

Wetland Report

PART ONE: Applicant Information

If applicant is an entity (company, government entity, partnership, etc.), an authorized contact person must be identified. If the applicant is using an agent (consultant, lawyer, or other third party) and has authorized them to act on their behalf, the agent's contact information must also be provided.

Applicant/Landowner Name: Xcel Energy
Mailing Address: 414 Nicollet Mall, 404-6, Minneapolis, MN 55401
Phone: 612.330.6073
E-mail Address: ellen.l.heine@xcelenergy.com

Authorized Contact (do not complete if same as above):

Mailing Address:
Phone:
E-mail Address:

Agent Name: Merjent, Inc.
Mailing Address: 800 Washington Ave. N, Minneapolis, MN 55401
Phone: 612-354-4284
E-mail Address: jennkamm8@merjent.com

PART TWO: Site Location Information

County: Dakota **City/Township:** Burnsville
Parcel ID and/or Address:
Legal Description (Section, Township, Range): T27N R24W, Sec. 23 and 24
Lat/Long (decimal degrees): 44.807981, -93.246193
Attach a map showing the location of the site in relation to local streets, roads, highways. Attached in delineation report.
Approximate size of site (acres) or if a linear project, length (feet): 23 acres

If you know that your proposal will require an individual Permit from the U.S. Army Corps of Engineers, you must provide the names and addresses of all property owners adjacent to the project site. This information may be provided by attaching a list to your application or by using block 25 of the Application for Department of the Army permit which can be obtained at:

http://www.mvp.usace.army.mil/Portals/57/docs/regulatory/RegulatoryDocs/engform_4345_2012oct.pdf

PART FIVE: Applicant Signature

Check here if you are requesting a pre-application consultation with the Corps and LGU based on the information you have provided. Regulatory entities will not initiate a formal application review if this box is checked.

By signature below, I attest that the information in this application is complete and accurate. I further attest that I possess the authority to undertake the work described herein.

Signature: _____ Date: November 3, 2017

I hereby authorize Jennifer Kamm to act on my behalf as my agent in the processing of this application and to furnish, upon request, supplemental information in support of this application.

Attachment A

Request for Delineation Review, Wetland Type Determination, or Jurisdictional Determination

By submission of the enclosed wetland delineation report, I am requesting that the U.S. Army Corps of Engineers, St. Paul District (Corps) and/or the Wetland Conservation Act Local Government Unit (LGU) provide me with the following (check all that apply):

Wetland Type Confirmation

Delineation Concurrence. Concurrence with a delineation is a written notification from the Corps and a decision from the LGU concurring, not concurring, or commenting on the boundaries of the aquatic resources delineated on the property. Delineation concurrences are generally valid for five years unless site conditions change. Under this request alone, the Corps will not address the jurisdictional status of the aquatic resources on the property, only the boundaries of the resources within the review area (including wetlands, tributaries, lakes, etc.).

Preliminary Jurisdictional Determination. A preliminary jurisdictional determination (PJD) is a non-binding written indication from the Corps that waters, including wetlands, identified on a parcel may be waters of the United States. For purposes of computation of impacts and compensatory mitigation requirements, a permit decision made on the basis of a PJD will treat all waters and wetlands in the review area as if they are jurisdictional waters of the U.S. PJDs are advisory in nature and may not be appealed.

Approved Jurisdictional Determination. An approved jurisdictional determination (AJD) is an official Corps determination that jurisdictional waters of the United States are either present or absent on the property. AJDs can generally be relied upon by the affected party for five years. An AJD may be appealed through the Corps administrative appeal process.

In order for the Corps and LGU to process your request, the wetland delineation must be prepared in accordance with the 1987 Corps of Engineers Wetland Delineation Manual, any approved Regional Supplements to the 1987 Manual, and the *Guidelines for Submitting Wetland Delineations in Minnesota* (2013).

<http://www.mvp.usace.army.mil/Missions/Regulatory/DelineationJDGuidance.aspx>

November 3rd 2017

Ms. Ellen Heine
Xcel Energy
414 Nicollet Mall, 404-6
Minneapolis, MN 55401

RE: Xcel Energy, Blackdog Pipeline Project, Dakota County, MN

Ms. Heine,

On behalf of Xcel Energy, Merjent, Inc. is pleased to provide the following wetland delineation report for the proposed Black Dog Pipeline Project (Project) located in Burnsville and Eagan, Minnesota, in Dakota County. Previous wetland and waterbody surveys were conducted for the Project in August 2016. An additional site investigation was conducted on October 26, 2017 to assist in identifying alternative pipeline route options for the Project. The survey area evaluated for this delineation includes an approximate 23-acre area located southeast of the Xcel Black Dog Generating Plant (Figure 1).

Methodology

Prior to conducting the field review, Merjent staff evaluated existing data including aerial photography, Dakota County Soil Survey, the Minnesota Department of Natural Resources 2011 update to the National Wetlands Inventory (NWI) map, and the Protected Water Inventory (PWI) map (Figures 2-4).

The presence/absence of wetlands was identified in the field using routine level 2 on-site delineation methods and criteria in accordance with the USACE Wetlands Delineation Manual (USACE 1987) and the *Regional Supplement to the Corps of Engineers Wetlands Delineation Manual: Midwest Region Version 2.0* (USACE 2010). The Project is within the Midwest Land Resource Region M. Routine on-site delineation methods include characterization of vegetation, hydrology and soils at the site. The USACE National Wetlands Plant List was used to describe the taxonomy of plants surveyed and their wetland indicator status. Determination of wetland type is based on the classification system developed by Cowardin et al. (1979) and Shaw and Fredine, 1971. Waterbodies (i.e., ponds, creeks, streams, rivers) were identified by the presence of an ordinary high water mark (OHWM).

All wetland and waterbody boundaries were recorded using a sub-meter GPS unit (Trimble® GeoXT). No flagging was conducted in the field.

Results and Discussion

In total, six wetland areas were delineated (Figure 5). Field datasheets and photographs can be found in the attachments.

Wetland ID	Wetland Type		Acreage Within the Survey Area
	Cowardin et. al., 1979	Shaw and Fredine, 1971	
PEM-W1	PEM	Type 2	6.34
PEM-W2	PEM	Type 4	3.01
PSS-W1	PSS	Type 6	0.48
PFO-W1	PFO	Type 1	0.82
PFO-W2	PFO	Type 1	0.99
PFO-W3	PFO	Type 1	1.71

PEM-W1

PEM-W1 is a fresh (wet) meadow wetland. Dominant vegetation consisted of reed canary grass (*Phalaris arundinacea*), bluejoint grass (*Calamagrostis canadensis*), pale bulrush (*Scirpus pallidus*), woolgrass (*Scirpus cyperinus*) and sedges (*Carex spp.*). Soils within the wetland met the criteria for Thick Dark Surface (A12). Soils were saturated to the surface meeting hydrologic indicator A3.

PEM-W2

PEM-W2 is a deep marsh. Dominant vegetation consisted of lake sedge (*Carex lacustris*) and cattails (*Typha x glauca*). Standing water greater than six inches in depth. Soils were not able to be evaluated because of water depth but are assumed to be hydric based on SSURGO mapping.

