

WETLAND DETERMINATION DATA FORM

Feature ID# W8AHK002

Survey Type: Centerline: <input type="checkbox"/> Re-Route: <input type="checkbox"/> Access Road (explain): <input type="checkbox"/> CAR ID: <input type="checkbox"/> Ancillary Facility (explain): <input type="checkbox"/> T-Line <input type="checkbox"/> Other (explain) <input type="checkbox"/>			
Survey Description:			
Centerline ID#: <u>20080616CL</u>	Date: <u>7/5/08</u>	Client/ Project Name: <u>KEYSTONE-XL-10623-007-803A</u>	
Investigators: <u>Wood/ Freeborough</u>	Team No. <u>8A</u>	Milepost: <u>480.5</u>	Tract No. <u>ML-SD-HK-11829.000</u>
State/County: <u>SD/ Haakon</u>	Section, Township, Range: <u>T1N R25E S4</u>		
Lat/Long: <u>44.0784/-101.1168</u>	Quad Name: <u>Midland SE</u>	Region: <u>Western Great Plains</u>	
Subregion (LRR or MLRA): <u>LRR G</u>	Datum: <u>NAD 83</u>	Soil Map Name: <u>Ab</u>	
NWI classification: <u>PEM</u>	Landform (hillslope, terrace, etc.): <u>Channel</u>		
Local relief: <input checked="" type="checkbox"/> concave <input type="checkbox"/> convex <input type="checkbox"/> none Slope (%): <u>Depressional</u>			
Logbook No.: <u>2</u>	Logbook Page No.: <u>115</u>	Picture No. <u>W8AHK002 SE,S,N</u>	
Are climatic/hydrologic conditions on the site typical for this time of year? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> (if no explain in remarks)			
Are "Normal Circumstances" present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> (If no, explain in remarks.)			
Is Vegetation <input type="checkbox"/> Soil <input type="checkbox"/> Hydrology <input type="checkbox"/> "Significantly Disturbed"? No <input checked="" type="checkbox"/> (If yes, explain in remarks)			
Is Vegetation <input type="checkbox"/> Soil <input type="checkbox"/> Hydrology <input type="checkbox"/> "Naturally Problematic"? No <input checked="" type="checkbox"/> (If yes, explain in remarks.)			
Wetland Type: PFO <input type="checkbox"/> PSS <input type="checkbox"/> PEM <input checked="" type="checkbox"/> Other <input type="checkbox"/> (explain)			
Remarks: The wetland is formed by an abandoned meander of the Bad River. Road and railroad grades have cut off meander from river. The longitudinal arms of the meander (out of row) have surface water. The point of the meander where wetland was delineated does not have much, if any, surface water.			

VEGETATION (use scientific names of plants)

