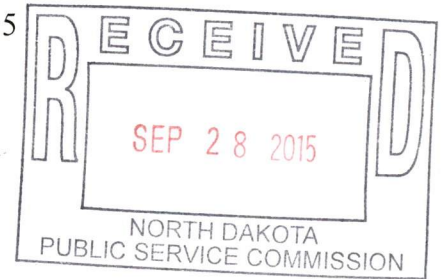


Brian R. Bjella  
100 West Broadway, Suite 250  
P.O. Box 2798  
Bismarck, ND 58502-2798  
701.223.6585  
bbjella@crowleyfleck.com

September 28, 2015

*via hand delivery*

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



In re: Enbridge Pipelines (North Dakota) LLC  
Bakken Pipeline Project US  
Ward & Burke Counties  
Case No. PU-10-612  
Our File No. 31-411-004

Dear Mr. Nitschke:

Enclosed for filing in the above captioned matter please find two copies of responses to Mr. Patrick Fahn's request dated August 19, 2015, regarding Final Construction Inspection Reports.

Please call should you have any questions.

Very truly yours,

Brian R. Bjella

bw  
Enc.



September 22, 2015

North Dakota Pipeline Company LLC, dba NDPL LLC, formerly known as Enbridge Pipelines (North Dakota) LLC, provides the enclosed information in response to the request from Mr. Patrick Fahn dated August 18, 2015 regarding Final Construction Inspection Reports. Regarding Docket PU-10-612, Mr. Fahn requested the following information:

**PU-10-612**

On May 5, 2011, the Commission issued an order authorizing Enbridge Pipelines (North Dakota) LLC approval to build a crude oil pipeline and associated facilities in Burke and Ward Counties, North Dakota. On September 6, 2011, the Commission approved amendments to the corridor and pipeline route. A final inspection report was issued for this project on July 31, 2014. In the report, it was noted that the Company had not yet complied with a number of Order Points. In order to demonstrate its compliance with these order points, the Commission requests the Company provide the following information:

- Enbridge should provide verification that the Company has fulfilled the wetland mitigation requirements as required by the Army Corps of Engineers permits to complete Finding of Fact No. 16.
- Enbridge should provide written verification that no endangered, threatened or sensitive plants were found in the project area or, if they were, what actions the Company took to protect the species. (Finding of Fact No. 17)
- Settlement was found along the first three miles of the pipeline route between station 0+00 and 171+00. Settlement was most noticeable at stations 34+00 and 148+00. Enbridge needs to verify that these settlement areas have been fixed. (Order Point 2)
- Trees and shrubs were planted in 2014. As a result, the Commission will need three years of monitoring after planting to comply with the Tree and Shrub Mitigation Specification. That is, reports will be required in 2015, 2016 and 2017 with a 75 percent survival rate required at the end of the three years.
- Evidence that the Company received the following permits: U.S. Army Corps of Engineers Individual 404 permit, U.S. Army Corps of Engineers Nationwide Permit (NWP) 12 Section 404 Permit, North Dakota Department of Health - Individual Section 401 Water Quality Certification, North Dakota Department of Health - Construction Stormwater and Temporary Dewatering General Permit, North Dakota Department of Health - Hydrostatic Water Discharge Permit, and North Dakota State Water Commission - Temporary Water Permit/Water Withdrawal (Finding of Fact 16, Certification Relating to Order Provisions 4)



Please find attached the following items:

Attachment A – Wetland Mitigation Monitoring Reports for years one and two, in accordance with Finding of Fact No. 16

Attachment B – McCain Report that no endangered, threatened or sensitive plants were found in the project area, completing Finding of Fact No.17.

Attachment C – Place Holder - NDPL is still looking into the issue of settlement along the first three miles of the pipeline, and therefore requests additional time to provide a response.

Attachment D – Verification that Tree and Shrub Mitigation Reports will be filed in 2015, 2016, and 2017.

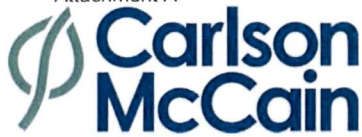
Attachment E – Environmental Permits: U.S. Army Corps of Engineers Individual Permit 404 permit, U.S. Army Corps of Engineers Nationwide Permit (NWP) 12 Section 404 Permit, North Dakota Department of Health – Construction Stormwater and Temporary Dewatering General Permit, North Dakota Department of Health – Hydrostatic Water Discharge Permit, North Dakota State Water Commission – Temporary Water Permit/Water Withdrawal, in accordance with Finding of Fact No.16, and certification completing Order Provisions No.4)



**North Dakota Pipeline Company LLC**

**Docket No. PU-10-612**

**Attachment A**



October 4, 2013

Mr. Paul Lehman,  
Enbridge  
1409 Hammond Avenue  
Superior, WI 54880

Dear Mr. Lehman,

Carlson McCain, Inc. is pleased to submit the Year One (2013) Wetland Mitigation Monitoring Report of the Berthold Station Mitigation Site for your review.

Please call me at 701-595-7004 if you have any questions or need additional information.

Sincerely,

A handwritten signature in black ink that reads "Greg W. Meyer".

Greg Meyer, MS  
Ecologist

## WETLAND MITIGATION MONITORING REPORT YEAR ONE (2013)

U.S. Army Corps of Engineers Project #NWO-2009-2882-BIS  
Berthold Station Mitigation Site

Enbridge Pipelines (Bakken) L.P.  
Berthold, North Dakota  
*Project #4720*

*Prepared for:*

Enbridge Pipelines (North Dakota) LLC  
Mr. Paul Lehman  
1409 Hammond Avenue  
Superior, WI 54880

*October 4, 2013*



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## APPENDICES

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## 1.0 PROJECT OVERVIEW

Enbridge Pipelines (North Dakota) LLC created 1.6 acres of mitigation wetland and 1.1 acres of adjacent upland buffer to compensate for 1.8 acres of wetland impacts. The U.S. Army Corps of Engineers (USACE) project #NWO-2009-2882-BIS approved 1.8 acres of wetland impacts resulting from the construction of the Bakken Pipeline Project US (BPP US) (1.46 wetland acres) and Berthold Truck Unloading (BTUL) (0.32 wetland acres).

The compensatory mitigation wetland is located in Section 21, T156N, R86W, Ward County, North Dakota. The mitigation wetland was created by excavating an upland area and allowing the wetland areas along the South Fork of Arnold Coulee to expand into the excavated area. Additional details can be found in *Berthold Station and Terminal Wetland Mitigation Plan* prepared by McCain and Associates, Inc. in February 2011, and *Berthold Station Wetland Mitigation Plan – Amendment* prepared by Carlson McCain, Inc. in February 2012.

Monitoring of the mitigation wetland and corresponding upland buffer is essential to evaluate their progress and to ensure that they are providing wetland functions. Wetland functions include:

- Avian nesting, feeding, and brood habitat
- Aquatic invertebrate habitat
- Amphibian habitat
- Improved air and water quality
- Flood control for the Souris River Watershed

Growth of natural hydrophytic species in the mitigation wetland will create habitat for avian, aquatic invertebrate, amphibian, and other wildlife species. Creation of an additional floodplain wetland will increase flood retention and improve water quality within the Des Lacs River Watershed.

Monitoring will be conducted for up to five years or until the USACE deems the mitigation site successful and consents to the termination of monitoring. This monitoring report presents the field findings of the initial monitoring visit (year one post-construction).

## 2.0 MITIGATION WETLAND SUCCESS CRITERIA

Success criteria variables are essential to monitoring and evaluating mitigation wetlands. The mitigation wetland success criteria should be based on the presence and prevalence of hydrophytic vegetation and the presence of hydrologic indicators. The presence of hydrophytic vegetation and wetland hydrology will be noted at each observation point.

### 2.1 Hydrophytic Vegetation

The success of hydrophytic vegetation composition will be based on being determined as positive for Hydrophytic Vegetation Present within the Vegetation portion of the USACE Wetland Determination Data Form – Great Plains Region set forth by the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region (Version 2.0)* (USACE 2010).

### 2.2 Wetland Hydrology

The success of hydrology will be based on being determined as positive for Wetland Hydrology Present within the Hydrology portion of the USACE Wetland Determination Data Form – Great Plains Region set forth by the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region (Version 2.0)* (USACE 2010).

### 2.3 Hydric Soils

The development of hydric soils will be identified based on the profile description and hydric soil indicators found within the Soils portion of the USACE Wetland Determination Data Form – Great Plains Region set forth by the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region (Version 2.0)* (USACE 2010). Hydric soil indicators will develop slowly over time and may not be visible during the monitoring effort.

### 2.4 Upland Buffer

The success of the upland buffer adjacent to the mitigation wetland will be based on the presence of planted vegetation species and the lack (<10% areal coverage) of noxious vegetation species.

## 3.0 MONITORING METHODS

### 3.1 Monitoring Methods

The monitoring schedule for the mitigation areas consists of an annual field visit for up to five years following their construction. The initial monitoring of the mitigation areas was performed on August 22, 2013, by Greg Meyer, Ecologist, Carlson McCain, Inc. (Carlson McCain). Carlson McCain established photo point locations, collected photo point photographs, and evaluated the presence of hydrophytic vegetation, wetland hydrology, and the development of hydric soils by completing numerous USACE Wetland Determination Data Forms – Great Plains Region set forth by the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region (Version 2.0)* (USACE 2010). A Wetland Determination Data Form was completed at six observation points within the mitigation wetland.

Vegetation species nomenclature is based on *National Wetland Plant List* (Lichvar 2012).

#### 3.1.1 Photo Point

Photo points are specified locations in which photographs will be taken in order to provide a visual account of the development of the mitigation areas. Each point will have photos taken from a specified location with the same orientation during each monitoring visit. The locations and orientation of the photo points can be seen in Figure 2 (Appendix A). The photo points were recorded with a GPS unit. Camera settings and orientation will be consistent when taking photographs at these locations. Photo identification cards with pertinent information were placed in the photograph's field of view. Information documented on the photo identification card included:

- Unique photo point identification
- Photographer's initials
- Date and time
- Cardinal direction
- Location

#### 3.1.2 Hydrophytic Vegetation

Vegetation was documented at each observation point during the completion of the Wetland Determination Data Forms.

#### 3.1.3 Wetland Hydrology

Hydrology was documented at each observation point during the completion of the Wetland Determination Data Forms. It was also compared to the natural wetland areas along Spring Creek.

#### 3.1.4 Upland Buffer Vegetation

Vegetation and corresponding areal coverage was documented in four sampling points within the upland buffer.

#### 3.1.5 Problem Areas

Any problem areas (areas of sedimentation or erosion) were documented.

## 4.0 MONITORING RESULTS AND CONCLUSIONS

### 4.1 Berthold Station Mitigation Wetland

The Berthold Station Mitigation Wetland formerly consisted of an upland area adjacent to the South Fork of Arnold Coulee. The mitigation wetland was developed by excavating the upland area to an elevation slightly higher than the South Fork of Arnold Coulee. This elevation will allow high flow of the South Fork of Arnold Coulee to inundate and saturate the wetland on a consistent basis (Photographs 1 and 2). A storm drain from the BTUL will also provide hydrology to the mitigation wetland.



Photograph 1. 2013 view of the Berthold Station Mitigation Wetland from photopoint 1. The mitigation wetland contained hydrophytic vegetation and indications of wetland hydrology. Photograph taken facing north.



Photograph 2. 2013 view of the Berthold Station Mitigation Wetland from photopoint 2. The mitigation wetland contained hydrophytic vegetation and indications of wetland hydrology. Photograph taken facing northeast.

Photographs 1 and 2 depict the 2013 conditions of the mitigation wetland. Indication of wetland hydrology was present throughout the mitigation wetland. Sediment deposits, salt crusts, and surface soil cracks were present in the mitigation wetland as well as inundation within a small area near the entrance of the storm drain. Wetland hydrology was determined to be present within the mitigation wetland.

Vegetation prevalent within the mitigation wetland included hydrophytic vegetation species such as hybrid cattail (*Typha x glauca*), soft-stem bulrush (*Schoenoplectus tabernaemontani*) river bulrush (*Schoenoplectus fluviatilis*), and foxtail barley (*Hordeum jubatum*). An estimated 70% of the mitigation wetland was vegetated with sporadic hydrophytic plants; however, patches of bare soil were prevalent throughout (Photograph 3). All observation points sampled within the mitigation wetland contained a dominance of hydrophytic vegetation species along with a prevalence of bare soil. Hydrophytic vegetation was determined to be present within the mitigation wetland.



Photograph 3. Sporadic hydrophytic vegetation was established within the mitigation wetland; however, there was also a prevalence of areas of exposed bare soil.

#### 4.2 Berthold Station Mitigation Wetland Upland Buffer

Four observation points were sampled within the established upland buffer that is located along the west side of the mitigation wetland. The upland buffer is 50-foot wide and is currently dominated with with foxtail barley (*Hordeum jubatum*) and annual sunflower (*Helianthus annuus*) (Photograph 4). Other species observed with less canopy coverage include black-eyed susan (*Rudbeckia hirta*) and blanket flower (*Gaillardia aristata*). Few of the planted species were documented within the upland buffer but additional time will allow these species to outcompete foxtail barley. The amount of bare ground cover was insignificant in the upland buffer. A few sporadic noxious weeds were documented and they comprise less than a single percent of the overall areal coverage. More years are needed for the planted species to out-compete the existing vegetation and become the dominant species.



Photograph 4. Vegetation in the upland buffer is well established but does not comprise the planted species.

#### 4.3 Berthold Station Mitigation Wetland Problem Areas

Overall, few problem areas exist within the mitigation wetland. A small area of erosion was noted near the retention pond at the end of the storm drain (Photographs 5 and 6). The eroded cut is quite small at this time but should be filled in to keep from washing out the upland buffer and placing sediment in the mitigation wetland. Further, Enbridge will replace coconut logs to slow down the flow and evaluate methods to prevent future erosion events.



Photograph 5. An erosion area located near the retention pond at the end of the storm water drain has cut through the upland buffer and washed sediment into the mitigation wetland.



Photograph 6. A storm water drain from the BTUL flows into a retention pond before the mitigation wetland. Excessive runoff caused water to flow out of the retention pond and erode the upland buffer.

The Berthold Station Mitigation Wetland has surpassed its success criteria for wetland hydrology and hydrophytic vegetation. Over time, the mitigation wetland will become more densely vegetated and the planted species within the upland buffer should become more prevalent. Even without the prevalence of planted species, the upland buffer has a well-established plant community with little to no noxious weedy species.

#### **4.4 Mitigation Site Wildlife Use**

A general wildlife survey was also conducted during the monitoring effort. Numerous bird species were identified within the mitigation wetland. Red-wing blackbirds were observed foraging in the mitigation wetland; in addition, sora rails were heard. Water bird tracks were imprinted in the wetland's bare ground areas. Sets of raccoon and deer tracks were found in the upland buffer and mitigation wetland.

## 5.0 REFERENCES

Carlson McCain, Inc. 2012. *Berthold Station Wetland Mitigation Plan – Amendment*. 16pp.

Environmental Laboratory. 1987. *Corp of Engineers Wetlands Delineation Manual*. Wetlands Research Program. Technical Report Y-87-1. Department of the Army, Waterways Experiment Station, US Army Corp of Engineers, Vicksburg, Mississippi, USA.

