_Orders\Berthold\_Station\Map\Reports\Wetland\_Report\_Section F.gd5 Wetland Delineation.mxd User: mtc2



Imagery Source: 2009 ESRI, I-cubed, GeoEye



Figure 5

WETLAND DELINEATION  
Berthold Station  
Enbridge Energy  
Berthold, ND



Wetland A, from road (296<sup>th</sup> Street NW) looking west towards Berthold Station. Wetland in foreground is outside project boundary (fence).



Wetland A, inside project boundary looking south.

**Figure 6**

**SITE PHOTOGRAPHS  
Berthold Station  
Enbridge Energy Company, Inc.  
Ward County, ND**



Wetland A, from road (296<sup>th</sup> Street NW) looking east, outside of project area. Wetland in foreground is farmed wetland outside project boundary. This portion of the wetland is cut off from the west portion by a county road. The upland saddle in the center background is the only apparent outlet for high water flows from Wetland A. There are no direct connections to other wetlands or Waters of the US. Therefore, this wetland is considered to be isolated.

**Figure 7**

**SITE PHOTOGRAPHS  
Berthold Station  
Enbridge Energy Company, Inc.  
Ward County, ND**



Wetland B, looking north showing seasonally flooded, shallow marsh in center of wetland. The wetland is an isolated basin surrounded by upland.



Wetland B, looking northwest, showing transition from shallow marsh to old field, wet meadow..

**Figure 8**

**SITE PHOTOGRAPHS  
Berthold Station  
Enbridge Energy Company, Inc.  
Ward County, ND**



Wetland C, looking south. Wetland is isolated basin in a swale draining south into an upland.

Figure 9

**SITE PHOTOGRAPHS**  
**Berthold Station**  
**Enbridge Energy Company, Inc.**  
**Ward County, ND**



The culvert outlet from Wetland B can be seen left of center. It drains to the right (east/northeast) into the upland forage field (foreground).



Upland photos showing land use at Berthold Station. Aside from the wetlands, the entire property is industrial or mowed upland grasses.

**Figure 10**  
**SITE PHOTOGRAPHS**  
**Berthold Station**  
**Enbridge Energy Company, Inc.**  
**Ward County, ND**

## **Appendix**

### **Wetland Delineation Data Sheets**

# WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: Berthold Station Applicant/Owner: Enbridge Energy Co City/County: Ward County State: ND Sampling Date: 09/23/09

Sampling Point: A1 Section: 20 Township: 156N Range: 86W Investigator(s): DRD

Land Form: Local Relief: Concave Slope %: 0-1 Soil Map Unit Name: Colvin

Subregion (LRR): E Latitude: 48.3255388 Longitude: -101.75056 Datum: NAD83

NW/Cowardin Classification: PEMC Circular 39 Classification: Type 3

Are climatic/hydrologic conditions on the site typical for this time of year? Yes (If no, explain in remarks)

Eggers & Reed (primary): Shallow Marsh

Are vegetation No Soil Yes Hydrology No significantly disturbed? Are "normal circumstances" present? Yes

Eggers & Reed (secondary):

Are vegetation No Soil No Hydrology No naturally problematic? Eggers & Reed (tertiary):

Eggers & Reed (quaternary):

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

Hydrophytic vegetation present? Yes Remarks (explain any answers if needed):

Hydric soil present? Yes Sample point is within a closed depression wetland.

Wetland hydrology present? Yes

Is the sampled area within a wetland? Yes

## VEGETATION

| Tree Stratum | (Plot Size: ) | Absolute % Cover | Dominant Species? | Indicator Status * |
|--------------|---------------|------------------|-------------------|--------------------|
| 1.           |               | 0                |                   |                    |
| 2.           |               | 0                |                   |                    |
| 3.           |               | 0                |                   |                    |
| 4.           |               | 0                |                   |                    |
| Total Cover: |               | 0                |                   |                    |

| Sapling/Shrub Stratum | (Plot Size: ) | Absolute % Cover | Dominant Species? | Indicator Status * |
|-----------------------|---------------|------------------|-------------------|--------------------|
| 1.                    |               | 0                |                   |                    |
| 2.                    |               | 0                |                   |                    |
| 3.                    |               | 0                |                   |                    |
| 4.                    |               | 0                |                   |                    |
| 5.                    |               | 0                |                   |                    |
| Total Cover:          |               | 0                |                   |                    |

| Herb Stratum | (Plot Size: <u>2 m diameter circle</u> ) | Absolute % Cover | Dominant Species? | Indicator Status * |
|--------------|------------------------------------------|------------------|-------------------|--------------------|
| 1.           | <u>Typha angustifolia</u>                | <u>40</u>        | <u>Yes</u>        | <u>OBL</u>         |
| 2.           | <u>Polygonum amphibium</u>               | <u>25</u>        | <u>No</u>         | <u>OBL</u>         |
| 3.           | <u>Lactuca scariola</u>                  | <u>50</u>        | <u>Yes</u>        | <u>FACU</u>        |
| 4.           | <u>Scirpus validus</u>                   | <u>5</u>         | <u>No</u>         | <u>OBL</u>         |
| 5.           | <u>Cirsium arvense</u>                   | <u>10</u>        | <u>No</u>         | <u>FACU</u>        |
| 6.           | <u>Phragmites australis</u>              | <u>5</u>         | <u>No</u>         | <u>FACW</u>        |
| 7.           | <u>Hordeum jubatum</u>                   | <u>5</u>         | <u>No</u>         | <u>FACW</u>        |
| 8.           |                                          | 0                |                   |                    |
| Total Cover: |                                          | <u>140</u>       |                   |                    |

| Woody Vine Stratum | (Plot Size: ) | Absolute % Cover | Dominant Species? | Indicator Status * |
|--------------------|---------------|------------------|-------------------|--------------------|
| 1.                 |               | 0                |                   |                    |
| 2.                 |               | 0                |                   |                    |
| Total Cover:       |               | 0                |                   |                    |

% Bare Ground in Herb Stratum: 0

Remarks: (Include photo numbers here or on a separate sheet)

Shallow marsh with significant presence of upland species, likely due to seasonal hydrology.

### Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW or 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              | <u>70</u>      | X 1          | <u>70</u>      |
| FACW Species             | <u>10</u>      | X 2          | <u>20</u>      |
| FAC Species              | <u>0</u>       | X 3          | <u>0</u>       |
| FACU Species             | <u>60</u>      | X 4          | <u>240</u>     |
| UPL Species              | <u>0</u>       | X 5          | <u>0</u>       |
| Column Totals:           | <u>140</u> (A) |              | <u>330</u> (B) |
| Prevalence Index = B/A = |                |              | <u>2.4</u>     |

### Hydrophytic Vegetation Indicators:

No Dominance Test is >50%

Yes Prevalence Index ≤ 3.0 [1]

No Morphological Adaptations [1] (provide supporting data in vegetation remarks or on a separate sheet)

No Problematic Hydrophytic Vegetation [1] (Explain)

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

Hydrophytic vegetation present? Yes

# WETLAND DETERMINATION DATA FORM - Great Plains Region

## SOIL

Sampling Point: A1

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

|    | Depth<br>(inches) | Matrix        |     | Redox Features |    | Type [1] | Loc [2] | Texture    | Remarks              |
|----|-------------------|---------------|-----|----------------|----|----------|---------|------------|----------------------|
|    |                   | Color (moist) | %   | Color (moist)  | %  |          |         |            |                      |
| 1. | 0 - 6             | 10YR4/2       | 80  | 2.5YR4/4       | 20 | D        | PL      | Silty clay | Sediment from upland |
| 2. | 6 - 18            | 10YR2/1       | 100 |                |    |          |         | silty clay |                      |
| 3. | -                 |               |     |                |    |          |         |            |                      |
| 4. | -                 |               |     |                |    |          |         |            |                      |
| 5. | -                 |               |     |                |    |          |         |            |                      |
| 6. | -                 |               |     |                |    |          |         |            |                      |

[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 MLRA 72 & 73)
- ☐ Reduced Vertic (F18)
- ☐ Rod Parent Material (TF2)
- ☐ Other (explain in soil 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? <u>Yes</u> |
| Remarks: Upper layer appears to be deposition from upland. Redox depressions in closed depression in prairie pothole region = F8. |             |                       |                                 |

## 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 (where not tiled) (C3)
- ☐ 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 (where tiled) (C3)
- ☐ 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? ☐ Surface Water Depth (inches): \_\_\_\_\_
- Water table present? ☐ Water Table Depth (inches): \_\_\_\_\_
- Saturation present? (includes capillary fringe) ☒ Saturation Depth (inches): 12

Wetland hydrology present? Yes

Recorded Data: ☒ Aerial Photo ☐ Monitoring Well ☐ Stream Gauge ☐ Previous Inspections Describe:

Hydrology Remarks: In closed depression wetland.