<p>Tree Stratum (Plot sizes:)</p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 5%;"></th> <th style="width: 25%;">Absolute % Cover</th> <th style="width: 25%;">Dominant Species?</th> <th style="width: 45%;">Indicator Status</th> </tr> </thead> <tbody> <tr><td>1.</td><td></td><td></td><td></td></tr> <tr><td>2.</td><td></td><td></td><td></td></tr> <tr><td>3.</td><td></td><td></td><td></td></tr> <tr><td>4.</td><td></td><td></td><td></td></tr> <tr><td>5.</td><td></td><td></td><td></td></tr> <tr><td>6.</td><td></td><td></td><td></td></tr> <tr> <td colspan="4" style="text-align: right;">Total Cover:</td> </tr> </tbody> </table>		Absolute % Cover	Dominant Species?	Indicator Status	1.				2.				3.				4.				5.				6.				Total Cover:				<p>Dominance Test worksheet:</p> <p>Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)</p> <p>Total Number of Dominant Species Across All Strata: <u>1</u> (B)</p> <p>Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)</p>												
	Absolute % Cover	Dominant Species?	Indicator Status																																										
1.																																													
2.																																													
3.																																													
4.																																													
5.																																													
6.																																													
Total Cover:																																													
<p>Sapling/Shrub Stratum ()</p> <table style="width:100%; border-collapse: collapse;"> <tbody> <tr><td>1.</td><td></td><td></td><td></td></tr> <tr><td>2.</td><td></td><td></td><td></td></tr> <tr><td>3.</td><td></td><td></td><td></td></tr> <tr><td>4.</td><td></td><td></td><td></td></tr> <tr><td>5.</td><td></td><td></td><td></td></tr> <tr><td>6.</td><td></td><td></td><td></td></tr> <tr> <td colspan="4" style="text-align: right;">Total Cover:</td> </tr> </tbody> </table>	1.				2.				3.				4.				5.				6.				Total Cover:				<p>Prevalence Index worksheet:</p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%;">Total % Cover of:</th> <th style="width: 40%;">Multiply by:</th> </tr> </thead> <tbody> <tr> <td>OBL species: _____</td> <td>X 1 = _____</td> </tr> <tr> <td>FACW species: _____</td> <td>X 2 = _____</td> </tr> <tr> <td>FAC species: _____</td> <td>X 3 = _____</td> </tr> <tr> <td>FACU species: _____</td> <td>X 4 = _____</td> </tr> <tr> <td>UPL species: _____</td> <td>X 5 = _____</td> </tr> <tr> <td>Column Totals: _____ (B)</td> <td>_____ (B)</td> </tr> <tr> <td colspan="2" style="text-align: right;">PI = B/A = _____</td> </tr> </tbody> </table>	Total % Cover of:	Multiply by:	OBL species: _____	X 1 = _____	FACW species: _____	X 2 = _____	FAC species: _____	X 3 = _____	FACU species: _____	X 4 = _____	UPL species: _____	X 5 = _____	Column Totals: _____ (B)	_____ (B)	PI = B/A = _____	
1.																																													
2.																																													
3.																																													
4.																																													
5.																																													
6.																																													
Total Cover:																																													
Total % Cover of:	Multiply by:																																												
OBL species: _____	X 1 = _____																																												
FACW species: _____	X 2 = _____																																												
FAC species: _____	X 3 = _____																																												
FACU species: _____	X 4 = _____																																												
UPL species: _____	X 5 = _____																																												
Column Totals: _____ (B)	_____ (B)																																												
PI = B/A = _____																																													

WETLAND DETERMINATION DATA FORM

Feature ID# W8AHK002

Herb Stratum (_____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. Typha latifolia	<u>60</u>	<u>Yes</u>	<u>OBL</u>	<p>Hydrophytic Vegetation Indicators:</p> <p><input type="checkbox"/> Rapid Test for Hydrophytic Vegetation</p> <p><input checked="" type="checkbox"/> Dominance Test is $\geq 50\%$</p> <p><input type="checkbox"/> Prevalence Index is $\leq 3.0^1$</p> <p><input type="checkbox"/> Morphological Adaptations (explain in remarks)</p> <p><input type="checkbox"/> Problematic Hydrophytic Vegetation¹ (Explain)</p> <p style="text-align: center;"> </p> <p>¹Indicators of hydric soil and wetland hydrology must be present.</p> <hr/> <p>Nonvascular Plants (Wetland Specialists) (WM): (10 inch x 10 inch sample frames)</p> <p>1. % wetland specialist bryophytes</p> <p>2. % wetland specialist bryophytes</p> <p>3. % wetland specialist bryophytes</p> <p>_____ Mean % wetland specialist bryophytes</p>
2. Unk. Weedy Annuals	<u>30</u>	<u>Yes</u>	<u>?</u>	
3. Rumex sp.	<u>2</u>	<u>Yes</u>	<u>FACW,</u> <u>FACU</u>	
4. Field pennycress				
5.				
6.				
7.				
8.				
9.				
Total Cover: <u>92</u>				
Woody Vine Stratum (_____)				
1.				
2.				
3.				
4.				
5.				
Total Cover:				
Hydrophytic Vegetation Present?				
Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
Remarks: (If observed, list morphological adaptations below):				
Looks as if vegetation died back significantly in past years drought. A few cattails and rumex sp. Comin this year. Past evidence of thick cattail and unk. Weedy annual remains present as well.				