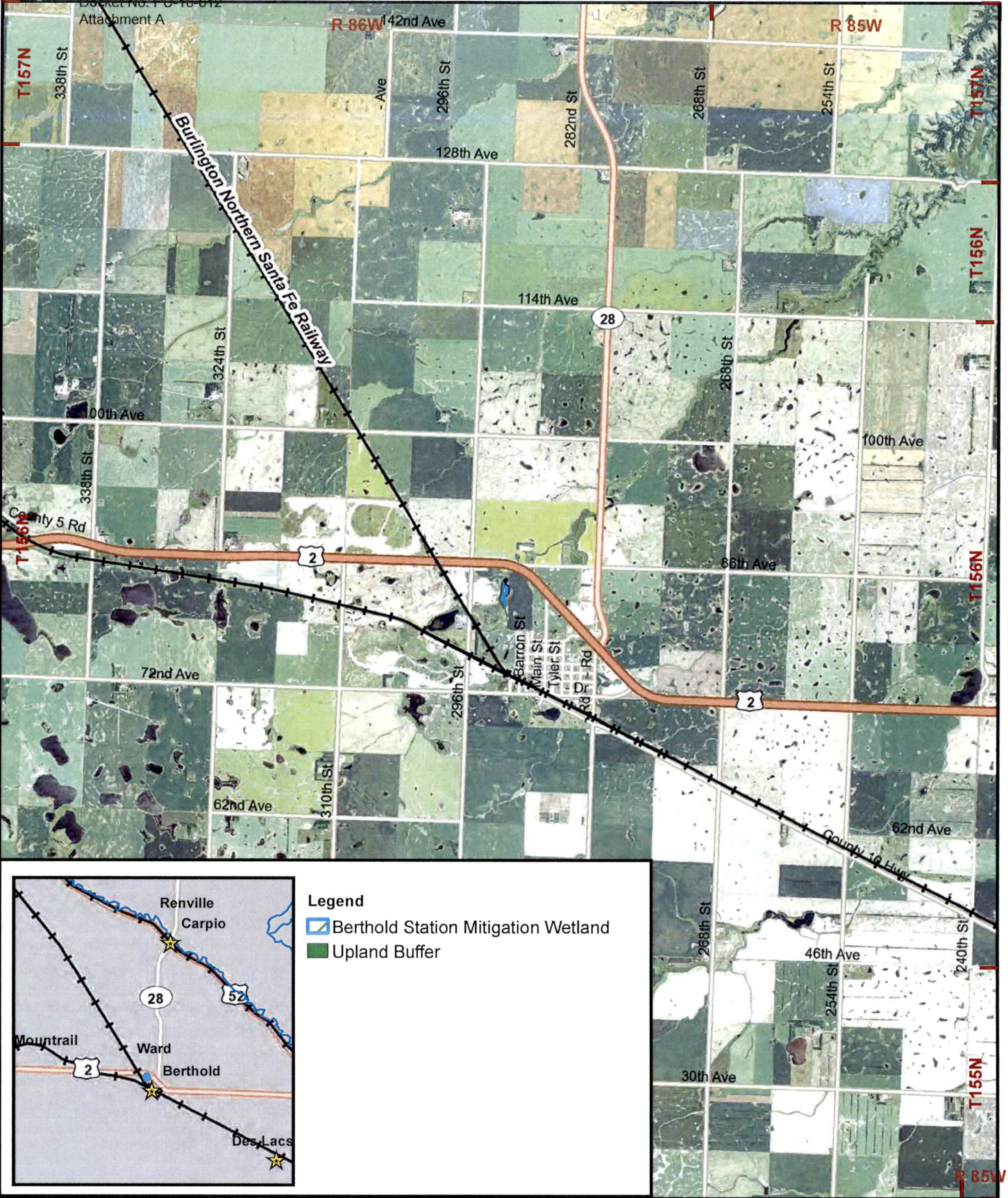
Environmental Laboratory. 2010. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region (Version 2.0)*. U.S. Army Corps of Engineers, U.S. Army Engineer Research and Development Center, Vicksburg, Mississippi, USA.

Lichvar, Robert W. 2012. *National Wetland Plant List*. ERDC/CRREL TR-12-11. Hanover, NH: U.S. Army Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory.

McCain and Associates, Inc. 2011. *Berthold Station and Terminal Wetland Mitigation Plan, Section 20 and 21, T156N, R86W, Ward County, North Dakota*. 21 pp.

*Appendix A*

*Figures*



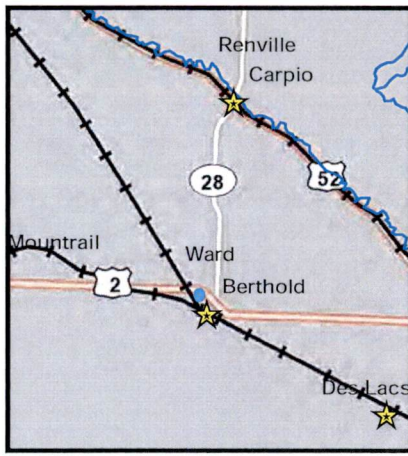
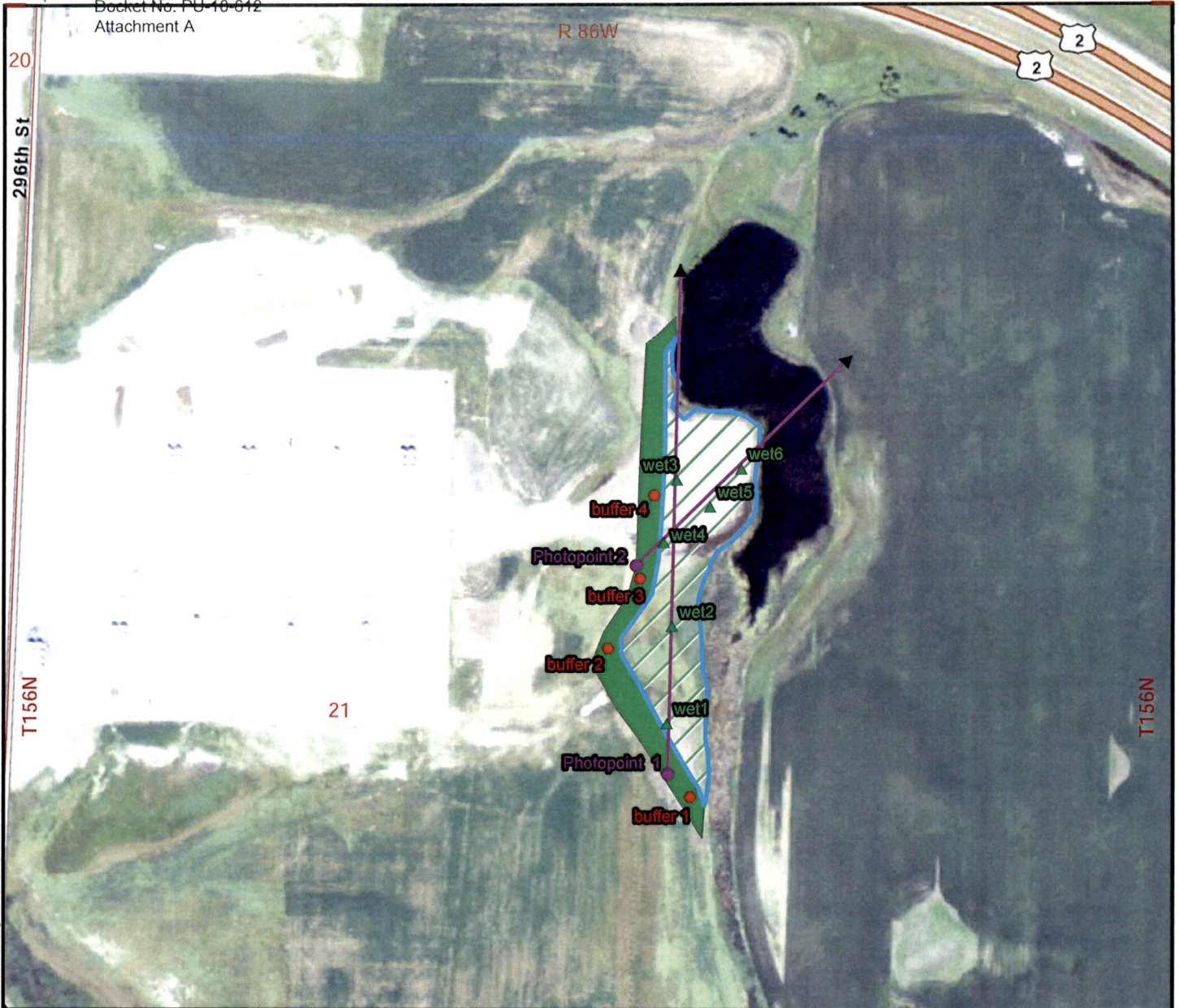
October 2013  
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1:63,360  
 1 inch = 1 miles  
 0 0.25 0.5 1 Miles  
 Basemap: NAIP Orthphoto 2012  
 Ward County, North Dakota



  
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**Figure 1**  
 General Location  
 Berthold Station Mitigation Site  
 Enbridge Pipelines (ND) LLC



- Legend**
- Photopoint
  - ▲ Wetland Point
  - Buffer Point
  - ➔ Photopoint Direction
  - ▨ Berthold Station Mitigation Wetland
  - Upland Buffer
  - Section Boundaries

1:3,600  
1 inch = 300 feet  
0 75 150 300 Feet  
Basemap: NAIP Orthphoto 2012  
Ward County, North Dakota



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**Figure 2**  
Monitoring Lay-out  
Berthold Station Mitigation Site  
Enbridge Pipelines (ND) LLC

October 2013 E:\Projects\ENB\4720\_2013 - Berthold Station Monitoring\figures\BS Monitoring.mxd

*Appendix B*

*U.S. Army Corps of Engineers Wetland Determination Data Forms*

**WETLAND DETERMINATION DATA FORM – Great Plains Region**

Project Site: Berthold Station Mitigation City/County: Ward County Sampling Date: 8/22/2013  
 Applicant/Owner: Enbridge Pipelines (North Dakota) LLC State: ND Sampling Point: wet1  
 Investigator(s): Greg Meyers Section, Township, Range: Sec. 21, T156N, R86W  
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 1  
 Subregion (LRR): E Lat: 48.323037 Long: -101.744339 Datum: NAD83  
 Soil Map Unit Name: F523A - Lowe-Fluvaquents, channeled complex, 0 to 2 percent slopes, frequently flooded NWI classification: NA  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampling Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Remarks: <b>Mitigated Wetland Area - Initial year of monitoring</b>			

**VEGETATION – Use scientific names of plants**

Tree Stratum (Plot Size: )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:	
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC:	<u>2</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata:	<u>2</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>100</u> (A/B)
4. _____	_____	_____	_____		
			= Total Cover		
Sapling/Shrub Stratum (Plot Size: _____)				Prevalence Index worksheet:	
1. _____	_____	_____	_____	Total % Cover of:	Multiply by:
2. _____	_____	_____	_____	OBL species _____	x1 = _____
3. _____	_____	_____	_____	FACW species _____	x2 = _____
4. _____	_____	_____	_____	FAC species _____	x3 = _____
5. _____	_____	_____	_____	FACU species _____	x4 = _____
			= Total Cover	UPL species _____	x5 = _____
Herb Stratum (Plot Size: 5')				Column Totals: _____	(A) _____ (B)
1. <u>Chenopodium rubrum</u>	<u>15</u>	<u>yes</u>	<u>OBL</u>	Prevalence Index = B/A = _____	
2. <u>Hordeum jubatum</u>	<u>10</u>	<u>yes</u>	<u>FACW</u>		
3. <u>Typha x glauca</u>	<u>5</u>	<u>no</u>	<u>OBL</u>		
4. <u>Schoenoplectus tabernaemontani</u>	<u>5</u>	<u>no</u>	<u>OBL</u>		
5. <u>Persicaria amphibia</u>	<u>5</u>	<u>no</u>	<u>OBL</u>		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
			<u>40</u>	= Total Cover	
Woody Vine Stratum (Plot Size: _____)					
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
			_____	= Total Cover	
% Bare Ground in Herb Stratum <u>70%</u>				<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Remarks: <b>Litter depth = 0%</b>					



**WETLAND DETERMINATION DATA FORM – Great Plains Region**

Project Site: Berthold Station Mitigation City/County: Ward County Sampling Date: 8/22/2013  
 Applicant/Owner: Enbridge Pipelines (North Dakota) LLC State: ND Sampling Point: wet2  
 Investigator(s): Greg Meyer Section, Township, Range: Sec. 21, T156N, R86W  
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 1  
 Subregion (LRR): E Lat: 48.323569 Long: -101.744327 Datum: NAD83  
 Soil Map Unit Name: F523A - Lowe-Fluvaquents, channeled complex, 0 to 2 percent slopes, frequently flooded NWI classification: NA  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampling Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Remarks: <b>Mitigated Wetland Area - Initial year of monitoring; Marsh wren nearby.</b>			

**VEGETATION – Use scientific names of plants**

Tree Stratum (Plot Size: )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <b>1</b> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <b>100</b> (A/B)
4. _____	_____	_____	_____	Prevalence Index worksheet:
_____	_____	= Total Cover	_____	
Sapling/Shrub Stratum (Plot Size: _____)				OBL species _____ x1 = _____
1. _____	_____	_____	_____	FACW species _____ x2 = _____
2. _____	_____	_____	_____	FAC species _____ x3 = _____
3. _____	_____	_____	_____	FACU species _____ x4 = _____
4. _____	_____	_____	_____	UPL species _____ x5 = _____
5. _____	_____	_____	_____	Column Totals: _____ (A) _____ (B)
_____	_____	= Total Cover	_____	Prevalence Index = B/A = _____
Herb Stratum (Plot Size: 5')				Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% _____ 3 – Prevalence Index is ≤3.0 <sup>1</sup> _____ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Schoenoplectus tabernaemontani</u>	<u>15</u>	<u>yes</u>	<u>OBL</u>	
2. <u>Schoenoplectus fluviatilis</u>	<u>5</u>	<u>no</u>	<u>OBL</u>	
3. <u>Typha x glauca</u>	<u>5</u>	<u>no</u>	<u>OBL</u>	
4. <u>Hordeum jubatum</u>	<u>1</u>	<u>no</u>	<u>FACW</u>	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
_____	<b>26</b>	= Total Cover	_____	
Woody Vine Stratum (Plot Size: _____)				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____	_____	= Total Cover	_____	
% Bare Ground in Herb Stratum <b>80%</b>				
Remarks: <b>Litter depth = 0%</b>				



**WETLAND DETERMINATION DATA FORM – Great Plains Region**

Project Site: Berthold Station Mitigation City/County: Ward County Sampling Date: 8/22/2013  
 Applicant/Owner: Enbridge Pipelines (North Dakota) LLC State: ND Sampling Point: wet3  
 Investigator(s): Greg Meyer Section, Township, Range: Sec. 21, T156N, R86W  
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 1  
 Subregion (LRR): E Lat: 48.324365 Long: -101.744333 Datum: NAD83  
 Soil Map Unit Name: F658B-Forman loam, west, 3 to 6 percent slopes NWI classification: NA  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampling Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Remarks: <b>Mitigated Wetland Area - Initial year of monitoring; located within constructed mitigated wetland area.</b>			

**VEGETATION – Use scientific names of plants**

Tree Stratum (Plot Size: )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:	
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC:	<u>3</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata:	<u>3</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>100</u> (A/B)
4. _____	_____	_____	_____		
	_____	= Total Cover			
Sapling/Shrub Stratum (Plot Size: _____)				Prevalence Index worksheet:	
1. _____	_____	_____	_____	Total % Cover of:	Multiply by:
2. _____	_____	_____	_____	OBL species _____	x1 = _____
3. _____	_____	_____	_____	FACW species _____	x2 = _____
4. _____	_____	_____	_____	FAC species _____	x3 = _____
5. _____	_____	_____	_____	FACU species _____	x4 = _____
	_____	= Total Cover		UPL species _____	x5 = _____
				Column Totals: _____	(A) _____ (B)
				Prevalence Index = B/A = _____	
Herb Stratum (Plot Size: 5')				Hydrophytic Vegetation Indicators:	
1. <u>Chenopodium rubrum</u>	<u>10</u>	<u>yes</u>	<u>OBL</u>	<input checked="" type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation	
2. <u>Hordeum jubatum</u>	<u>10</u>	<u>yes</u>	<u>FACW</u>	<input checked="" type="checkbox"/> 2 - Dominance Test is >50%	
3. <u>Schoenoplectus tabernaemontani</u>	<u>8</u>	<u>yes</u>	<u>OBL</u>	_____ 3 – Prevalence Index is ≤3.0 <sup>1</sup>	
4. <u>Typha x glauca</u>	<u>5</u>	<u>no</u>	<u>OBL</u>	_____ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)	
5. <u>Echinochloa crus-galli</u>	<u>5</u>	<u>no</u>	<u>FAC</u>	_____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
6. <u>Schoenoplectus fluviatilis</u>	<u>2</u>	<u>no</u>	<u>OBL</u>	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
	<u>40</u>	= Total Cover			
Woody Vine Stratum (Plot Size: _____)				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
	_____	= Total Cover			
% Bare Ground in Herb Stratum <u>60%</u>					
Remarks: <b>Litter depth = 0%</b>					

**SOIL**

Sampling Point: wet3

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (Moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		

<sup>1</sup>Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>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)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 1 cm Muck (A9) (LRR I, J)
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16)
- (LRR H outside of MLRA 72 & 73)**
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF 12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_  
Depth (Inches): \_\_\_\_\_

**Hydric Soils Present?** Yes  No

Remarks:

No soils were sampled due to safety protocol.