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# WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: Berthold Station Applicant/Owner: Enbridge Energy Co City/County: Ward County State: ND Sampling Date: 09/23/09  
 Sampling Point: A2 Section: 20 Township: 156N Range: 86W Investigator(s): DRD  
 Land Form: Local Relief: Concave Slope %: 0-1 Soil Map Unit Name: Colvin  
 Subregion (LRR): E Latitude: 48.3255197 Longitude: -101.75066 Datum: NAD83

NW/Cowardin Classification: PEMC

Circular 39 Classification: Type 3

Are climatic/hydrologic conditions on the site typical for this time of year? Yes (If no, explain in remarks)

Eggers & Reed (primary): Shallow Marsh

Are vegetation No Soil Yes Hydrology No significantly disturbed? Are "normal circumstances" Yes

Eggers & Reed (secondary):

Eggers & Reed (tertiary):

Are vegetation No Soil No Hydrology Yes naturally problematic?

present?

Eggers & Reed (quaternary):

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

Hydrophytic vegetation present? Yes

Yes

Remarks (explain any answers if needed):

Hydric soil present? Yes

Yes

Wetland hydrology present? Yes

Yes

Is the sampled area within a wetland? Yes

Yes

Sample point within closed depression wetland. Upper soil layer likely upland runoff sediment. Hydric indicators lacking but soil considered hydric based on evidence of hydrology and runoff.

## VEGETATION

| Tree Stratum | (Plot Size: ) | Absolute % Cover | Dominant Species? | Indicator Status * |
|--------------|---------------|------------------|-------------------|--------------------|
| 1.           |               | 0                |                   |                    |
| 2.           |               | 0                |                   |                    |
| 3.           |               | 0                |                   |                    |
| 4.           |               | 0                |                   |                    |
| Total Cover: |               | 0                |                   |                    |

| Sapling/Shrub Stratum | (Plot Size: ) | Absolute % Cover | Dominant Species? | Indicator Status * |
|-----------------------|---------------|------------------|-------------------|--------------------|
| 1.                    |               | 0                |                   |                    |
| 2.                    |               | 0                |                   |                    |
| 3.                    |               | 0                |                   |                    |
| 4.                    |               | 0                |                   |                    |
| 5.                    |               | 0                |                   |                    |
| Total Cover:          |               | 0                |                   |                    |

| Herb Stratum               | (Plot Size: 2 m diameter circle) | Absolute % Cover | Dominant Species? | Indicator Status * |
|----------------------------|----------------------------------|------------------|-------------------|--------------------|
| 1. Agropyron repens        |                                  | 75               | Yes               | FAC                |
| 2. Cirsium arvense         |                                  | 20               | No                | FACU               |
| 3. Kochia scoparia         |                                  | 10               | No                | FAC                |
| 4. Panicum dichotomiflorum |                                  | 1                | No                | FAC                |
| 5. Lactuca scariola        |                                  | 5                | No                | FACU               |
| 6.                         |                                  | 0                |                   |                    |
| 7.                         |                                  | 0                |                   |                    |
| 8.                         |                                  | 0                |                   |                    |
| Total Cover:               |                                  | 111              |                   |                    |

| Woody Vine Stratum | (Plot Size: ) | Absolute % Cover | Dominant Species? | Indicator Status * |
|--------------------|---------------|------------------|-------------------|--------------------|
| 1.                 |               | 0                |                   |                    |
| 2.                 |               | 0                |                   |                    |
| Total Cover:       |               | 0                |                   |                    |

% Bare Ground in Herb Stratum: 0

Remarks: (Include photo numbers here or on a separate sheet) Near upper limit of wetland.

### Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW or 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   | X 1          | 0       |
| FACW Species             | 0   | X 2          | 0       |
| FAC Species              | 86  | X 3          | 258     |
| FACU Species             | 25  | X 4          | 100     |
| UPL Species              | 0   | X 5          | 0       |
| Column Totals:           | 111 | (A)          | 358 (B) |
| Prevalence Index = B/A = |     |              | 3.2     |

### Hydrophytic Vegetation Indicators:

- Yes    Dominance Test is >50%
- No    Prevalence index  $\leq 3.0$  [1]
- No    Morphological Adaptations [1] (provide supporting data in vegetation remarks or on a separate sheet)
- No    Problematic Hydrophytic Vegetation [1] (Explain)

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

Hydrophytic vegetation present? Yes

# WETLAND DETERMINATION DATA FORM - Great Plains Region

## SOIL

Sampling Point: A2

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

| Depth<br>(inches) | Matrix        |     | Redox Features |   | Type [1] | Loc [2] | Texture         | Remarks              |
|-------------------|---------------|-----|----------------|---|----------|---------|-----------------|----------------------|
|                   | Color (moist) | %   | Color (moist)  | % |          |         |                 |                      |
| 1. 0 - 12         | 10YR4/2       | 100 |                |   |          |         | Sandy clay loam | Sediment from upland |
| 2. 12 - 20        | 10YR2/1       | 95  | 2.5YR4/4       | 5 | D        | M       | Silty clay loam |                      |
| 3. 20 - 30        | 10YR2/1       | 90  |                |   |          |         | Silty clay loam |                      |
| 4. 20 - 30        | 10YR5/2       | 10  |                |   |          |         | Silty clay loam |                      |
| 5. 30 - 36        | 10YR2/1       | 50  |                |   |          |         | Sandy clay      |                      |
| 6. 30 - 36        | 10YR5/1       | 50  |                |   |          |         | Sandy clay      |                      |

[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)
- ☐ Striped 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 MLRA 72 & 73)
- ☐ Reduced Vertic (F16)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in soil 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? | <u>Yes</u> |
| Remarks: Upper layer likely upland runoff sediment. Indicators lacking but soil hydric based on best professional judgement. |             |                       |                      |            |

## 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 (where not tiled) (C3)

☐ 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 (where tiled) (C3)

☐ 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? ☐ Surface Water Depth (inches): \_\_\_\_\_

Water table present? ☐ Water Table Depth (inches): \_\_\_\_\_

Saturation present? (includes capillary fringe) ☐ Saturation Depth (inches): \_\_\_\_\_

Wetland hydrology present? Yes

Recorded Date: ☐ Aerial Photo ☐ Monitoring Well ☐ Stream Gauge ☐ Previous Inspections Describe:

Hydrology Remarks: In upper portion of wetland. Wetland is concave surface. Soil cracks and debris flow indicates hydrology.

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# WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: Berthold Station Applicant/Owner: Enbridge Energy City/County: Ward County State: ND Sampling Date: 09/23/09  
 Section: 20 Township: 156N Range: 86W Investigator(s): DRD  
 Land Form: Conver Slope %: 0-5 Soil Map Unit Name: Bowbells  
 Subregion (LRR): E Latitude: 48.3254730 Longitude: -101.75076 Datum: NAD83  
 NW/Cowardin Classification: U Circular 39 Classification: Upland  
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes (If no, explain in remarks)  
 Eggers & Reed (primary): Upland  
 Eggers & Reed (secondary):  
 Eggers & Reed (tertiary):  
 Eggers & Reed (quaternary):  
 Are vegetation Yes Soil No Hydrology No significantly disturbed? Are "normal circumstances" Yes present?  
 Are vegetation Yes Soil No Hydrology No naturally problematic?