WETLAND DETERMINATION DATA FORM

Feature ID# W8AHK002

HYDROLOGY (check all that apply)

Region Code: WM-Western Mountain; AW-Arid West; GP-Great Plains; A&G -Atl & Gulf Coast; M-Midwest; NCNE-Northcentral Northeast

Always Primary Indicators (minimum of one required)	Always Secondary (minimum of two required)
<input type="checkbox"/> Surface Water (A1) (All) <input type="checkbox"/> High Water Table (A2) (All) <input type="checkbox"/> Saturation (A3) (All) <input checked="" type="checkbox"/> Algal Mat or Crust (B4) (All but AW) <input type="checkbox"/> Iron Deposits (B5) (All but AW) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) (All) <input type="checkbox"/> Salt Crust (B11) (AW, WM, GP) <input type="checkbox"/> Biotic Crust (B12) (AW) <input type="checkbox"/> Aquatic Fauna/Invertebrates (B13) (All) <input type="checkbox"/> True Aquatic Plants (B14) (M) <input type="checkbox"/> Marl Deposits (B15) (AW, A&G LRR U, NCNE) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) (All) <input type="checkbox"/> Presence of Reduced Iron (C4) (All) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) (All but GP)	<input type="checkbox"/> Drainage Patterns (B10) (All) <input type="checkbox"/> Moss Trim Lines (B16) (A&G, NCNE) <input type="checkbox"/> Crayfish Burrows (C8) (All but WM) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) (All) <input checked="" type="checkbox"/> Geomorphic Position (D2) (All but AW) <input type="checkbox"/> Shallow Aquitard (D3) (WM, AW, A&G, NCNE) <input type="checkbox"/> FAC-Neutral Test (D5) (All) <input type="checkbox"/> Frost-heave Hummocks (D7) (WM, GP:LRR F)

Primary or Secondary in different regions	Primary Regions	Secondary Regions
Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Surface Soil Cracks (B6) Sparsely Vegetated Concave Surface (B8) Water-Stained Leaves (B9) Dry-Season Water Table (C2) Oxidized Rhizospheres on Living Roots (C3) Thin Muck Surface (C7) Stunted/Stressed Plants (D1)	<input type="checkbox"/> All but AW riverine <input type="checkbox"/> All but AW riverine <input type="checkbox"/> All but AW Riverine <input type="checkbox"/> WM & AW <input type="checkbox"/> M <input type="checkbox"/> AW, WM, GP, A&G, M <input type="checkbox"/> GP <input type="checkbox"/> All but GP tilled <input type="checkbox"/> A&G, NCNE <input type="checkbox"/> AW (LRR A)	<input type="checkbox"/> AW riverine <input type="checkbox"/> AW riverine <input type="checkbox"/> AW Riverine <input checked="" type="checkbox"/> GP, A&G, M <input type="checkbox"/> WM, AW, GP, A&G <input type="checkbox"/> WM: MLRA 1, 2, 4A, 4B <input type="checkbox"/> WM, AW, A&G, NCNE <input checked="" type="checkbox"/> GP tilled <input type="checkbox"/> AW, GP <input type="checkbox"/> NCNE

Other (Explain in Remarks)

Field Observations:	Wetland Hydrology Present?
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 checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u> 2 </u> (includes capillary fringe)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>

Remarks: Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections)
 Abandoned river meander (Oxbow)

WETLAND DETERMINATION DATA FORM

Feature ID# W8AHK002

HYDRIC SOIL

Soil 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 ¹	Loc ²		
0-6	2.5 YR 4/2		10YR 3/2	50	C	M	Clay	
6+	2.5 YR 4/2		10YR 3/2	25	C	M	Clay	

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

Hydric Soil Indicators (check all that apply)

Region Code: WM-Western Mountain; AW-Arid West; GP-Great Plains; A&G -Atl & Gulf Coast; M-Midwest; NCNE-Northcentral Northeast

