

**ADDENDUM 3.4-A**  
**WETLANDS DELINEATION**

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# **JURISDICTIONAL WETLANDS DELINEATION FOR THE PROPOSED ROSS ISR PROJECT, OSHOTO, WYOMING**

## **ABSTRACT**

Projects that discharge dredge or fill material into Waters of the U.S., including special aquatic sites and jurisdictional wetlands, require accurate identification of wetland boundaries for the Section 404 (Clean Water Act) permitting process. To determine the occurrence and distribution of potential wetland areas within the Ross *in situ* recovery (ISR) project area, 29 sites were examined during June 22 and 28 and July 8 and 21, 2010 on-site visits (Exhibit 1). Following data evaluation, nine representative sites were selected to be included in this discussion because they appeared to represent wetland types throughout the Ross Project area based on soils, hydrology, and vegetation. Seven of the nine sites occurred in areas that appeared to be wetlands. The data were gathered and evaluated according to the *2008 Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region* (COE 2008). A total of 70 potential wetland areas were identified during the on-site visits. Many of these areas were relatively small (<0.1 acre) depressions along drainages (Exhibit 1). Wetland determination forms were not completed for each of the 70 areas due to similarities in soils, hydrology, and vegetation.

## **INTRODUCTION**

Peninsula Minerals Ltd, dba Strata Energy Inc. (Strata) is proposing an ISR project (Ross Project) in Crook County, WY (Figure 1). The Ross Project may affect Waters of the U.S., including special aquatic sites and jurisdictional wetlands associated with the Oshoto Reservoir, the Little Missouri River, and other named and unnamed natural and man-made water features within the permit area. WWC Engineering was hired to investigate and document the wetland characteristics of such areas in the project area. This report summarizes observations and results of June 22 and 28 and July 8 and 21, 2010 site-specific field investigations and is intended to provide the U.S. Army Corps of Engineers (COE) with sufficient information to verify the occurrence and distribution of wetlands within the Ross Project area.

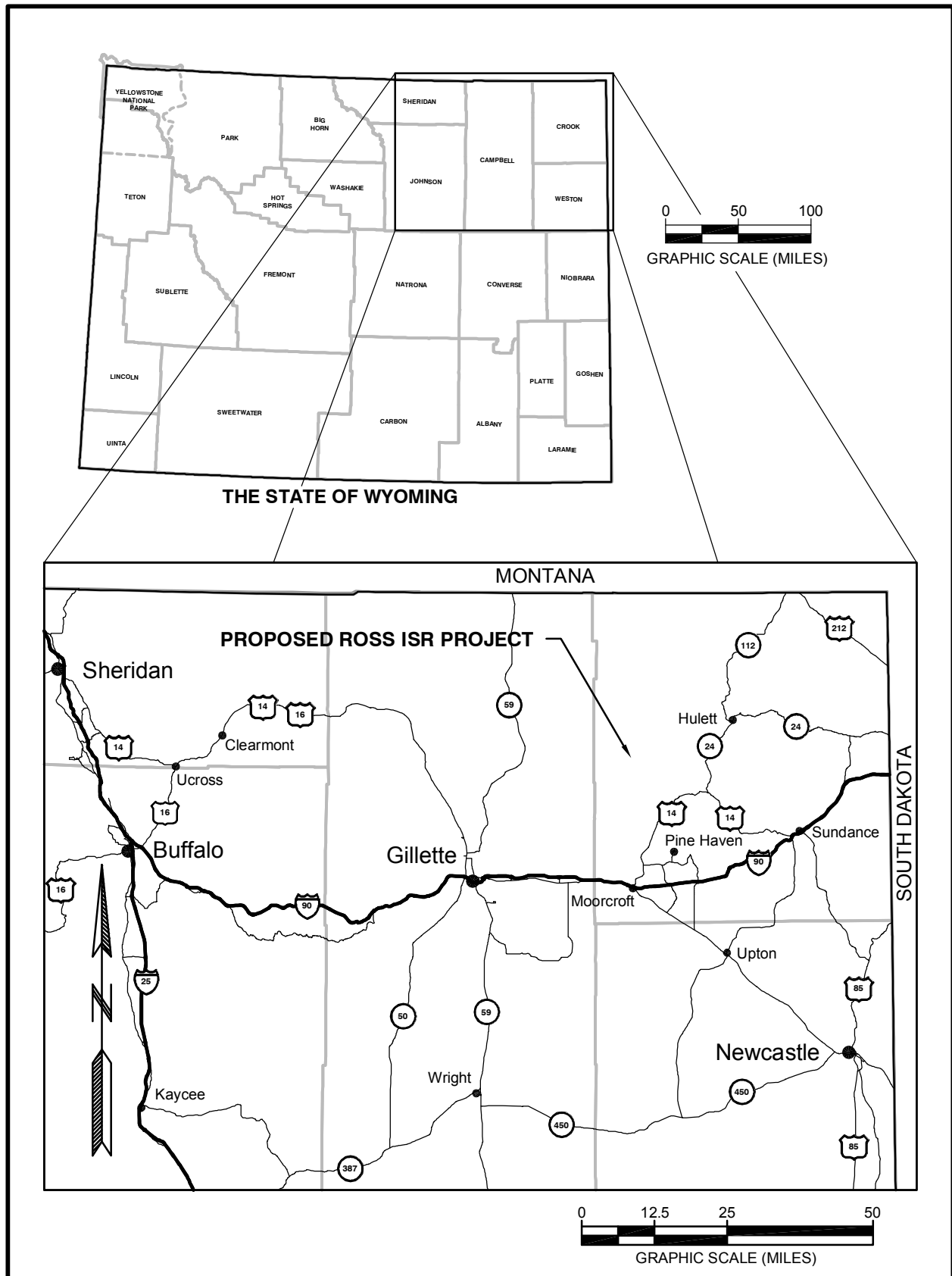


Figure 1. Ross Project General Location Map

## METHODS

### **Background Data Review**

The initial step of the project was to obtain and review all pertinent, available environmental information within the project area. Existing data included U.S. Department of Agriculture-Natural Resources Conservation Service (NRCS) Web Soil Survey interactive mapping (NRCS 2010), U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory mapping (USFWS 2010), and May 2010 aerial photography. All sources of information provided relevant information on the potential occurrence and distribution of wetlands; the information was used to plan the field investigation. Wetland determination sites identified in this initial step were visited during a field investigation to verify if wetland characteristics were present. Findings from these sources have been integrated into the Results section.

### **Field Reconnaissance**

The site-specific field investigation was conducted within the Ross Project on June 22 and 28 and July 8 and 21, 2010 in accordance with the *Interim Regional Supplement to the U.S. Army Corps of Engineer's Wetland Delineation Manual: Great Plains Region* (COE 2008). Twenty-nine wetland determination sites were examined during June 22 and 28 and July 8 and 21, 2010 on-site visits. The locations of sample sites were determined during on-site visits to obtain the most relevant and optimal information possible. Initial assessments at each sample site began with a vegetative cover inventory. The *North American Range Plants Field Guide-Fifth Edition* (Stubbendieck *et al.* 1997) and the *Western Wetland Flora Field Office Guide to Plant Species* (USDA-NRCS 1988) were used to assist in vegetation species identification. Vegetative species indicator status, with respect to wetland or non-wetland, was recorded along with its percent composition within the sample area. The indicator status was obtained using the *National List of Plant Species that Occur In Wetlands: Region 4* (Resource Management Group, Inc. 1994). When possible, soil observation pits were dug to a depth of 20 inches. A Munsell Color Chart (Kollmorgan Corp. 1975) was used to record soil color, texture, and other distinguishing characteristics for each sample site. Wetland

hydrology indicators were assessed. Each sample point was assessed and recorded on a site-specific wetland determination field form.

A Trimble® GeoXH global positioning system (GPS) unit was used to delineate the boundaries of the potential wetland areas. This GPS unit has a purported accuracy to within 1 meter or less. Portions of the boundaries of the larger delineated areas were determined by observing distinctions in vegetation and hydrology, although soils were examined at varying intervals along the boundaries to verify the ocular delineations. Due to the similarities between potential wetland areas, it was not considered necessary to complete wetland determinations forms for all areas. Appendix B contains photos of potential wetland areas.

The shallow, open water type was delineated using recent (May 2010) high quality aerial photography to determine areas with no apparent emergent, floating, or submergent vegetation. Other Waters of the U.S. were determined using U.S. Geological Survey (USGS) quadrangle maps. Drainages (dashed lines adjusted to fit the aerial photography) were delineated as Other Waters if not delineated as a wetland type.

## **RESULTS**

The main hydrologic features within the proposed permit area are the Oshoto Reservoir, the Little Missouri River, and other named and unnamed natural and man-made water features within the permit area. The Ross ISR Project is located in the upper reaches of the Little Missouri River Basin (Hydrologic Unit Code 101102), where stream flow only occurs in response to rainfall or snow melt. Oshoto Reservoir is located in the channel of the Little Missouri River and was constructed in the early to mid 1950's by placing a compacted earth fill embankment across that channel. The other area streams are dominated by ephemeral channels which flow in direct response to snowmelt and precipitation.