PSS-W1

PSS-W1 is a shrub-carr wetland. Dominant vegetation consisted of sandbar willow (*Salix interior*), reed canary grass, and Virginia wild rye (*Elymus virginicus*). Soils within the wetland met the criteria for Thick Dark Surface (A12). Soils were saturated to the surface meeting hydrologic indicator A3.

PFO-W1 PFO-W2 and PFO-W3

PFO-W1, PFO-W2 and PFO-W3 are floodplain forest wetlands. Dominant vegetation consisted of cottonwood (*Populus deltoides*), trembling aspen (*Populus tremuloides*), green ash (*Fraxinus pennsylvanica*), boxelder (*Acer negundo*), American elm (*Ulmus americana*), and crack willow (*Salix fragilis*). Reed canary grass was dominant in the herbaceous layer. Soils within the wetland met the criteria for Redox Dark Surface (F6). Soils were saturated to the surface meeting hydrologic indicator A3.

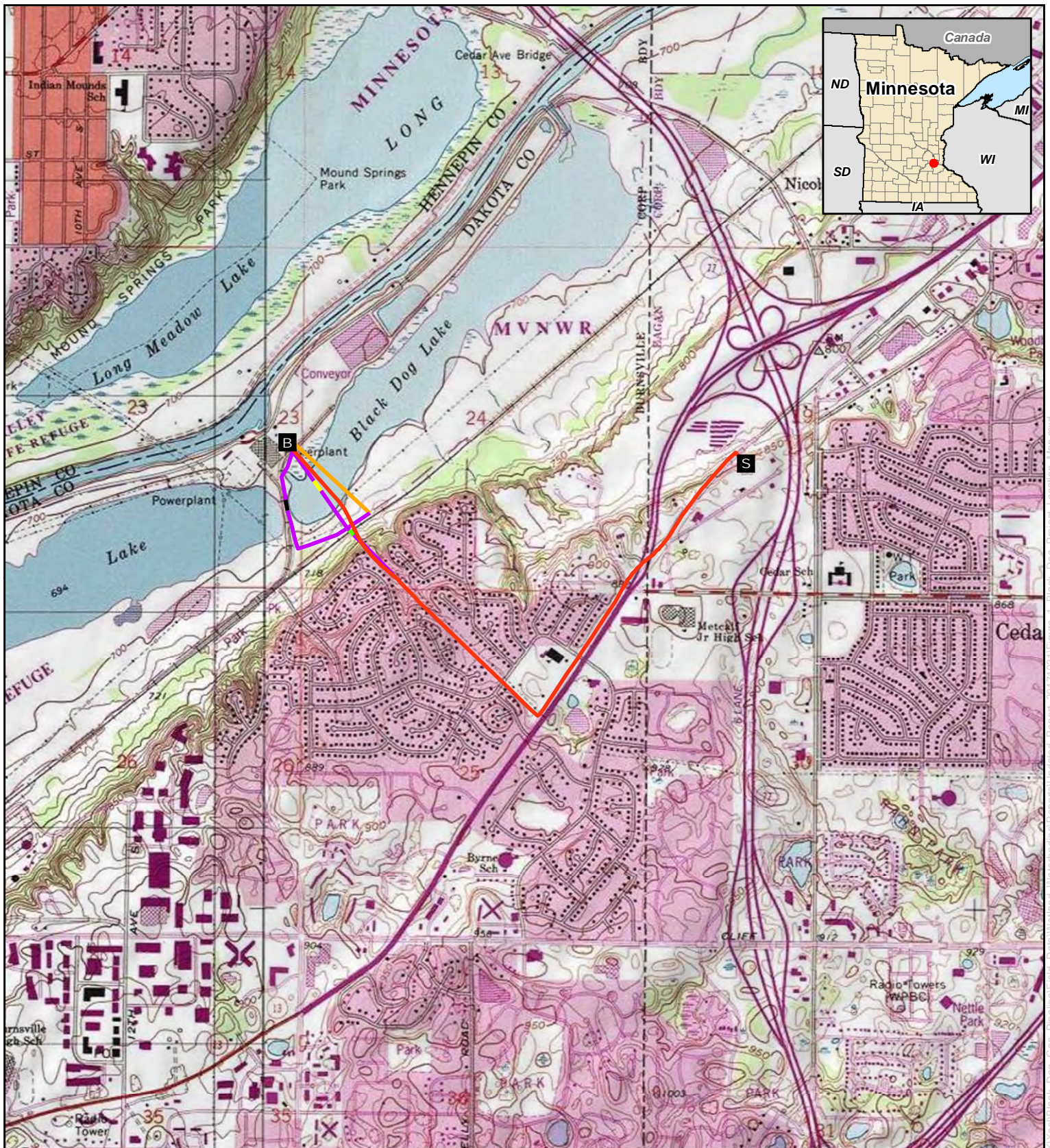
Adjacent upland soils did not meet hydric soil criteria and were not saturated within 6 inches of the surface.