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

Hydrophytic vegetation present? No Remarks (explain any answers if needed):  
 Hydric soil present? No Sample point is upland above a closed depression wetland.  
 Wetland hydrology present? No  
 Is the sampled area within a wetland? No

## VEGETATION

| Tree Stratum | (Plot Size: ) | Absolute % Cover | Dominant Species? | Indicator Status * |
|--------------|---------------|------------------|-------------------|--------------------|
| 1.           |               | 0                |                   |                    |
| 2.           |               | 0                |                   |                    |
| 3.           |               | 0                |                   |                    |
| 4.           |               | 0                |                   |                    |
| Total Cover: |               | 0                |                   |                    |

| Sapling/Shrub Stratum | (Plot Size: ) | Absolute % Cover | Dominant Species? | Indicator Status * |
|-----------------------|---------------|------------------|-------------------|--------------------|
| 1.                    |               | 0                |                   |                    |
| 2.                    |               | 0                |                   |                    |
| 3.                    |               | 0                |                   |                    |
| 4.                    |               | 0                |                   |                    |
| 5.                    |               | 0                |                   |                    |
| Total Cover:          |               | 0                |                   |                    |

| Herb Stratum | (Plot Size: 2 m diameter circle ) | Absolute % Cover | Dominant Species? | Indicator Status * |
|--------------|-----------------------------------|------------------|-------------------|--------------------|
| 1.           |                                   | 0                |                   |                    |
| 2.           |                                   | 0                |                   |                    |
| 3.           |                                   | 0                |                   |                    |
| 4.           |                                   | 0                |                   |                    |
| 5.           |                                   | 0                |                   |                    |
| 6.           |                                   | 0                |                   |                    |
| 7.           |                                   | 0                |                   |                    |
| 8.           |                                   | 0                |                   |                    |
| Total Cover: |                                   | 0                |                   |                    |

| Woody Vine Stratum | (Plot Size: ) | Absolute % Cover | Dominant Species? | Indicator Status * |
|--------------------|---------------|------------------|-------------------|--------------------|
| 1.                 |               | 0                |                   |                    |
| 2.                 |               | 0                |                   |                    |
| Total Cover:       |               | 0                |                   |                    |

% Bare Ground in Herb Stratum: 0

### Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW or FAC: 0 (A)  
 Total Number of Dominant Species Across All Strata: 0 (B)  
 Percent of Dominant Species That Are OBL, FACW or FAC: 0 (A/B)

### Prevalence Index Worksheet:

| Total % Cover of:        | Multiply by: |       |
|--------------------------|--------------|-------|
| OBL Species              | 0 X 1        | 0     |
| FACW Species             | 0 X 2        | 0     |
| FAC Species              | 0 X 3        | 0     |
| FACU Species             | 0 X 4        | 0     |
| UPL Species              | 0 X 5        | 0     |
| Column Totals:           | 0 (A)        | 0 (B) |
| Prevalence Index = B/A = |              | #Num! |

### Hydrophytic Vegetation Indicators:

No Dominance Test is >50%  
 #Error Prevalence Index ≤ 3.0 (f)  
 No Morphological Adaptations (f) (provide supporting data in vegetation remarks or on a separate sheet)  
 No Problematic Hydrophytic Vegetation (f) (Explain)  
 (f) Indicators of hydric soil & wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic vegetation present? No

Remarks: (include photo numbers here or on a separate sheet) Vegetation consists of unidentifiable mowed grasses. Likely *Agropyron repens* and *Hordeum jubatum*.

# WETLAND DETERMINATION DATA FORM - Great Plains Region

## SOIL

Sampling Point: A3

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

|    | Depth<br>(inches) | Matrix        |   | Redox Features |   | Type [1] | Loc [2] | Texture         | Remarks |
|----|-------------------|---------------|---|----------------|---|----------|---------|-----------------|---------|
|    |                   | Color (moist) | % | Color (moist)  | % |          |         |                 |         |
| 1. | 0 - 24            | 10YR3/1       |   |                |   |          |         | Silty clay loam |         |
| 2. | 24 - 30           | 2.5Y6/3       |   |                |   |          |         | Silty clay loam |         |
| 3. |                   |               |   |                |   |          |         |                 |         |
| 4. |                   |               |   |                |   |          |         |                 |         |
| 5. |                   |               |   |                |   |          |         |                 |         |
| 6. |                   |               |   |                |   |          |         |                 |         |

[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 MLRA 72 & 73)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in soil 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? No

Remarks: Not hydric soil.

## 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)
- ☐ Soil Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Dry-Season Water Table (C2)
- ☐ Oxidized Rhizospheres on Living Roots (where not tiled) (C3)
- ☐ 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 (where tiled) (C3)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ FAC-Neutral Test (D6)
- ☐ Frost-Heave Hummocks (D7) (LRR F)

Field Observations:

- Surface water present? ☐ Surface Water Depth (inches): \_\_\_\_\_
- Water table present? ☐ Water Table Depth (inches): \_\_\_\_\_
- Saturation present? (includes capillary fringe) ☐ Saturation Depth (inches): \_\_\_\_\_

Wetland hydrology present? No

Recorded Data: ☐ Aerial Photo ☐ Monitoring Well ☐ Stream Gauge ☐ Previous Inspections Describe:

Hydrology Remarks: No positive indications of wetland hydrology. Sample point is on mowed slope above wetland.

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# WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: Berthold Station Applicant/Owner: Entbridge Energy Co City/County: Ward County State: ND Sampling Date: 09/23/09

Sampling Point: B1 Section: 20 Township: 156N Range: 86W Investigator(s): DRD

Land Form: Local Relief: Concave Slope %: 0 Soil Map Unit Name: Bowbells

Subregion (LRR): E Latitude: 48.3249711 Longitude: -101.75245 Datum: NAD83

NW/Cowardin Classification: PEMC Circular 39 Classification: Type 3

Are climatic/hydrologic conditions on the site typical for this time of year? Yes (If no, explain in remarks)

Eggers & Reed (primary): Shallow Marsh

Are vegetation No Soil No Hydrology No significantly disturbed? Are "normal circumstances" present? Yes

Eggers & Reed (secondary):

Eggers & Reed (tertiary):

Eggers & Reed (quaternary):

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

Hydrophytic vegetation present? Yes Remarks (explain any answers if needed):

Hydric soil present? Yes Sample point is in a closed depression wetland.