The gradient of the main channel of the Little Missouri River within the proposed permit area is relatively shallow and the active channel meanders within an often steep-sided,

wider flood plain. This situation generally causes deposition of smaller sediment particles thereby increasing the likelihood of encountering hydric soils along the Little Missouri River. There were also numerous areas within the tributary channels to the Little Missouri River that appeared to be affected by seeps, and many of these areas have characteristics of wetlands. Wetland determination forms were not completed for each of the potential wetland areas due to similarities in soil types, hydrology, and vegetation.

### **Site-specific Wetland Determination Investigations**

The following section is a detailed discussion of the sites evaluated using wetland determination data forms. Twenty-nine sites were originally sampled for vegetation, soils, and hydrology. Once the data were evaluated, it became apparent that many of the sites were similar, based on soils, hydrology, and vegetation. The data were reassessed and nine sites were selected for detailed discussion because they represented the wetland types found throughout the Ross Project area or were unique sites. All of the remaining 20 sites were associated with areas that were delineated as a potential wetland.

**Site R1** is located at latitude 44.5640° and longitude -104.9522° (Exhibit 1). This site is associated with a small man made stock pond located on an ephemeraally-flowing tributary to the Little Missouri drainage and is within a Fort Collins Loam (6-10% Slope) soil map unit. It appears to be typical of an impoundment situation in that it has a relatively large amount of bare ground (approximately 98 percent) associated with the site. *Equisetum variegatum* dominates the vegetation within the area. Positive indicators of hydrophytic vegetation, hydric soil, and wetland hydrology are associated with the area. This area meets all three diagnostic environmental characteristics of a wetland as defined by the COE (COE 2008) and it appears to be a wetland (Appendix A, Sample Point R1 and Appendix B, Photo 12).

**Site R2** is located at latitude 44.5674° and longitude -104.9520° (Exhibit 1). This site is within a small depression located on an ephemeraally-flowing tributary to the Little Missouri drainage and is within a Fort Collins Loam (6-10% Slope) soil map unit. The

dominant vegetative types include *Marsilea vestita* and *Equisteum Variegatum*. Positive indicators of hydrophytic vegetation, hydric soil, and wetland hydrology are associated with the area. The site may be receiving water from a groundwater source (seep), which helps maintain saturated conditions longer than the site location (higher on the drainage) would indicate. This area meets all three diagnostic environmental characteristics of a wetland as defined by the COE (COE 2008) and it appears to be a wetland (Appendix A, Sample Point R2 and Appendix B, Photo 16).

**Site R3** is located at latitude 44.5716° and longitude -104.9601° facility (Exhibit 1). This site is located on an ephemerally-flowing tributary within is an excavated depression that is associated with a decommissioned uranium processing facility and is within an Absted-Bone Complex (0-3% Slope) soil map unit. *Eleocharis palustris* dominates the area. Positive indicators of hydrophytic vegetation, hydric soil, and wetland hydrology are associated with the area. This area meets all three diagnostic environmental characteristics of a wetland as defined by the COE (COE 2008) and it appears to be a wetland (Appendix A, Sample Point R3 and Appendix B, Photo 23).

**Site R4** is located at latitude 44.5734° and longitude -104.9599°. This site is within a small depression located on an ephemerally-flowing tributary to the Little Missouri drainage and is within an Absted-Bone Complex (0-3% Slope) soil map unit. *Eleocharis palustris* and *Hordeum jubatum* dominate the area. Positive indicators of hydrophytic vegetation, hydric soil, and wetland hydrology were present at the sample point. The site may be receiving water from a groundwater source. This area meets all three diagnostic environmental characteristics of a wetland as defined by the COE (COE 2008) and it appears to be a wetland (Appendix A, Sample Point R4 and Appendix B, Photo 25).

**Site R5** is located at latitude 44.5815° and longitude -104.9503° (Exhibit 1). This site is associated with the main body of the Oshoto Reservoir and is within a Water/Gullied Land soil map unit. *Typha latifolia* and *Scirpus maritimus* dominate the area. *Carex praegracilis*, *C. nebrascensis*, *Eleocharis palustris*, *Potamogeton richardsonii*, *Rumex maritimus*, and *T. angustifolia* were also noted in the area but not within the vegetation

plot. Positive indicators of hydrophytic vegetation, hydric soil, and wetland hydrology were present at the sample point. This area meets all three diagnostic environmental characteristics of a wetland as defined by the COE (COE 2008) and it appears to be a wetland (Appendix A, Sample Point R5 and Appendix B, Photo 04).

**Site R6** is located at latitude 44.5811° and longitude -104.9495° (Exhibit 1). This site is directly below the Oshoto Reservoir and likely receives seepage from the reservoir and also is receiving some water from a groundwater source and is within a Gullied Land soil map unit. *Typha latifolia*, *T. angustifolia*, and *Carex lanuginosa* dominate the area. Positive indicators of hydrophytic vegetation, hydric soil, and wetland hydrology are associated with the area. This area meets all three diagnostic environmental characteristics of a wetland as defined by the COE (COE 2008) and it appears to be a wetland (Appendix A, Sample Point R6 and Appendix B, Photo 07).

**Site R7** is located at latitude 44.5675° and longitude -104.9640° (Exhibit 1). This site is within a depression above a road fill that has restricted flow down the drainage and is within a Bidman-Bone Loams (2-6% Slope) soil map unit. *Sporobolus airoides* and *Hordeum jubatum* dominate the area. *Carex praegracilis*, *C. nebrascensis*, *Sagittaria cuneata*, *Potamogeton nodosus*, and *Phleym pretense* were also noted in the area but not within the vegetation plot. Positive indicators of hydrophytic vegetation, hydric soil, and wetland hydrology are associated with the area. This area meets all three diagnostic environmental characteristics of a wetland as defined by the COE (COE 2008) and it appears to be a wetland (Appendix A, Sample Point R7 and Appendix B, Photo 39).

**Site R8** is located at latitude 44.5723° and longitude -104.9601° (Exhibit 1). This site is associated with a man made oil well production pit and is within an Absted-Bone Complex (0-3% Slope) soil map unit. *Agropyron smithii* and *Hordeum jubatum* dominate the area. Although positive indicators of wetland hydrology are associated with the area, it does not meet all three diagnostic environmental characteristics of a wetland as defined by the COE (COE 2008). It does not appear to be a wetland (Appendix A, Sample Point R8 and Appendix B, Photo 24).

**Site R9** is located at latitude 44.5642° and longitude -104.9522° (Exhibit 1). This site is directly below a small stock pond (Site r1) and is within a Fort Collins Loam (6-10% Slope) soil map unit. *Agropyron smithii* and *Poa pratensis* dominate the area. Positive indicators of hydrophytic vegetation, hydric soil, or wetland hydrology are not associated with the area. This area does not meet any of the three diagnostic environmental characteristics of a wetland as defined by the COE (COE 2008) and it does not appear to be a wetland (Appendix A, Sample Point R9 and Appendix B, Photo 64). This site was evaluated since it represented an area that had the potential to be a wetland (possibly receiving seepage from the stock pond) but did not exhibit classic wetland characteristics.

### **Wetland Delineation Investigations**

Seventy potential wetland areas were delineated during the on-site visits (Table 1). Many of these areas were small (<0.1 acre) depressions that were in close proximity to each other but were distinct depressions separated by upland vegetation. A significant number of these small depression areas appeared to be influenced by groundwater, receiving seepage from the Lance Formation, which outcrops in numerous locations within the project area.

Approximately 65.0 acres of potential jurisdictional Waters of the U.S. were delineated during the on-site visits, of which approximately 30.9 acres (48 %) appeared to be a shallow, open water type. There were approximately 22,130 linear feet of Other Waters of the U.S. within the Ross Project area (Exhibit 1).

## **SUMMARY**

Using criteria defined by the COE for special aquatic sites and/or wetlands, 70 areas (65.0 acres) of potential wetlands were delineated within the Ross Project area. There were approximately 22,130 linear feet of Other Waters of the U.S., as determined from U.S. quadrangle maps.