Respectfully submitted,



Jennifer Kamm
MN Certified Wetland Delineator (#1253)
Merjent, Inc

Enclosures: Figures
Data Sheets
Photos



0 1,000 2,000 Feet

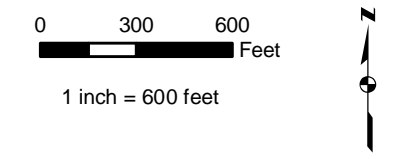
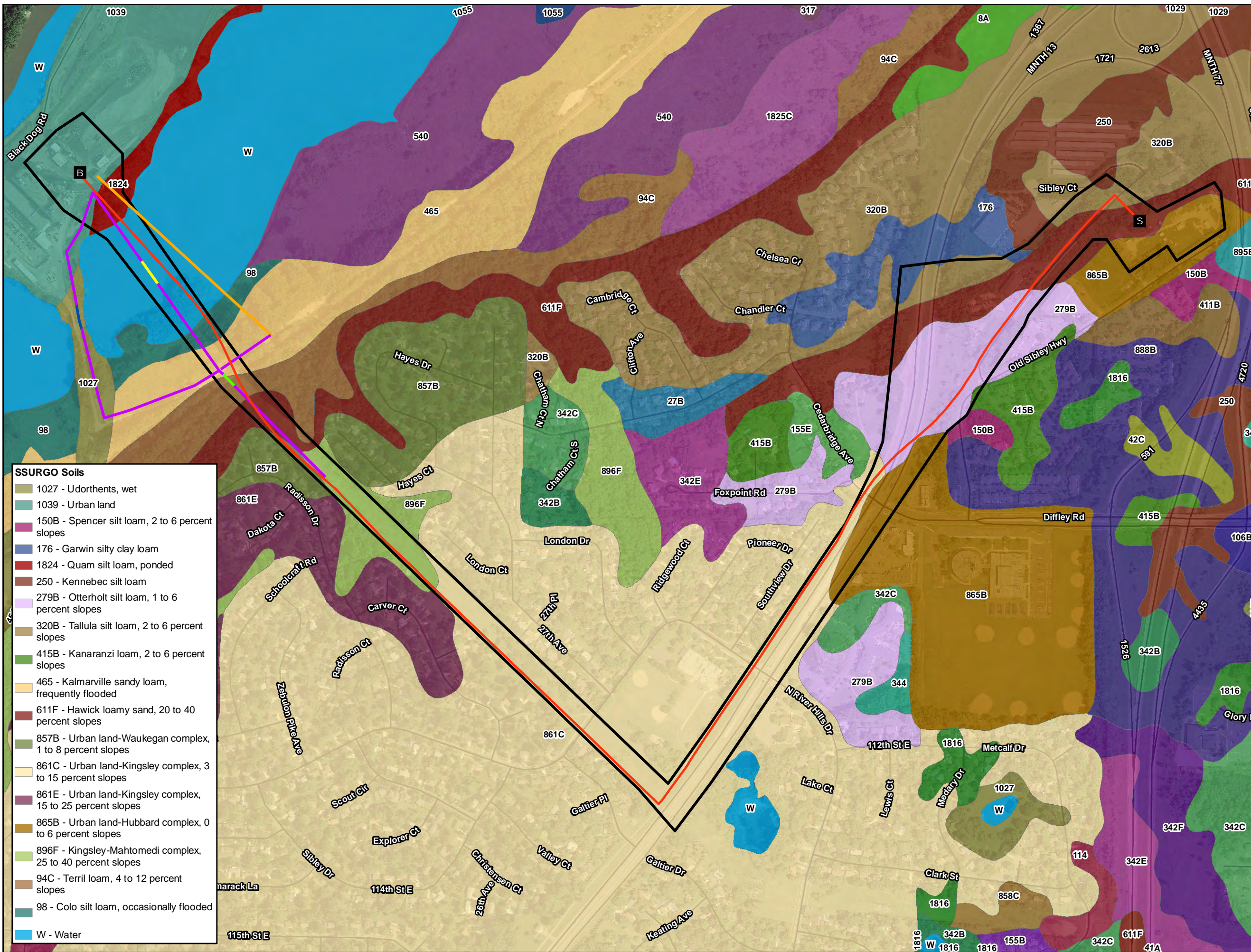
1 inch = 2,000 feet



Figure 1
Xcel Black Dog
Gas Pipeline Project
Project Location
Dakota County, Minnesota

- B** Black Dog Power Plant
- S** Cedar Station
- Proposed Pipeline Alignment
- Alternatives**
- Attach to bridge
- Cofferdam/open trench
- Horizontal directional drill
- Insert in CenterPoint line
- Open trench install

Source: Z:\Clients\02_Xcel\Black_Dog_Gas_Pipeline\field_Data\Waterbodies\Responses\Updated_Report_20171003\Figure_1_Black_Dog_Project_Location_1map.mxd Date: 10/31/2017



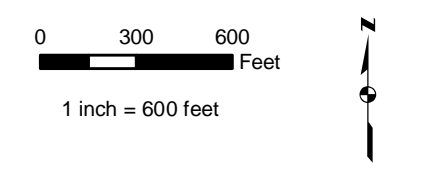
- B** Black Dog Power Plant
- S** Cedar Station
- Proposed Pipeline Route
- Proposed Pipeline Route
- Alternatives**
- Attach to bridge
- Coffer dam/open trench
- Horizontal directional drill
- Insert in CenterPoint line
- Open trench install

Figure 2
Xcel Black Dog Gas Pipeline
SSURGO Soils Map
Dakota County, Minnesota



For Environmental Review Purposes Only

Date: (11/2/2017) Source: Z:\Clients\U...Xcel\Black_Dog_Gas_Pipeline\Fig2_Data\Wetland_Waterbodies\Reports\Updated_Report_20171031\Figure_2_Black_Dog_Soils_Map.mxd



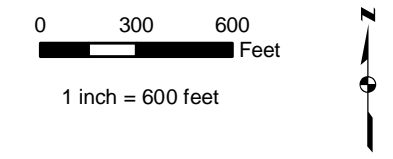
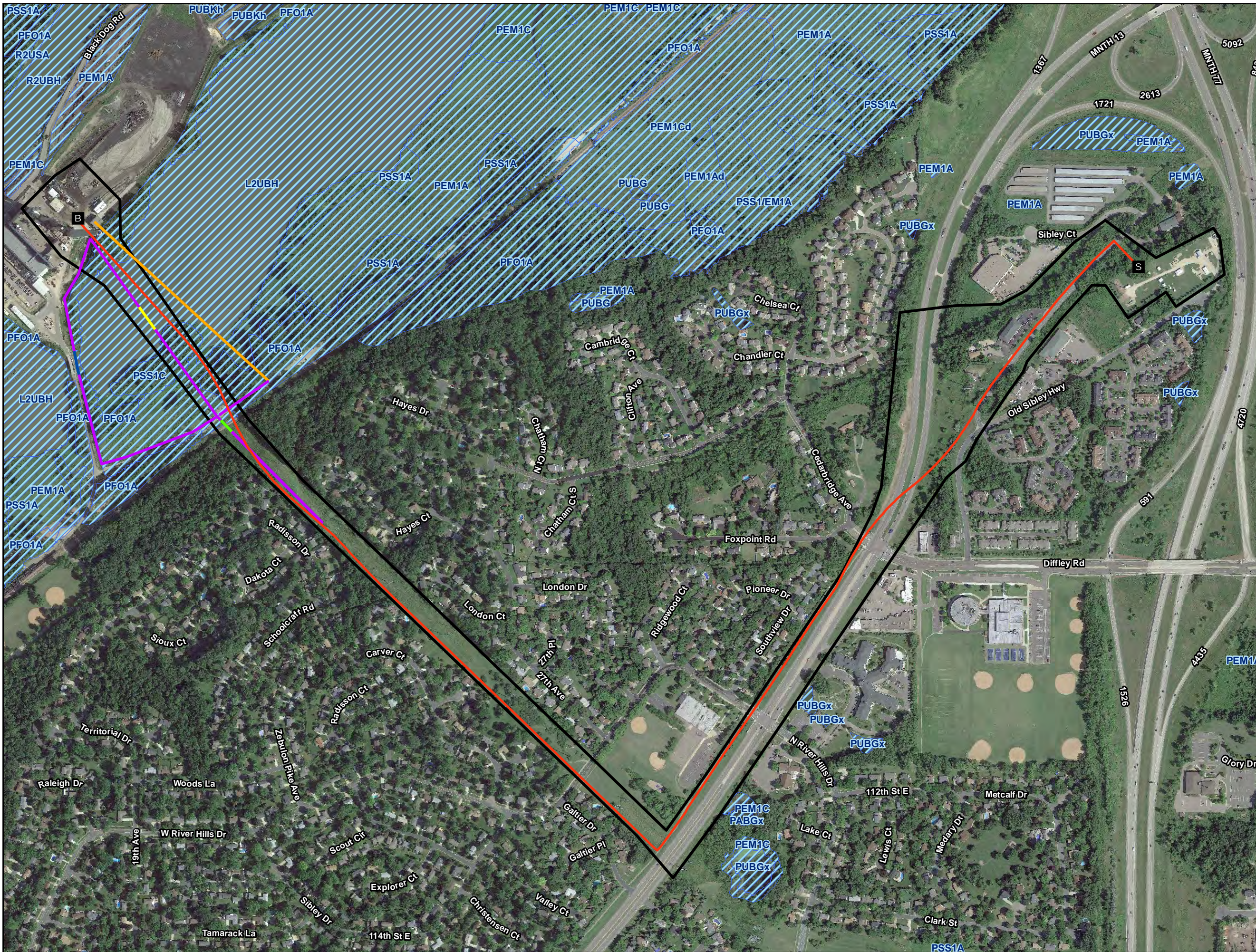
- B** Black Dog Power Plant
- S** Cedar Station
- Proposed Pipeline Route
- Alternatives**
- Attach to bridge
- Cofferdam/open trench
- Horizontal directional drill
- Insert in CenterPoint line
- Open trench install
- Proposed Pipeline Route
- Public Water Watercourse
- Public Waters Basins