Wetland hydrology present? Yes

Is the sampled area within a wetland? Yes

## VEGETATION

| Tree Stratum          | (Plot Size: )                            | Absolute % Cover | Dominant Species? | Indicator Status * |
|-----------------------|------------------------------------------|------------------|-------------------|--------------------|
| 1.                    |                                          | 0                |                   |                    |
| 2.                    |                                          | 0                |                   |                    |
| 3.                    |                                          | 0                |                   |                    |
| 4.                    |                                          | 0                |                   |                    |
| Total Cover:          |                                          | 0                |                   |                    |
| Sapling/Shrub Stratum | (Plot Size: )                            | Absolute % Cover | Dominant Species? | Indicator Status * |
| 1.                    |                                          | 0                |                   |                    |
| 2.                    |                                          | 0                |                   |                    |
| 3.                    |                                          | 0                |                   |                    |
| 4.                    |                                          | 0                |                   |                    |
| 5.                    |                                          | 0                |                   |                    |
| Total Cover:          |                                          | 0                |                   |                    |
| Herb Stratum          | (Plot Size: <u>2 m diameter circle</u> ) | Absolute % Cover | Dominant Species? | Indicator Status * |
| 1.                    | <u>Polygonum amphibium</u>               | 100              | Yes               | OBL                |
| 2.                    |                                          | 0                |                   |                    |
| 3.                    |                                          | 0                |                   |                    |
| 4.                    |                                          | 0                |                   |                    |
| 5.                    |                                          | 0                |                   |                    |
| 6.                    |                                          | 0                |                   |                    |
| 7.                    |                                          | 0                |                   |                    |
| 8.                    |                                          | 0                |                   |                    |
| Total Cover:          |                                          | 100              |                   |                    |
| Woody Vine Stratum    | (Plot Size: )                            | Absolute % Cover | Dominant Species? | Indicator Status * |
| 1.                    |                                          | 0                |                   |                    |
| 2.                    |                                          | 0                |                   |                    |
| Total Cover:          |                                          | 0                |                   |                    |

### Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW or 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 <u>100</u>        | X 1          | <u>100</u>     |
| FACW Species <u>0</u>         | X 2          | <u>0</u>       |
| FAC Species <u>0</u>          | X 3          | <u>0</u>       |
| FACU Species <u>0</u>         | X 4          | <u>0</u>       |
| UPL Species <u>0</u>          | X 5          | <u>0</u>       |
| Column Totals: <u>100</u> (A) |              | <u>100</u> (B) |
| Prevalence Index = B/A =      |              | <u>1.0</u>     |

### Hydrophytic Vegetation Indicators:

Yes Dominance Test is >50%

Yes Prevalence Index ≤ 3.0 [1]

No Morphological Adaptations [1] (provide supporting data in vegetation remarks or on a separate sheet)

No Problematic Hydrophytic Vegetation [1] (Explain)

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

Hydrophytic vegetation present? Yes

% Bare Ground in Herb Stratum: 0

Remarks: (include photo numbers here or on a separate sheet)

Monotype of Polygonum. Nearby are cattails and unvegetated mud flats.

# WETLAND DETERMINATION DATA FORM - Great Plains Region

## SOIL

Sampling Point: B1

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

| Depth<br>(inches) | Matrix  | Redox Features |   |               |   | Type [1] | Loc [2] | Texture            | Remarks |
|-------------------|---------|----------------|---|---------------|---|----------|---------|--------------------|---------|
|                   |         | Color (moist)  | % | Color (moist) | % |          |         |                    |         |
| 1. 0 - 2          | 10YR2/1 |                |   |               |   |          |         | Fibric-sapric muck | Organic |
| 2. 2 - 30         | 10YR2/1 |                |   |               |   |          |         | Clay loam          |         |
| 3. 30 - 48        | 10YR2/1 |                |   |               |   |          |         | Clay               |         |
| 4. -              |         |                |   |               |   |          |         |                    |         |
| 5. -              |         |                |   |               |   |          |         |                    |         |
| 6. -              |         |                |   |               |   |          |         |                    |         |

[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 MLRA 72 & 73)  
☐ Reduced Vertic (F18)  
☐ Red Parent Material (TF2)  
☐ Other (explain in soil remarks)

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

Restrictive Layer (if present): Type: Clay Depth (inches): 30 - 48

Hydric soil present? Yes

Remarks: Organic layer indicates hydric soil.

## 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 (where not tiled) (C3)  
☐ 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 (where tiled) (C3)  
☐ 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? ☐ Surface Water Depth (inches): \_\_\_\_\_  
 Water table present? ☒ Water Table Depth (inches): 40  
 Saturation present? (includes capillary fringe) ☒ Saturation Depth (inches): >40

Wetland hydrology present? Yes

Recorded Data: ☒ Aerial Photo ☐ Monitoring Well ☐ Stream Gauge ☐ Previous Inspections Describe:

Hydrology Remarks: Wetland inundated earlier in growing season.

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# WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: Barthold Station Applicant/Owner: Enbridge Energy Co City/County: Ward County State: ND Sampling Date: 09/23/09  
 Sampling Point: B2 Section: 20 Township: 156N Range: 86W Investigator(s): DRD  
 Land Form:  Local Relief: Concave Slope %: 0-1 Soil Map Unit Name: Bowbells  
 Subregion (LRR): E Latitude: 48.3250548 Longitude: -101.75258 Datum: NAD83

NW/Cowardin Classification: PEMB

Circular 39 Classification: Type 2

Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in remarks)

Eggers & Reed (primary): Fresh (Wet) Meadow

Are vegetation No Soil No Hydrology No significantly disturbed? Are "normal circumstances" present? Yes

Eggers & Reed (secondary):

Are vegetation No Soil No Hydrology Yes naturally problematic? present?

Eggers & Reed (tertiary):

Eggers & Reed (quaternary):

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

Hydrophytic vegetation present? Yes Remarks (explain any answers if needed):  
 Hydric soil present? Yes Sample point is in a closed depression wetland.  
 Wetland hydrology present? Yes  
 Is the sampled area within a wetland? Yes

## VEGETATION

| Tree Stratum | (Plot Size: ) | Absolute % Cover | Dominant Species? | Indicator Status * |
|--------------|---------------|------------------|-------------------|--------------------|
| 1.           |               | 0                |                   |                    |
| 2.           |               | 0                |                   |                    |
| 3.           |               | 0                |                   |                    |
| 4.           |               | 0                |                   |                    |
| Total Cover: |               | 0                |                   |                    |

| Sapling/Shrub Stratum | (Plot Size: ) | Absolute % Cover | Dominant Species? | Indicator Status * |
|-----------------------|---------------|------------------|-------------------|--------------------|
| 1.                    |               | 0                |                   |                    |
| 2.                    |               | 0                |                   |                    |
| 3.                    |               | 0                |                   |                    |
| 4.                    |               | 0                |                   |                    |
| 5.                    |               | 0                |                   |                    |
| Total Cover:          |               | 0                |                   |                    |

| Herb Stratum            | (Plot Size: <u>2 m diameter circle</u> ) | Absolute % Cover | Dominant Species? | Indicator Status * |
|-------------------------|------------------------------------------|------------------|-------------------|--------------------|
| 1. Agropyron repens     |                                          | 95               | Yes               | FAC                |
| 2. Polygonum amphibium  |                                          | 5                | No                | OBL                |
| 3. Phalaris arundinacea |                                          | 10               | No                | FACW               |
| 4. Cirsium arvense      |                                          | 10               | No                | FACU               |
| 5. Lactuca serriola     |                                          | 5                | No                | FACU               |
| 6. Aster falcatus       |                                          | 10               | No                | FACU               |
| 7.                      |                                          | 0                |                   |                    |
| 8.                      |                                          | 0                |                   |                    |
| Total Cover:            |                                          | 135              |                   |                    |

| Woody Vine Stratum | (Plot Size: ) | Absolute % Cover | Dominant Species? | Indicator Status * |
|--------------------|---------------|------------------|-------------------|--------------------|
| 1.                 |               | 0                |                   |                    |
| 2.                 |               | 0                |                   |                    |
| Total Cover:       |               | 0                |                   |                    |

% Bare Ground in Herb Stratum: 0

Remarks:  
(include photo numbers here or on a separate sheet)

Old field? Likely cultivated before current landuse.

### Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW or 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              | 5   | X 1          | 5       |
| FACW Species             | 10  | X 2          | 20      |
| FAC Species              | 95  | X 3          | 285     |
| FACU Species             | 25  | X 4          | 100     |
| UPL Species              | 0   | X 5          | 0       |
| Column Totals:           | 135 | (A)          | 410 (B) |
| Prevalence Index = B/A = |     |              | 3.0     |

### Hydrophytic Vegetation Indicators:

Yes Dominance Test is >50%  
 Yes Prevalence Index ≤ 3.0 [1]  
 No Morphological Adaptations [1] (provide supporting data in vegetation remarks or on a separate sheet)  
 No Problematic Hydrophytic Vegetation [1] (Explain)

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

Hydrophytic vegetation present? Yes

# WETLAND DETERMINATION DATA FORM - Great Plains Region

## SOIL

Sampling Point: B2

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

| Depth<br>(inches) | Matrix        |     | Redox Features |    | Type [1] | Loc [2] | Texture         | Remarks |
|-------------------|---------------|-----|----------------|----|----------|---------|-----------------|---------|
|                   | Color (moist) | %   | Color (moist)  | %  |          |         |                 |         |
| 1. 0 - 6          | 10YR2/1       | 95  | 10YR 4/6       | 5  | D        | PL      | Silty clay loam |         |
| 2. 6 - 24         | 10YR2/1       | 100 |                |    |          |         | Silty clay loam |         |
| 3. 24 - 36        | 10YR2/1       | 90  | 5YR4/6         | 10 | D        | M       | Silty clay loam |         |
| 4. 36 - 40        | 10YR4/2       | 75  | 5YR4/6         | 25 | D        | M       | Clay            |         |
| 5. -              |               |     |                |    |          |         |                 |         |
| 6. -              |               |     |                |    |          |         |                 |         |

[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 L, J)
- ☐ Coastal Prairie Redox (A16) (LRR F, G, H)
- ☐ Dark Surface (S7) (LRR G)
- ☐ High Plains Depressions (F16) (LRR H outside MLRA 72 & 73)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in soil 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? <u>Yes</u> |
| Remarks: Redox depressions in closed depression in prairie pothole region = F8. |             |                       |                                 |

## 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 (where not tiled) (C3)
- ☐ 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 (where tiled) (C3)
- ☐ 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? ☐ Surface Water Depth (inches): \_\_\_\_\_
- Water table present? ☐ Water Table Depth (inches): \_\_\_\_\_
- Saturation present? (includes capillary fringe) ☐ Saturation Depth (inches): \_\_\_\_\_

Wetland hydrology present? Yes

Recorded Data: ☐ Aerial Photo ☐ Monitoring Well ☐ Stream Gauge ☐ Previous Inspections Describe:

Hydrology Remarks: No unambiguous indicators of hydrology, but wetland veg and elevation suggest this point is in upper portion of wetland.

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# WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: Berthold Station Applicant/Owner: Enbridge Energy Co City/County: Ward County State: ND Sampling Date: 09/23/09  
 Sampling Point: B3 Section: 20 Township: 156N Range: 85W Investigator(s): DRD  
 Land Form: Local Relief: Convex Slope %: 1-5 Soil Map Unit Name: Bowbells  
 Subregion (LRR): E Latitude: 48.3251302 Longitude: -101.75270 Datum: NAD83  
 NW/Cowardin Classification: Upland Circular 39 Classification: Upland

Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in remarks)  
 Eggers & Reed (primary): Upland  
 Eggers & Reed (secondary):  
 Eggers & Reed (tertiary):  
 Eggers & Reed (quaternary):  
 Are vegetation No Soil No Hydrology No significantly disturbed? Are "normal circumstances" present? Yes  
 Are vegetation No Soil No Hydrology No naturally problematic?

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

Hydrophytic vegetation present? No Remarks (explain any answers if needed):  
 Hydric soil present? No Sample point is in upland above a closed depression wetland.  
 Wetland hydrology present? No  
 Is the sampled area within a wetland? No

## VEGETATION

| Tree Stratum | (Plot Size: ) | Absolute % Cover | Dominant Species? | Indicator Status * |
|--------------|---------------|------------------|-------------------|--------------------|
| 1.           |               | 0                |                   |                    |
| 2.           |               | 0                |                   |                    |
| 3.           |               | 0                |                   |                    |
| 4.           |               | 0                |                   |                    |
| Total Cover: |               | 0                |                   |                    |

| Sapling/Shrub Stratum | (Plot Size: ) | Absolute % Cover | Dominant Species? | Indicator Status * |
|-----------------------|---------------|------------------|-------------------|--------------------|
| 1.                    |               | 0                |                   |                    |
| 2.                    |               | 0                |                   |                    |
| 3.                    |               | 0                |                   |                    |
| 4.                    |               | 0                |                   |                    |
| 5.                    |               | 0                |                   |                    |
| Total Cover:          |               | 0                |                   |                    |

| Herb Stratum | (Plot Size: 2 m diameter circle ) | Absolute % Cover | Dominant Species? | Indicator Status * |
|--------------|-----------------------------------|------------------|-------------------|--------------------|
| 1.           | Agropyron repens                  | 20               | No                | FAC                |
| 2.           | Lactuca serriola                  | 40               | Yes               | FACU               |
| 3.           | Cirsium arvense                   | 50               | Yes               | FACU               |
| 4.           | Aster foliolatus                  | 20               | No                | FACU               |
| 5.           |                                   | 0                |                   |                    |
| 6.           |                                   | 0                |                   |                    |
| 7.           |                                   | 0                |                   |                    |
| 8.           |                                   | 0                |                   |                    |
| Total Cover: |                                   | 130              |                   |                    |

| Woody Vine Stratum | (Plot Size: ) | Absolute % Cover | Dominant Species? | Indicator Status * |
|--------------------|---------------|------------------|-------------------|--------------------|
| 1.                 |               | 0                |                   |                    |
| 2.                 |               | 0                |                   |                    |
| Total Cover:       |               | 0                |                   |                    |

% Bare Ground in Herb Stratum: 0

Remarks: (Include photo numbers here or on a separate sheet) Old field? Likely cultivated before current landuse.

### Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW or 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   | X 1          | 0       |
| FACW Species             | 0   | X 2          | 0       |
| FAC Species              | 20  | X 3          | 60      |
| FACU Species             | 110 | X 4          | 440     |
| UPL Species              | 0   | X 5          | 0       |
| Column Totals:           | 130 | (A)          | 500 (B) |
| Prevalence Index = B/A = |     |              | 3.8     |

### Hydrophytic Vegetation Indicators:

No Dominance Test is >50%  
 No Prevalence Index ≤ 3.0 [1]  
 No Morphological Adaptations [1] (provide supporting data in vegetation remarks or on a separate sheet)  
 No Problematic Hydrophytic Vegetation [1] (Explain)

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

Hydrophytic vegetation present? No

# WETLAND DETERMINATION DATA FORM - Great Plains Region

## SOIL

Sampling Point: B3

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

|    | Depth<br>(inches) | Matrix        |    | Redox Features |   | Type [1] | Loc [2] | Texture         | Remarks     |
|----|-------------------|---------------|----|----------------|---|----------|---------|-----------------|-------------|
|    |                   | Color (moist) | %  | Color (moist)  | % |          |         |                 |             |
| 1. | 0 - 8             | 10YR2/1       | 75 |                |   |          |         | Silty clay loam | Plow layer? |
| 2. | 8 - 24            | 10YR2/1       | 99 | 5YR4/6         | 1 | D        | M       | Silty clay loam |             |
| 3. | 24 - 30           | 2.5YR6/3      | 75 |                |   |          |         | Clay            |             |
| 4. | -                 |               |    |                |   |          |         |                 |             |
| 5. | -                 |               |    |                |   |          |         |                 |             |
| 6. | -                 |               |    |                |   |          |         |                 |             |

[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 MLRA 72 & 73)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in soil 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? No

Remarks: 25% 10YR7/3 in matrix at 0-8" possibly from carbonates; 25% 10YR2/1 in matrix at 24-30"

## 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 (where not filled) (C3)
- ☐ 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 (where filled) (C3)
- ☐ 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? ☐ Surface Water Depth (inches): \_\_\_\_\_
- Water table present? ☐ Water Table Depth (inches): \_\_\_\_\_
- Saturation present? (includes capillary fringe) ☐ Saturation Depth (inches): \_\_\_\_\_

Wetland hydrology present? No

Recorded Data: ☐ Aerial Photo ☐ Monitoring Well ☐ Stream Gauge ☐ Previous Inspections Describe:

Hydrology Remarks: No indicators of wetland hydrology.