**Table 1. Potential Wetland Areas within the Ross Project Area**

Area*	Acres	Type	Additional Information
A1	2.64	Reservoir	Man Made - 0.5 Acres of Open Water
A2	39.09	Reservoir	Man Made - 30.4 Acres of Open Water
A3	<0.10	Depression	Associated with Little Missouri River Channel
A4	7.00	Marshy Area Along Channel	Little Missouri River Channel
A5	0.12	Depression	Associated with Little Missouri River Channel
B1	<0.10	Depression	Isolated Pocket in Ephemeral Flow Channel
B2	<0.10	Stock Pond	Man Made (Dike in Channel)
B3	<0.10	Depression	Isolated Pocket in Ephemeral Flow Channel
B4	<0.10	Depression	Isolated Pocket in Ephemeral Flow Channel
B5	<0.10	Depression	Isolated Pocket in Ephemeral Flow Channel
B6	<0.10	Depression	Isolated Pocket in Ephemeral Flow Channel
C1	<0.10	Stock Pond	Man Made (Dike in Channel)
C2	0.16	Stock Pond	Man Made (Dike in Channel)
C3	1.59	Stock Pond	Man Made (Dike in Channel)
C4	1.08	Marshy Area Along Channel	Confined to Channel Bottom
C5	0.07	Ditched Area	Man Made (Excavated)
D1	0.34	Reclaimed Industrial Pond	Man Made (Excavated Depression)
D2	0.26	Reclaimed Industrial Pond	Man Made (Excavated Depression)
E1	NA	Industrial Pond	Man Made (Active Oil Well Production Pit)
F1	<0.10	Depression	Isolated Pocket in Ephemeral Flow Channel
F2	<0.10	Depression	Isolated Pocket in Ephemeral Flow Channel
F3	<0.10	Depression	Isolated Pocket in Ephemeral Flow Channel
F4	<0.10	Depression	Isolated Pocket in Ephemeral Flow Channel
F5	<0.10	Depression	Isolated Pocket in Ephemeral Flow Channel
F6	<0.10	Depression	Isolated Pocket in Ephemeral Flow Channel
F7	<0.10	Depression	Isolated Pocket in Ephemeral Flow Channel
F8	<0.10	Depression	Isolated Pocket in Ephemeral Flow Channel
F9	<0.10	Depression	Isolated Pocket in Ephemeral Flow Channel
F10	<0.10	Depression	Isolated Pocket in Ephemeral Flow Channel
F11	<0.10	Depression	Isolated Pocket in Ephemeral Flow Channel
F12	<0.10	Depression	Isolated Pocket in Ephemeral Flow Channel
F13	<0.10	Depression	Isolated Pocket in Ephemeral Flow Channel
F14	<0.10	Depression	Isolated Pocket in Ephemeral Flow Channel
F15	0.10	Depression	Isolated Pocket in Ephemeral Flow Channel
F16	0.01	Depression	Isolated Pocket in Ephemeral Flow Channel
F17	<0.10	Depression	Isolated Pocket in Ephemeral Flow Channel
F18	<0.10	Depression	Isolated Pocket in Ephemeral Flow Channel
F19	<0.10	Depression	Isolated Pocket in Ephemeral Flow Channel
F20	<0.10	Depression	Isolated Pocket in Ephemeral Flow Channel
F21	<0.10	Depression	Isolated Pocket in Ephemeral Flow Channel
G1	<0.10	Stock Pond	Man Made - Little Missouri River Channel
G2	0.11	Stock Pond	Man Made - Little Missouri River Channel

**Table 1. Potential Wetland Areas within the Ross Project Area (Cont.)**

Area	Acres	Type	Additional Information
G3	<0.10	Depression	Isolated Pocket in Little Missouri River Channel
G4	<0.10	Depression	Isolated Pocket in Little Missouri River Channel
G5	<0.10	Depression	Isolated Pocket in Little Missouri River Channel
G6	0.13	Depression	Isolated Pocket in Little Missouri River Channel
G7	<0.10	Depression	Isolated Pocket in Little Missouri River Channel
G8	<0.10	Depression	Isolated Pocket in Little Missouri River Channel
G9	<0.10	Depression	Isolated Pocket in Little Missouri River Channel
G10	<0.10	Depression	Isolated Pocket in Little Missouri River Channel
G11	0.10	Depression	Isolated Pocket in Little Missouri River Channel
G12	<0.10	Depression	Isolated Pocket in Little Missouri River Channel
G13	0.73	Depression	Isolated Pocket in Little Missouri River Channel
H1	2.22	Stock Pond	Man Made (Dike in Channel)
H2	2.74	Stock Pond	Man Made (Dike in Channel)
H3	0.59	Ponded/Marshy Area	Man Made (Dike in Channel)
H4	2.06	Ponded/Marshy Area	Man Made (Dike in Channel)
I1	0.19	Marshy Area Along Channel	Extensive Area Along Channel Bottom
I2	0.18	Stock Pond	Man Made (Dike in Channel)
I3	<0.10	Depression	Isolated Pocket in Ephemeral Flow Channel
I4	<0.10	Depression	Isolated Pocket in Ephemeral Flow Channel
I5	<0.10	Depression	Isolated Pocket in Ephemeral Flow Channel
J1	2.42	Marshy Area Along Channel	Extensive Area Along Channel Bottom
K1	<0.10	Depression	Isolated Pocket in Ephemeral Flow Channel
K2	<0.10	Depression	Isolated Pocket in Ephemeral Flow Channel
K3	<0.10	Depression	Isolated Pocket in Ephemeral Flow Channel
K4	<0.10	Depression	Isolated Pocket in Ephemeral Flow Channel
K5	<0.10	Depression	Isolated Pocket in Ephemeral Flow Channel
K6	<0.10	Depression	Isolated Pocket in Ephemeral Flow Channel
L1	0.04	Stock Pond	Man Made (Dike in Ephemeral Flow Channel)
M1	0.31	Stock Pond	Man Made (Dike in Ephemeral Flow Channel)
<b>Total</b>	<b>65.00</b>	---	<b>30.9 Acres of Open Water</b>

\* See Exhibit 1 for Location of Areas

## REFERENCES

- U.S. Army Corps of Engineers (COE). 2008. Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region. ERDC/EL TR-08-12.
- Kollmorgen Corp. 1975. Munsell Color Chart.
- U.S. Department of Agriculture-Natural Resource Conservation Service (NRCS). 1988. *Western Wetland Flora Field Office Guide to Plant Species*. Sacramento, CA.
- \_\_\_\_\_. 2010. Web Soil Survey Interactive Map. <http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx>.
- Resource Management Group, Inc. 1994. *National List of Plant Species That Occur in Wetlands. Region 4*. B.J. Sabine, Editor. Grand Haven, MI.
- Stubbendieck, J., K.L. Hatch, B.P. Jansen, C.H. Butterfield. 1997. *North American Range Plants Fifth Edition*. University of Nebraska Press Lincoln.
- U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory Website. 2010. <http://www.fws.gov/nwil/>.

# **APPENDIX A**

## **Wetland Determination Data Forms**

# WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Ross City/County: Crook Sampling Date: 6/22/10  
 Applicant/Owner: Strata/Berger State: WY Sampling Point: R1  
 Investigator(s): J. Berry Section, Township, Range: NWSE 19 T53N, R67W  
 Landform (hillslope, terrace, etc.): Drainage Local relief (concave, convex, none): Concave Slope (%):         
 Subregion (LRR): LRRG Lat: 44.5811 Long: -104.9495 Datum: WGS84  
 Soil Map Unit Name: Fort Collins Loam 6-10% slopes NWI classification: None

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 <u>+</u> No <u>      </u>	Is the Sampled Area within a Wetland? Yes <u>+</u> No <u>      </u>
Hydric Soil Present? Yes <u>+</u> No <u>      </u>	
Wetland Hydrology Present? Yes <u>+</u> No <u>      </u>	
Remarks: Upper end of stock pond in drainage (impounded)	

## VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>      </u> )	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): <u>0</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>0</u> (A/B)
1. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
2. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
3. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
4. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
<u>0</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>      </u> )				<b>Prevalence Index worksheet:</b> Total % Cover of: <u>      </u> Multiply by: <u>      </u> OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>1</u> x 2 = <u>2</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>1</u> (A) <u>2</u> (B)  Prevalence Index = B/A = <u>2</u>
1. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
2. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
3. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
4. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
<u>0</u> = Total Cover				
Herb Stratum (Plot size: <u>60' x 60'</u> )				<b>Hydrophytic Vegetation Indicators:</b> <u>—</u> Dominance Test is >50% <u>+</u> Prevalence Index is ≤3.0 <sup>1</sup> <u>—</u> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <u>—</u> 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>Equisetum variegatum</u>	<u>100</u>	<u>Yes</u>	<u>FACW</u>	
2. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
3. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
4. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
5. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
6. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
7. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
8. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
9. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
<u>100</u> = Total Cover				
Woody Vine Stratum (Plot size: <u>      </u> )				<b>Hydrophytic Vegetation Present?</b> Yes <u>+</u> No <u>      </u>
1. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
2. <u>      </u>	<u>0</u>	<u>      </u>	<u>      </u>	
<u>      </u> = Total Cover				
% Bare Ground in Herb Stratum <u>98</u>				
Remarks: No veg around most (see herb stratum above) No FAC – neutral done				

# SOIL

Sampling Point: R1

## 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>		
0-6	10YR 3/4	50	10YR 4/1	50	D	PL	SCL	
6-12+	10YR 4/3	60	10YR 4/6	40	C	PL	L	

<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 checked="" type="checkbox"/> Stratified Layers (A5) (LRR F) | <input checked="" type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)              | <input checked="" 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)      | (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)
  - ☐ 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 Soil Present? Yes + No \_\_\_\_\_

Remarks:

# HYDROLOGY

## Wetland Hydrology Indicators:

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

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

### Secondary Indicators (minimum of two required)

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

### Field Observations:

Surface Water Present? Yes + No \_\_\_\_\_ Depth (inches): 6-12"  
Water Table Present? Yes \_\_\_\_\_ No + Depth (inches): \_\_\_\_\_  
Saturation Present? Yes + No \_\_\_\_\_ Depth (inches): 0-12"  
(includes capillary fringe)

Wetland Hydrology Present? Yes + No \_\_\_\_\_

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

Remarks: Standing water at lower end of impounded stock pond.

# WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Ross City/County: Crook Sampling Date: 6/22/10  
 Applicant/Owner: Strata/Strong State: WY Sampling Point: R2  
 Investigator(s): J. Berry Section, Township, Range: NWSE 19 T53N, R67W  
 Landform (hillslope, terrace, etc.): Drainage Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): LRRG Lat: 44.5674 Long: -104.9520 Datum: WGS84  
 Soil Map Unit Name: Fort Collins Loam 6-10% slopes NWI classification: None

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 <u>+</u> No _____	Is the Sampled Area within a Wetland? Yes <u>+</u> No _____
Hydric Soil Present? Yes <u>+</u> No _____	
Wetland Hydrology Present? Yes <u>+</u> No _____	
Remarks: Small depression in drainage Soil pit done in saturated portion on area	

## VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): <u>2</u> (A)  Total Number of Dominant Species Across All Strata: <u>2</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species <u>2</u> x 1 = <u>2</u> FACW species <u>2</u> x 2 = <u>4</u> FAC species <u>1</u> x 3 = <u>3</u> FACU species <u>1</u> x 4 = <u>4</u> UPL species _____ x 5 = _____ Column Totals: <u>6</u> (A) <u>13</u> (B)  Prevalence Index = B/A = <u>2.17</u>
<u>Sapling/Shrub Stratum</u> (Plot size: _____)	_____	_____	_____	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	<b>Hydrophytic Vegetation Indicators:</b> + Dominance Test is >50% + Prevalence Index is ≤3.0 <sup>1</sup> — 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.
5. _____	_____	_____	_____	
_____ = Total Cover				
<u>Herb Stratum</u> (Plot size: <u>20' x 60'</u> )	_____	_____	_____	
1. <u>Marsilea vestita</u>	<u>40</u>	<u>Yes</u>	<u>OBL</u>	
2. <u>Equisetum variegatum</u>	<u>30</u>	<u>Yes</u>	<u>FACW</u>	<b>Hydrophytic Vegetation Present?</b> Yes <u>+</u> No _____
3. <u>Eleocharis palustris</u>	<u>10</u>	<u>No</u>	<u>OBL</u>	
4. <u>Rumex maritimus</u>	<u>10</u>	<u>No</u>	<u>FACW+</u>	
5. <u>Kochia scoparia</u>	<u>5</u>	<u>No</u>	<u>FAC</u>	
6. <u>Taraxacum officinale</u>	<u>5</u>	<u>No</u>	<u>FACU</u>	
7. _____	_____	_____	_____	<b>Hydrophytic Vegetation Present?</b> Yes <u>+</u> No _____
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
_____ = Total Cover				
<u>Woody Vine Stratum</u> (Plot size: _____)	_____	_____	_____	<b>Hydrophytic Vegetation Present?</b> Yes <u>+</u> No _____
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>0</u>	_____	_____	_____	
Remarks: FAC - Neutral				

# SOIL

Sampling Point: R2

**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>		
0-12+	4/10Y	80	10YR 5/6	20	C	PL	SCL	

<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)      | (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)
  - ☐ 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 Soil Present? Yes + No \_\_\_\_\_**

Remarks:

# HYDROLOGY

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (minimum of two required)

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

**Field Observations:**

Surface Water Present? Yes + No \_\_\_\_\_ Depth (inches): 6"  
Water Table Present? Yes \_\_\_\_\_ No + Depth (inches): \_\_\_\_\_  
Saturation Present? Yes + No \_\_\_\_\_ Depth (inches): 0-2"  
(includes capillary fringe)

**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: Ross City/County: Crook Sampling Date: 6/28/10  
 Applicant/Owner: Strata/State of Wyoming State: WY Sampling Point: R3  
 Investigator(s): J. Berry Section, Township, Range: SWSW 18 T53N, R67W  
 Landform (hillslope, terrace, etc.): Excavated Pond Local relief (concave, convex, none): Concave Slope (%):         
 Subregion (LRR): LRRG Lat: 44.5716 Long: -104.9601 Datum: WGS84  
 Soil Map Unit Name: Absted-Bone Complex 0-3% slopes NWI classification: PUBFx

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 <u>+</u> No <u>      </u>	Is the Sampled Area within a Wetland? Yes <u>+</u> No <u>      </u>
Hydric Soil Present? Yes <u>+</u> No <u>      </u>	
Wetland Hydrology Present? Yes <u>+</u> No <u>      </u>	
Remarks: Excavated pond	

## VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>      </u> )	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC (excluding 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</u> (A/B)
1. <u>      </u>				
2. <u>      </u>				
3. <u>      </u>				
4. <u>      </u>				
<u>0</u> = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of: <u>      </u> Multiply by: <u>      </u> OBL species <u>2</u> x 1 = <u>2</u> FACW species <u>2</u> x 2 = <u>4</u> FAC species <u>      </u> x 3 = <u>      </u> FACU species <u>      </u> x 4 = <u>      </u> UPL species <u>      </u> x 5 = <u>      </u> Column Totals: <u>4</u> (A) <u>6</u> (B)  Prevalence Index = B/A = <u>1.50</u>
<b>Sapling/Shrub Stratum</b> (Plot size: <u>      </u> )				
1. <u>      </u>				
2. <u>      </u>				
3. <u>      </u>				
4. <u>      </u>				
5. <u>      </u>				
<u>0</u> = Total Cover				<b>Hydrophytic Vegetation Indicators:</b> + Dominance Test is >50% + Prevalence Index is ≤3.0 <sup>1</sup> ___ 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.
<b>Herb Stratum</b> (Plot size: <u>100' x 100'</u> )				
1. <u>Eleocharis palustris</u>	<u>80</u>	<u>Yes</u>	<u>OBL</u>	
2. <u>Alopecurus carolinianus</u>	<u>10</u>	<u>No</u>	<u>OBL</u>	
3. <u>Hordeum jubatum</u>	<u>8</u>	<u>No</u>	<u>FACW</u>	
4. <u>Rumex maritimus</u>	<u>2</u>	<u>No</u>	<u>FACW+</u>	
5. <u>      </u>				
6. <u>      </u>				
7. <u>      </u>				
8. <u>      </u>				
9. <u>      </u>				
10. <u>      </u>				
<u>100</u> = Total Cover				<b>Hydrophytic Vegetation Present?</b> Yes <u>+</u> No <u>      </u>
<b>Woody Vine Stratum</b> (Plot size: <u>      </u> )				
1. <u>      </u>				
2. <u>      </u>				
<u>0</u> = Total Cover				
% Bare Ground in Herb Stratum <u>0</u>				
Remarks:				

# SOIL

Sampling Point: R3

## 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>		
0-12+	10YR 5/2	95	S/SG	5	D	PL	L	

<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)
  - ☐ 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 Soil Present? Yes + No \_\_\_\_\_

Remarks:

# HYDROLOGY

## Wetland Hydrology Indicators:

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

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

### Secondary Indicators (minimum of two required)

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

### Field Observations:

Surface Water Present? Yes + No \_\_\_\_\_ Depth (inches): 12+  
Water Table Present? Yes \_\_\_\_\_ No + Depth (inches): \_\_\_\_\_  
Saturation Present? Yes + No \_\_\_\_\_ Depth (inches): 8+  
(includes capillary fringe)

Wetland Hydrology Present? Yes + No \_\_\_\_\_

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

Remarks: Excavated pond

Project/Site: Ross City/County: Crook Sampling Date: 6/28/10  
Applicant/Owner: Strata/State of Wyoming State: WY Sampling Point: R4  
Investigator(s): J. Berry Section, Township, Range: SWSW 18 T53N, R67W  
Landform (hillslope, terrace, etc.): Drainage Local relief (concave, convex, none): Concave Slope (%): \_\_\_\_\_  
Subregion (LRR): LRRG Lat: 44.5734 Long: -104.9599 Datum: WGS84  
Soil Map Unit Name: Absted – Bore Complex 0-3% slopes NWI classification: None

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.)