Figure 3
Xcel Black Dog Gas Pipeline
PWI Map
Dakota County, Minnesota



For Environmental Review Purposes Only

Date: 1/10/31/2017 Source: Z:\Clients\U_Xcel\Black_Dog_Gas_Pipeline\Fig\Map\Water\Basins\Reports\Updated_Report_20171031\Figure_3_Black_Dog_PWI_Map.mxd

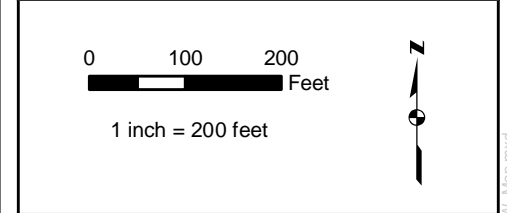
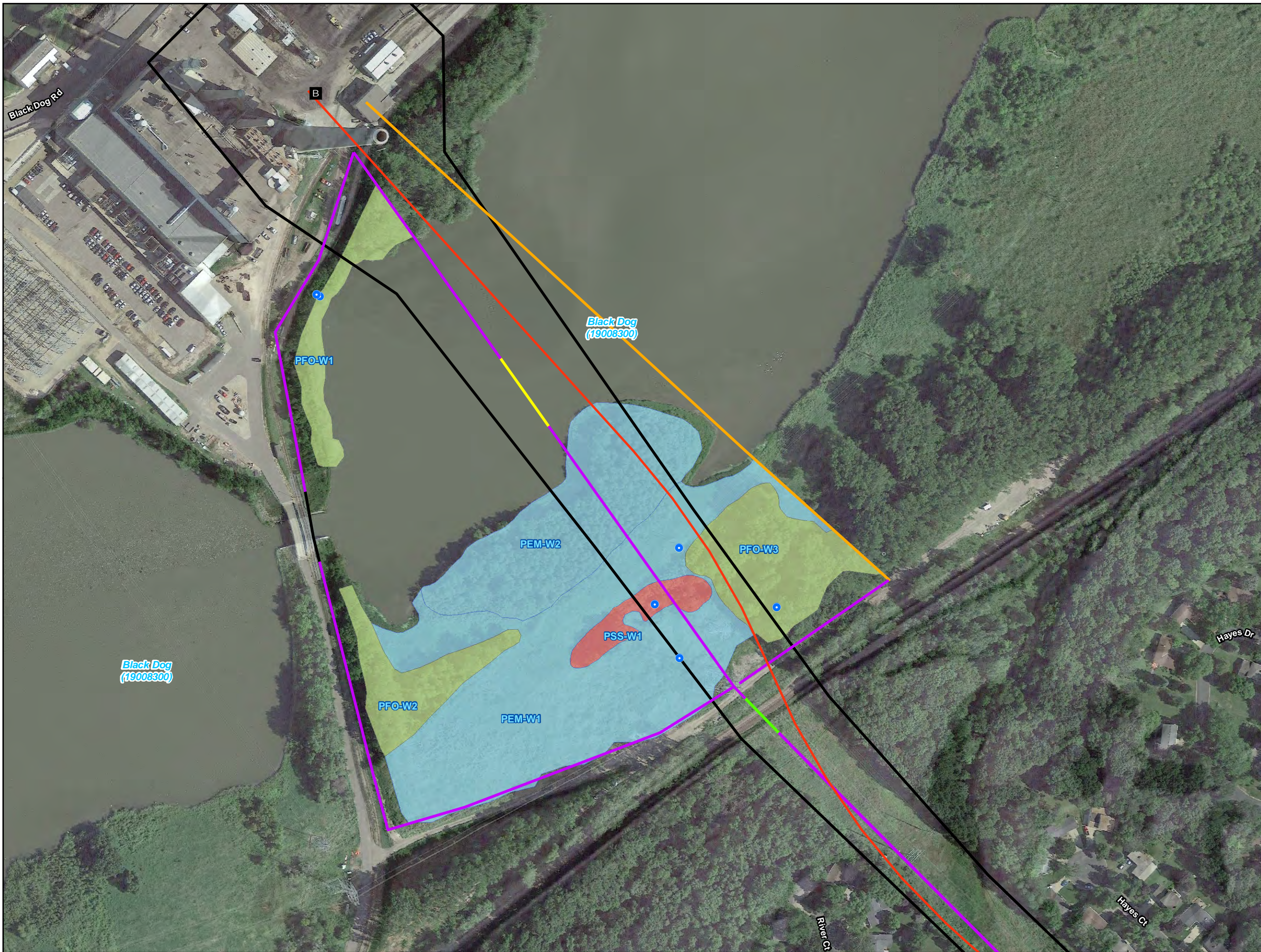


- B** Black Dog Power Plant
- S** Cedar Station
- Proposed Pipeline Route
- Alternatives**
- Attach to bridge
- Coffor dam/open trench
- Horizontal directional drill
- Insert in CenterPoint line
- Open trench install
- Proposed Pipeline Route
- NWI (MNDNR Update)

Figure 4
Xcel Black Dog Gas Pipeline
NWI Map
Dakota County, Minnesota



Date: 1/10/31/2017 Source: Z:\Clients\U_Xcel\BlackDog_Gas_Pipeline\Fig4_Data\Wetland_Waterbodies\Reports\Updated_Report_20171031\Figure_4_Black_Dog_NWI_Map.mxd



- B Black Dog Power Plant
- Proposed Pipeline Alignment
- Alternatives**
- Attach to bridge
- Coffer dam/open trench
- Horizontal directional drill
- Insert in CenterPoint line
- Open trench install
- Proposed Pipeline Route
- Sample Points
- Field Delineated Wetlands**
- PEM
- PFO
- PSS

Figure 5
Xcel Black Dog Gas Pipeline
Field Delineated Wetlands
Dakota County, Minnesota



Date: (1/17/2017) Source: Z:\Clients\U...Xcel\Black_Dog_Gas_Pipeline\Field_Data\Wetland_Waterbodies\Repos\Updated_Report\2017\03\Figure_5_Black_Dog_Field_Delineated_WW_Map.mxd

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site Black Dog Natural Gas Pipeline Project City/County: Dakota Sampling Date: 10/26/2017
 Applicant/Owner: Xcel Energy State: MN Sampling Point: PEM-W1
 Investigator(s): JLK Section, Township, Range: T27N R24W Sec. 24
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): none
 Slope (%): <1% Lat: 44.807958 Long: -93.244951 Datum: NAD83
 Soil Map Unit Name Kalmarville sandy loam, frequently flooded NWI Classification: PEM

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)
 Are vegetation _____, soil _____, or hydrology _____ significantly disturbed? Are "normal circumstances" present? Yes
 Are vegetation _____, soil _____, or hydrology _____ naturally problematic? present? Yes

SUMMARY OF FINDINGS (If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>Y</u>	Is the sampled area within a wetland? <u>Y</u> If yes, optional wetland site ID: _____
Hydric soil present? <u>Y</u>	
Indicators of wetland hydrology present? <u>Y</u>	

Remarks: (Explain alternative procedures here or in a separate report.)