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# WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: Berthold Station Applicant/Owner: Enbridge Energy Co City/County: Ward County State: ND Sampling Date: 09/23/09

Sampling Point: C1 Section: 20 Township: 156N Range: 86W Investigator(s): DRD

Land Form: Local Relief: Concave Slope %: 0-5 Soil Map Unit Name: Bowbells

Subregion (LRR): E Latitude: 48.3256308 Longitude: -101.75334 Datum: NAD83

NW/Cowardin Classification: PEMA Circular 39 Classification: Type 1

Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in remarks)

Eggers & Reed (primary): Seasonally Flooded Basin

Eggers & Reed (secondary):

Eggers & Reed (tertiary):

Eggers & Reed (quaternary):

Are vegetation Yes Soil No Hydrology No significantly disturbed? Are "normal circumstances" present? Yes

Are vegetation No Soil No Hydrology Yes naturally problematic?

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

Hydrophytic vegetation present? Yes Remarks (explain any answers if needed):

Hydric soil present? Yes

Wetland hydrology present? Yes

Is the sampled area within a wetland? Yes

Sample point is in a closed depression wetland with ephemeral seasonal hydrology.

## VEGETATION

| Tree Stratum |  | Absolute % Cover | Dominant Species? | Indicator Status * |
|--------------|--|------------------|-------------------|--------------------|
| 1.           |  | 0                |                   |                    |
| 2.           |  | 0                |                   |                    |
| 3.           |  | 0                |                   |                    |
| 4.           |  | 0                |                   |                    |
| Total Cover: |  | 0                |                   |                    |

| Sapling/Shrub Stratum |  | Absolute % Cover | Dominant Species? | Indicator Status * |
|-----------------------|--|------------------|-------------------|--------------------|
| 1.                    |  | 0                |                   |                    |
| 2.                    |  | 0                |                   |                    |
| 3.                    |  | 0                |                   |                    |
| 4.                    |  | 0                |                   |                    |
| 5.                    |  | 0                |                   |                    |
| Total Cover:          |  | 0                |                   |                    |

| Herb Stratum |                      | Absolute % Cover | Dominant Species? | Indicator Status * |
|--------------|----------------------|------------------|-------------------|--------------------|
| 1.           | Kochia scoparia      | 10               | Yes               | FAC                |
| 2.           | Phalaris arundinacea | 10               | Yes               | FACW               |
| 3.           |                      | 0                |                   |                    |
| 4.           |                      | 0                |                   |                    |
| 5.           |                      | 0                |                   |                    |
| 6.           |                      | 0                |                   |                    |
| 7.           |                      | 0                |                   |                    |
| 8.           |                      | 0                |                   |                    |
| Total Cover: |                      | 20               |                   |                    |

| Woody Vine Stratum |  | Absolute % Cover | Dominant Species? | Indicator Status * |
|--------------------|--|------------------|-------------------|--------------------|
| 1.                 |  | 0                |                   |                    |
| 2.                 |  | 0                |                   |                    |
| Total Cover:       |  | 0                |                   |                    |

% Bare Ground in Herb Stratum: 80

\* In USFWS Region 4

**Dominance Test Worksheet:**

Number of Dominant Species That Are OBL, FACW or 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 X 1         | 0             |
| FACW Species             | 10 X 2        | 20            |
| FAC Species              | 10 X 3        | 30            |
| FACU Species             | 0 X 4         | 0             |
| UPL Species              | 0 X 5         | 0             |
| Column Totals:           | <u>20</u> (A) | <u>50</u> (B) |
| Prevalence Index = B/A = |               | <u>2.5</u>    |

**Hydrophytic Vegetation Indicators:**

Yes Dominance Test is >50%

Yes Prevalence Index ≤ 3.0 [1]

No Morphological Adaptations [1] (provide supporting data in vegetation remarks or on a separate sheet)

No Problematic Hydrophytic Vegetation [1] (Explain)

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

Hydrophytic vegetation present? Yes

Remarks: (include photo numbers here or on a separate sheet) Entire wetland is mowed. Vegetation is sparse, and soil is bare in lowest area.

# WETLAND DETERMINATION DATA FORM - Great Plains Region

## SOIL

Sampling Point: C1

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

| Depth<br>(inches) | Matrix        |    | Redox Features |    |  |  | Type [1] | Loc [2] | Texture         | Remarks |
|-------------------|---------------|----|----------------|----|--|--|----------|---------|-----------------|---------|
|                   | Color (moist) | %  | Color (moist)  | %  |  |  |          |         |                 |         |
| 1. 0 - 20         | 10YR2/1       | 90 | 10YR5/1        | 10 |  |  | D        | PL      | Silty clay loam |         |
| 2. 20 - 24        | 10YR6/1       | 50 | 7.5YR5/8       | 50 |  |  |          |         | Clay            |         |
| 3. -              |               |    |                |    |  |  |          |         |                 |         |
| 4. -              |               |    |                |    |  |  |          |         |                 |         |
| 5. -              |               |    |                |    |  |  |          |         |                 |         |
| 6. -              |               |    |                |    |  |  |          |         |                 |         |

[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 MLRA 72 & 73)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in soil remarks)

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

Restrictive Layer (if present): Type: Clay Depth (inches): 20 - 24

Hydric soil present? Yes

Remarks: Redox depressions in closed depression in prairie pothole region = F8. Upper layer includes 10YR6/6 in matrix.

## 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)
- ☐ Soil Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Dry-Season Water Table (C2)
- ☐ Oxidized Rhizospheres on Living Roots (where not tilled) (C3)
- ☐ 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 (where tilled) (C3)
- ☐ 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? ☐ Surface Water Depth (inches): \_\_\_\_\_
- Water table present? ☐ Water Table Depth (inches): \_\_\_\_\_
- Saturation present? (includes capillary fringe) ☐ Saturation Depth (inches): \_\_\_\_\_

Wetland hydrology present? Yes

Recorded Data: ☐ Aerial Photo ☐ Monitoring Well ☐ Stream Gauge ☐ Previous Inspections Describe:

Hydrology Remarks: Shallow depression and small area of cracked and bare soil suggest ephemeral wetland hydrology.

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# WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: Berthold Station Applicant/Owner: Enbridge Energy Co City/County: Ward County State: ND Sampling Date: 09/23/09

Sampling Point: C2 Section: 20 Township: 156N Range: 86W Investigator(s): DRD

Land Form: Local Relief: Convex Slope %: 0-5 Soil Map Unit Name: Bowdells

Subregion (LRR): E Latitude: 48.3256300 Longitude: -101.75344 Datum: NAD83

NW/Cowardin Classification: Upland Circular 39 Classification: Upland

Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in remarks)

Eggers & Reed (primary): Upland

Eggers & Reed (secondary):

Eggers & Reed (tertiary):

Eggers & Reed (quaternary):

Are vegetation Yes Soil No Hydrology No significantly disturbed? Are "normal circumstances" present? Yes

Are vegetation No Soil Yes Hydrology No naturally problematic?

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

Hydrophytic vegetation present? No Remarks (explain any answers if needed):

Hydric soil present? No Sample point is in mowed upland above a closed depression wetland.