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

Secondary Indicators (2 or more required)

- |  |  |   |
|--|--|---|
| <input type="checkbox"/> Surface Water (A1)                        | <input checked="" type="checkbox"/> Salt Crust (B11)                   | <input checked="" type="checkbox"/> Surface Soil Cracks (B6)                |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Aquatic Invertebrates (B13)                   | <input checked="" type="checkbox"/> Sparsely Vegetated Concave Surface (B8) |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                    | <input type="checkbox"/> Drainage Patterns (B10)                            |
| <input type="checkbox"/> Water Marks (B1)                          | <input type="checkbox"/> Dry Season Water Table (C2)                   | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)      |
| <input checked="" type="checkbox"/> Sediment Deposits (B2)         | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) | <b>(where tilled)</b>   |
| <input type="checkbox"/> Drift Deposits (B3)                       | <b>(where not tilled)</b>  | <input type="checkbox"/> Crayfish Burrows (C8)                              |
| <input type="checkbox"/> Algal Mat or Crust (B4)                   | <input type="checkbox"/> Presence of Reduced Iron (C4)                 | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)          |
| <input type="checkbox"/> Iron Deposits (B5)                        | <input type="checkbox"/> Thin Muck Surface (C7)                        | <input checked="" type="checkbox"/> Geomorphic Position (D2)                |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks)                    | <input checked="" type="checkbox"/> FAC-Neutral Test (D5)                   |
| <input type="checkbox"/> Water-Stained Leaves (B9)                 |  | <input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)                  |

**Field Observations:**

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): \_\_\_\_\_

**Wetland Hydrology Present?** Yes  No

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

Remarks:

**WETLAND DETERMINATION DATA FORM – Great Plains Region**

Project Site: Berthold Station Mitigation City/County: Ward County Sampling Date: 8/22/2013  
 Applicant/Owner: Enbridge Pipelines (North Dakota) LLC State: ND Sampling Point: wet4  
 Investigator(s): Greg Meyer Section, Township, Range: Sec. 21, T156N, R86W  
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 1  
 Subregion (LRR): F Lat: 48.324024 Long: -101.744423 Datum: NAD83  
 Soil Map Unit Name: F658B-Forman loam, west, 3 to 6 percent slopes NWI classification: NA  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampling Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Remarks: <b>Mitigated Wetland Area - Initial year of monitoring.</b>			

**VEGETATION – Use scientific names of plants**

Tree Stratum (Plot Size: )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:	
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC:	<u>1</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata:	<u>1</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>100</u> (A/B)
4. _____	_____	_____	_____		
		= Total Cover			
Sapling/Shrub Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet:	
1. _____	_____	_____	_____	Total % Cover of:	Multiply by:
2. _____	_____	_____	_____	OBL species _____	x1 = _____
3. _____	_____	_____	_____	FACW species _____	x2 = _____
4. _____	_____	_____	_____	FAC species _____	x3 = _____
5. _____	_____	_____	_____	FACU species _____	x4 = _____
		= Total Cover		UPL species _____	x5 = _____
				Column Totals: _____	(A) _____ (B)
				Prevalence Index = B/A = _____	
Herb Stratum (Plot Size: 5')	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators:	
1. <u>Schoenoplectus fluviatilis</u>	<u>6</u>	<u>yes</u>	<u>OBL</u>	<input checked="" type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation	
2. <u>Hordeum jubatum</u>	<u>3</u>	<u>no</u>	<u>FACW</u>	<input checked="" type="checkbox"/> 2 - Dominance Test is >50%	
3. <u>Schoenoplectus tabernaemontani</u>	<u>3</u>	<u>no</u>	<u>OBL</u>	_____ 3 – Prevalence Index is ≤3.0 <sup>1</sup>	
4. _____	_____	_____	_____	_____ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)	
5. _____	_____	_____	_____	_____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
6. _____	_____	_____	_____	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
	<u>12</u>	= Total Cover			
Woody Vine Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status		
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
		= Total Cover			
% Bare Ground in Herb Stratum <u>90%</u>				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Remarks: <b>Litter depth = 0%</b>					



**WETLAND DETERMINATION DATA FORM – Great Plains Region**

Project Site: Berthold Station Mitigation City/County: Ward County Sampling Date: 8/22/2013  
 Applicant/Owner: Enbridge Pipelines (North Dakota) LLC State: ND Sampling Point: wet5  
 Investigator(s): Greg Meyer Section, Township, Range: Sec. 21, T156N, R86W  
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 1  
 Subregion (LRR): E Lat: 48.324225 Long: -101.744049 Datum: NAD83  
 Soil Map Unit Name: F523A-Lowe-Fluvaquents, channeled complex, 0 to 2 percent slopes, frequent NWI classification: NA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampling Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Remarks: <b>Mitigated Wetland Area - Initial year of monitoring.</b>			

**VEGETATION – Use scientific names of plants**

Tree Stratum (Plot Size: )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:	
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC:	<u>1</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata:	<u>1</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>100</u> (A/B)
4. _____	_____	_____	_____	Prevalence Index worksheet:	
				Total % Cover of:	Multiply by:
				OBL species	_____ x1 = _____
				FACW species	_____ x2 = _____
				FAC species	_____ x3 = _____
				FACU species	_____ x4 = _____
				UPL species	_____ x5 = _____
				Column Totals:	_____ (A) _____ (B)
				Prevalence Index = B/A = _____	
Hydrophytic Vegetation Indicators:					
<input checked="" type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation					
<input checked="" type="checkbox"/> 2 - Dominance Test is >50%					
_____ 3 – Prevalence Index is ≤3.0 <sup>1</sup>					
_____ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)					
_____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)					
<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.					
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>					
Remarks: <b>Litter depth = 0%</b>					

**SOIL**

Sampling Point: wet5

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (Moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		

<sup>1</sup>Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>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<sup>3</sup>:**

- 1 cm Muck (A9) (LRR I, J)
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16) (LRR H outside of MLRA 72 & 73)
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF 12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_  
Depth (Inches): \_\_\_\_\_

**Hydric Soils Present?** Yes  No

Remarks:

No soils were sampled due to safety protocol.

**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 along Living Roots (C3) (where not tilled)
- Presence of Reduced Iron (C4)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

**Field Observations:**

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): \_\_\_\_\_

**Wetland Hydrology Present?** Yes  No

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

Remarks:

**WETLAND DETERMINATION DATA FORM – Great Plains Region**

Project Site: Berthold Station Mitigation City/County: Ward County Sampling Date: 8/22/2013  
 Applicant/Owner: Enbridge Pipelines (North Dakota) LLC State: ND Sampling Point: wet6  
 Investigator(s): Greg Meyer Section, Township, Range: Sec. 21, T156N, R86W  
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 1  
 Subregion (LRR): F Lat: 48.324438 Long: -101.743804 Datum: NAD83  
 Soil Map Unit Name: F658B-Forman-Aastad loams, west, 3 to 6 percent slopes NWI classification: NA  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampling Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Remarks: <b>Mitigated Wetland Area - Initial year of monitoring.</b>			

**VEGETATION – Use scientific names of plants**

Tree Stratum (Plot Size: )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:	
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC:	<u>2</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata:	<u>2</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>100</u> (A/B)
4. _____	_____	_____	_____		
		= Total Cover			
Sapling/Shrub Stratum (Plot Size: _____)			Prevalence Index worksheet:		
1. _____	_____	_____	_____	Total % Cover of: Multiply by:	
2. _____	_____	_____	_____	OBL species	_____ x1 = _____
3. _____	_____	_____	_____	FACW species	_____ x2 = _____
4. _____	_____	_____	_____	FAC species	_____ x3 = _____
5. _____	_____	_____	_____	FACU species	_____ x4 = _____
		= Total Cover		UPL species	_____ x5 = _____
Herb Stratum (Plot Size: 5')				Column Totals:	_____ (A) _____ (B)
1. <u>Schoenoplectus tabernaemontani</u>	<u>6</u>	<u>yes</u>	<u>OBL</u>	Prevalence Index = B/A = _____	
2. <u>Persicaria amphibia</u>	<u>6</u>	<u>yes</u>	<u>OBL</u>		
3. <u>Elymus repens</u>	<u>1</u>	<u>no</u>	<u>FACU</u>		
4. _____	_____	_____	_____		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
		<u>13</u>	= Total Cover		
Woody Vine Stratum (Plot Size: _____)					
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
		= Total Cover			
% Bare Ground in Herb Stratum <u>87</u>				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Remarks: <b>Litter depth = 0%</b>					





October 2, 2014

Mr. Paul Lehman,  
Enbridge  
1409 Hammond Avenue  
Superior, WI 54880

Dear Mr. Lehman,

Carlson McCain, Inc. is pleased to submit the Year Two (2014) Wetland Mitigation Monitoring Report of the Berthold Station Mitigation Site for your review.

Please call me at 701-595-7004 if you have any questions or need additional information.

Sincerely,

A handwritten signature in black ink that reads "Greg W. Meyer". The signature is written in a cursive, flowing style.

Greg Meyer, MS  
Ecologist

## WETLAND MITIGATION MONITORING REPORT YEAR TWO (2014)

U.S. Army Corps of Engineers Project #NWO-2009-2882-BIS  
Berthold Station Mitigation Site

Enbridge Pipelines (Bakken) L.P.  
Berthold, North Dakota  
*Project #5291*

*Prepared for:*

Enbridge Pipelines (North Dakota) LLC  
Mr. Paul Lehman  
1409 Hammond Avenue  
Superior, WI 54880

*October 2, 2014*



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## APPENDICES

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## 1.0 PROJECT OVERVIEW

Enbridge Pipelines (North Dakota) LLC created 1.6 acres of mitigation wetland and 1.1 acres of adjacent upland buffer to compensate for 1.8 acres of wetland impacts. The U.S. Army Corps of Engineers (USACE) project #NWO-2009-2882-BIS approved 1.8 acres of wetland impacts resulting from the construction of the Bakken Pipeline Project US (BPP US) (1.46 wetland acres) and Berthold Truck Unloading (BTUL) (0.32 wetland acres).

The compensatory mitigation wetland is located in Section 21, T156N, R86W, Ward County, North Dakota. The mitigation wetland was created by excavating an upland area and allowing the wetland areas along the South Fork of Arnold Coulee to expand into the excavated area. Additional details can be found in *Berthold Station and Terminal Wetland Mitigation Plan* prepared by McCain and Associates, Inc. in February 2011, and *Berthold Station Wetland Mitigation Plan – Amendment* prepared by Carlson McCain, Inc. in February 2012.

Monitoring of the mitigation wetland and corresponding upland buffer is essential to evaluate their progress and to ensure that they are providing wetland functions. Wetland functions include:

- Avian nesting, feeding, and brood habitat
- Aquatic invertebrate habitat
- Amphibian habitat
- Improved air and water quality
- Flood control for the Souris River Watershed

Growth of natural hydrophytic species in the mitigation wetland will create habitat for avian, aquatic invertebrate, amphibian, and other wildlife species. Creation of an additional floodplain wetland will increase flood retention and improve water quality within the Des Lacs River Watershed.

Monitoring will be conducted for up to five years or until the USACE deems the mitigation site successful and consents to the termination of monitoring. This monitoring report presents the field findings of the second monitoring visit (year two post-construction).

## 2.0 MITIGATION WETLAND SUCCESS CRITERIA

Success criteria variables are essential to monitoring and evaluating mitigation wetlands. The mitigation wetland success criteria should be based on the presence and prevalence of hydrophytic vegetation and the presence of hydrologic indicators. The presence of hydrophytic vegetation and wetland hydrology will be noted at each observation point.

### 2.1 Hydrophytic Vegetation

The success of hydrophytic vegetation composition will be based on being determined as positive for Hydrophytic Vegetation Present within the Vegetation portion of the USACE Wetland Determination Data Form – Great Plains Region set forth by the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region (Version 2.0)* (USACE 2010).

### 2.2 Wetland Hydrology

The success of hydrology will be based on being determined as positive for Wetland Hydrology Present within the Hydrology portion of the USACE Wetland Determination Data Form – Great Plains Region set forth by the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region (Version 2.0)* (USACE 2010).

### 2.3 Hydric Soils

The development of hydric soils will be identified based on the profile description and hydric soil indicators found within the Soils portion of the USACE Wetland Determination Data Form – Great Plains Region set forth by the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region (Version 2.0)* (USACE 2010). Hydric soil indicators will develop slowly over time and may not be visible during the monitoring effort.

### 2.4 Upland Buffer

The success of the upland buffer adjacent to the mitigation wetland will be based on the presence of planted vegetation species and the lack (<10% areal coverage) of noxious vegetation species.

### 3.0 MONITORING METHODS

#### 3.1 Monitoring Methods

The monitoring schedule for the mitigation areas consists of an annual field visit for up to five years following their construction. The second monitoring of the mitigation areas was performed on September 11, 2014, by Greg Meyer, Ecologist, and Mark Suchy, Natural Resource Specialist, Carlson McCain, Inc. (Carlson McCain). Carlson McCain collected photo point photographs and evaluated the presence of hydrophytic vegetation, wetland hydrology, and the development of hydric soils by completing numerous USACE Wetland Determination Data Forms – Great Plains Region set forth by the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region (Version 2.0)* (USACE 2010). A Wetland Determination Data Form was completed at six observation points within the mitigation wetland.