Histosol (A1) (All)	<input type="checkbox"/>	Polyvalue Below Surface (S8) (A&G LRR S, T, U; NCNE LRR R, 149B, Problem LRR K, L)	<input type="checkbox"/>
Histic Epipedon (A2) (All)	<input type="checkbox"/>	Thin Dark Surface (S9) (A&G LRR S, T, U; NCNE LRR R, 149B, Problem LRR K, L)	<input type="checkbox"/>
Black Histic (A3) (All except NCNE MLRA 143 of LRR R)	<input type="checkbox"/>	Loamy Mucky Mineral (F1) (WM except MLRA1; A, GP, M, A&G LRR O; NCNE LRR K, L)	<input type="checkbox"/>
Hydrogen Sulfide (A4) (All)	<input type="checkbox"/>	Loamy Gleyed Matrix (F2) (All)	<input checked="" type="checkbox"/>
Stratified Layers (A5) (A&G, M, AW LRR C, GP LRR F, NCNE)	<input type="checkbox"/>	Depleted Matrix (F3) (All)	<input type="checkbox"/>
Organic Bodies (A6) (A&G LRR P, T, U)	<input type="checkbox"/>	Redox Dark Surface (F6) (All)	<input type="checkbox"/>
5 cm Mucky Mineral (A7) (A&G LRR P, T, U)	<input type="checkbox"/>	Depleted Dark Surface (F7) (All)	<input type="checkbox"/>
Muck Presence (A8) (A&G LRR U)	<input type="checkbox"/>	Redox Depressions (F8) (All)	<input type="checkbox"/>
1 cm Muck (A9) (LRR D, F, G H, P, T; Problem C, I, J, O)	<input type="checkbox"/>	Vernal Pools (F9) (Arid)	<input type="checkbox"/>
2 cm Muck (A10) (M; Problem WM, AW LRR B, A&G LRR S, NCNE LRR K L 149B of S)	<input type="checkbox"/>	Marl (F10) (A&G LRR U)	<input type="checkbox"/>
Depleted Below Dark Surface (A11) (All)	<input type="checkbox"/>	Depleted Ochric (F11) (A&G MLRA 151)	<input type="checkbox"/>
Thick Dark Surface (A12) (All)	<input type="checkbox"/>	Iron-Manganese Masses (F12) (A&G LRR O, P, T; Problem in M, NCNE)	<input type="checkbox"/>
Coast Prairie Redox (A16) (A&G MLRA 150A; Problem GP LRR F, G, H; M Problem; Problem NCNE except 149B of LRR S)	<input type="checkbox"/>	Umbric Surface (F13) (A&G LRR P, T, U)	<input type="checkbox"/>
Sandy Mucky Mineral (S1) (All except A&G LRRs O&S only)	<input type="checkbox"/>	High Plains Depressions (F16) (GP MLRA 72, 73; Problem in rest of LRR H)	<input type="checkbox"/>
2.5 cm Mucky Peat or Peat (S2) (GP LRR G, H)	<input type="checkbox"/>	Delta Ochric (F17) (A&G MLRA 151)	<input type="checkbox"/>
5 cm Mucky Peat or Peat (S3) (GP LRR F; NCNE Problem)	<input type="checkbox"/>	Reduced Vertic (F18) (A&G MLRA 150A, 150B) (AW, GP, A&G)	<input type="checkbox"/>
Sandy Gleyed Matrix (S4) (All)	<input type="checkbox"/>	Piedmont Floodplain Soils (F19) (A&G: MLRA 149A; Problem in LRR P, S, T)	<input type="checkbox"/>
Sandy Redox (S5) (All)	<input type="checkbox"/>	Anomalous Bright Loamy Soils (F20) (A&G MLRA 149A, 153C, 153D; Problem in MLRA 153B)	<input type="checkbox"/>
Stripped Matrix (S6) (All)	<input type="checkbox"/>	Red Parent Material (TF2) (Problem in All but M)	<input type="checkbox"/>
Dark Surface (S7) (A&G LRR P, S, T, U; GP Problem in LRR G; NCNE MLRA 149B, Problem LRR K, L)	<input type="checkbox"/>	Other (Explain in Remarks)	<input type="checkbox"/>