Hydrophytic Vegetation Present?	Yes <u>  +  </u> No <u>      </u>	<b>Is the Sampled Area within a Wetland?</b>	<b>Yes <u>  +  </u> No <u>      </u></b>
Hydric Soil Present?	Yes <u>  +  </u> No <u>      </u>		
Wetland Hydrology Present?	Yes <u>  +  </u> No <u>      </u>		
Remarks: Depression in drainage			

Tree Stratum (Plot size: _____)		Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1. _____	_____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-):	_____ 2 _____ (A)
2. _____	_____	_____	_____	_____	Total Number of Dominant Species Across All Strata:	_____ 2 _____ (B)
3. _____	_____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC:	_____ 100 _____ (A/B)
4. _____	_____	_____	_____	_____	<b>Prevalence Index worksheet:</b> <div> <div>Total % Cover of:</div> <div>Multiply by:</div> <div>OBL species _____ 1 _____ x 1 = _____ 1 _____</div> <div>FACW species _____ 2 _____ x 2 = _____ 4 _____</div> <div>FAC species _____ x 3 = _____</div> <div>FACU species _____ x 4 = _____</div> <div>UPL species _____ x 5 = _____</div> <div>Column Totals: _____ 3 _____ (A) _____ 5 _____ (B)</div> <div>Prevalence Index = B/A = _____ 1.67 _____</div> </div>	
<b>Sapling/Shrub Stratum</b> (Plot size: _____)						
1. _____	_____	_____	_____	_____		
2. _____	_____	_____	_____	_____		
3. _____	_____	_____	_____	_____		
4. _____	_____	_____	_____	_____	<b>Hydrophytic Vegetation Indicators:</b> <div> <div>+ Dominance Test is &gt;50%</div> <div>+ Prevalence Index is <math>\leq 3.0^1</math></div> <div>- Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)</div> <div>- Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)</div> </div>	
5. _____	_____	_____	_____	_____		
<b>Herb Stratum</b> (Plot size: 5' x 10' _____)						
1. <i>Eleocharis palustris</i>	75	Yes	OBL	_____		
2. <i>Hordeum jubatum</i>	20	Yes	FACW	_____		
3. <i>Rumex maritimus</i>	5	No	FACW+	_____	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
4. _____	_____	_____	_____	_____		
5. _____	_____	_____	_____	_____		
6. _____	_____	_____	_____	_____		
7. _____	_____	_____	_____	_____		
8. _____	_____	_____	_____	_____	<b>Hydrophytic Vegetation Present?</b> Yes <u>  +  </u> No <u>      </u>	
9. _____	_____	_____	_____	_____		
10. _____	_____	_____	_____	_____		
<b>Woody Vine Stratum</b> (Plot size: _____)						
1. _____	_____	_____	_____	_____		
2. _____	_____	_____	_____	_____	<b>Hydrophytic Vegetation Present?</b> Yes <u>  +  </u> No <u>      </u>	
% Bare Ground in Herb Stratum <u>  0  </u>						
_____ = Total Cover						
_____ = Total Cover						
_____ = Total Cover						
Remarks:						

## SOIL

Sampling Point: R4**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>		
0-3	10YR 3/2	80	10YR 4/6	20	C	PL	LL	
3-4	10YR 3/2	100	10YR 4/6	10	C	PL	LL	
4-12+	10YR 4/3	90						

<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 checked="" 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 checked="" 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)      | (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)
- ☐ 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 Soil Present? Yes + No \_\_\_\_\_

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (minimum of two required)

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

**Field Observations:**Surface Water Present? Yes + No \_\_\_\_\_ Depth (inches): 0-8

Water Table Present? Yes \_\_\_\_\_ No \_\_\_\_\_ Depth (inches): \_\_\_\_\_

Saturation Present? Yes \_\_\_\_\_ No \_\_\_\_\_ Depth (inches): \_\_\_\_\_  
(includes capillary fringe)Wetland Hydrology Present? Yes + No \_\_\_\_\_

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

Remarks: Depression in drainage

# WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Ross City/County: Crook Sampling Date: 6/28/10  
 Applicant/Owner: Strata/Berger State: WY Sampling Point: R5  
 Investigator(s): J. Berry Section, Township, Range: SWNE 18 T53N, R67W  
 Landform (hillslope, terrace, etc.): Drainage Local relief (concave, convex, none): Concave Slope (%):         
 Subregion (LRR): LRRG Lat: 44.5815 Long: -104.9502 Datum: WGS84  
 Soil Map Unit Name: Water/Gullied Land NWI classification: PABFh

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 <u>+</u> No <u>      </u>	Is the Sampled Area within a Wetland? Yes <u>+</u> No <u>      </u>
Hydric Soil Present? Yes <u>+</u> No <u>      </u>	
Wetland Hydrology Present? Yes <u>+</u> No <u>      </u>	
Remarks: Relatively large impounded reservoir	

## VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>      </u> )	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): <u>2</u> (A)  Total Number of Dominant Species Across All Strata: <u>2</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
1. <u>      </u>				
2. <u>      </u>				
3. <u>      </u>				
4. <u>      </u>				
			<u>0</u> = Total Cover	<b>Prevalence Index worksheet:</b> Total % Cover of: <u>      </u> Multiply by: <u>      </u> OBL species <u>3</u> x 1 = <u>3</u> FACW species <u>      </u> x 2 = <u>      </u> FAC species <u>      </u> x 3 = <u>      </u> FACU species <u>      </u> x 4 = <u>      </u> UPL species <u>      </u> x 5 = <u>      </u> Column Totals: <u>3</u> (A) <u>3</u> (B)  Prevalence Index = B/A = <u>1.00</u>
Sapling/Shrub Stratum (Plot size: <u>      </u> )				
1. <u>      </u>				
2. <u>      </u>				
3. <u>      </u>				
			<u>0</u> = Total Cover	
Herb Stratum (Plot size: <u>10' x 100'</u> )				<b>Hydrophytic Vegetation Indicators:</b> + Dominance Test is >50% + Prevalence Index is ≤3.0 <sup>1</sup> — 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>Typha latifolia</u>	<u>70</u>	<u>Yes</u>	<u>OBL</u>	
2. <u>Scirpus maritimus</u>	<u>20</u>	<u>Yes</u>	<u>OBL</u>	
3. <u>Typha angustifolia</u>	<u>10</u>	<u>No</u>	<u>OBL</u>	
4. <u>Other Species Present in Area</u>				
5. <u>Rumex maritimus</u>				
6. <u>Eleocharis palustris</u>				
7. <u>Potamogeton richardsonii</u>				
8. <u>Carex nebrascensis</u>				
9. <u>Eleocharis palustris</u>				
10. <u>Carex praegracilis</u>				
			<u>100</u> = Total Cover	
Woody Vine Stratum (Plot size: <u>      </u> )				<b>Hydrophytic Vegetation Present?</b> Yes <u>+</u> No <u>      </u>
1. <u>      </u>				
2. <u>      </u>				
% Bare Ground in Herb Stratum <u>0</u>			<u>0</u> = Total Cover	
Remarks: Relatively large reservoir with many different plant species along shoreline.				

# SOIL

Sampling Point: R5

## 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)      | (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)
- ☐ 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 Soil Present? Yes + No  

Remarks:

# HYDROLOGY

## Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

### Field Observations:

Surface Water Present? Yes + No   Depth (inches): 24+

Water Table Present? Yes + No   Depth (inches): \_\_\_\_\_

Saturation Present? Yes + No   Depth (inches): \_\_\_\_\_

(includes capillary fringe)

Wetland Hydrology Present? Yes + No  

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

Remarks: Excavated pond

# WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Ross City/County: Crook Sampling Date: 6/28/10  
 Applicant/Owner: Strata/Berger State: WY Sampling Point: R6  
 Investigator(s): J. Berry Section, Township, Range: SWNE 18 T53N, R67W  
 Landform (hillslope, terrace, etc.): Drainage Local relief (concave, convex, none): Concave Slope (%):         
 Subregion (LRR): LRRG Lat: 44.5811 Long: -104.9495 Datum: WGS84  
 Soil Map Unit Name: Gullied Land NWI classification: PABFh

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 <u>+</u> No <u>      </u>	Is the Sampled Area within a Wetland? Yes <u>+</u> No <u>      </u>
Hydric Soil Present? Yes <u>+</u> No <u>      </u>	
Wetland Hydrology Present? Yes <u>+</u> No <u>      </u>	
Remarks: Below Oshoto Reservoir	

## VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>      </u> )	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC (excluding 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</u> (A/B)
1. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
2. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
3. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
4. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
<u>0</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>      </u> )				<b>Prevalence Index worksheet:</b> Total % Cover of: <u>      </u> Multiply by: <u>      </u> OBL species <u>3</u> x 1 = <u>3</u> FACW species <u>1</u> x 2 = <u>2</u> FAC species <u>1</u> x 3 = <u>3</u> FACU species <u>      </u> x 4 = <u>      </u> UPL species <u>      </u> x 5 = <u>      </u> Column Totals: <u>5</u> (A) <u>8</u> (B)  Prevalence Index = B/A = <u>1.60</u>
1. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
2. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
3. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
4. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
<u>0</u> = Total Cover				
Herb Stratum (Plot size: <u>20' x 20'</u> )				<b>Hydrophytic Vegetation Indicators:</b> + Dominance Test is >50% + Prevalence Index is ≤3.0 <sup>1</sup> — 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>Typha latifolia</u>	<u>40</u>	<u>Yes</u>	<u>OBL</u>	
2. <u>Typha angustifolia</u>	<u>30</u>	<u>Yes</u>	<u>OBL</u>	
3. <u>Carex lanuginosa</u>	<u>20</u>	<u>Yes</u>	<u>OBL</u>	
4. <u>Sporobolus airoides</u>	<u>5</u>	<u>No</u>	<u>FAC</u>	
5. <u>Hordeum jubatum</u>	<u>5</u>	<u>No</u>	<u>FACW</u>	
6. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
7. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
8. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
9. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
<u>100</u> = Total Cover				
Woody Vine Stratum (Plot size: <u>      </u> )				<b>Hydrophytic Vegetation Present?</b> Yes <u>+</u> No <u>      </u>
1. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
2. <u>      </u>	<u>      </u>	<u>      </u>	<u>      </u>	
<u>0</u> = Total Cover				
% Bare Ground in Herb Stratum <u>0</u>				
Remarks:				

# SOIL

Sampling Point: R6

## 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>		
0-6	5/10G	80	2.5/5BG	20	D	M	L	
6-12+	10YR 4/2	100						

<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 checked="" 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 checked="" 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)	(MLRA 72 & 73 of LRR H)

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

<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)
<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)
<input type="checkbox"/> Dark Surface (S7) (LRR G)
<input type="checkbox"/> High Plains Depressions (F16)
(LRR H outside of MLRA 72 & 73)
<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> 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 Soil Present? Yes + No \_\_\_\_\_

Remarks:

# HYDROLOGY

## Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input type="checkbox"/> Drainage Patterns (B10)
<u>NA</u> Oxidized Rhizospheres on Living Roots (C3)
(where tilled)
<input type="checkbox"/> Crayfish Burrows (C8)
<input checked="" type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Geomorphic Position (D2)
<u>NA</u> FAC-Neutral Test (D5)
<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)

### Field Observations:

Surface Water Present? Yes + No \_\_\_\_\_ Depth (inches): 0-12  
Water Table Present? Yes \_\_\_\_\_ No - Depth (inches): \_\_\_\_\_  
Saturation Present? Yes + No \_\_\_\_\_ Depth (inches): 0-12+  
(includes capillary fringe)

Wetland Hydrology Present? Yes + No \_\_\_\_\_

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

Remarks: Excavated pond



# WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Ross City/County: Crook Sampling Date: 7/8/10  
 Applicant/Owner: Strata/Swanda State: WY Sampling Point: R7  
 Investigator(s): J. Berry Section, Township, Range: NENE 24 T53N, R68W  
 Landform (hillslope, terrace, etc.): Drainage Local relief (concave, convex, none): Concave Slope (%):           
 Subregion (LRR): LRRG Lat: 44.5675 Long: -104.9640 Datum: WGS84  
 Soil Map Unit Name: Bidman – Bone Loams 2-6% slopes NWI classification: None

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 <u>+</u> No <u>        </u>	Is the Sampled Area within a Wetland? Yes <u>+</u> No <u>        </u>
Hydric Soil Present? Yes <u>+</u> No <u>        </u>	
Wetland Hydrology Present? Yes <u>+</u> No <u>        </u>	
Remarks: Drainage - depression caused by county road fill	

## VEGETATION – Use scientific names of plants.

<b>Tree Stratum</b> (Plot size: <u>40' x 120'</u> ) 1. <u>Salix amygdoloides</u> <u>100</u> <u>Yes</u> <u>FACW</u> 2. <u>                                </u> <u>        </u> <u>        </u> <u>        </u> 3. <u>                                </u> <u>        </u> <u>        </u> <u>        </u> 4. <u>                                </u> <u>        </u> <u>        </u> <u>        </u> <u>100</u> = Total Cover <b>Sapling/Shrub Stratum</b> (Plot size: <u>                        </u> ) 1. <u>                                </u> <u>        </u> <u>        </u> <u>        </u> 2. <u>                                </u> <u>        </u> <u>        </u> <u>        </u> 3. <u>                                </u> <u>        </u> <u>        </u> <u>        </u> 4. <u>                                </u> <u>        </u> <u>        </u> <u>        </u> 5. <u>                                </u> <u>        </u> <u>        </u> <u>        </u> <u>0</u> = Total Cover <b>Herb Stratum</b> (Plot size: <u>40' x 120'</u> ) 1. <u>Sporobolus airoides</u> <u>50</u> <u>Yes</u> <u>FAC</u> 2. <u>Hordeum jubatum</u> <u>20</u> <u>Yes</u> <u>FACW</u> 3. <u>Poa pratensis</u> <u>15</u> <u>No</u> <u>FACU</u> 4. <u>Rumex maritimus</u> <u>15</u> <u>No</u> <u>FACW</u> 5. <u>Other species in area (nearby inundated area)</u> <u>        </u> <u>        </u> <u>        </u> 6. <u>Sagittaria cuneata</u> <u>        </u> <u>        </u> <u>        </u> 7. <u>Carex praegracilis</u> <u>        </u> <u>        </u> <u>        </u> 8. <u>Potamogeton nodosus</u> <u>        </u> <u>        </u> <u>        </u> 9. <u>Carex nebrascensis</u> <u>        </u> <u>        </u> <u>        </u> 10. <u>Phleym pratense</u> <u>        </u> <u>        </u> <u>        </u> <u>100</u> = Total Cover <b>Woody Vine Stratum</b> (Plot size: <u>                        </u> ) 1. <u>                                </u> <u>        </u> <u>        </u> <u>        </u> 2. <u>                                </u> <u>        </u> <u>        </u> <u>        </u> <u>0</u> = Total Cover % Bare Ground in Herb Stratum <u>30</u>	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC (excluding 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</u> (A/B) <b>Prevalence Index worksheet:</b> Total % Cover of: <u>        </u> Multiply by: <u>        </u> OBL species <u>        </u> x 1 = <u>        </u> FACW species <u>3</u> x 2 = <u>6</u> FAC species <u>1</u> x 3 = <u>3</u> FACU species <u>1</u> x 4 = <u>4</u> UPL species <u>        </u> x 5 = <u>        </u> Column Totals: <u>5</u> (A) <u>13</u> (B) Prevalence Index = B/A = <u>2.6</u> <b>Hydrophytic Vegetation Indicators:</b> <u>+</u> Dominance Test is >50% <u>+</u> Prevalence Index is ≤3.0 <sup>1</sup> <u>—</u> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <u>—</u> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. <b>Hydrophytic Vegetation Present?</b> Yes <u>+</u> No <u>        </u>
Remarks:	

# SOIL

Sampling Point: R7

## 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>		
0-6	10YR 2/1	100					SCL	
6-12+	10YR 4/1	70	10YR 4/2	50	C	M	Sand	

<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 checked="" type="checkbox"/> Sandy Gleyed Matrix (S4)
<input checked="" 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 checked="" 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"/> 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)	(MLRA 72 & 73 of LRR H)

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

<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)
<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)
<input type="checkbox"/> Dark Surface (S7) (LRR G)
<input type="checkbox"/> High Plains Depressions (F16)
(LRR H outside of MLRA 72 & 73)
<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> 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 Soil Present? Yes ☒ No ☐

Remarks:

# HYDROLOGY

## Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input type="checkbox"/> Drainage Patterns (B10)
<input checked="" type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)
(where tilled)
<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> FAC-Neutral Test (D5)
<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? Yes ☒ No ☐ Depth (inches): \_\_\_\_\_  
(includes capillary fringe)

Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks: Depression in drainage

Project/Site: Ross City/County: Crook Sampling Date: 6/28/10  
Applicant/Owner: Strata/State of Wyoming State: WY Sampling Point: R8  
Investigator(s): J. Berry Section, Township, Range: SWSW 18 T53N, R67W  
Landform (hillslope, terrace, etc.): Diked Pond (built up) Local relief (concave, convex, none): Concave Slope (%):           
Subregion (LRR): LRRG Lat: 44.5723 Long: -104.9601 Datum: WGS84  
Soil Map Unit Name: Absted – Bone Complex 0-3% Slopes NWI classification: None

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.)