Vegetation species nomenclature is based on *National Wetland Plant List* (Lichvar 2014).

##### 3.1.1 Photo Point

Photo points are specified locations in which photographs will be taken in order to provide a visual account of the development of the mitigation areas. Each point will have photos taken from a specified location with the same orientation during each monitoring visit. The locations and orientation of the photo points can be seen in Figure 2 (Appendix A). The photo points were recorded with a GPS unit. Camera settings and orientation will be consistent when taking photographs at these locations. Photo identification cards with pertinent information were placed in the photograph's field of view. Information documented on the photo identification card included:

- Unique photo point identification
- Photographer's initials
- Date and time
- Cardinal direction
- Location

##### 3.1.2 Hydrophytic Vegetation

Vegetation was documented at each observation point during the completion of the Wetland Determination Data Forms.

##### 3.1.3 Wetland Hydrology

Hydrology was documented at each observation point during the completion of the Wetland Determination Data Forms. It was also compared to the natural wetland areas along Spring Creek.

##### 3.1.4 Upland Buffer Vegetation

Vegetation and corresponding areal coverage was documented in four sampling points within the upland buffer.

##### 3.1.5 Problem Areas

Any problems areas (areas of sedimentation or erosion) were documented.

## 4.0 MONITORING RESULTS AND CONCLUSIONS

### 4.1 Berthold Station Mitigation Wetland

The Berthold Station Mitigation Wetland formerly consisted of an upland area adjacent to the South Fork of Arnold Coulee. The mitigation wetland was developed by excavating the upland area to an elevation slightly higher than the South Fork of Arnold Coulee. This elevation will allow high flow of the South Fork of Arnold Coulee to inundate and saturate the wetland on a consistent basis (Photographs 1-4). A storm drain from the BTUL will also provide hydrology to the mitigation wetland.



Photograph 1. 2014 view of the Berthold Station Mitigation Wetland from photo point 1. Hydrophytic vegetation and indicators of hydrology have increased within the mitigation wetland. Photograph taken facing north.



Photograph 2. 2013 view of the Berthold Station Mitigation Wetland from photo point 1. The mitigation wetland contained hydrophytic vegetation and indications of wetland hydrology. Photograph taken facing north.



Photograph 3. 2014 view of the Berthold Station Mitigation Wetland from photo point 2. Hydrophytic vegetation has increased within the mitigation wetland. The adjacent buffer was mowed prior to the monitoring visit. Photograph taken facing northeast.



Photograph 4. 2013 view of the Berthold Station Mitigation Wetland from photo point 2. The mitigation wetland contained hydrophytic vegetation and indications of wetland hydrology. Photograph taken facing northeast.

Photographs 1 and 3 depict the 2014 conditions of the mitigation wetland. Indication of wetland hydrology was present throughout the mitigation wetland. Sediment deposits, salt crusts, and surface soil cracks were present in the mitigation wetland as well as inundation across the southern half of the mitigation wetland. Indicators of wetland hydrology were determined to be present throughout the mitigation wetland.

Vegetation prevalent within the mitigation wetland included hydrophytic vegetation species such as hybrid cattail (*Typha x glauca*), soft-stem bulrush (*Schoenoplectus tabernaemontani*) river bulrush (*Schoenoplectus fluviatilis*), and foxtail barley (*Hordeum jubatum*). An estimated 90% of the mitigation wetland was vegetated with hydrophytic plants; and significantly less bare soil areas were observed than in 2013 (Photograph 5). All observation points sampled within the mitigation wetland contained a dominance of hydrophytic vegetation species. Hydrophytic vegetation was determined to be present within the mitigation wetland. Overall areal coverage of bare soil was approximately 10 percent.



Photograph 5. Hydrophytic vegetation has increased significantly since the 2013 monitoring visit.



Photograph 6. Sporadic hydrophytic vegetation was established within the mitigation wetland; however, there was also a prevalence of areas of exposed bare soil. Photograph taken in 2013.

#### 4.2 Berthold Station Mitigation Wetland Upland Buffer

Four observation points were sampled within the established upland buffer that is located along the west side of the mitigation wetland. The upland buffer is 50-foot wide and is currently dominated with with foxtail barely (*Hordeum jubatum*), slender wheatgrass (*Elymus trachycaulus*), and annual sunflower (*Helianthus annuus*) (Photograph 4). Other species observed with less canopy coverage include black-eyed susan (*Rudbeckia hirta*) and sow thistle (*Sonchus arvensis*). More of the planted species were observed during the 2014 monitoring visit than during last year's visit. The amount of bare ground cover was insignificant in the upland buffer. Overall few sporadic noxious weeds were documented and they comprise approximately two percent of the overall areal coverage; however, a large patch of Canada thistle (*Cirsium arvense*) is located near photo point 1. More years are needed for the planted species to out-compete the existing vegetation and become the dominant species.



Photograph 7. 2013 view of vegetation in the upland buffer is well established but does not comprise the planted species. Additional planted species were observed during the 2014 monitoring visit.

#### 4.3 Berthold Station Mitigation Wetland Problem Areas

Overall, few problem areas exist within the mitigation wetland. An erosion cut was noted near the retention pond at the end of the storm drain (Photographs 8 and 9). The eroded cut is sizeable and should be filled in to keep from washing out the upland buffer and placing sediment in the mitigation wetland. Rocks or a culvert should be placed in the erosion cut to minimize any further erosion.



Photograph 8. An erosion area located near the retention pond at the end of the storm water drain has cut through the upland buffer and washed sediment into the mitigation wetland.



Photograph 9. Close-up of erosion cut located at the end of the stormwater drain.

The Berthold Station Mitigation Wetland has surpassed its success criteria for wetland hydrology and hydrophytic vegetation for the second consecutive year. The mitigation wetland has become more densely vegetated and the planted species within the upland buffer should become more prevalent

with additional time. Even without the prevalence of planted species, the upland buffer has a well-established plant community with few noxious weedy species.

#### **4.4 Mitigation Site Wildlife Use**

A general wildlife survey was also conducted during the monitoring effort. Numerous bird species were identified within the mitigation wetland. Red-wing blackbirds were observed foraging in the mitigation wetland; in addition, sora rails were heard. Water bird tracks were imprinted in the wetland's bare ground areas. Sets of raccoon and deer tracks were found in the upland buffer and mitigation wetland.

## 5.0 REFERENCES

Carlson McCain, Inc. 2012. *Berthold Station Wetland Mitigation Plan – Amendment*. 16pp.

Environmental Laboratory. 1987. *Corp of Engineers Wetlands Delineation Manual*. Wetlands Research Program. Technical Report Y-87-1. Department of the Army, Waterways Experiment Station, US Army Corp of Engineers, Vicksburg, Mississippi, USA.

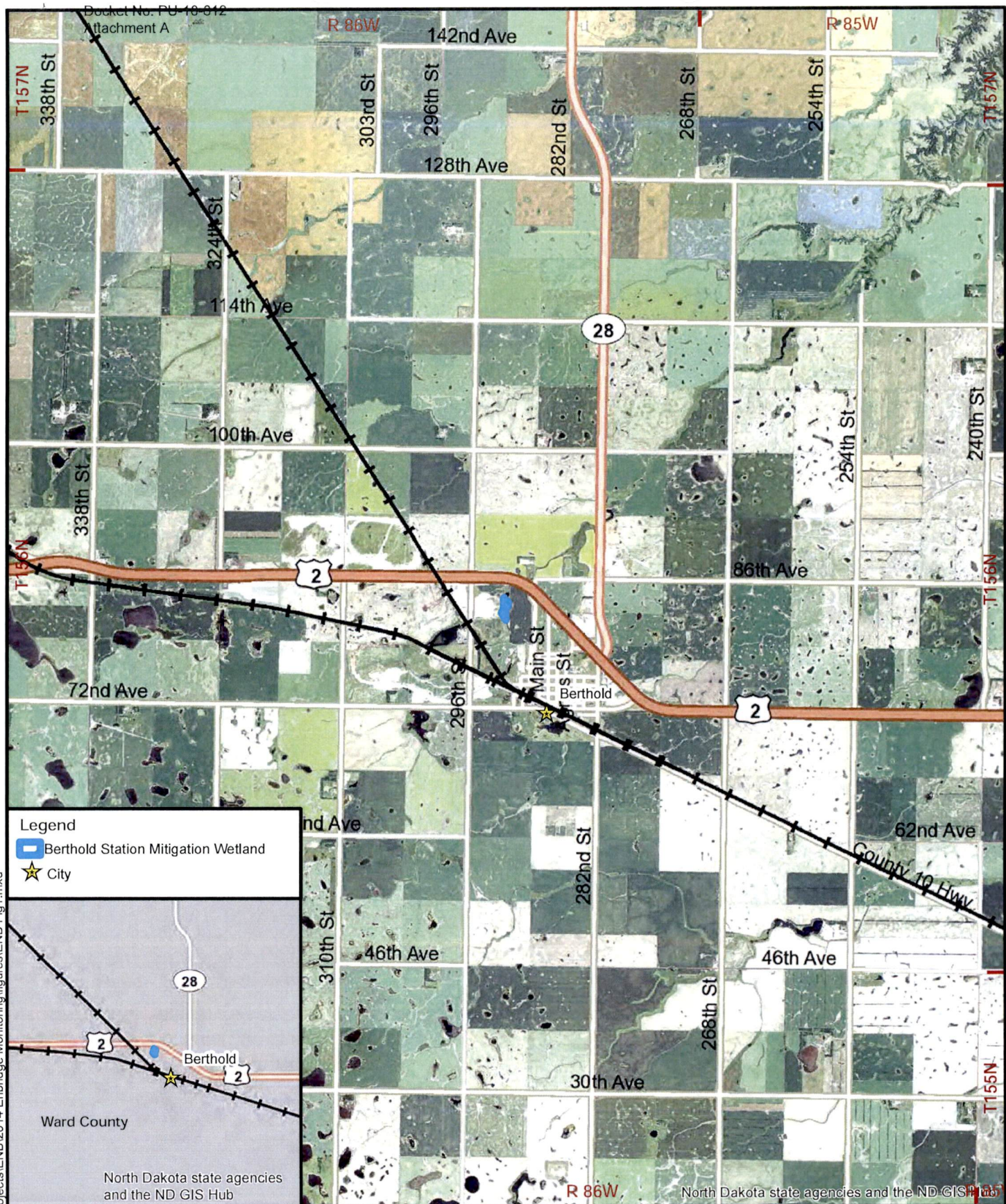
Environmental Laboratory. 2010. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region (Version 2.0)*. U.S. Army Corps of Engineers, U.S. Army Engineer Research and Development Center, Vicksburg, Mississippi, USA.

Lichvar, R.W., M. Butterwick, N.C. Melvin, and W.N. Kirchner. 2014. *The National Wetland Plant List: 2014 Update of Wetland Ratings*. Phytoneuron 2014-41: 1-42.

McCain and Associates, Inc. 2011. *Berthold Station and Terminal Wetland Mitigation Plan, Section 20 and 21, T156N, R86W, Ward County, North Dakota*. 21 pp.

*Appendix A*

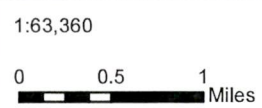
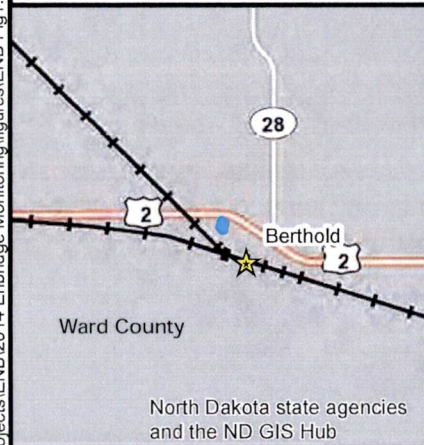
*Figures*



Legend

- Berthold Station Mitigation Wetland
- City

October 2014 E:\Projects\ENB\2014 Enbridge Monitoring\figures\ENB\_Fig1.mxd



Basemap: NAIP Orthophoto 2012  
Ward County, North Dakota

**Carlson  
McCain**

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600 South 2nd Street, Suite 105, Bismarck, North Dakota 58504  
www.carlsonmccain.com

**Figure 1**  
**General Location**  
Berthold Station Mitigation Site  
Enbridge Pipelines (ND) LLC

R 86W

T156N






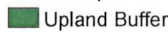

21

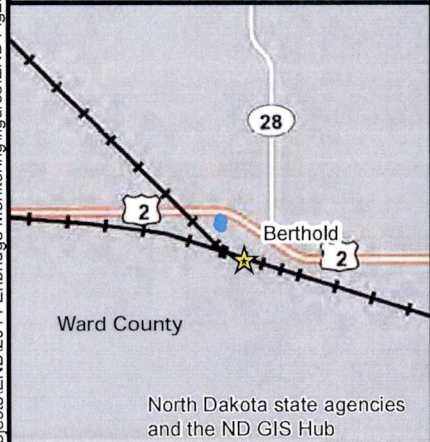
T156N

R 86W

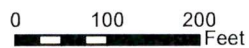
North Dakota state agencies and the ND GIS Hub

Legend

-  Berthold Station Mitigation Wetland
-  Photopoint
-  Wetland Point
-  Buffer Point
-  Photopoint Direction
-  Upland Buffer
-  PLSS Section



1:2,400



Basemap: NAIP Orthophoto 2012  
Ward County, North Dakota



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**Figure 2**  
Monitoring Lay-out  
Berthold Station Mitigation Site  
Enbridge Pipelines (ND) LLC

*Appendix B*

*U.S. Army Corps of Engineers Wetland Determination Data Forms*

**WETLAND DETERMINATION DATA FORM – Great Plains Region**

Project Site: Berthold Station Mitigation City/County: Ward County Sampling Date: 9/11/2014  
 Applicant/Owner: Enbridge Pipelines (North Dakota) LLC State: ND Sampling Point: wet1  
 Investigator(s): Greg Meyer Section, Township, Range: Sec. 21, T156N, R86W  
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 1  
 Subregion (LRR): F Lat: 48.323037 Long: -101.744339 Datum: NAD83  
 Soil Map Unit Name: F523A - Lowe-Fluvaquents, channeled complex, 0 to 2 percent slopes, frequently flooded NWI classification: NA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampling Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Remarks: <b>Mitigated Wetland Area - Second year of monitoring</b>			