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>100.00%</u> (A/B)	
4 _____	_____	_____	_____		
5 _____	_____	_____	_____		
	<u>0</u> = Total Cover				
Sapling/Shrub stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Status	Prevalence Index Worksheet	
1 <u>Rhamnus cathartica</u>	<u>5</u>	<u>Y</u>	<u>FAC</u>	Total % Cover of:	
2 _____	_____	_____	_____	OBL species <u>65</u> x 1 = <u>65</u>	
3 _____	_____	_____	_____	FACW species <u>35</u> x 2 = <u>70</u>	
4 _____	_____	_____	_____	FAC species <u>5</u> x 3 = <u>15</u>	
5 _____	_____	_____	_____	FACU species <u>0</u> x 4 = <u>0</u>	
	<u>5</u> = Total Cover			UPL species <u>0</u> x 5 = <u>0</u>	
				Column totals <u>105</u> (A) <u>150</u> (B)	
				Prevalence Index = B/A = <u>1.43</u>	
Herb stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Status	Hydrophytic Vegetation Indicators:	
1 <u>Calamagrostis canadensis</u>	<u>30</u>	<u>Y</u>	<u>OBL</u>	_____ Rapid test for hydrophytic vegetation	
2 <u>Phalaris arundinacea</u>	<u>30</u>	<u>Y</u>	<u>FACW</u>	<u>X</u> Dominance test is >50%	
3 <u>Carex typhina</u>	<u>15</u>	<u>N</u>	<u>OBL</u>	<u>X</u> Prevalence index is ≤3.0*	
4 <u>Scirpus pallidus</u>	<u>10</u>	<u>N</u>	<u>OBL</u>	_____ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)	
5 <u>Scirpus cyperinus</u>	<u>10</u>	<u>N</u>	<u>OBL</u>	_____ Problematic hydrophytic vegetation* (explain)	
6 <u>Verbena hastata</u>	<u>5</u>	<u>N</u>	<u>FACW</u>		
7 _____	_____	_____	_____		
8 _____	_____	_____	_____		
9 _____	_____	_____	_____		
10 _____	_____	_____	_____		
	<u>100</u> = Total Cover				
Woody vine stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Status	Hydrophytic vegetation present? <u>Y</u>	
1 _____	_____	_____	_____		
2 _____	_____	_____	_____		
	<u>0</u> = Total Cover				

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

SOIL

Sampling Point: PEM-W1

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*	Loc**		
0-38	N 2/0	100					Clay loam	See below.

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:		Indicators for Problematic Hydric Soils:	
<input type="checkbox"/> Histisol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Dark Surface (S7) (LRR K, L)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)	
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (explain in remarks)	
<input type="checkbox"/> 2 cm Muck (A10)	<input type="checkbox"/> Depleted Matrix (F3)		
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)		
<input checked="" 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"/> 5 cm Mucky Peat or Peat (S3)			

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric soil present? <u>Y</u>
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Remarks:
Assumed to meet thick dark surface. Soils appear to match Colo soil series which has depletion beginning at 102 to 117 centimeters.

HYDROLOGY

Wetland Hydrology Indicators:

<u>Primary Indicators (minimum of one is required; check all that apply)</u>		<u>Secondary Indicators (minimum of two required)</u>	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Drainage Patterns (B10)	
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<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"/> Gauge or Well Data (D9)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)			
<input type="checkbox"/> Water-Stained Leaves (B9)			Y

Field Observations:		Indicators of wetland hydrology present? <u>Y</u>
Surface water present? Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____		
Water table present? Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____		
Saturation present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>0</u>		
(includes capillary fringe)		

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site Black Dog Natural Gas Pipeline Project City/County: Dakota Sampling Date: 10/26/2017
 Applicant/Owner: Xcel Energy State: MN Sampling Point: PEM-W1
 Investigator(s): JLK Section, Township, Range: T27N R24W Sec. 24
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): none
 Slope (%): 0 - 5% Lat: 44.808182 Long: -93.246713 Datum: NAD83
 Soil Map Unit Name Colo silt loam, occasionally flooded NWI Classification: PEM

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)
 Are vegetation _____, soil _____, or hydrology _____ significantly disturbed? Are "normal circumstances" present? Yes
 Are vegetation _____, soil _____, or hydrology _____ naturally problematic? present? Yes

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>Y</u>	Is the sampled area within a wetland? <u>Y</u>
Hydric soil present? <u>Y</u>	
Indicators of wetland hydrology present? <u>Y</u>	
If yes, optional wetland site ID: _____	

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across all Strata: <u>1</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>100.00%</u> (A/B)
1	_____	_____	_____	_____	
2	_____	_____	_____	_____	
3	_____	_____	_____	_____	
4	_____	_____	_____	_____	
5	_____	_____	_____	_____	
		<u>0</u>	= Total Cover		
Sapling/Shrub stratum	(Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Status	Prevalence Index Worksheet Total % Cover of: OBL species <u>100</u> x 1 = <u>100</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column totals <u>100</u> (A) <u>100</u> (B) Prevalence Index = B/A = <u>1.00</u>
1	_____	_____	_____	_____	
2	_____	_____	_____	_____	
3	_____	_____	_____	_____	
4	_____	_____	_____	_____	
5	_____	_____	_____	_____	
		<u>0</u>	= Total Cover		
Herb stratum	(Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Status	
1	<u>Carex lacustris</u>	<u>100</u>	<u>Y</u>	<u>OBL</u>	
2	_____	_____	_____	_____	
3	_____	_____	_____	_____	
4	_____	_____	_____	_____	
5	_____	_____	_____	_____	
6	_____	_____	_____	_____	
7	_____	_____	_____	_____	
8	_____	_____	_____	_____	
9	_____	_____	_____	_____	
10	_____	_____	_____	_____	
		<u>100</u>	= Total Cover		
Woody vine stratum	(Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Status	
1	_____	_____	_____	_____	
2	_____	_____	_____	_____	
		<u>0</u>	= Total Cover		

Hydrophytic Vegetation Indicators:
 _____ Rapid test for hydrophytic vegetation
 Dominance test is >50%
 Prevalence index is ≤3.0*
 _____ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
 _____ Problematic hydrophytic vegetation* (explain)
 *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? X

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

SOIL

Sampling Point: PEM-W1

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*	Loc**		
0-38	N 2/0	100					Clay loam	See below.