Wetland hydrology present? No

Is the sampled area within a wetland? No

## VEGETATION

| Tree Stratum | (Plot Size: ) | Absolute % Cover | Dominant Species? | Indicator Status * |
|--------------|---------------|------------------|-------------------|--------------------|
| 1.           |               | 0                |                   |                    |
| 2.           |               | 0                |                   |                    |
| 3.           |               | 0                |                   |                    |
| 4.           |               | 0                |                   |                    |
| Total Cover: |               | 0                |                   |                    |

| Sapling/Shrub Stratum | (Plot Size: ) | Absolute % Cover | Dominant Species? | Indicator Status * |
|-----------------------|---------------|------------------|-------------------|--------------------|
| 1.                    |               | 0                |                   |                    |
| 2.                    |               | 0                |                   |                    |
| 3.                    |               | 0                |                   |                    |
| 4.                    |               | 0                |                   |                    |
| 5.                    |               | 0                |                   |                    |
| Total Cover:          |               | 0                |                   |                    |

| Herb Stratum                | (Plot Size: <u>2 m diameter circle</u> ) | Absolute % Cover | Dominant Species? | Indicator Status * |
|-----------------------------|------------------------------------------|------------------|-------------------|--------------------|
| 1. <u>Hordeum jubatum</u>   |                                          | 30               | Yes               | FACW               |
| 2. <u>Lactuca scariola</u>  |                                          | 20               | Yes               | FACU               |
| 3. <u>Conyza canadensis</u> |                                          | 10               | No                | FACU               |
| 4. <u>Kochia scoparia</u>   |                                          | 5                | No                | FAC                |
| 5.                          |                                          | 0                |                   |                    |
| 6.                          |                                          | 0                |                   |                    |
| 7.                          |                                          | 0                |                   |                    |
| 8.                          |                                          | 0                |                   |                    |
| Total Cover:                |                                          | 65               |                   |                    |

| Woody Vine Stratum | (Plot Size: ) | Absolute % Cover | Dominant Species? | Indicator Status * |
|--------------------|---------------|------------------|-------------------|--------------------|
| 1.                 |               | 0                |                   |                    |
| 2.                 |               | 0                |                   |                    |
| Total Cover:       |               | 0                |                   |                    |

% Bare Ground in Herb Stratum: 20

Remarks: (Include photo numbers here or on a separate sheet)

Mowed upland, and some grasses are not identifiable (30% cover). Likely *Agropyron repens* = FAC.

### Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW or 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 <u>0</u>     | X 1          | <u>0</u>       |
| FACW Species <u>30</u>   | X 2          | <u>60</u>      |
| FAC Species <u>5</u>     | X 3          | <u>15</u>      |
| FACU Species <u>30</u>   | X 4          | <u>120</u>     |
| UPL Species <u>0</u>     | X 5          | <u>0</u>       |
| Column Totals: <u>65</u> | (A)          | <u>195</u> (B) |
| Prevalence Index = B/A = |              | <u>3.0</u>     |

### Hydrophytic Vegetation Indicators:

No Dominance Test is >50%

Yes Prevalence Index ≤ 3.0 [1]

No Morphological Adaptations [1] (provide supporting data in vegetation remarks or on a separate sheet)

No Problematic Hydrophytic Vegetation [1] (Explain)

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

Hydrophytic vegetation present? No

# WETLAND DETERMINATION DATA FORM - Great Plains Region

## SOIL

Sampling Point: C2

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

|    | Depth<br>(Inches) | Matrix        |   | Redox Features |   | Type [1] | Loc [2] | Texture         | Remarks |
|----|-------------------|---------------|---|----------------|---|----------|---------|-----------------|---------|
|    |                   | Color (moist) | % | Color (moist)  | % |          |         |                 |         |
| 1. | 0 - 24            | 10YR3/1       |   |                |   |          |         | Silty clay loam |         |
| 2. | 24 - 36           | 2.5Y6/3       |   |                |   |          |         | Silty clay      |         |
| 3. | -                 |               |   |                |   |          |         |                 |         |
| 4. | -                 |               |   |                |   |          |         |                 |         |
| 5. | -                 |               |   |                |   |          |         |                 |         |
| 6. | -                 |               |   |                |   |          |         |                 |         |

[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 MLRA 72 & 73)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in soil 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? <u>No</u> |
| Remarks: Not hydric soil.       |             |                       |                                |

## 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 (where not Nod) (C3)
- ☐ 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 (where tiled) (C3)
- ☐ 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? ☐ Surface Water Depth (inches): \_\_\_\_\_
- Water table present? ☐ Water Table Depth (inches): \_\_\_\_\_
- Saturation present? (includes capillary fringe) ☐ Saturation Depth (inches): \_\_\_\_\_

Wetland hydrology present? No

Recorded Data: ☐ Aerial Photo ☐ Monitoring Well ☐ Stream Gauge ☐ Previous Inspections Describe:

Hydrology Remarks: On slope above wetland; no hydrology.

10/9/2009 11:22:23 AM



# MEMO

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Date:

May 11, 2010

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To:

EPND – Beaver Lodge Loop Project File

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From:

Jeff Mackenthun, Merjent

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Subject:

Wetland Survey and Delineation of Aboveground Stations

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## Overview

Merjent, Inc. (Merjent), on behalf of Enbridge Pipelines (North Dakota) LLC (EPND), conducted an on-site routine wetland delineation to identify and classify wetlands located within proposed above-ground facility project sites (Beaver Lodge, Stanley, and Berthold Stations and Terminals). The routine wetland delineations were completed between May 1 and May 4, 2010.

## Survey Protocol

Wetlands were delineated using routine determination methods set forth in the U.S. Army Corps of Engineers Wetlands Delineation Manual (1987 Manual) (Environmental Laboratory, Waterways Experiment Station, 1987). In accordance with the 1987 Manual, routine wetland determinations were based on the presence of hydrophytic vegetation, wetland hydrology and hydric soils, referred to as the “three parameter approach.” Sampling transects were established in representative transition zones of the identified wetland. Transects typically consisted of one sampling point in the upland and one sampling point in the wetland. Wetland boundaries were recorded during delineation activities using a sub-meter accuracy GPS unit.

## Beaver Lodge Station and Terminal

Beaver Lodge Station and Terminal is located near the intersection of 60<sup>th</sup> St. NW and 103<sup>rd</sup> Ave. NW, approximately eight miles south of the city of Tioga. The survey boundaries for the Beaver Lodge Station and Terminal include a portion of the previously developed site in the SE ¼ of Section 32, Township 156N, Range 95W, and an undeveloped parcel of land in the NE ¼ of Section 5, Township 155N, Range 95W. No wetlands were identified with the site boundaries (see Figure 1).

## Stanley Station and Terminal

Stanley Station and Terminal is located just east of State Highway 8, approximately ½ mile southeast of the city of Stanley. The survey boundaries are located in the SW ¼ of Section 27, Township 156N, Range 91W. The majority of the western portion of the survey area has been previously developed, while the eastern portion is currently