**VEGETATION – Use scientific names of plants**

Tree Stratum (Plot Size: )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:	
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC:	<b>2</b> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata:	<b>2</b> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC:	<b>100</b> (A/B)
4. _____	_____	_____	_____		
		= Total Cover			
Sapling/Shrub Stratum (Plot Size: _____)				Prevalence Index worksheet:	
1. _____	_____	_____	_____	Total % Cover of: Multiply by:	
2. _____	_____	_____	_____	OBL species	_____ x1 = _____
3. _____	_____	_____	_____	FACW species	_____ x2 = _____
4. _____	_____	_____	_____	FAC species	_____ x3 = _____
5. _____	_____	_____	_____	FACU species	_____ x4 = _____
		= Total Cover		UPL species	_____ x5 = _____
Herb Stratum (Plot Size: 5')				Column Totals:	_____ (A) _____ (B)
1. <u>Hordeum jubatum</u>	<u>60</u>	<u>yes</u>	<u>FACW</u>	Prevalence Index = B/A = _____	
2. <u>Symphotrichum bracteolatum</u>	<u>10</u>	<u>no</u>	<u>FAC</u>		
3. <u>Puccinellia nuttalliana</u>	<u>25</u>	<u>yes</u>	<u>OBL</u>		
4. <u>Schoenoplectus tabernaemontani</u>	<u>5</u>	<u>no</u>	<u>OBL</u>		
5. <u>Chenopodium rubrum</u>	<u>5</u>	<u>no</u>	<u>OBL</u>		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
	<b>105</b>	= Total Cover			
Woody Vine Stratum (Plot Size: _____)				<b>Hydrophytic Vegetation Indicators:</b>	
1. _____	_____	_____	_____	<input checked="" type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation	
2. _____	_____	_____	_____	<input checked="" type="checkbox"/> 2 - Dominance Test is >50%	
		= Total Cover		_____ 3 – Prevalence Index is ≤3.0 <sup>1</sup>	
				_____ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)	
				_____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
% Bare Ground in Herb Stratum <u>5%</u>				<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Remarks: <b>Litter depth = 0%</b>					



**WETLAND DETERMINATION DATA FORM – Great Plains Region**

Project Site: Berthold Station Mitigation City/County: Ward County Sampling Date: 9/11/2014  
 Applicant/Owner: Enbridge Pipelines (North Dakota) LLC State: ND Sampling Point: wet2  
 Investigator(s): Greg Meyer Section, Township, Range: Sec. 21, T156N, R86W  
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 1  
 Subregion (LRR): F Lat: 48.323569 Long: -101.744327 Datum: NAD83  
 Soil Map Unit Name: F523A - Lowe-Fluvaquents, channeled complex, 0 to 2 percent slopes, frequently flooded NWI classification: NA  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<b>Is the Sampling Area within a Wetland?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Remarks: <b>Mitigated Wetland Area - Second year of monitoring.</b>			

**VEGETATION – Use scientific names of plants**

Tree Stratum (Plot Size: )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:	
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC:	<u>3</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata:	<u>3</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>100</u> (A/B)
4. _____	_____	_____	_____		
			= Total Cover		
Sapling/Shrub Stratum (Plot Size: _____)				Prevalence Index worksheet:	
1. _____	_____	_____	_____	Total % Cover of:	Multiply by:
2. _____	_____	_____	_____	OBL species _____	x1 = _____
3. _____	_____	_____	_____	FACW species _____	x2 = _____
4. _____	_____	_____	_____	FAC species _____	x3 = _____
5. _____	_____	_____	_____	FACU species _____	x4 = _____
			= Total Cover	UPL species _____	x5 = _____
Herb Stratum (Plot Size: <u>5'</u> )				Column Totals:	_____ (A) _____ (B)
1. <u>Schoenoplectus tabernaemontani</u>	<u>40</u>	<u>yes</u>	<u>OBL</u>	Prevalence Index = B/A = _____	
2. <u>Schoenoplectus fluviatilis</u>	<u>40</u>	<u>yes</u>	<u>OBL</u>		
3. _____	_____	_____	_____		
4. <u>Hordeum jubatum</u>	<u>30</u>	<u>yes</u>	<u>FACW</u>		
5. _____	_____	_____	_____		
6. _____	_____	_____	_____		
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
			<u>110</u>	= Total Cover	
Woody Vine Stratum (Plot Size: _____)				<b>Hydrophytic Vegetation Indicators:</b>	
1. _____	_____	_____	_____	<input checked="" type="checkbox"/>	1 – Rapid Test for Hydrophytic Vegetation
2. _____	_____	_____	_____	<input checked="" type="checkbox"/>	2 - Dominance Test is >50%
			= Total Cover	_____	3 – Prevalence Index is ≤3.0 <sup>1</sup>
				_____	4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
				_____	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
% Bare Ground in Herb Stratum <u>0</u>				<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Remarks: <b>Litter depth = 0%</b>					

**SOIL**

Sampling Point: wet2

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (Moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		

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

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

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

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 1 cm Muck (A9) (LRR I, J)
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16)  
**(LRR H outside of MLRA 72 & 73)**
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF 12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_  
Depth (Inches): \_\_\_\_\_

**Hydric Soils Present?** Yes  No

Remarks:

No soils were sampled due to safety protocol.

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

Secondary Indicators (2 or more required)

- |  |   |   |
|--|---|---|
| <input checked="" type="checkbox"/> Surface Water (A1)             | <input type="checkbox"/> Salt Crust (B11)   | <input type="checkbox"/> Surface Soil Cracks (B6)   |
| <input checked="" type="checkbox"/> High Water Table (A2)          | <input type="checkbox"/> Aquatic Invertebrates (B13)  | <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)                                |
| <input checked="" type="checkbox"/> Saturation (A3)                | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)   | <input type="checkbox"/> Drainage Patterns (B10)  |
| <input type="checkbox"/> Water Marks (B1)                          | <input type="checkbox"/> Dry Season Water Table (C2)  | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)<br><b>(where tilled)</b> |
| <input checked="" type="checkbox"/> Sediment Deposits (B2)         | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)<br><b>(where not tilled)</b> | <input type="checkbox"/> Crayfish Burrows (C8)  |
| <input type="checkbox"/> Drift Deposits (B3)                       | <input type="checkbox"/> Presence of Reduced Iron (C4)  | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)                              |
| <input type="checkbox"/> Algal Mat or Crust (B4)                   | <input type="checkbox"/> Thin Muck Surface (C7)   | <input checked="" type="checkbox"/> Geomorphic Position (D2)                                    |
| <input type="checkbox"/> Iron Deposits (B5)                        | <input type="checkbox"/> Other (Explain in Remarks)   | <input checked="" type="checkbox"/> FAC-Neutral Test (D5)                                       |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |   | <input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)                                      |
| <input type="checkbox"/> Water-Stained Leaves (B9)                 |   |   |

**Field Observations:**

Surface Water Present? Yes  No  Depth (inches): 4  
 Water Table Present? Yes  No  Depth (inches):  
 Saturation Present? (includes capillary fringe) Yes  No  Depth (inches):

**Wetland Hydrology Present?** Yes  No

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

Remarks:

Areas of inundation nearby..



**SOIL**

Sampling Point: wet3

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (Moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		

<sup>1</sup>Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>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)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 1 cm Muck (A9) (LRR I, J)
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16)
- (LRR H outside of MLRA 72 & 73)**
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF 12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_  
Depth (Inches): \_\_\_\_\_

**Hydric Soils Present?** Yes  No

Remarks:

No soils were sampled due to safety protocol.

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

Secondary Indicators (2 or more required)

- |  |  |  |
|--|--|--|
| <input type="checkbox"/> Surface Water (A1)                        | <input checked="" type="checkbox"/> Salt Crust (B11)                   | <input checked="" type="checkbox"/> Surface Soil Cracks (B6)           |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Aquatic Invertebrates (B13)                   | <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)       |
| <input checked="" type="checkbox"/> Saturation (A3)                | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                    | <input type="checkbox"/> Drainage Patterns (B10)                       |
| <input type="checkbox"/> Water Marks (B1)                          | <input type="checkbox"/> Dry Season Water Table (C2)                   | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) |
| <input type="checkbox"/> Sediment Deposits (B2)                    | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) | <b>(where tilled)</b>  |
| <input type="checkbox"/> Drift Deposits (B3)                       | <b>(where not tilled)</b>  | <input type="checkbox"/> Crayfish Burrows (C8)                         |
| <input type="checkbox"/> Algal Mat or Crust (B4)                   | <input type="checkbox"/> Presence of Reduced Iron (C4)                 | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)     |
| <input type="checkbox"/> Iron Deposits (B5)                        | <input type="checkbox"/> Thin Muck Surface (C7)                        | <input checked="" type="checkbox"/> Geomorphic Position (D2)           |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks)                    | <input checked="" type="checkbox"/> FAC-Neutral Test (D5)              |
| <input type="checkbox"/> Water-Stained Leaves (B9)                 |  | <input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)             |

**Field Observations:**

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): 0

**Wetland Hydrology Present?** Yes  No

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

Remarks:

**WETLAND DETERMINATION DATA FORM – Great Plains Region**

Project Site: Berthold Station Mitigation City/County: Ward County Sampling Date: 9/11/14  
 Applicant/Owner: Enbridge Pipelines (North Dakota) LLC State: ND Sampling Point: wet4  
 Investigator(s): Greg Meyer Section, Township, Range: Sec. 21, T156N, R86W  
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 1  
 Subregion (LRR): F Lat: 48.324024 Long: -101.744423 Datum: NAD83  
 Soil Map Unit Name: F658B-Forman loam, west, 3 to 6 percent slopes NWI classification: NA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	<b>Is the Sampling Area within a Wetland?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Remarks: <b>Mitigated Wetland Area - Second year of monitoring.</b>			

**VEGETATION – Use scientific names of plants**

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <b>2</b> (A)  Total Number of Dominant Species Across All Strata: <b>2</b> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <b>100</b> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
			= Total Cover	<b>Prevalence Index worksheet:</b> Total % Cover of:      Multiply by: OBL species            x1 = _____ FACW species          x2 = _____ FAC species            x3 = _____ FACU species          x4 = _____ UPL species            x5 = _____ Column Totals:        (A)      (B) Prevalence Index = B/A = _____
<b>Sapling/Shrub Stratum (Plot Size: _____)</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
			= Total Cover	
<b>Herb Stratum (Plot Size: 5')</b>				
1. <u>Puccinellia nuttalliana</u>	<u>40</u>	<u>yes</u>	<u>OBL</u>	
2. <u>Hordeum jubatum</u>	<u>60</u>	<u>yes</u>	<u>FACW</u>	
3. <u>Schoenoplectus tabernaemontani</u>	<u>15</u>	<u>no</u>	<u>OBL</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
			<b>115</b> = Total Cover	
<b>Woody Vine Stratum (Plot Size: _____)</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
			= Total Cover	
<b>% Bare Ground in Herb Stratum <u>0%</u></b>				
<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
Remarks: <b>Litter depth = 0.1 inch</b>				



**WETLAND DETERMINATION DATA FORM – Great Plains Region**

Project Site: Berthold Station Mitigation City/County: Ward County Sampling Date: 9/11/14  
 Applicant/Owner: Enbridge Pipelines (North Dakota) LLC State: ND Sampling Point: wet5  
 Investigator(s): Greg Meyer Section, Township, Range: Sec. 21, T156N, R86W  
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 1  
 Subregion (LRR): F Lat: 48.324225 Long: -101.744049 Datum: NAD83  
 Soil Map Unit Name: F523A-Lowe-Fluvaquents, channeled complex, 0 to 2 percent slopes, frequent NWI classification: NA  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampling Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Remarks: <b>Mitigated Wetland Area - Second year of monitoring.</b>			

**VEGETATION – Use scientific names of plants**

Tree Stratum (Plot Size: )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:	
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC:	<u>1</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata:	<u>1</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>100</u> (A/B)
4. _____	_____	_____	_____		
		= Total Cover			
Sapling/Shrub Stratum (Plot Size: _____)				Prevalence Index worksheet:	
1. _____	_____	_____	_____	Total % Cover of:	Multiply by:
2. _____	_____	_____	_____	OBL species _____	x1 = _____
3. _____	_____	_____	_____	FACW species _____	x2 = _____
4. _____	_____	_____	_____	FAC species _____	x3 = _____
5. _____	_____	_____	_____	FACU species _____	x4 = _____
		= Total Cover		UPL species _____	x5 = _____
				Column Totals: _____	(A) _____ (B)
				Prevalence Index = B/A = _____	
Herb Stratum (Plot Size: 5')				Hydrophytic Vegetation Indicators:	
1. <u>Hordeum jubatum</u>	<u>75</u>	<u>yes</u>	<u>FACW</u>	<input checked="" type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation	
2. <u>Schoenoplectus tabernaemontani</u>	<u>10</u>	<u>no</u>	<u>OBL</u>	<input checked="" type="checkbox"/> 2 - Dominance Test is >50%	
3. <u>Puccinellia nuttaliana</u>	<u>15</u>	<u>no</u>	<u>OBL</u>	_____ 3 – Prevalence Index is ≤3.0 <sup>1</sup>	
4. _____	_____	_____	_____	_____ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)	
5. _____	_____	_____	_____	_____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
6. _____	_____	_____	_____	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
	<u>100</u>	= Total Cover			
Woody Vine Stratum (Plot Size: _____)				<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
		= Total Cover			
% Bare Ground in Herb Stratum <u>0%</u>					
Remarks: <b>Litter depth = 0</b>					

**SOIL**

Sampling Point: wet5

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (Moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		

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

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

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

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 1 cm Muck (A9) (LRR I, J)
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16)  
**(LRR H outside of MLRA 72 & 73)**
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF 12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_  
Depth (Inches): \_\_\_\_\_

**Hydric Soils Present?** Yes  No

Remarks:

No soils were sampled due to safety protocol.

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

Secondary Indicators (2 or more required)

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Surface Water (A1)                        | <input checked="" type="checkbox"/> Salt Crust (B11)  | <input type="checkbox"/> Surface Soil Cracks (B6)   |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Aquatic Invertebrates (B13)  | <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)                                |
| <input checked="" type="checkbox"/> Saturation (A3)                | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)   | <input type="checkbox"/> Drainage Patterns (B10)  |
| <input type="checkbox"/> Water Marks (B1)                          | <input type="checkbox"/> Dry Season Water Table (C2)  | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)<br><b>(where tilled)</b> |
| <input type="checkbox"/> Sediment Deposits (B2)                    | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)<br><b>(where not tilled)</b> | <input type="checkbox"/> Crayfish Burrows (C8)  |
| <input type="checkbox"/> Drift Deposits (B3)                       | <input type="checkbox"/> Presence of Reduced Iron (C4)  | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)                              |
| <input type="checkbox"/> Algal Mat or Crust (B4)                   | <input type="checkbox"/> Thin Muck Surface (C7)   | <input checked="" type="checkbox"/> Geomorphic Position (D2)                                    |
| <input type="checkbox"/> Iron Deposits (B5)                        | <input type="checkbox"/> Other (Explain in Remarks)   | <input checked="" type="checkbox"/> FAC-Neutral Test (D5)                                       |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |   | <input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)                                      |
| <input type="checkbox"/> Water-Stained Leaves (B9)                 |   |   |

**Field Observations:**

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): 0

**Wetland Hydrology Present?** Yes  No

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

Remarks:

**WETLAND DETERMINATION DATA FORM – Great Plains Region**

Project Site: Berthold Station Mitigation City/County: Ward County Sampling Date: 9/11/14  
 Applicant/Owner: Enbridge Pipelines (North Dakota) LLC State: ND Sampling Point: wet6  
 Investigator(s): Greg Meyer Section, Township, Range: Sec. 21, T156N, R86W  
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 1  
 Subregion (LRR): E Lat: 48.324438 Long: -101.743804 Datum: NAD83  
 Soil Map Unit Name: F658B-Forman-Aastad loams, west, 3 to 6 percent slopes NWI classification: NA  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology , significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology , naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampling Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Remarks: <b>Mitigated Wetland Area - Second year of monitoring.</b>			

**VEGETATION – Use scientific names of plants**

Tree Stratum (Plot Size: )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <b>2</b> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <b>100</b> (A/B)
4. _____	_____	_____	_____	Prevalence Index worksheet:
= Total Cover				
Sampling/Shrub Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	Total % Cover of: _____ Multiply by: _____
2. _____	_____	_____	_____	OBL species _____ x1 = _____
3. _____	_____	_____	_____	FACW species _____ x2 = _____
4. _____	_____	_____	_____	FAC species _____ x3 = _____
5. _____	_____	_____	_____	FACU species _____ x4 = _____
= Total Cover				UPL species _____ x5 = _____
Herb Stratum (Plot Size: 5')				
1. <u>Schoenoplectus tabernaemontani</u>	<u>30</u>	<u>yes</u>	<u>OBL</u>	Column Totals: _____ (A) _____ (B)
2. <u>Hordeum jubatum</u>	<u>50</u>	<u>yes</u>	<u>FACW</u>	Prevalence Index = B/A = _____
3. <u>Typha x glauca</u>	<u>5</u>	<u>no</u>	<u>OBL</u>	Hydrophytic Vegetation Indicators:
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	<input checked="" type="checkbox"/> 2 - Dominance Test is >50%
6. _____	_____	_____	_____	_____ 3 – Prevalence Index is ≤3.0 <sup>1</sup>
7. _____	_____	_____	_____	_____ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
8. _____	_____	_____	_____	_____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
9. _____	_____	_____	_____	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
10. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
= Total Cover <b>85</b>				
Woody Vine Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
2. _____	_____	_____	_____	
= Total Cover				Remarks: <b>Litter depth = 0</b>
% Bare Ground in Herb Stratum <b>15</b>				

**SOIL**

Sampling Point: wet6

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (Moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		

<sup>1</sup>Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>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<sup>3</sup>:**

- 1 cm Muck (A9) (LRR I, J)
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16) (LRR H outside of MLRA 72 & 73)
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF 12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_  
Depth (Inches): \_\_\_\_\_

**Hydric Soils Present?** Yes  No

Remarks:

No soils were sampled due to safety protocol.