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators: <input type="checkbox"/> Histisol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input checked="" type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)		Indicators for Problematic Hydric Soils: <input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)		<input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) <input type="checkbox"/> Dark Surface (S7) (LRR K, L) <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (explain in remarks)	
				*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic	

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric soil present? <u>Y</u>
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Remarks:
 Assumed to meet thick dark surface. Soils appear to match Colo soil series which has depletion beginning at 102 to 117 centimeters.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply) <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Water-Stained Leaves (B9)		Secondary Indicators (minimum of two required) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Gauge or Well Data (D9) <input type="checkbox"/> Other (Explain in Remarks)		<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)	
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Field Observations: Surface water present? Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____ Water table present? Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____ Saturation present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>0</u> (includes capillary fringe)	Indicators of wetland hydrology present? <u>Y</u>
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Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site Black Dog Natural Gas Pipeline Project City/County: Dakota Sampling Date: 10/26/2017
 Applicant/Owner: Xcel Energy State: MN Sampling Point: PFO-W1 and PFO-W2
 Investigator(s): JLK Section, Township, Range: T27N R24W Sec. 23, 24
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): CL (concave linear)
 Slope (%): 25 - 35% Lat: 44.808182 Long: -93.246713 Datum: NAD83
 Soil Map Unit Name Udorthents, wet NWI Classification: PFO

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)
 Are vegetation _____, soil _____, or hydrology _____ significantly disturbed? Are "normal circumstances" present? Yes
 Are vegetation _____, soil _____, or hydrology _____ naturally problematic? present? Yes

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>Y</u>	Is the sampled area within a wetland? <u>Y</u> If yes, optional wetland site ID: _____
Hydric soil present? <u>Y</u>	
Indicators of wetland hydrology present? <u>Y</u>	

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: <u>6</u> (A) Total Number of Dominant Species Across all Strata: <u>6</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>100.00%</u> (A/B)
1 <u>Acer negundo</u>	30	Y	FAC	
2 <u>Ulmus americana</u>	10	Y	FACW	
3 <u>Fraxinus pennsylvanica</u>	10	Y	FACW	
4 _____				
5 _____				
	50 = Total Cover			
Sapling/Shrub stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Status	Prevalence Index Worksheet Total % Cover of: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>50</u> x 2 = <u>100</u> FAC species <u>55</u> x 3 = <u>165</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column totals <u>105</u> (A) <u>265</u> (B) Prevalence Index = B/A = <u>2.52</u>
1 <u>Fraxinus pennsylvanica</u>	20	Y	FACW	
2 <u>Rhamnus cathartica</u>	20	Y	FAC	
3 <u>Morus alba</u>	5	N	FAC	
4 _____				
5 _____				
	45 = Total Cover			
Herb stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Status	
1 <u>Pilea pumila</u>	10	Y	FACW	
2 _____				
3 _____				
4 _____				
5 _____				
6 _____				
7 _____				
8 _____				
9 _____				
10 _____				
	10 = Total Cover			
Woody vine stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Status	
1 _____				
2 _____				
	0 = Total Cover			

Hydrophytic Vegetation Indicators:
 _____ Rapid test for hydrophytic vegetation
 Dominance test is >50%
 Prevalence index is ≤3.0*
 _____ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
 _____ Problematic hydrophytic vegetation* (explain)
 *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? X

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

SOIL

Sampling Point: O-W1 and PFO-1

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*	Loc**		
0-4	10YR 3/2	100					Silt Loam	
4 - 12	10YR 3/2	60	7.5 YR 5/8	30	C	M	Silt Loam	
			10 YR 5.1	10	C	M		

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators: <input type="checkbox"/> Histisol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)		<input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input checked="" type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	Indicators for Problematic Hydric Soils: <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) <input type="checkbox"/> Dark Surface (S7) (LRR K, L) <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (explain in remarks)
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*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric soil present? <u> Y </u>
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Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply) <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input checked="" type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input checked="" type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Gauge or Well Data (D9) <input type="checkbox"/> Other (Explain in Remarks)	Secondary Indicators (minimum of two required) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)
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Field Observations: Surface water present? Yes _____ No <u> X </u> Depth (inches): _____ Water table present? Yes _____ No <u> X </u> Depth (inches): _____ Saturation present? Yes _____ No <u> X </u> Depth (inches): <u> 0 </u> (includes capillary fringe)	Indicators of wetland hydrology present? <u> Y </u>
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Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site Black Dog Natural Gas Pipeline Project City/County: Dakota Sampling Date: 10/26/2017
 Applicant/Owner: Xcel Energy State: MN Sampling Point: PFO-u1
 Investigator(s): JLK Section, Township, Range: T27N R24W Sec. 23
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): CL (concave linear)
 Slope (%): 35% Lat: 44.809969 Long: -93.24884 Datum: NAD83
 Soil Map Unit Name Urban land NWI Classification: Upland

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)
 Are vegetation _____, soil _____, or hydrology _____ significantly disturbed? Are "normal circumstances" present? Yes
 Are vegetation _____, soil _____, or hydrology _____ naturally problematic? present? Yes

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>Y</u>	Is the sampled area within a wetland? <u>N</u> If yes, optional wetland site ID: _____
Hydric soil present? <u>N</u>	
Indicators of wetland hydrology present? <u>N</u>	

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: <u>5</u> (A) Total Number of Dominant Species Across all Strata: <u>6</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>83.33%</u> (A/B)
1 <u>Acer negundo</u>	30	Y	FAC	
2 <u>Ulmus americana</u>	10	Y	FACW	
3 <u>Fraxinus pennsylvanica</u>	10	Y	FACW	
4 _____				
5 _____				
	50 = Total Cover			
Sapling/Shrub stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Status	Prevalence Index Worksheet Total % Cover of: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>40</u> x 2 = <u>80</u> FAC species <u>50</u> x 3 = <u>150</u> FACU species <u>10</u> x 4 = <u>40</u> UPL species <u>0</u> x 5 = <u>0</u> Column totals <u>100</u> (A) <u>270</u> (B) Prevalence Index = B/A = <u>2.70</u>
1 <u>Fraxinus pennsylvanica</u>	20	Y	FACW	
2 <u>Rhamnus cathartica</u>	20	Y	FAC	
3 _____				
4 _____				
5 _____				
	40 = Total Cover			
Herb stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Status	
1 <u>Arctium minus</u>	10	Y	FACU	
2 _____				
3 _____				
4 _____				
5 _____				
6 _____				
7 _____				
8 _____				
9 _____				
10 _____				
	10 = Total Cover			
Woody vine stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Status	
1 _____				
2 _____				
	0 = Total Cover			

Hydrophytic Vegetation Indicators:
 _____ Rapid test for hydrophytic vegetation
 Dominance test is >50%
 Prevalence index is ≤3.0*
 _____ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
 _____ Problematic hydrophytic vegetation* (explain)
 *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? Y

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

SOIL

Sampling Point: PFO-u1

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*	Loc**		
0-26	10YR 3/2	100					Silt Loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