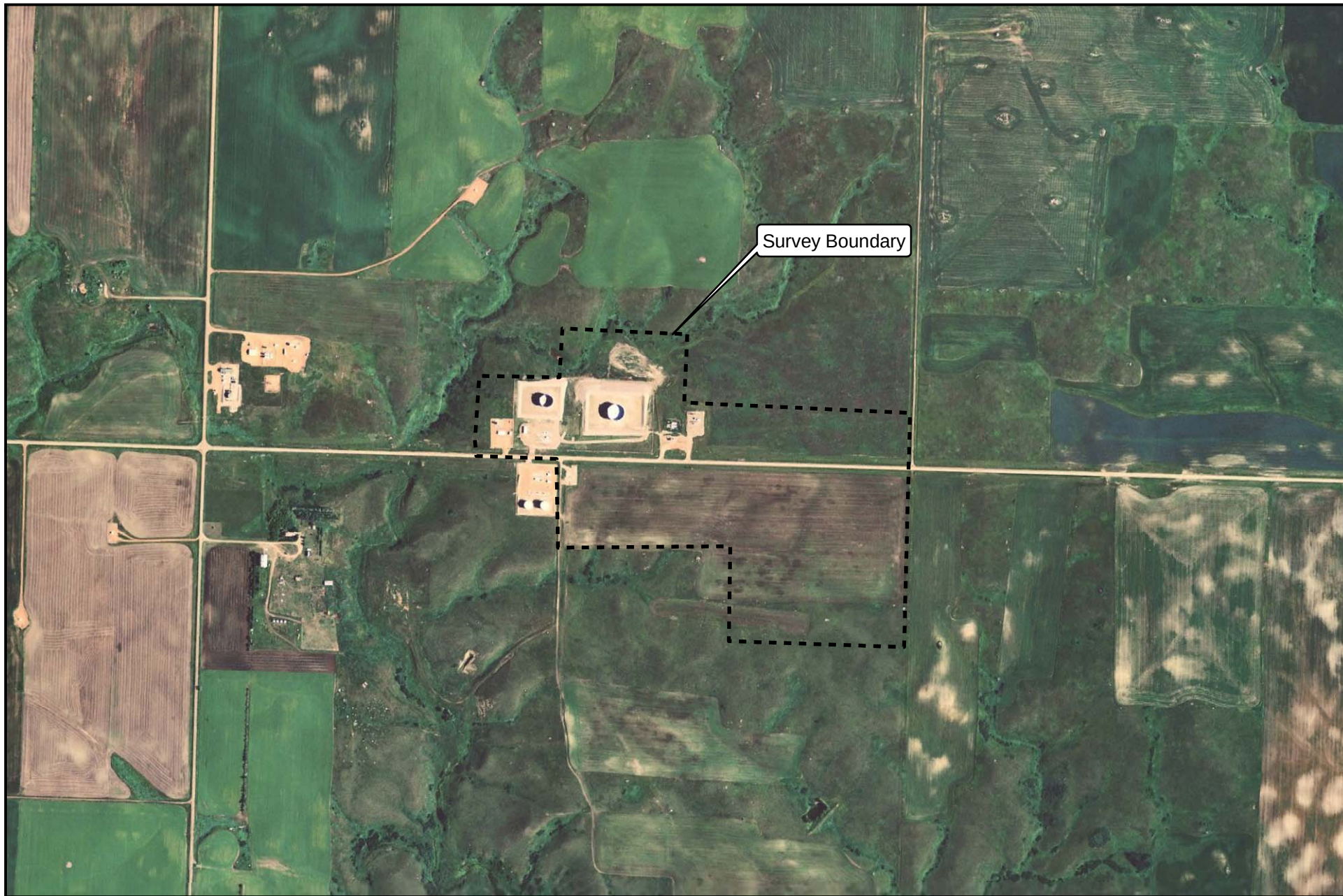
undeveloped. Wetlands were delineated along the eastern edge of the survey boundary (see Figure 2).

#### Berthold Station and Terminal

Berthold Station and Terminal is located near the intersection of US Highway 2 and 296<sup>th</sup> St. NW, approximately ½ mile northwest of the city of Berthold. The survey was conducted primarily on undeveloped land adjacent to (east and south) and outside of the fenceline of the existing station in the NE ¼ of Section 20 and the NW ¼ of Section 21, Township 156N, Range 86W. Several wetlands were delineated, primarily along the eastern and southern boundaries of the survey area (see Figure 3).

#### Conclusions/Summary

Although wetlands are present within the survey boundaries at Stanley and Berthold Stations and Terminals, based on facility information provided by EPND, permanent wetland impacts are not anticipated at either of these sites. As stated above, no wetlands were delineated within the survey boundary of the Beaver Lodge Station and Terminal. As such, no permanent wetland impacts are anticipated as a result of the proposed expansion work at these three facilities.



**Legend**

 Delineated Wetland

1:12,000

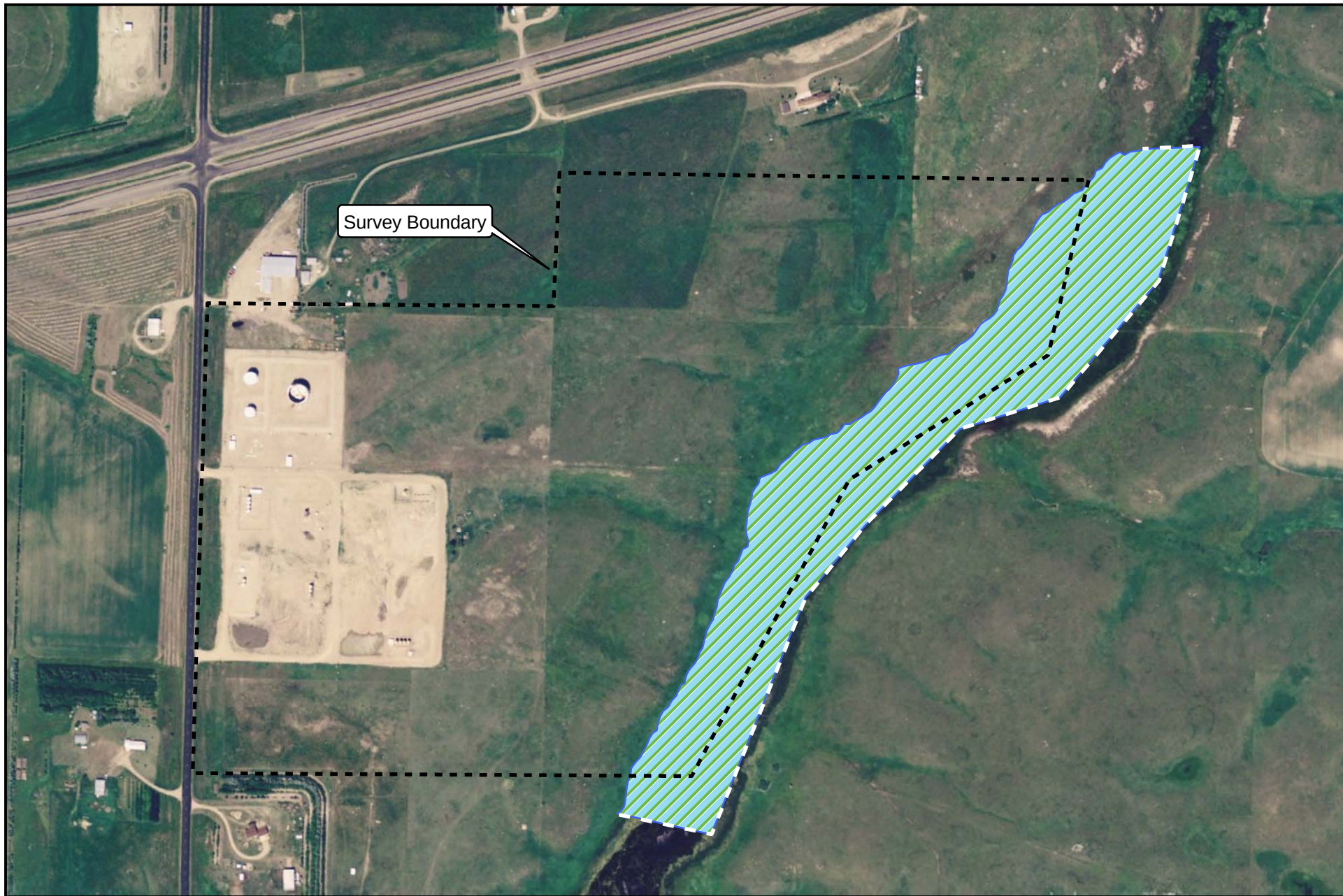
**Figure 1**

0 500 1,000  
 Feet



**Beaver Lodge Station**  
**May 2010 Wetland Delineation**  
Williams County, North Dakota





Survey Boundary

**Legend**

 Delineated Wetland

1:6,000

**Figure 2**

0 500 1,000  
Feet



**Stanley Station**  
**May 2010 Wetland Delineation**  
Mountrail County, North Dakota





**Legend**

 Delineated Wetland

1:6,000

**Figure 3**

0 500 1,000  
Feet



**Berthold Station**  
**May 2010 Wetland Delineation**  
Ward County, North Dakota