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

Secondary Indicators (2 or more required)

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Surface Water (A1)                        | <input checked="" type="checkbox"/> Salt Crust (B11)                                      | <input type="checkbox"/> Surface Soil Cracks (B6)                                     |
| <input type="checkbox"/> High Water Table (A2)                     | <input checked="" type="checkbox"/> Aquatic Invertebrates (B13)                           | <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)                      |
| <input checked="" type="checkbox"/> Saturation (A3)                | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                                       | <input type="checkbox"/> Drainage Patterns (B10)                                      |
| <input type="checkbox"/> Water Marks (B1)                          | <input type="checkbox"/> Dry Season Water Table (C2)                                      | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) (where tilled) |
| <input type="checkbox"/> Sediment Deposits (B2)                    | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) (where not tilled) | <input type="checkbox"/> Crayfish Burrows (C8)  |
| <input type="checkbox"/> Drift Deposits (B3)                       | <input type="checkbox"/> Presence of Reduced Iron (C4)                                    | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)                    |
| <input type="checkbox"/> Algal Mat or Crust (B4)                   | <input type="checkbox"/> Thin Muck Surface (C7)   | <input checked="" type="checkbox"/> Geomorphic Position (D2)                          |
| <input type="checkbox"/> Iron Deposits (B5)                        | <input type="checkbox"/> Other (Explain in Remarks)                                       | <input checked="" type="checkbox"/> FAC-Neutral Test (D5)                             |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |   | <input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)                            |
| <input type="checkbox"/> Water-Stained Leaves (B9)                 |   |   |

**Field Observations:**

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): 0

**Wetland Hydrology Present?** Yes  No

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

Remarks:

Areas of inundation nearby.



**North Dakota Pipeline Company LLC**

**Docket No. PU-10-612**

**Attachment B**

August 24, 2010

Ms. Naomi Jensen  
Merjent  
615 First Avenue NE  
Suite 425  
Minneapolis, MN 55413

**Re: Habitat Assessment  
Bakken Pipeline Expansion Project, Enbridge Energy**

Dear Ms. Jensen,

McCain and Associates, Inc. (McCain) performed a habitat assessment for threatened and endangered species (TES) and raptors along the proposed Enbridge Energy (Enbridge) Bakken Pipeline Expansion Project (BPEP) route. Habitat for TES and raptors was evaluated within ½ mile (either sides or a 1-mile corridor) of the proposed route. The habitat assessment was conducted on July 27-29, 2010, by Ryan Krapp and Greg Meyer, Biologists of McCain.

Below is a habitat assessment, a TES effects determination, and migratory bird effects assessment made by our qualified biologists. McCain did not consult the North Dakota Parks and Recreation Department (NDPR), which houses the North Dakota Natural Heritage biological conservation database prior to or after the on-site assessment.

The BPEP is located in portions of Section 34, T163N, R92W, Sections 1-3, T162N, R92W, and Sections 6-8, 15-17, 22-25, T162N, R91W, and Sections 30 and 31, T162N, R90W, in Burke County, North Dakota. The BPEP is oriented northwest to southeast and much of it follows an existing railroad right-of-way.

The BPEP is located in the Glaciated Plains Region. The Glaciated Plains region is characterized by a flat to rolling landscape of glacial drift with a high density of shallow pothole wetlands. Fertile soils are present and the majority of the area is tilled for agricultural production. Small grains, peas, canola, and alfalfa are common agricultural crops of the area.

**Habitat Assessment**

Scattered depression wetlands are common along the BPEP. Many of the wetlands have been cultivated in 2010. Barnyard grass (*Echinochloa crus-galli*), foxtail barley (*Hordeum jubatum*), quackgrass (*Agropyron repens*), and curled dock (*Rumex crispus*) are prevalent in the shallow depression wetlands with a temporary water regime. Cattails (*Typha* spp.), reed canary grass (*Phalaris arundinacea*), and water smartweed (*Polygonum amphibium*) are prevalent in wetlands with seasonal water regimes. A few large, shallow seasonal wetlands are hayed during years of below normal precipitation.

There are a few grassland areas along the BPEP, primarily adjacent to wetlands that are not able to be cultivated each year. Most of these areas are small in nature, contain tame grasses, and are primarily located along the railroad right-of-way. A lone, native grassland area is located in the BPEP in portions of Sec 23, T162N, R91W. The area is utilized as a livestock

pasture. Kentucky bluegrass (*Poa pratensis*), smooth brome (*Bromus inermis*), and crested wheatgrass (*Agropyron cristatum*) have heavily encroached upon the grassland. Fringed sage (*Artemisia frigida*) is the primary native herb in the grassland area.

Large shelter belt tree plantings are found around farmsteads near the BPEP. Single row tree plantings are scattered in crop fields along the BPEP. Occasional scattered patches of trees are found along the BPEP. Many of the stands are comprised of aspen (*Populus tremula*). The planted tree belts may provide nesting habitat for raptors.

The on-site survey did not reveal habitat areas of concern. The proposed project is not located across or near any significant ecological community and is not likely to adversely affect critical wildlife habitats. Potential impacts to wildlife include temporary displacement due to construction activities and temporary loss of ground cover in native and planted grassland areas. These effects are not likely to cause long-term declines in populations in the area. Ground clearing may temporarily unavoidably impact habitat for unlisted species, including small migratory birds, ground dwelling mammals, and other wildlife species.

### Threatened and Endangered Species

Assessments for federally listed threatened, endangered and candidate species were conducted by evaluating historic and present occurrences, and by determining if potential habitat exists within the project area. Determinations were made concerning direct and cumulative effects of the proposed activities on each species and their habitat. Currently, three federally listed species have been documented in Burke County. In addition, critical habitat for the piping plover is listed as present in the county.

The Dakota Skipper has been determined to be a candidate species under the Endangered Species Act. No legal requirement exists to protect candidate species; however, the U.S. Fish and Wildlife Service (USFWS) considers this species to have significant value and worth protecting.

**Table 1. Burke County status of Endangered, Threatened, and Candidate species and Designated Critical Habitat**

Species	Status	County
		Burke
Whooping Crane	Endangered	X
Gray Wolf	Endangered	X
Piping Plover	Threatened	X
Dakota Skipper	Candidate	X
Designated Critical Habitat - Piping Plover		X

<sup>1</sup> USFWS (updated March 17, 2010)

### Species Assessments

Assessments for Federally listed threatened, endangered species were conducted by evaluating historic and present occurrences and by determining if potential habitat exists within the project area. A determination was made concerning direct and cumulative effects of the proposed activities on each species. Determinations made for federally listed species are:

- No effect
- May affect, but is not likely to adversely affect
- May affect, and is likely to adversely affect
- Is likely to jeopardize a proposed species or adversely modify critical habitat
- Is not likely to jeopardize a proposed species or adversely modify critical habitat

### **Whooping Crane**

The primary nesting area for the whooping crane is in Canada's Wood Buffalo National Park. Arkansas National Wildlife Refuge in Texas is the primary wintering area for whooping cranes. In the spring and fall, the cranes migrate primarily along the Central Flyway. During the migration, cranes make numerous stops, roosting in large shallow marshes, and feeding and loafing in harvested grain fields. The primary threats to whooping cranes are power lines, illegal hunting, and habitat loss (Texas Park and Wildlife 2008).

The proposed project is located within the Central Flyway. Approximately 75% of the whooping state sightings in North Dakota occur within a 90-mile corridor that includes the BPEP. Historic sightings have occurred within two miles of the proposed BPEP, adjacent to large wetlands that may be possible roost areas. No roost areas are located within ½ mile of the BPEP. The large wetland areas within evaluated corridor have deep water and tall emergent vegetation in them.

Construction activities may cause migratory cranes to divert from the area but is not likely to result in any fatalities. Construction should be stopped if whooping cranes are sighted within one mile of the construction activities and not resume until the birds have left the area. Any sightings should be immediately reported to the US Fish and Wildlife Service (USFWS) and North Dakota Game and Fish Department (NDGFD). Following these guidelines, it is reasonable to expect that the proposed activities are **may affect, but is not likely to adversely affect** whooping cranes.

### **Gray Wolf**

Gray wolves were historically found throughout much of North America including the Upper Great Plains. Human activities have restricted their present range to the northern forests of Minnesota, Wisconsin, and Michigan and the Northern Rocky Mountains of Idaho, Montana, and Wyoming. They now only occur as occasional visitors in North Dakota. The most suitable habitat for the gray wolf is found around the Turtle Mountains region where documented and unconfirmed reports of gray wolves in North Dakota have occurred (Grondahl and Martin, no date). The proposed project **may affect, but is not likely to adversely affect** this species.

### **Piping Plover**

Piping plovers are found along the Missouri and Yellowstone River systems and on large alkaline wetlands. Nesting sites and critical habitat have been documented on the shorelines of Lake Sakakawea and on large alkaline wetlands. Suitable nesting habitat is not located within the evaluated route. Uncultivated wetlands within the evaluated route have extensive emergent vegetation growing in them.

No piping plovers were observed during the on-site assessment and the project will not disrupt any designated Critical Habitat. The proposed project **may affect, but is not likely to adversely affect** this species at this time and will have **no effect** on critical habitat.

### **Dakota Skipper**

Dakota skippers are currently listed as a candidate species in North Dakota and have been documented in Burke County. Larvae of the Dakota skipper feed on grasses, favoring little bluestem. Adults emerge in mid-June, feeding on the nectar of flowering native forbs. Harebell (*Campanula rotundifolia*), wood lily (*Lilium philadelphicum*), and purple coneflower (*Echinacea angustifolia*) are common components of their diet (Canadian Wildlife Service, 2004). Dakota skippers are most likely to be found along river valleys or in mesic segments of mixed grass prairie. Although no individuals were seen during the on-site review, small patches of preferred plant species were present along the BPEP in the lone native prairie area or in the adjacent railroad right-of-way.

Activities from pipeline installation may temporarily disturb some forage species of the Dakota skipper but is not likely to cause to a decline in the Dakota skipper population. The proposed project **may affect, but is not likely to adversely affect** this species.

### **Raptors and Migratory Birds**

The proposed project may affect raptor and migratory bird species through direct mortality, habitat degradation, and/or displacement of individual birds. These impacts are regulated in part through the *Migratory Bird Treaty Act* (916 USC 703-711) and the Bald and Golden Eagle Protection Act (BGEPA).

A ground survey for tree and ground raptor nests was conducted within the survey corridor during the on-site evaluation. No raptor nests were observed during the on-site evaluation but buteos and northern harriers were sighted along the route.

Suitable nesting habitat for migratory birds exists within the proposed route. The majority of the suitable habitat is located adjacent to wetlands and road crossings. The on-site evaluation was performed outside of the nesting season for migratory birds; therefore, nesting sites were not observed.

### **Conclusion**

No TES species or critical habitats were observed during the on-site evaluation. Suitable nesting habitat for raptors and migratory birds is located within the survey corridor. Please call me at 701-255-1475 if you have questions or need additional information.

Sincerely,

Ryan Krapp  
Biologist/GIS Specialist



**North Dakota Pipeline Company LLC**

**Docket No. PU-10-612**

**Attachment C**

Docket No. PU-10-612  
Attachment C

Place Holder for Response to request for verification that settlement issues along the first three miles of the pipeline route have been addressed.



**North Dakota Pipeline Company LLC**

**Docket No. PU-10-612**

**Attachment D**

Attached is the Tree and Shrub Annual Report from the North Dakota Forest Service (NDFS) for the Bakken Pipeline Project. This report was received in December, 2014, but due to our oversight has not been filed with the Commission.

The attached report is incorrectly titled Enbridge Little Muddy and Beaver Lodge Loop Pipelines. The 2014 Project Status Update from the NDFS actually covers the following projects as outlined on page one of the Report:

- Docket No. PU-10-612 Bakken Pipeline Project
- Docket No. PU-10-613 Beaver Lodge Loop Project
- Docket No. PU-11-232 Berthold Station Expansion Project
- Docket No. PU-11-606 Little Muddy Pipeline Project



## NORTH DAKOTA FOREST SERVICE

"To care for, protect and improve forest and natural resources to enhance the quality of life for present and future generations."

December 22, 2014

Sara Ploetz, Environmental Analyst II  
Enbridge  
1409 Hammond Avenue  
Superior, WI 54880

Dear Ms. Ploetz,

Attached is the 2014 Annual Project Summary for the North Dakota Mitigation Tree Planting Partnership Program between the North Dakota Forest Service (NDFS) and Enbridge Pipelines (North Dakota) LLC, an approved program to replace 1,353 trees and shrubs to comply with the North Dakota Public Service Commission mitigation requirements. This three-year program is being financed through an award from Enbridge Pipelines (North Dakota) LLC to the North Dakota Forest Service.

As of December 31, 2014, 1,095 trees and shrubs have been planted on the properties of landowners having lost trees and shrubs through the construction of the Little Muddy and Beaver Lodge Loop Pipelines. An additional 774 trees and shrubs were planted on the properties of willing landowners at alternate locations, including the Parshall Bay Recreation Area, bringing the total number of trees and shrubs planted to 1,869. Plantings will be monitored to ensure a survival rate of at least 75%.

Thank you for the opportunity to assist Enbridge Pipelines (North Dakota) LLC with its mitigation tree planting obligations set forth by the North Dakota Public Service Commission. Please do not hesitate to contact our office if you need further assistance or information.

Sincerely,

A handwritten signature in blue ink that reads "Larry A. Kotchman".