<p>Hydric Soil Indicators:</p> <p><input type="checkbox"/> Histisol (A1)</p> <p><input type="checkbox"/> Histic Epipedon (A2)</p> <p><input type="checkbox"/> Black Histic (A3)</p> <p><input type="checkbox"/> Hydrogen Sulfide (A4)</p> <p><input type="checkbox"/> Stratified Layers (A5)</p> <p><input type="checkbox"/> 2 cm Muck (A10)</p> <p><input type="checkbox"/> Depleted Below Dark Surface (A11)</p> <p><input type="checkbox"/> Thick Dark Surface (A12)</p> <p><input type="checkbox"/> Sandy Mucky Mineral (S1)</p> <p><input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)</p>	<p><input type="checkbox"/> Sandy Gleyed Matrix (S4)</p> <p><input type="checkbox"/> Sandy Redox (S5)</p> <p><input type="checkbox"/> Stripped Matrix (S6)</p> <p><input type="checkbox"/> Loamy Mucky Mineral (F1)</p> <p><input type="checkbox"/> Loamy Gleyed Matrix (F2)</p> <p><input type="checkbox"/> Depleted Matrix (F3)</p> <p><input checked="" type="checkbox"/> Redox Dark Surface (F6)</p> <p><input type="checkbox"/> Depleted Dark Surface (F7)</p> <p><input type="checkbox"/> Redox Depressions (F8)</p>	<p>Indicators for Problematic Hydric Soils:</p> <p><input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)</p> <p><input type="checkbox"/> Dark Surface (S7) (LRR K, L)</p> <p><input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)</p> <p><input type="checkbox"/> Very Shallow Dark Surface (TF12)</p> <p><input type="checkbox"/> Other (explain in remarks)</p>
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*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

<p>Restrictive Layer (if observed):</p> <p>Type: _____</p> <p>Depth (inches): _____</p>	<p>Hydric soil present? <u> N </u></p>
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Remarks:

HYDROLOGY

Wetland Hydrology Indicators:		
<p><u>Primary Indicators (minimum of one is required; check all that apply)</u></p> <p><input type="checkbox"/> Surface Water (A1)</p> <p><input type="checkbox"/> High Water Table (A2)</p> <p><input type="checkbox"/> Saturation (A3)</p> <p><input type="checkbox"/> Water Marks (B1)</p> <p><input type="checkbox"/> Sediment Deposits (B2)</p> <p><input type="checkbox"/> Drift Deposits (B3)</p> <p><input type="checkbox"/> Algal Mat or Crust (B4)</p> <p><input type="checkbox"/> Iron Deposits (B5)</p> <p><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</p> <p><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</p> <p><input type="checkbox"/> Water-Stained Leaves (B9)</p>	<p><u>Secondary Indicators (minimum of two required)</u></p> <p><input type="checkbox"/> Aquatic Fauna (B13)</p> <p><input type="checkbox"/> True Aquatic Plants (B14)</p> <p><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</p> <p><input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)</p> <p><input type="checkbox"/> Presence of Reduced Iron (C4)</p> <p><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</p> <p><input type="checkbox"/> Thin Muck Surface (C7)</p> <p><input type="checkbox"/> Gauge or Well Data (D9)</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p>	<p><input type="checkbox"/> Surface Soil Cracks (B6)</p> <p><input type="checkbox"/> Drainage Patterns (B10)</p> <p><input type="checkbox"/> Dry-Season Water Table (C2)</p> <p><input type="checkbox"/> Crayfish Burrows (C8)</p> <p><input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)</p> <p><input type="checkbox"/> Stunted or Stressed Plants (D1)</p> <p><input type="checkbox"/> Geomorphic Position (D2)</p> <p><input checked="" type="checkbox"/> FAC-Neutral Test (D5)</p>

<p>Field Observations:</p> <p>Surface water present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____</p> <p>Water table present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____</p> <p>Saturation present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)</p>	<p>Indicators of wetland hydrology present? <u> N </u></p>
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Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site Black Dog Natural Gas Pipeline Project City/County: Dakota Sampling Date: 10/26/2017
 Applicant/Owner: Xcel Energy State: MN Sampling Point: PFO-W3
 Investigator(s): JLK Section, Township, Range: T27N R24W Sec. 23
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): concave
 Slope (%): <1% Lat: 44.807958 Long: -93.244951 Datum: NAD83
 Soil Map Unit Name Kalmarville sandy loam, frequently flooded NWI Classification: PFO

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)
 Are vegetation _____, soil _____, or hydrology _____ significantly disturbed? Are "normal circumstances" present? Yes
 Are vegetation _____, soil _____, or hydrology _____ naturally problematic? present? Yes

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>Y</u>	Is the sampled area within a wetland? <u>Y</u> If yes, optional wetland site ID: _____
Hydric soil present? <u>Y</u>	
Indicators of wetland hydrology present? <u>Y</u>	

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet	
1 <u>Populus deltoides</u>	25	Y	FAC	Number of Dominant Species that are OBL, FACW, or FAC: <u>5</u> (A)	
2 <u>Populus tremuloides</u>	25	Y	FAC	Total Number of Dominant Species Across all Strata: <u>5</u> (B)	
3 <u>Fraxinus pennsylvanica</u>	15	N	FACW	Percent of Dominant Species that are OBL, FACW, or FAC: <u>100.00%</u> (A/B)	
4 <u>Ulmus americana</u>	10	N	FACW		
5 <u>Salix fragilis</u>	5	N	FAC		
	80 = Total Cover				
Sapling/Shrub stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Status	Prevalence Index Worksheet	
1 <u>Rhamnus cathartica</u>	30	Y	FAC	Total % Cover of:	
2 <u>Fraxinus pennsylvanica</u>	10	Y	FACW	OBL species <u>0</u> x 1 = <u>0</u>	
3 _____				FACW species <u>66</u> x 2 = <u>132</u>	
4 _____				FAC species <u>96</u> x 3 = <u>288</u>	
5 _____				FACU species <u>12</u> x 4 = <u>48</u>	
	40 = Total Cover			UPL species <u>0</u> x 5 = <u>0</u>	
Herb stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Status	Column totals <u>174</u> (A) <u>468</u> (B)	
1 <u>Phalaris arundinacea</u>	30	Y	FACW	Prevalence Index = B/A = <u>2.69</u>	
2 <u>Alliaria petiolata</u>	10	N	FAC		
3 <u>Arctium minus</u>	10	N	FACU		
4 <u>Cirsium arvense</u>	1	N	FACU		
5 <u>Urtica dioica</u>	1	N	FACW		
6 <u>Menispermum canadense</u>	1	N	FAC		
7 <u>Fragaria virginiana</u>	1	N	FACU		
8 _____					
9 _____					
10 _____					
	54 = Total Cover				
Woody vine stratum (Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Status	Hydrophytic Vegetation Indicators:	
1 _____				<input type="checkbox"/> Rapid test for hydrophytic vegetation	
2 _____				<input checked="" type="checkbox"/> Dominance test is >50%	
	0 = Total Cover			<input checked="" type="checkbox"/> Prevalence index is ≤3.0*	
				Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)	
				Problematic hydrophytic vegetation* (explain)	
				*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic	
				Hydrophytic vegetation present? <u>Y</u>	