Hydrophytic Vegetation Present?	Yes <u>      </u>	No <u>  +  </u>	<b>Is the Sampled Area within a Wetland?</b>	<b>Yes <u>      </u> No <u>  +  </u></b>
Hydric Soil Present?	Yes <u>  ?  </u>	No <u>  ?  </u>		
Wetland Hydrology Present?	Yes <u>  +  </u>	No <u>      </u>		
<b>Remarks:</b> Steep sided retention pond – oil from nearby well on surface and has crusted top layer above waterline. Very little vegetation growing at waterline.				

Tree Stratum (Plot size: 40' x 120')		Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1.					Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-):	0 (A)
2.						
3.					Total Number of Dominant Species Across All Strata:	1 (B)
4.						
		0 = Total Cover			Percent of Dominant Species That Are OBL, FACW, or FAC:	0 (A/B)
Sapling/Shrub Stratum (Plot size: )					Prevalence Index worksheet:	
1.					Total % Cover of:	Multiply by:
2.					OBL species	x 1 =
3.					FACW species	x 2 =
4.					FAC species	x 3 =
5.					FACU species	x 4 = 8
		0 = Total Cover			UPL species	x 5 =
Herb Stratum (Plot size: 40' x 120')					Column Totals:	2 (A) 8 (B)
1.	<i>Agropyron smithii</i>	80%	Yes	FACU	Prevalence Index = B/A = 4	
2.	<i>Bromus japonicus</i>	20%	Yes	FACU	Hydrophytic Vegetation Indicators:	
3.					— Dominance Test is >50%	
4.					— Prevalence Index is ≤3.0 <sup>1</sup>	
5.					— Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)	
6.					— Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
7.					1Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
8.					Hydrophytic Vegetation Present? Yes No +	
9.						
10.						
		100 = Total Cover				
Woody Vine Stratum (Plot size: )						
1.						
2.						
% Bare Ground in Herb Stratum 98		0 = Total Cover				
Remarks:						

## SOIL

Sampling Point: R8

[illegible]

## HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (minimum of two required)	
<u>+</u> Surface Water (A1)	<u>—</u> Salt Crust (B11)	<u>—</u> Surface Soil Cracks (B6)	
<u>—</u> High Water Table (A2)	<u>—</u> Aquatic Invertebrates (B13)	<u>—</u> Sparsely Vegetated Concave Surface (B8)	
<u>ND</u> Saturation (A3)	<u>—</u> Hydrogen Sulfide Odor (C1)	<u>—</u> Drainage Patterns (B10)	
<u>—</u> Water Marks (B1)	<u>—</u> Dry-Season Water Table (C2)	<u>NA</u> Oxidized Rhizospheres on Living Roots (C3)	
<u>—</u> Sediment Deposits (B2)	<u>—</u> Oxidized Rhizospheres on Living Roots (C3)	<b>(where tilled)</b>	
<u>—</u> Drift Deposits (B3)	<b>(where not tilled)</b>	<u>—</u> Crayfish Burrows (C8)	
<u>—</u> Algal Mat or Crust (B4)	<u>NA</u> Presence of Reduced Iron (C4)	<u>+</u> Saturation Visible on Aerial Imagery (C9)	
<u>—</u> Iron Deposits (B5)	<u>—</u> Thin Muck Surface (C7)	<u>—</u> Geomorphic Position (D2)	
<u>+</u> Inundation Visible on Aerial Imagery (B7)	<u>—</u> Other (Explain in Remarks)	<u>NA</u> FAC-Neutral Test (D5)	
<u>—</u> Water-Stained Leaves (B9)		<u>—</u> Frost-Heave Hummocks (D7) <b>(LRR F)</b>	
<b>Field Observations:</b>		<b>Wetland Hydrology Present? Yes <u>+</u> No <u>—</u></b>	
Surface Water Present? Yes <u>+</u> No <u>—</u> Depth (inches): <u>24+</u>			
Water Table Present? Yes <u>—</u> No <u>+</u> Depth (inches): <u>          </u>			
Saturation Present? Yes <u>ND</u> No <u>—</u> Depth (inches): <u>          </u> (includes capillary fringe)			
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks: Soil saturation not determined since soil pit not dug.			

Project/Site: Ross City/County: Crook Sampling Date: 6/22/10  
Applicant/Owner: Strata/Berger State: WY Sampling Point: R9  
Investigator(s): J. Berry Section, Township, Range: NWSE 19 T53N, R67W  
Landform (hillslope, terrace, etc.): Drainage Local relief (concave, convex, none): Concave Slope (%):           
Subregion (LRR): LRRG Lat: 44.5642 Long: -104.9522 Datum: WGS84  
Soil Map Unit Name: Fort Collins Loam 6-10% Slopes NWI classification: None

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.)

Hydrophytic Vegetation Present?	Yes _____	No <u>  +  </u>	<b>Is the Sampled Area within a Wetland?</b>	<b>Yes _____ No <u>  +  </u></b>
Hydric Soil Present?	Yes _____	No <u>  +  </u>		
Wetland Hydrology Present?	Yes _____	No <u>  +  </u>		
<b>Remarks:</b> Small depression below impounded stock pond.				

Tree Stratum (Plot size: 40' x 120')		Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1.					Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-):	0 (A)
2.						
3.					Total Number of Dominant Species Across All Strata:	3 (B)
4.						
		0 = Total Cover			Percent of Dominant Species That Are OBL, FACW, or FAC:	0 (A/B)
Sapling/Shrub Stratum (Plot size: )					Prevalence Index worksheet:	
1.					Total % Cover of:	Multiply by:
2.					OBL species 0	x 1 =
3.					FACW species 0	x 2 =
4.					FAC species 0	x 3 =
5.					FACU species 5	x 4 = 20
		0 = Total Cover			UPL species 0	x 5 =
Herb Stratum (Plot size: 40' x 120')					Column Totals:	5 (A) 20 (B)
1.	<i>Agropyron smithii</i>	50%	Yes	FACU	Prevalence Index = B/A = 4	
2.	<i>Poa protensis</i>	30%	Yes	FACU	<b>Hydrophytic Vegetation Indicators:</b>	
3.	<i>Achillea millifolium</i>	15%	No	FACU	— Dominance Test is >50%	
4.	<i>Taraxacum officinale</i>	5%	No	FACU	— Prevalence Index is ≤3.0 <sup>1</sup>	
5.					— Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)	
6.					— Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
7.						
8.						
9.						
10.						
		100 = Total Cover			<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
Woody Vine Stratum (Plot size: )					<b>Hydrophytic Vegetation Present?</b>	
1.					Yes _____ No _____	
2.						
% Bare Ground in Herb Stratum 20		0 = Total Cover				
Remarks:						

## SOIL

Sampling Point: R9**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>		
0-8	10YR 3/4	100					L	
8-12+	10YR 4/3	100					L	

<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)      | (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)
- ☐ 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 Soil Present? Yes \_\_\_\_\_ No +

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**Primary Indicators (minimum of one required; check all that apply)

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

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ NA Oxidized Rhizospheres on Living Roots (C3) (where tilled)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ NA 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? Yes \_\_\_\_\_ No + Depth (inches): \_\_\_\_\_  
(includes capillary fringe)Wetland Hydrology Present? Yes \_\_\_\_\_ No +