Larry A. Kotchman  
State Forester

# **Enbridge Little Muddy & Beaver Lodge Loop Pipelines Mitigation Tree Planting Partnership 2014 Project Status Update**

**Prepared for:**  
**Sara Ploetz, Environmental Analyst II**  
**Enbridge**  
**1409 Hammond Avenue**  
**Superior, WI 54880**



**Larry Kotchman, State Forester**  
**NDSU- North Dakota Forest Service**  
**307 First Street East**  
**Bottineau, ND 58318**  
*December 10, 2014*

## **Overview**

Mitigation criteria established by the Public Service Commission (PSC) ensures that trees and shrubs lost or destroyed during construction projects are replaced at a 2:1 ratio. As a result of the Enbridge Little Muddy and Beaver Lodge Loop pipeline projects (case numbers PU-10-612, PU-10-613, PU-10,232 and PU-11-606) 1,230 trees and shrubs must be planted to satisfy the mitigation requirements for this project. An additional number of trees and shrubs will be planted to offset unanticipated mortality, bringing the total number to be planted to 1,353. A minimum of 75% of these replacements must be living at the end of three growing seasons to satisfy criteria. Landowners impacted by the project have been offered a choice of having replacement trees and shrubs planted on their property or planted elsewhere at alternative locations. The remaining number of trees and shrubs will be planted at alternative locations through cooperative projects with tree planting entities and private landowners.

The NDFS is administering a mitigation tree planting program in cooperation with local soil conservation districts and private tree planting vendors. Interested landowners desiring to establish appropriate conservation tree plantings may apply with the NDFS for assistance. Eligible landowners will be encouraged to work directly with local soil conservation district partners and private tree planting vendors to secure professional tree planting design assistance and tree planting services. Practice specifications will be influenced by species suitability, soil characteristics, topography, land-use and the landowner's objectives. Eligible conservation tree planting practices include, but are not limited to, living snow fences, windbreaks, wildlife plantings, riparian restoration and buffers, and vegetative fuel breaks.

## **2014 Update**

As of December 31, 2014, the tree and shrub mitigation planting requirements resulting from the Enbridge Little Muddy and Beaver Lodge Loop pipeline projects have been satisfied.

<b>Location</b>	<b>Number of Trees and Shrubs Planted</b>
Parshall Bay Recreation Area	189
Impacted Landowner's Property	1,095
Alternate Locations	585
<b>Total</b>	<b>1,869</b>

The total number of trees and shrubs planted slightly exceeds the number targeted in the tree plantings agreement. The plantings will be monitored and replacements trees and shrubs will be provided as appropriate to ensure compliance with mitigation requirements. Details of plantings locations are in attached Appendix A.

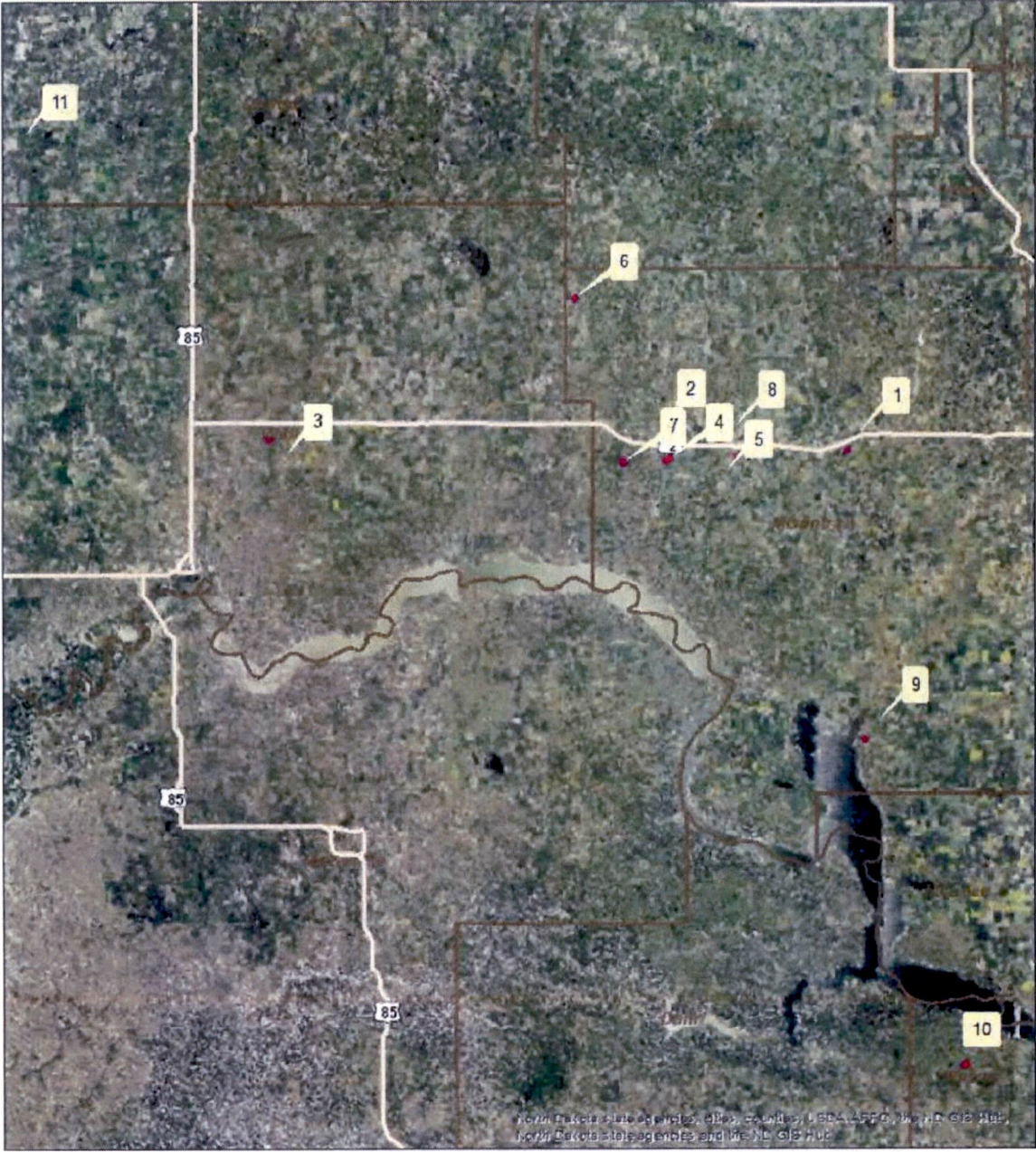
The following table describes the activities to be undertaken and the status of each as of December 2014.

Activity	Status December 2014
Enbridge provides funding to the NDFS, a map of the construction project showing the project route and indicating the preserved right-of-way and/or any restrictions relating to tree or shrub planting, the names and contact information of landowners directly impacted by the construction process, and copies of any communication with the impacted landowners relating to the replacement of trees and shrubs on their property.	Completed
NDFS works with SCD's and private vendors to develop specific plans for landowners impacted by the construction project and wishing to have trees and shrubs replaced on their property. All plantings will follow NRCS specifications ND-CPA-4's will be completed.	Completed
NDFS receives applications to the Tree Conservation Assistance Program, an established program, which serves to identify suitable locations for off-site tree planting projects. All plantings will follow NRCS specifications ND-CPA-4's will be completed.	Completed
NDFS reviews applications and appropriate locations for off-site plantings are selected. Plans are forwarded to SHPO for cultural resource review. NDFS develops award letters and agreements. Agreements are signed with landowners.	Completed
Sites are prepared for tree planting by mechanical or chemical means. Trees are ordered from nurseries. Trees are delivered from nurseries and stored in coolers. Site is inspected and staked for planting. Trees are planted. Fabric weed barrier is installed.	Completed
Invoice sent to NDFS. Reimbursements made through NDSU Business Office.	Completed
Landowners maintain projects as per agreement.	Ten year agreements initiated in 2013, 2014
NDFS inspects the tree and shrub plantings to determine mortality after at least one growing season.	April-November 2015
NDFS provides Enbridge with an annual report detailing the progress of the mitigation project, number and locations of plantings, and the mortality of the plantings following at least one growing season.	December 2013, 2014, 2015

Appendix A- Planting Information

Project Type	County	Quarter	Section	Township	Range	Number Planted	Map Reference Number
Impacted Landowner's Property	Mountrail	NW	25	156	91	30	1
	Mountrail	NW	31	156	93	72	2
	Williams	NW	19	156	99	15	3
	Mountrail	NE	31	156	93	62	4
	Mountrail	SW	29	156	92	476	5
	Mountrail	SE	18	158	94	200	6
	Mountrail	E2	33	156	94	200	7
Parshall Bay Rec. Area	Mountrail	SW	2	151	91	189	9
Alternate Locations	Mercer	NW	12	146	90	321	10
	Divide	NW	27	161	102	264	11

# Tree Mitigation Planting Locations



0 5 10 20 Miles





**North Dakota Pipeline Company LLC**

**Docket No. PU-10-612**

**Attachment E**



April 26, 2011

North Dakota Pollutant Discharge Elimination System (NDPDES)  
General Permit for Stormwater Discharges from Construction Activity  
NOTICE OF COVERAGE

Permittee(s)

Owner/Operator      Randy Rice  
Contact:                Enbridge Pipelines (North Dakota) LLC  
                              1409 Hammond Avenue  
                              Superior, WI 54880

Coverage under the 2009 reissued construction general permit (NDR10-0000) is identified as follows:

Permit ID:                Site Name:  
**NDR103724**                **Bakken Pipeline Project US**

Please remember to update the Stormwater Pollution Prevention (SWPP) plan as appropriate for site conditions. The best management practices (BMPs) and temporary structures must be inspected, maintained and adjusted until the site is stabilized following construction activities. Once the site is stabilized as outlined in the general permit, you may end permit coverage by filing a termination notice. Cities or counties may impose additional requirements and/or specific BMPs for construction affecting their storm drainage system. Please check with the local officials to be sure all local stormwater management considerations are addressed.

Additional Information

The permit conditions, forms and related information may be found on our web site at:

[www.ndhealth.gov/wq/Storm/Construction/ConstructionHome.htm](http://www.ndhealth.gov/wq/Storm/Construction/ConstructionHome.htm)

Should you have any questions on the permit, please contact a stormwater staff person listed below.

Dallas Grossman  
Division of Water Quality  
701.328.5242  
[dgrossma@nd.gov](mailto:dgrossma@nd.gov)

c.      Angela Ronayne, PE – Merjent



**NORTH DAKOTA**  
DEPARTMENT of HEALTH

ENVIRONMENTAL HEALTH SECTION  
Gold Seal Center, 918 E. Divide Ave.  
Bismarck, ND 58501-1947  
701.328.5200 (fax)  
www.ndhealth.gov



August 25, 2011

COPY

Paul Meneghini  
Enbridge Pipelines (North Dakota) LLC  
1409 Hammond Ave, 2<sup>nd</sup> Floor  
Superior, WI 54880

Re: NDPDES Permit No. NDG070276

We have received your "Application for Permit to Discharge - NDPDES Industrial-Short Form C" and have granted authority to discharge under the General Permit for Temporary Dewatering/Hydrostatic Testing Permit No. NDG070000. Your facility has been assigned permit no. **NDG070276**. This permit has been issued by the North Dakota Department of Health (NDDoH) with the understanding that all other applicable permits and permissions have been obtained for the start of the following project. The application indicates that the discharge(s) will consist of surface water from a hydrostatic test of a new 11 mile 12 inch pipeline called the Bakken project:

<u>Discharge Point</u>	<u>Volume (Gallons)</u>	<u>Location</u>
001H	356,500	11 mile 12" pipeline T162N, R91W, Section 23; Burke County

**All discharge points shall be inspected daily.** On a daily basis record the total volume of discharge and make a visual inspection for Oil and Grease. Analytical parameters for pH and Total Suspended Solids (TSS) shall be waived for this project. Testing for Chlorine shall also be waived if the source water is not chlorinated. The parameter of Oil and/or Grease is waived unless sheen is observed in the discharge; if observed then collect a sample for Total Petroleum Hydrocarbon (TPH). The department shall be contacted on all findings of Oil and Grease. All discharges made directly to a surface water body or wetland shall be inspected closely so as to minimize any turbidity issues. Best Management Practices (BMPs) must be used to minimize the impact of the discharge.

**ADDITIVES:** No additives were reviewed for this project.

Enclosed are Discharge Monitoring Report (DMR) forms for your use. If someone else is responsible for the submittal of the DMRs, please forward this letter and the enclosed forms to them. The reports cover three months; the dates and location have been filled out. If no discharge occurs during the reporting period, check "No" in section one. The reports must be post-marked by the last day of the month following the end of each reporting period. All original DMR forms should be sent to NDDoH and a copy should be kept for your files. **EPA no longer requires a copy of the DMR form.**

If any other testing is conducted during this project, copies of the results of any such test should be forwarded to the Department. **Should you wish to no longer be covered under this permit, you must submit a written request to terminate and cite the reasons for termination.** Coverage shall be maintained until a written notification to release has been issued to the permittee by NDDoH. Should you have any questions about your permit or how to complete the DMRs, please contact me at (701) 328-5234.

Sincerely,

Marty Hardison  
Environmental Scientist  
Division of Water Quality

Enc.

Cc: EPA  
Angela Ronayne – Merjent



**DEPARTMENT OF THE ARMY**  
CORPS OF ENGINEERS, OMAHA DISTRICT  
NORTH DAKOTA REGULATORY OFFICE  
1513 SOUTH 12<sup>TH</sup> STREET  
BISMARCK ND 58504-6640

June 2, 2011

North Dakota Regulatory Office

[NWO-2009-2882-BIS]

Mr. Paul Meneghini  
Enbridge Pipelines (Bakken) LP  
1409 Hammond Ave., 2<sup>nd</sup> Floor  
Superior, Wisconsin 54880

Dear Mr. Meneghini:

Enclosed is proposed Department of the Army Permit No. NWO-2009-2882-BIS for the placement of fill material in wetlands associated with the Enbridge Berthold Station and Terminal Expansion and pipeline re-route project.

A processing fee of \$100.00 is required. Please make your check payable to the FAO USAED-Omaha and return to the North Dakota Regulatory Office at the address above.

General Condition No. 1. of the permit will establish the time limit for completing the work. In this particular case, it will reflect a construction period of three years from the date of issuance of the permit.

The Omaha District, Regulatory Branch is committed to providing quality and timely service to our customers. In an effort to improve customer service, please take a moment to complete our Customer Service Survey found on our website at <http://per2.nwp.usace.army.mil/survey.html>. If you do not have Internet access, you may call and request a paper copy of the survey that you can complete and return to us by mail or fax.

If you have any questions, feel free to contact Patsy Crooke, Project Manager, or myself, at (701) 255-0015.

Sincerely,

A handwritten signature in black ink that reads "Daniel E. Cimarosti".

Daniel E. Cimarosti  
Regulatory Program Manager  
North Dakota

Enclosures

## DEPARTMENT OF THE ARMY PERMIT

Permittee **Enbridge Pipelines (Bakken) LP**

Permit No. **NWO-2009-2882-BIS**

Issuing Office **NORTH DAKOTA REGULATORY OFFICE**

NOTE: The term "you" and its derivatives, as used in this permit, means the permittee or any future transferee. The term "this office" refers to the appropriate district or division office of the Corps of Engineers having jurisdiction over the permitted activity or the appropriate official of that office acting under the authority of the commanding officer.

You are authorized to perform work in accordance with the terms and conditions specified below.