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

SOIL

Sampling Point: PFO-W3

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*	Loc**		
0-23	10YR 2/1	75	7.5 YR 4/4	15	C	M	Silty clay loam	
			10 YR 5/1	10	C	M		

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators: <input type="checkbox"/> Histisol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)		<input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input checked="" type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)		Indicators for Problematic Hydric Soils: <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) <input type="checkbox"/> Dark Surface (S7) (LRR K, L) <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (explain in remarks)	
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*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric soil present? <u> Y </u>
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Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply) <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Gauge or Well Data (D9) <input type="checkbox"/> Other (Explain in Remarks)		Secondary Indicators (minimum of two required) <input type="checkbox"/> Surface Soil Cracks (B6) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)	
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Field Observations: Surface water present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water table present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Indicators of wetland hydrology present? <u> Y </u>
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Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site Black Dog Natural Gas Pipeline Project City/County: Dakota Sampling Date: 10/26/2017
 Applicant/Owner: Xcel Energy State: MN Sampling Point: PSS-W1
 Investigator(s): JLK Section, Township, Range: T27N R24W Sec. 24
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): none
 Slope (%): 0 - 5% Lat: 44.807895 Long: -93.246073 Datum: NAD83
 Soil Map Unit Name Colo silt loam, occasionally flooded NWI Classification: PSS

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)
 Are vegetation _____, soil _____, or hydrology _____ significantly disturbed? Are "normal circumstances" present? Yes
 Are vegetation _____, soil _____, or hydrology _____ naturally problematic? present? Yes

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>Y</u>	Is the sampled area within a wetland? <u>Y</u> If yes, optional wetland site ID: _____
Hydric soil present? <u>Y</u>	
Indicators of wetland hydrology present? <u>Y</u>	

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across all Strata: <u>3</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>100.00%</u> (A/B)
1	_____	_____	_____	_____	
2	_____	_____	_____	_____	
3	_____	_____	_____	_____	
4	_____	_____	_____	_____	
5	_____	_____	_____	_____	
		0 = Total Cover			
Sapling/Shrub stratum	(Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Status	Prevalence Index Worksheet Total % Cover of: OBL species <u>100</u> x 1 = <u>100</u> FACW species <u>70</u> x 2 = <u>140</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column totals <u>170</u> (A) <u>240</u> (B) Prevalence Index = B/A = <u>1.41</u>
1	<u>Salix interior</u>	35	Y	FACW	
2	_____	_____	_____	_____	
3	_____	_____	_____	_____	
4	_____	_____	_____	_____	
5	_____	_____	_____	_____	
		35 = Total Cover			
Herb stratum	(Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Status	Hydrophytic Vegetation Indicators: _____ Rapid test for hydrophytic vegetation <input checked="" type="checkbox"/> Dominance test is >50% <input checked="" type="checkbox"/> Prevalence index is ≤3.0* Morphological adaptations* (provide supporting data in Remarks or on a separate sheet) _____ Problematic hydrophytic vegetation* (explain) *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic
1	<u>Carex lacustris</u>	100	Y	OBL	
2	<u>Phalaris arundinacea</u>	30	Y	FACW	
3	<u>Elymus virginicus</u>	5	N	FACW	
4	_____	_____	_____	_____	
5	_____	_____	_____	_____	
6	_____	_____	_____	_____	
7	_____	_____	_____	_____	
8	_____	_____	_____	_____	
9	_____	_____	_____	_____	
10	_____	_____	_____	_____	
		135 = Total Cover			
Woody vine stratum	(Plot size: _____)	Absolute % Cover	Dominant Species	Indicator Status	Hydrophytic vegetation present? <u>Y</u>
1	_____	_____	_____	_____	
2	_____	_____	_____	_____	
		0 = Total Cover			

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

SOIL

Sampling Point: PSS-W1

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*	Loc**		
0-36	N 2/0	100					Clay loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators: <input type="checkbox"/> Histisol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input checked="" type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)		Indicators for Problematic Hydric Soils: <input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)		<input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) <input type="checkbox"/> Dark Surface (S7) (LRR K, L) <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (explain in remarks)	
				*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic	

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric soil present? _____
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Remarks:
 Assumed to meet thick dark surface. Soils appear to match Colo soil series which has depletion beginning at 102 to 117 centimeters.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply) <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Water-Stained Leaves (B9)		Secondary Indicators (minimum of two required) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Gauge or Well Data (D9) <input type="checkbox"/> Other (Explain in Remarks)		<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)	
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Field Observations: Surface water present? Yes _____ No _____ Depth (inches): _____ Water table present? Yes _____ No _____ Depth (inches): _____ Saturation present? Yes <u>X</u> No _____ Depth (inches): <u>0</u> (includes capillary fringe)	Indicators of wetland hydrology present? <u>Y</u>
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Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Client Name:

Xcel Energy

Site Location:

Burnsville, MN

Project ID:

Black Dog Gas Pipeline Project

Photo No. 1

Location of Photo:



BRG: 85.7° LAT: 44.807698 LON: -93.248470

Description:

PFO-W1



Photo No. 2

Location of Photo:



BRG: 85.7° LAT: 44.807698 LON: -93.248470

Description:

PFO-W1



Client Name:

Xcel Energy

Site Location:

Burnsville, MN

Project ID:

Black Dog Gas Pipeline Project

Photo No. 3

Location of Photo:



Description:

PFO-W1

Photo No. 4

Location of Photo:



Description:

PEM-W1

Client Name:

Xcel Energy

Site Location:

Burnsville, MN

Project ID:

Black Dog Gas Pipeline Project

Photo No. 5

Location of Photo:



Description:

PEM-W1

Photo No. 6

Location of Photo:



Description:

PSS-W1

Client Name: Xcel Energy	Site Location: Burnsville, MN	Project ID: Black Dog Gas Pipeline Project
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Photo No. 7

Location of Photo:

Description:
North side of PSS-W1 facing north.



Photo No. 8

Location of Photo:

Description:
Upland adjacent to powerline tower.



Client Name: Xcel Energy	Site Location: Burnsville, MN	Project ID: Black Dog Gas Pipeline Project
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Photo No. 9	
Location of Photo:	
Description: Existing access road facing west.	

Photo No. 10	
Location of Photo:	
Description: Existing access road facing east.	


Client Name: Xcel Energy	Site Location: Burnsville, MN	Project ID: Black Dog Gas Pipeline Project
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Photo No. 11	
Location of Photo:	
Description: View from southern project boundary facing north.	

Photo No. 12	
Location of Photo:	
Description: PFO-W1	

Client Name: Xcel Energy	Site Location: Burnsville, MN	Project ID: Black Dog Gas Pipeline Project
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Photo No. 13	 <p>26 Oct 2017, 15:23</p>
Location of Photo:	
Description: PFO-W1	

Photo No. 14	 <p>26 Oct 2017, 15:39</p>
Location of Photo:	
Description: PFO-W1	

Client Name:

Xcel Energy

Site Location:

Burnsville, MN

Project ID:

Black Dog Gas Pipeline Project

Photo No. 15

Location of Photo:

Description:

PFO-W1