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

Remarks: Depression in drainage

## **APPENDIX B**

### **Photos**



**Photo 01. A1 (Lower Portion)**



**Photo 02. A1 (Middle Portion)**





**Photo 03. A1 (Upper Portion)**



**Photo 04. A2 (Lower Portion) Site R5**



**Photo 05. A2 (Upper Portion)**



**Photo 06. A3**





**Photo 07. A4 (Upper Portion) Site R6**



**Photo 08. A4 (Middle Portion)**





**Photo 09. A4 (Lower Portion)**



**Photo 10. A5**





**Photo 11. B1**



**Photo 12. B2 (Site R1)**





**Photo 13. B3**



**Photo 14. B4**





**Photo 15. B5**



**Photo 16. B6 (Site R2)**





**Photo 17. C1**



**Photo 18. C2**





**Photo 19. C3**



**Photo 20. C4**



**Photo 21. C5**



**Photo 22. D1**





**Photo 23. D2 (Site R3)**



**Photo 24. E1 (Site R8)**





**Photo 25. F1 (Site R4)**



**Photo 26. F2**





**Photo 27. F3**



**Photo 28. F4**

**No Photos for F5 thought F11, F13, & F14  
-Areas Were Very Similar to F1-**



**Photo 29. F12**





**Photo 30. F15**



**Photo 31. F16**





**Photo 32. F17**



**Photo 33. F18**





**Photo 34. F19**



**Photo 35. F20**





**Photo 36. F21**



**Photo 37. F22**





**Photo 38. G1**



**Photo 39. G2 Lower Portion (Site R7)**





**Photo 40. G2 Upper Portion**



**Photo 41. G3**





**Photo 42. G4**



**Photo 43. G5**





**Photo 44. G6**



**Photo 45. G7**





**Photo 46. G8**



**Photo 47. G9**





**Photo 48. G10**

**No Photo of G11  
(Similar to G10)**





**Photo 49. G12**



**Photo 50. G13**





**Photo 51. H1**



**Photo 52. H2**



**Photo 53. H3**

**No Photo for H4 (Similar to H3)**





**Photo 54. I1**



**Photo 55. I2**



**Photo 56. I4**

**No Photos for I3 & I5 (Similar to I4)**





**Photo 57. J1 (Downstream)**



**Photo 58. J1 (Upstream)**





**Photo 59. K1**



**Photo 60. K2**





**Photo 61. K3**

**K4 Not Photographed**





**Photo 62. K5**

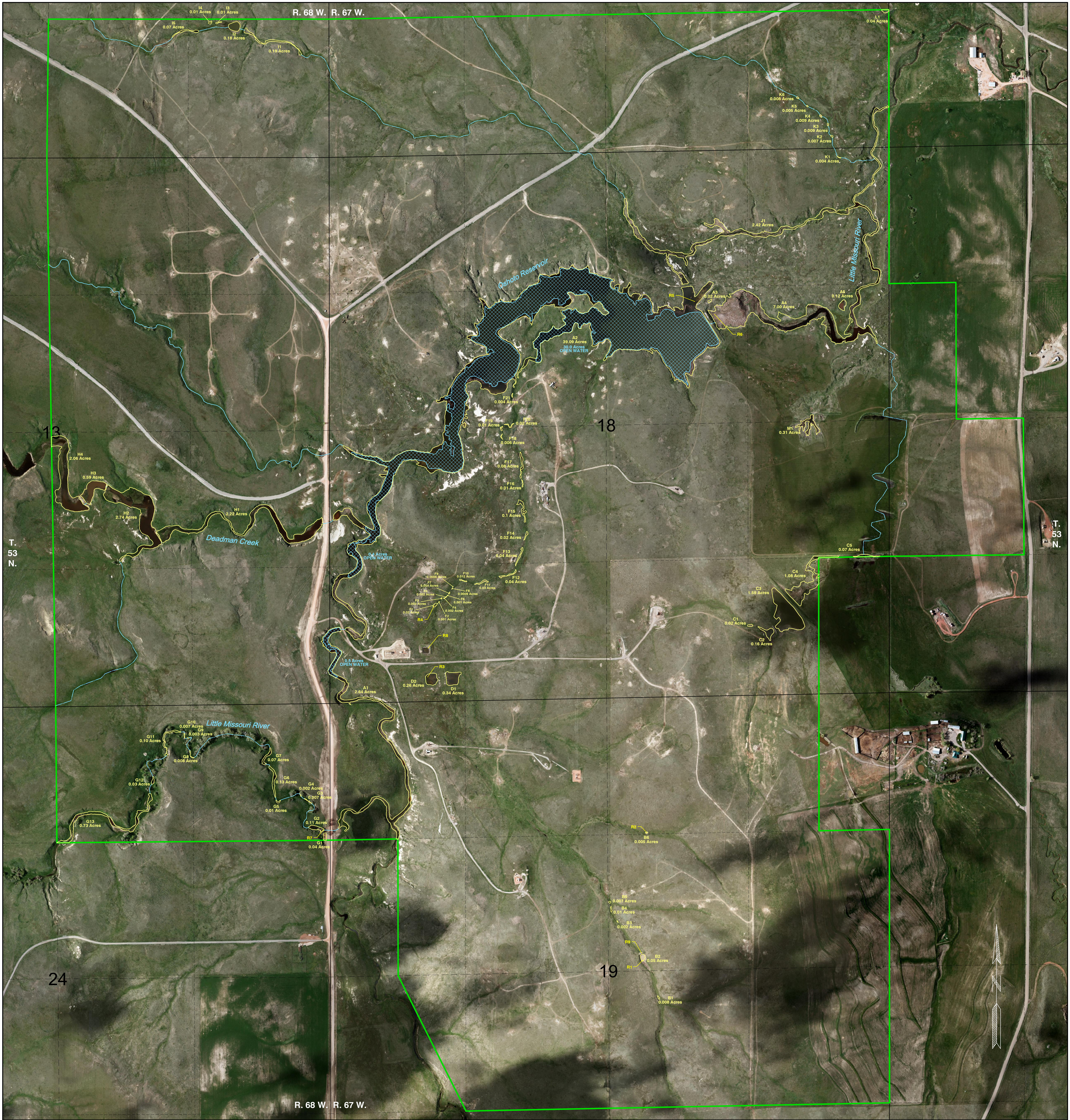


**Photo 63. K6**



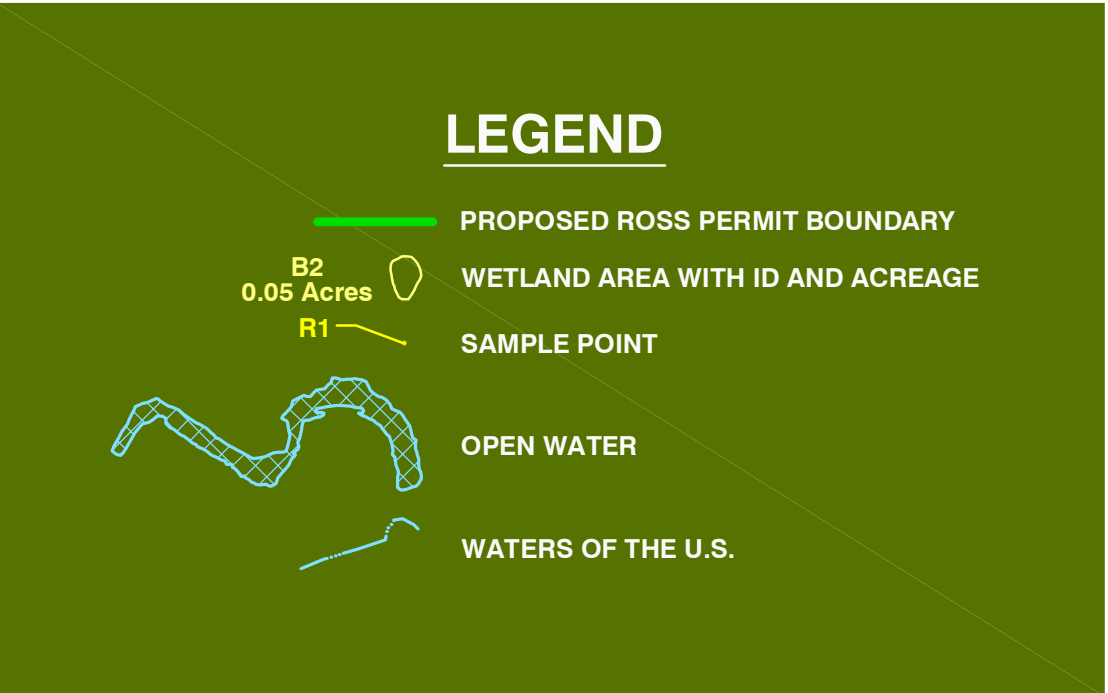
**Photo 64. Site R9**







May 2010 Aerial Photography

**WETLANDS MAP**  
SCALE: 1" = 300'



		<b>ROSS ISR PROJECT</b> CROOK COUNTY, WY P.O. BOX 2318 GILLETTE, WY 82716	
REVISIONS		ADDENDUM 3.5-A	
Date	Description	EXHIBIT 1	
		<b>WETLANDS AND WATERS OF THE U.S. DELINEATION FOR THE PROPOSED ROSS ISR PROJECT OSHOTO, WYOMING</b>	
		Drawn By: MBM	
		Checked By: JCB	
		Date: 8/23/10	
FILE: ROSS COE WETLANDS		www.wwcengineering.com	



**ADDENDUM 3.4-B**  
**WETLANDS CORRESPONDENCE**



September 9, 2010

Mr. Matt Bilodeau  
US Army Corps of Engineers  
Wyoming Regulatory Office  
2232 Del Range Blvd., Suite 210  
Cheyenne, WY 82009

**RE: REVISED JURISDICTIONAL WETLANDS DELINEATION FOR THE PROPOSED  
ROSS ISR PROJECT, OSHOTO, WYOMING**

Mr. Bilodeau:

Attached please find one copy of a report titled *Revised Jurisdictional Wetlands Delineation for the Proposed Ross ISR Project, Oshoto, Wyoming*. Please use this version for verification of the wetlands for the Ross Project at Oshoto, Wyoming. Several sites were not included in the original evaluation and I corrected errors found in that report. I am submitting this report on behalf of Strata Energy, Inc. for U.S. Army Corps of Engineers verification purposes.

I hope this won't inconvenience you and please call if you have questions or comments regarding the submission of this revised information.

Sincerely,

John Berry, CWB

Jdb/

Encl: as noted