Problematic Hydric Soil? Yes (explain in remarks) No

Hydric Soil Criteria (1) _____ (2A) _____ (2 (B)(1)) _____ (2 (B)(2)) _____ (2 (B)(3)) _____ (3) _____ (4) _____

Restrictive Layer Present? Yes (explain in remarks) No

Hydric Soil Present? Yes No

Remarks: Abandoned meander has been isolated by road bed and/or geomorphology. The wetland is formed by an abandoned meander of the Bad River. Road and railroad grades have cut off meander from river. The longitudinal arms of the meander (out of row) have surface water. The point of the meander where wetland was delineated does not have much if any surface water. A low quality wetland due to drought or dewatering. Vegetative community showing definite signs of stress/dieback in ROW. Higher quality wetlands are adjacent to the east and west.

WETLAND DETERMINATION DATA FORM

Feature ID# W8AHK002

JURISDICTIONAL DETERMINATION	
Is This Sampling Point Within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is This An Isolated Wetland? Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown <input checked="" type="checkbox"/>
Is Wetland Adjacent to <input type="checkbox"/> or Abutting <input type="checkbox"/> Associated Waterbody? (explain in remarks) Unknown <input checked="" type="checkbox"/>	
Associated Waterbody Name or Feature ID#	
Separated by berm or barrier? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown <input type="checkbox"/>	
Flow between Wetland and Waterbody is: Perennial <input type="checkbox"/> Intermittent <input type="checkbox"/> Ephemeral <input type="checkbox"/> No Flow <input checked="" type="checkbox"/> Unknown <input type="checkbox"/>	
Surface flow between Wetland and Waterbody is: Discreet <input type="checkbox"/> Confined <input type="checkbox"/> Discrete and Confined <input type="checkbox"/> Overland Sheet-flow <input type="checkbox"/> No Flow <input checked="" type="checkbox"/> Unknown <input type="checkbox"/>	
Direction of Surface flow between Wetland and Waterbody is: From Wetland to Waterbody <input type="checkbox"/> From Waterbody to Wetland <input type="checkbox"/> Both To/From Wetland to Waterbody <input type="checkbox"/> No Flow <input checked="" type="checkbox"/> Unknown <input type="checkbox"/>	
Subsurface Connection Yes (explain in remarks) <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown <input type="checkbox"/> PROBABLY?	
Surface Water Appearance? No Water <input type="checkbox"/> Clear <input type="checkbox"/> Floating Algal Mats <input type="checkbox"/> Greenish Color <input type="checkbox"/> Surface Scum <input type="checkbox"/> Slightly Turbid <input type="checkbox"/> Turbid <input type="checkbox"/> Very Turbid <input type="checkbox"/>	
Wetland Supports riparian buffer? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If yes, width of buffer?	
Wetland Quality: High <input type="checkbox"/> Medium <input type="checkbox"/> Low <input checked="" type="checkbox"/> (please explain designation in remarks)	
Remarks:	
Field Sketch: (Please include Directional & North Arrow, Centerline, Length of Feature, Distances from Centerline, Photo Location, and Survey Corridor)	
Describe Habitat Characteristics (include overall habitat characteristics, aquatic and terrestrial diversity, etc., and provide unique descriptors):	
Wetland appears to be impacted by drought; Reduced surface water might have led to decreased cattail survival , invasion by weedy annual spp. However, wetland on CL is adjacent to wetlands w/ surface water to the E and SW. Owl spooked from snag in wetland	
General Comments (i.e., angle at pipeline crossing, construction constraints, erosion potential, existing disturbances, and meanders):	
Probably a low quality wetland due to drought or dewatering. Veg. Comm. Showing definite signs of stress/ dieback in row. Higher quality wetlands are adjacent to E & SW.	