**Project Description: As part of the Bakken Pipeline Project US (BPP US) Enbridge is proposing to upgrade its existing Berthold Station and Terminal (Berthold Station Expansion). Station upgrades include installation of two control buildings, a new station operations building, electrical infrastructure, interconnecting pipes and valves, metering facilities, and other related appurtenances.**

**In addition, Enbridge is also proposing to replace approximately 11 miles of existing 12-inch diameter pipeline (Line 26) and install two new pumping stations near the towns of Kenaston, Ward County, North Dakota and Lignite, Burke County, North Dakota.**

**Mitigation for permanent impacts to 1.78 acres of jurisdictional wetlands will take place according to the plan prepared by the Enbridge and approved by the North Dakota Regulatory Office. The mitigation plan is attached by reference and is based on expansion of wetlands that will take advantage of the hydrology in the South Fork of Arnold Coulee. The expanded wetland will be located in Section 21 Township 156 North, Range 86 West, Ward County, North Dakota.**

**Project Location: The location of this project is Section 20 and 21 Township 156 North, Range 86 West, Ward County, North Dakota.**

Permit Conditions:

General Conditions:

1. The time limit for completing the work authorized ends on May 17, 2014. If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least one month before the above date is reached.

2. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition 4 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area.
3. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and state coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.
4. If you sell the property associated with this permit, you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.
5. If a conditioned water quality certification has been issued for your project, you must comply with the conditions specified in the certification as special conditions to this permit. For your convenience, a copy of the certification is attached if it contains such conditions.
6. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit.

(General Conditions are continued on page 4)

Special Conditions: **(SEE PAGES 5-8 and Attachments A, B, C, D, E, F, G, H, AND I)**

**After a detailed and careful review of all of the conditions contained in this permit, the permittee acknowledges that, although said conditions were required by the Corps of Engineers, nonetheless the permittee agreed to those conditions voluntarily to facilitate issuance of the permit and the permittee will comply fully with all the terms of the permit conditions.**

Further Information:

1. Congressional Authorities: You have been authorized to undertake the activity described above pursuant to:
  - Section 10 of the River and Harbors Act of 1899 (33 U.S.C. 403).
  - Section 404 of the Clean Water Act (33 U.S.C. 1344).
  - Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. 1413).
2. Limits of this authorization.
  - a. This permit does not obviate the need to obtain other Federal, state, or local authorizations required by law.
  - b. This permit does not grant any property rights or exclusive privileges.
  - c. This permit does not authorize any injury to the property or rights of others.
  - d. This permit does not authorize interference with any existing or proposed Federal project.
3. Limits of Federal Liability. In issuing this permit, the Federal Government does not assume any liability for the following:
  - a. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.

b. Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the United States in the public interest.

c. Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit.

d. Design or construction deficiencies associated with the permitted work.

e. Damage claims associated with any future modification, suspension, or revocation of this permit.

4. Reliance on Applicant's Data: The determination of this office that issuance of this permit is not contrary to the public interest was made in reliance on the information you provided.

5. Reevaluation of Permit Decision. This office may reevaluate its decision on this permit at any time circumstances warrant. Circumstances that could require a reevaluation include, but are not limited to, the following:

a. You fail to comply with the terms and conditions of this permit.

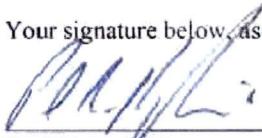
b. The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate (See 4 above).

c. Significant new information surfaces which this office did not consider in reaching the original public interest decision.

Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification, and revocation procedures contained in 33 CFR 325.7 or enforcement procedures such as those contained in 33 CFR 326.4 and 326.5. The referenced enforcement procedures provide for the issuance of an administrative order requiring you to comply with the terms and conditions of your permit and for the initiation of legal action where appropriate. You will be required to pay for any corrective measures ordered by this office, and if you fail to comply with such directive, this office may in certain situations (such as those specified in 33 CFR 209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost.

6. Extensions. General condition 1 establishes a time limit for the completion of the activity authorized by this permit. Unless there are circumstances requiring either a prompt completion of the authorized activity or a reevaluation of the public interest decision, the Corps will normally give favorable consideration to a request for an extension of this time limit.

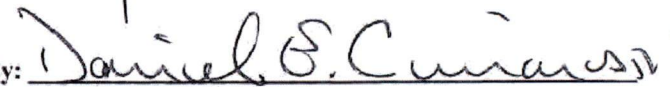
Your signature below, as permittee, indicates that you accept and agree to comply with the terms and conditions of this permit.

  
\_\_\_\_\_  
Paul Meneghini  
Enbridge Pipelines (Bakken) Lp  
1409 Hammond Ave., 2<sup>nd</sup> Floor  
Superior, Wisconsin 54880  
(PERMITTEE)

5/31/11  
\_\_\_\_\_  
(DATE)

This permit becomes effective when the Federal official, designated to act for the Secretary of the Army, has signed below.

**Robert J. Ruch**  
\_\_\_\_\_  
COLONEL, CORPS OF ENGINEERS  
District Commander

1 June 2011  
\_\_\_\_\_  
(DATE)  
By:   
DANIEL E. CIMAROSTI  
REGULATORY PROGRAM MANAGER  
North Dakota  
Regulatory Branch, Operations Division

When the structures or work authorized by this permit are still in existence at the time the property is transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. To validate the transfer of this permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.

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(TRANSFEREE)

(DATE)

\*U.S. GPO: 1988-520-324

**DEPARTMENT OF THE ARMY PERMIT CONDITIONS**

• **SPECIAL CONDITIONS.**

**General Environmental Conditions**

**[a]** That EPND shall be fully responsible for obtaining all other permits and/or authorizations in accordance with local, state and Federal regulations and shall be fully responsible for compliance with the terms and conditions of those permits and/or authorizations. That EPND shall provide NDRO copies of all permits and/or authorizations obtained, including conditions, within fifteen (15) days of receipt by EPND. Any permits and/or authorizations received by EPND prior to issuance of this Department of the Army permit shall be provided to NDRO within fifteen (15) days of permit issuance.

**[b]** That EPND agrees to make every reasonable effort to prosecute the construction or work authorized herein in a manner so as to minimize any adverse impact of the construction or work on fish, wildlife, and natural environmental values.

**[c]** That EPND agrees that it will prosecute the construction of work authorized herein in a manner so as to minimize any degradation of water quality.

**[d]** That all work in the waterway is performed in such a manner so as to minimize increases in suspended solids and turbidity which may degrade water quality and damage aquatic life outside the immediate area of operation.

**[e]** That EPND shall comply with North Dakota Department of Health's conditioned water quality certification provided by email dated **March 17, 2011** which includes the following conditions: **1)** Implementation of the Department's construction and environmental disturbance requirements.

- This certification has been attached to and made a part of this permit. [Reference Attachment B].

**[f]** That only clean rock material from a non-streambed source will be utilized for riprap in order to avoid the percolation of fines which would result in excessive local turbidity.

**[g]** That all construction debris will be disposed of on land in such a manner that it cannot enter the waterway or a wetland.

**[h]** That EPND shall establish and carry out a program for immediate removal of debris during construction in order to prevent the accumulation of unsightly, deleterious and/or potentially polluted materials.

**[i]** That equipment for handling and conveying materials during construction shall be operated to prevent

dumping or spilling the materials into the waterway, except as approved herein.

[j] That measures will be employed to prevent or control spilled petroleum products, chemicals, or other deleterious materials from entering a waterway or wetland and, the permittee will formulate a contingency plan to be effective in the event of a spill.

[k] That steps will be taken to prevent materials spilled or stored on shore from washing into the water as a result of cleanup activities, natural runoff, or flooding, and that, during construction, any materials which are accidentally spilled into the water will be retrieved.

[l] That the use of machinery in the waterway or wetland will be kept to a minimum.

[m] That when the District Engineer has been notified that a filling activity is adversely affecting fish or wildlife resources or the harvest thereof and the District Engineer subsequently directs remedial measures, EPND will comply with such directions as may be received to suspend or modify the activity to the extent necessary to mitigate or eliminate the adverse effect as required.

[n] That fuel storage tanks above ground shall be diked or curbed or other suitable means provided to prevent the spread of liquids in case of leakage in the tanks or piping.

[o] All trees and shrubbery which are not specifically required to be cleared or removed for construction purposes shall be preserved and shall be protected from any damage by the Contractor's construction operations and equipment. EPND will comply with mitigation requirements for vegetation set forth by the North Dakota Regulatory Office.

[p] That all areas disturbed or newly created by the construction activity, which will not be ripped, will be seeded with vegetation indigenous to the area for protection against subsequent erosion.

[q] That the clearing of vegetation will be limited to that which is absolutely necessary for construction of the project.

[r] That owners of water supply intakes, or other activities that may be affected by suspended solids and turbidity increases caused by construction activity in the watercourse, shall be given sufficient notice to allow preparation for any changes in water quality.

[s] That all dredged or excavated materials, with the exception of that authorized herein, will be placed on an upland site above the ordinary high water line in a confined area, not classified as a wetland, to prevent the return of such materials to the waterway.

[t] That deposition of excavated materials on shore and all earthwork operations on shore will be carried out in

such a way that sediment runoff and soil erosion to the water are controlled.

### **Cultural Resource Conditions**

[u] That EPND and his contractor, or any of the employees, subcontractors or other persons working in the performance of the contract and/or contracts shall immediately cease work and report the discovery of subsurface features to the North Dakota State Historic Preservation Office [ND SHPO] and NDRO. Work shall not resume until notified by the NDRO.

[v] That EPND and his contractor, or any of the employees, subcontractors or other persons working in the performance of the contract and/or contracts shall immediately report the discovery of possible scientific, prehistorical, historical, or archaeological data, giving the location and nature of the findings to the ND SHPO and/or NDRO. Written confirmation shall be forwarded to NDRO within two (2) calendar days.

[w] That EPND shall cease construction or operation at the site of any cultural resource discovery and notify the NDRO and the ND SHPO by telephone within 24 hours of the discovery and, in writing, within 48 hours. Work shall not resume until notified by the NDRO.

### **Engineering Conditions**

[x] That EPND shall notify the District Engineer at what time the activity authorized herein will be commenced, as far in advance of the time of commencement as the District Engineer may specify, and of any suspension of work, if for a period of more than one week, resumption of work and its completion.

[y] That EPND is responsible for ensuring all contractors or others executing the project authorized by this permit have knowledge of the terms and conditions of the permit; and that a copy of the permit is physically located at the project site during construction operations.

[z] That the NDRO shall be notified, in writing, and through verbal communication of any changes in the project design. No changes in design which impacts the waterway shall be undertaken without Corps authorization.

*[aa] EPND shall provide NDRO a complete set of as-built plans and design specifications for this project within one (1) year of project completion. These plans shall be attached to and made a part of the permit for compliance purposes.*

[bb] That EPND shall maintain the work authorized herein in good condition and in accordance with the plans and drawings attached hereto and those provided in accordance with Special Condition [aa] above.

### Mitigation Conditions

**[cc]** *It is EPND's responsibility to complete the required compensatory mitigation, as set forth in Special Conditions [dd-gg]. It will not be considered fulfilled until EPND has demonstrated compensatory mitigation project success and have received written verification of that success from the U.S. Army Corps of Engineers. Reference Attachment C: Monitoring Plan.*

**[dd]** The Mitigation Plan, reference **Attachment C**, shall be implemented prior to, or concurrent with project construction. The EPND shall restore no less than 1.78 acres of wetlands at the location indicated on the plans.

**[cc]** The DA will consider the Mitigation Plan successful, if within 5 years (growing seasons), the wetlands have met the conditions outlined in the 1987 Wetland Delineation Manual: Great Plains Regional Supplement, and its updates.

**[[ff]** That the EPND shall submit yearly Monitoring Reports (MR). The first report is due on November 1<sup>st</sup> after the first growing season following completion of the Plan. Subsequent reports shall be submitted from September 1<sup>st</sup> to November 1<sup>st</sup> for a period of 4 additional years, or until the DA determines the project is successful. The written report shall provide detailed information on any failings or problems encountered within the mitigation area. Photographs are required as part of the report. The format for the MR/Plan is attached to this permit instrument as **[Attachment D]**.

**[gg]** To protect the integrity of the mitigation area and avoid unanticipated future impacts, no roads, utility lines, trails, benches, equipment or fuel storage, grading, firebreaks, mowing/haying, grazing, planting, disking, pesticide use, burning, or other structures or activities shall be constructed or occur within the mitigation area without specific, advance written approval from the North Dakota Regulatory Office.

**Permit Number - ND2011-4664**

**State of North Dakota  
Temporary Water Permit  
SWC Project No. 1400A**

In response to an application for a temporary water permit dated Aug 22, 2011 as received in this office Aug 25, 2011, authority is hereby granted to:

Enbridge Pipeline-North Dakota-LLC  
1409 Hammond Avenue  
Second Floor  
Superior, WI 54880-1674

Contact Person: Paul Meneghini

Telephone (715) 398-4573

**A Temporary Water Permit as follows:**

**Source:** Un-named Slough

**Point of Diversion:** NW1/4 Sec. 23 Twp. 162 Rng. 091

**Nature of Use:** Pipeline hydrostatic test

**Total Quantity of Water:** 356,500.0 Gallons

**Maximum Withdrawal Rate:** 3,000.0 gpm

**Period of authorized useage:** Sep 15, 2011 through Jan 1, 2012

**Conditions**

This temporary water permit is granted subject to use from the source by senior appropriators. Permission for access to the source must be obtained from all affected landowners. Failure to comply with any order of the State Engineer may result in forfeiture of this permit. The granting of a temporary water permit does not create a water right.

The use of the water authorized by this Temporary Water Permit shall be limited to the hydrostatic testing of the pipeline or associated pipeline construction uses. Any other use is unauthorized and will result in the forfeiture of this temporary water permit.

A weatherproof copy of this Temporary Water Permit must be attached the equipment withdrawing water and must be available for inspection by representatives of the State Engineers Office or the State Water Commission.

Dated: Aug 26, 2011



Todd Sando, P.E.  
State Engineer  
ND State Water Commission  
900 East Boulevard  
Bismarck, ND 58505

cc: Burke WRD

## Paul M. Hartzheim

---

**From:** Crooke, Patsy J NWO [Patsy.J.Crooke@usace.army.mil]  
**Sent:** Thursday, March 17, 2011 10:39 AM  
**To:** Paul Meneghini; Paul M. Hartzheim  
**Subject:** Enbridge Berthold Station - NWO-2009-2882-BIS (UNCLASSIFIED)  
**Attachments:** C&EDR (NDDH).pdf

Classification: UNCLASSIFIED  
Caveats: NONE

FYI. The C &EDR Mike is referring to are the "Construction and Environmental Disturbance Requirements", which I have attached. They will be included as part of the permit conditions.

Patsy

Patsy Crooke  
Project Manager  
USACE/NDRO  
1513 S 12th Street  
Bismarck, ND 58504  
701.255.0015  
FAX: 701.255.4917  
[patsy.j.crooke@usace.army.mil](mailto:patsy.j.crooke@usace.army.mil)

"We can't solve problems by using the same kind of thinking we used when we created them."  
Albert Einstein

-----Original Message-----

From: Sauer, Mike T. [<mailto:msauer@nd.gov>]  
Sent: Thursday, March 17, 2011 10:26 AM  
To: Crooke, Patsy J NWO  
Subject: NWO-2009-2882-BIS

Ms. Crooke: The NDDoH hereby issues Section 401 WQC for this project if our C&EDR are attached as a condition to the Permit. Mike Sauer

Classification: UNCLASSIFIED  
Caveats: NONE